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Original Research Article

The impact of COVID-19 lockdown on sleeping pattern among college students in an urban setting

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ABSTRACT

Background: The COVID-19 pandemic created a unique scenario where the public were confined to their homes through systemic lockdown. This study was envisaged to identify and analyse any potential changes in the sleeping pattern of college going students during lockdown by comparing with the patterns before lockdown.
Methods: This study was a retrospective study (record analysis). The survey to collect the primary data was made on google forms and distributed through various social media platforms such as WhatsApp, Facebook and Instagram. The records contained data obtained from college going students studying in urban educational institutions. All participants were between the age of 18 and 30 regardless of gender, religion, caste etc. The data was analysed using SPSS Software using Mcnemar's test for comparison of sleep quality pre-lockdown and during lockdown.
Results: It was observed that the study participants were sleeping later in the night and waking earlier in the morning during lockdown as compared to pre-lockdown. The sleep onset time has also shifted to a longer duration during lockdown. Actual hours slept at night has shifted to less than 7 hours in nearly 10% of the study population.
Conclusions: The study participants were sleeping later in the night and waking earlier in the morning during lockdown as compared to pre-lockdown with a more significant change in waking time during lockdown. The sleep onset time has also shifted to longer duration during lockdown actual hours slept at night has shifted to less than 7 hours in nearly 10% of the study population.

Keywords: COVID-19, Lockdown, Sleep, Students

INTRODUCTION

The COVID-19 pandemic wreaked havoc across several countries. In order to curtail it spread several countries went into systematic lockdowns. This brought about several changes in routine, dietary intake and lifestyle.[1] Among those affected by lockdown it was college-going students, who experienced a dramatic shift in their educational life.

The American Academy of Sleep Medicine and Sleep Research recommends 7 or more hours of sleep to promote optimal health and that altered sleeping patterns can increase the risk of lifestyle diseases such as hypertension, diabetes, stroke as well as impaired mental function, decreased performance.[2-4] The pandemic presented an unique situation where a large population was confined to their quarters with no compulsion to follow a fixed daily routine and sleeping pattern. Thus, sleep is an important indicator of quality of health and warrants a research study to observe and interpret any changes in sleep quality during lockdown and to contrast the same with sleep quality before lockdown.

Similar trends of delayed bedtime, onset of sleep and daytime sleeping was observed across the world irrespective of sociodemographic status.[5,6] Several of these studies have indicated further investigation into the

effect of altered sleep habits towards mental health, depression and insomnia as well as lifestyle associated disorders like hypertension and diabetes.

Good quality sleep and adequate amount of sleep are important in order to have better cognitive performance and avoid health problems and psychiatric disorders. To mitigate the spread of the pandemic coronavirus infection, governments across the world had adopted "lockdowns" which had confined many individuals to their homes. This disrupted normal life routines, elements of which were important for the circadian rhythm. The pandemic was also associated with new stressors, altered roles, and uncertainties about health and economic security, which had a profound change in sleep pattern. Thus, this study was envisaged as a method of assessing quality of sleep before and during lockdown and to find any appreciable changes in the same.

This research article explored the multifaceted effects of COVID-19 lockdown on sleep quality of students pursuing college education and the potential long-term effects of any disturbed sleeping patterns.

METHODS

An online survey was conducted for this project. This was a part of an academic research training program for medical undergraduates. The survey on Google forms was done in July 2021. A total of 384 responses were collected. In this study, the records of this survey were obtained and analyzed.

Settings and design

This study was a retrospective study (record analysis). The records contained data obtained from college going students studying in urban educational institutions. All participants were between the age of 18 and 30 regardless of gender, religion, caste etc.

Study period

The time required for collecting primary data was 1 month (July 2021-August 2021). The time required for collecting and analyzing the data was 1 month (December 2024-January 2025).

Sample size

From literature review, in a study by Bhat et al has observed that during the covid lockdown, college going students with less than 6 hours of sleep was 16 percent before lockdown and 6 percent during lockdown.[5] In the present study expecting similar result with 80 percent power and 95 percent confidence level and with estimated risk difference of 6.7 percentage, the study requires a minimum of 385 subjects.

