



# Effects of COVID-19 Lockdown on Social Life and Sleep of Indian School Going Teenagers

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## Abstract

**Purpose** COVID-19 lockdown has brought a complete shutdown of physical interaction with school friends. There was a need to assess their social and sleep habits during lockdown.

**Methods** A survey form was developed with the help of mentors, teachers and school children and circulated by snowball sampling method. 183 responses from Indian school children of age group between 12 and 17 years, from different states were received.

**Results** It was found that there was a significant alteration of sleep habits in these school children during lockdown. Many school children reported that parents showed leniency in the phone habits of school children and their interaction with friends on social media remained higher during lockdown. Despite that, they were missing their friends and wanted to meet them in-person and they felt that not doing so, was causing a reduction in focus on academics and concentration and making them lose interest in general activities and even in hobbies. Sleep quality had reduced in Indian school going students during lockdown and decreased parental control on phones was observed.

**Conclusion** The deterioration in social life of the subjects needs to be addressed and taken care of by proper planning of social interaction with ensuring physical distancing and other precautions. Sleep habits should also be modified properly by spreading awareness by parents and school authorities. Such combined measures would lead to optimal performance of school going teenagers, which seems to have suffered in this lockdown.

**Keywords** Lockdown · Sleep · School children · Social media · Missing friends

## 1 Introduction

The COVID-19 pandemic has affected us all severely in most of the aspects of life. It has slowed progress in various spheres and made social contact harmful to a certain extent. It has taken a heavy toll on adults as well as teenagers, who have been cut off from personal and social interaction with their friends and sometimes families. They are, instead, made to stay inside their homes with restricted human interaction. Shifting of school, college and jobs to the online platform has mandated the use of digital screens by people almost all day long.

We already know that there has been an immense influence on youth mental health due to COVID-19 as shown in a study by Lang et al. [1]. Many studies like the one conducted by Fegert et al. [2] have assessed the mental health crisis that has befallen our workforce population. Fegert et al. found that isolation, contact restrictions, and economic shutdown have forced a complete alteration of the psychosocial environment in the affected countries. They also conducted a large online study in which 54% of the participants rated the impact of the outbreak on their mental health as moderate-to-severe, with depressive symptoms and anxiety being the conditions most often stated (in China).

We decided to see, however, exactly how far the rabbit hole goes and conducted a study which was meant to assess the changes in lifestyle of school going teenagers. A sense of loneliness and solitude can be dangerous to mental health; however, there was not much data available in Indian school going teenagers. We planned to assess the effect of lockdown on such population using a survey feedback form. We were

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not sure how much of an impact would be seen, however, our hypothesis was that there is no significant change of sleep (waking and sleeping times), family time, phone time, etc. in school going teens.

## 2 Methodology

This study was conducted as a part of a school project in 2020. A survey form was developed after discussion with teachers and specialist doctors. A preliminary survey form, based on available literature on the effects of isolation and expert comments by teachers and specialist doctors, was prepared. This was sent out to 15 school children (in the age group of 12–17 years) volunteering to critically assess the language of the questions in the survey for ambiguity in them. A discussion was done with these students online and feedback was obtained. Statements with ambiguity were picked out by the responses given by them and their feedback on the questions. Correction was then made and again sent out to these students. This final and corrected survey form was now put out for school going teenagers aged 12–17. It was meant to assess their quality of life in certain areas. Some questions also had an option of writing subjective retrospective pre-lockdown and post-lockdown assessment aspects of sleep, effect of social media, etc. The Survey Form was uploaded to Google Forms and sent to school children and WhatsApp groups of friends, family and was requested to post it further. A snowball sampling method was used to distribute the forms. A copy of this sample form is enclosed as supplementary material. Results of the form were collected and analysed using Microsoft Excel (MS Office). A comparative self-rating of family bond pre- and during lockdown was analysed using t test. A comparative rating before and during lockdown of their sleep habits and sleep profile was done with respect to the bed time, wake-up time, time spent in bed, sleep onset latency, and the time spent awake after sleep onset. Frequencies of occurrences were calculated, and then, proportions were taken which were compared pre and during lockdown.

## 3 Results

Forms from 183 participants were received and they were all complete. The data were collected from all over India and the respondents ranged from 12 to 17 years. On enquiring about how distressed they are about the COVID pandemic, 56.4% marked more than 5 on a scale of 1–10. Table 1 shows the replies to some of the other questions which were Yes/No type.