Study methodology

The survey to collect the primary data was made on google forms and distributed through various social media platforms such as WhatsApp, Facebook and Instagram. The survey had a questionnaire on sleep quality based on Pittsburgh sleep quality index questionnaire (PQSI).[7]

The study population comprised of college going students studying in urban educational institutions. All participants were between the age of 18 and 30 regardless of gender, religion. Consent was taken and the participants were allowed to distribute the survey to others to generate a snowballing effect.

Participants who were working night shifts, taking medication for sleep disorders were excluded from this study. Sociodemographic details included age, gender, college course.

The questionnaire had objective questions on sleep quality in terms of onset, duration, daytime sleepiness and other parameters. Each participant filled the questionnaire for before lockdown as well as during lockdown. This was intended to compare the sleeping pattern before and during lockdown in the further analysis.

Data analysis

The data was analyzed using SPSS software using Mcnemar's test for comparison of sleep quality pre-lockdown and during lockdown.

RESULTS

Demographic parameters

A total of 384 responses were recorded. A total of 17 responses were excluded as they didn't satisfy the inclusion criteria. Of the remaining 367,171 were male and 196 were female. Nearly 187 responses were from medical students and 113 from engineering background with other courses like nursing dental etc. in smaller numbers.

The average of the participants was 20.3 years with 46.5% comprising of women. Nearly 50.9% of the participants were medical students with 30% engineering students forming the second major group.

It was observed that the study participants were sleeping later in the night and waking earlier in the morning during lockdown as compared to pre-lockdown as indicated in Table 1, with a more significant change in waking time during lockdown. The sleep onset time has also shifted to longer duration during lockdown as shown in Table 1. Actual hours slept at night has shifted to less than 7 hours in nearly 10% of the study population.

Table 1: Distribution of study subjects based on sleep time and onset.

Parameters	Before lockdown	During lockdown	P value
Sleep time			
Before 11	136 (37.1)	106 (28.9)	<0.001
After 11	231 (62.9)	261 (71.1)	<0.001
Wake time			
Before 7	106 (28.9)	207 (56.4)	<0.001
After 7	261 (71.1)	160 (43.6)	<0.001
Sleep onset			
<30 minutes	321 (87.4)	281 (76.6)	<0.001
30-60 minutes	32 (8.7)	64 (17.4)	<0.001
>60 minutes	14 (3.9)	32 (8.7)	<0.001
Actual hours slept			
<7 hours	227 (61.9)	262 (71.4)	<0.001
>7 hours	140 (38.1)	105 (28.6)	<0.001

Table 2: Distribution of study subjects based on sleep quality.

Parameters	Before lockdown	During lockdown	P value
Waking in middle of night			
Yes	131 (35.7)	142 (38.7)	0.45
No	236 (64.3)	225 (61.3)	
Urinate in middle of night			
Yes	96 (26.2)	100 (27.2)	0.8
No	271 (73.8)	267 (72.8)	
Breathing Problems during sleep			
Yes	31 (8.4)	31 (8.4)	1
No	336 (91.6)	336 (91.6)	
Cough or snore loudly in sleep			
Yes	26 (7.1)	24 (6.5)	0.88
No	341 (92.9)	343 (93.5)	
Bad dreams			
Yes	123 (33.5)	125 (34.1)	0.93
No	244 (66.5)	242 (65.9)	
Pain during sleep			
Yes	48 (13.1)	51 (13.9)	0.83
No	319 (86.9)	316 (86.1)	

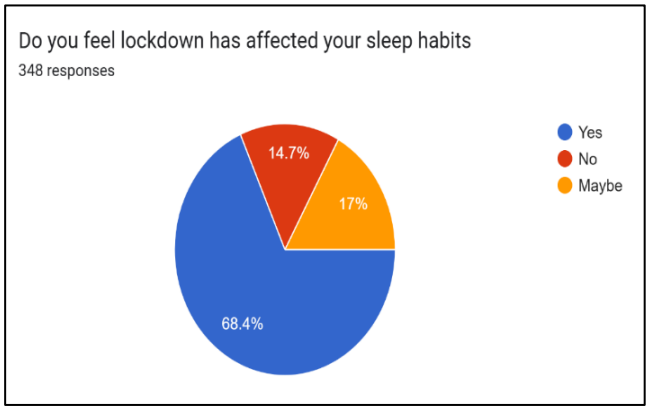

Figure 1: Figure showing effect of lockdown on study subjects.

On asking questions on quality of sleep pertaining to various criteria as enlisted in Table 2.

We can observe that the changes in sleep parameters in Table 2 can be deemed statistically insignificant.

At the end of the survey, the participants were asked 2 concluding, optional questions. One, if they felt that lockdown had impacted their sleeping pattern and a follow-up question for a yes response to identify one or multiple reason(s) for the same. 348 responses were recorded of which 238 (68.4%) were yes, 51 (14.7%) were no, and 59 (17%) were maybe. Of all the responses for reasons for sleep disturbances, the common responses included "increased screen time"," lack of exertion", "lack of a strict daily routine" and "anxiety or stress induced".

DISCUSSION

Lockdown has indeed brought upon a change in sleeping pattern. As shown in table 1 the participants slept later in the night, woke earlier in the morning, and took more time to fall asleep. Thus, there is a net reduction in numbers of hours slept in the night, which is also demonstrated in Table 1. These findings are similar to the study conducted in the Indian population during the pandemic by Gupta et al.[8] This is also in agreement with a study by Altena et al where staying confined at home the whole day has led to sleeping pattern changes.[9]

Interestingly, the changes in sleep quality as shown in Table 2 above pertaining to breathing problems, snoring, bad dreams etc. are insignificant and are very similar to trends seen before lockdown. This finding is in stark contrast to another similar study among Indian college students which showed significant changes in the above-mentioned criteria.[5]

Based on the responses for reason for sleep disturbances, causes such as Increased screen time, lack of exertion and lack of a daily routine have emerged at the top. It has already been shown that increased screen time has led to sleep disturbances.[10] Lockdown was a perfect simulation of this scenario where most of the study participants spent the whole day and night looking at screens for studies, assignments, and social interactions. As the world has moved forward to a "work from home" routine, the potential changes it could have on sleeping routine must be considered.

Lack of physical exercise is also another major factor impacting sleep routine.[11] The pandemic definitely restricted social mobility among the population through lockdowns and this factor has also amplified to emerge as a major cause of sleep disturbance.

Anxiety and stress was another reason given by the participants for affecting their sleeping habits. The lockdown had created a stress inducing situation in terms of job security, lack of social engagements, delayed exams amongst other factors. Increased screen time and lack of exercise also contributes to elevated anxiety and stress levels. Thus, it can be stated that the impact of lockdown on sleeping habits is multifactorial and each factor acts in a vicious cycle to the same result.

What about changes after the end of lockdown? While this article does not delve into post lockdown changes, a study by Massar et al revealed that there was a return to pre-lockdown sleep patterns along with an increase in sleep quality scores once lockdown was eased.[12] It was also noted in the above study that not much change was observed among the participants who continued a work from home policy. Thus, it can be inferred that home confinement during lockdown has indeed impacted sleeping patterns in varying degrees and further detailed studies should be performed in order to assess the physical, mental and social impact of the same.

This study has covered the effects of lockdown by comparing it with the pre-lockdown sleep features. Ideally this study could have also added and assessed the current sleep routine of the study participants to identify a return to pre-lockdown pattern or a lasting change that is persistent even after returning to a no-lockdown scenario. This study only investigates the sleeping pattern of the participants without assessing other indicators like exercise, diet, and mental health. An inclusion of these other indicators would have given a clearer picture as to what factors influence the observed changes in sleeping pattern

CONCLUSION

The study showed that COVID-19 lockdown has had an impact on the sleeping routine of college going students in an urban setting. The study participants were sleeping later in the night and waking earlier in the morning during lockdown as compared to pre-lockdown with a more significant change in waking time during lockdown. The sleep onset time has also shifted to longer duration during lockdown Actual hours slept at night has shifted to less than 7 hours in nearly 10% of the study population.

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