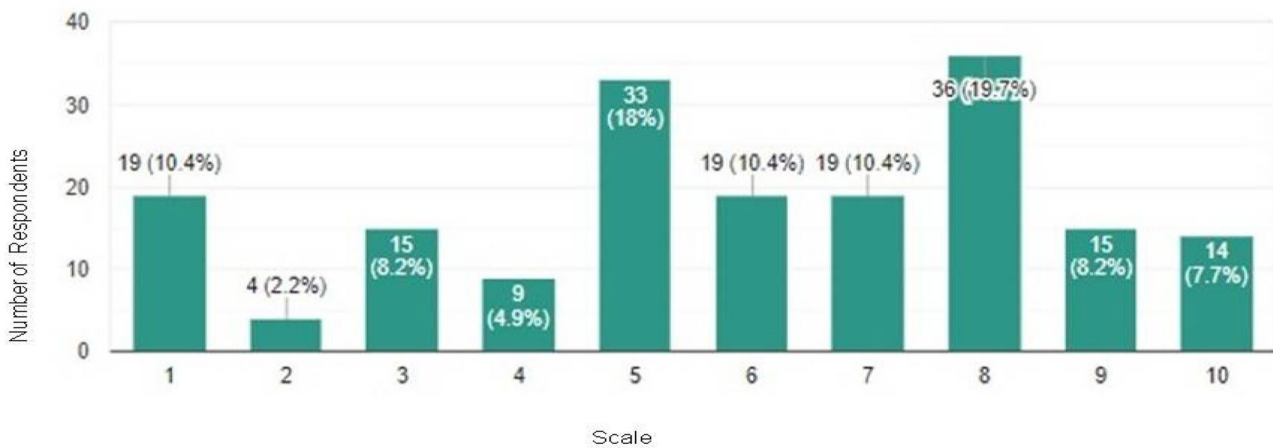
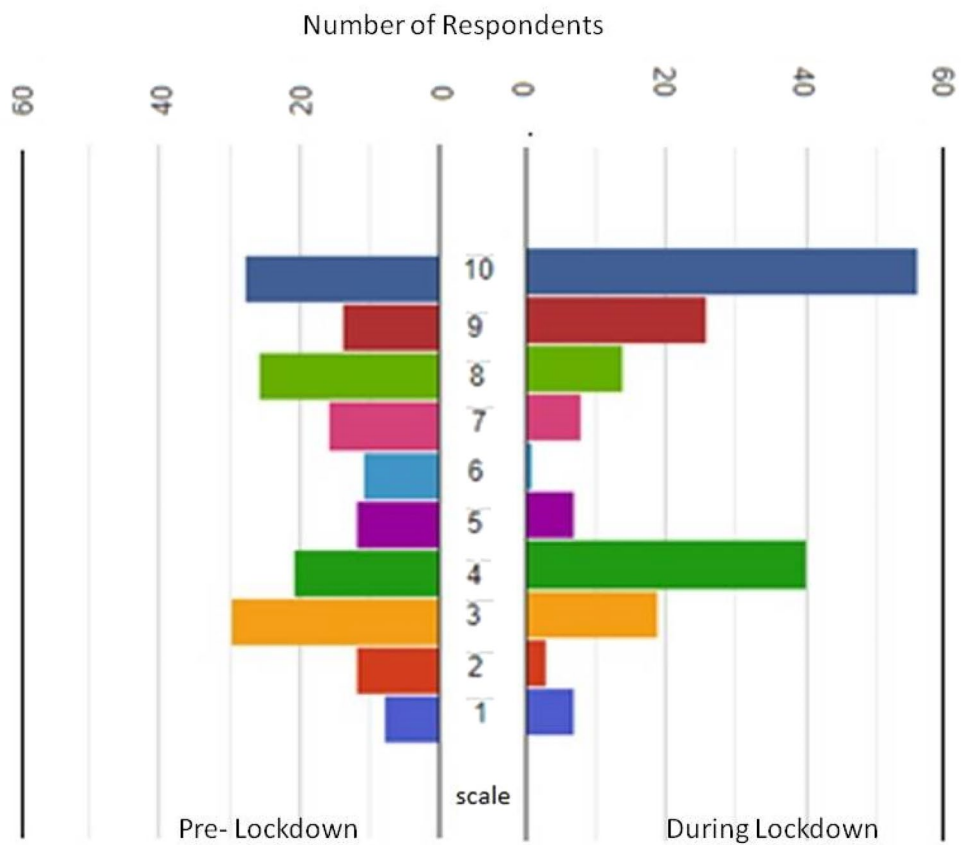
Students felt that not personally interacting with friends has lowered their focus in interest in general activities (41.5%), interest in hobbies (38.3%), willingness to communicate (36.6%), academics (34.4%), and concentration (31.7%). Their responses on their parents minding their use of phone during lockdown as compared to before showed that 26.2% felt that their parents minded lesser their being on phone now, 36.6% were the same, and only 18.6% actually minded more now during the lockdown. 18.6% students did not have a phone.

The students were asked to rate their bond with family before and during lockdown on a scale of 1–10 where 1 denotes ‘no bond at all’, and 10 denotes a ‘greatest bond’. Subjective comparative rating of their bond with family before and during lockdown is depicted in Fig. 1. There was a significant difference in bonding during lockdown as compared to before lockdown ( $p < 0.0001$ ). 87.4% were in touch with their friends on social media. Students were asked to compare this interaction on social media to actual meeting in person, on a scale of 1–10 where 1 was ‘horrible meeting’ on social media, 5 being ‘the same’, and 10 signifying ‘much better than meeting in person’. The results are shown in Fig. 2. A comparative rating before and during lockdown of their sleep habits and sleep profile is depicted in Fig. 3a–d, respectively. The students were asked to report the change in schedule in bed time and wake-up time, if any, during lockdown as compared to pre-lockdown. Frequencies of occurrences were calculated, and then, proportions were taken which were compared pre- and during lockdown. There was a significant

**Table 1** Summary of responses of yes/no type questions

Question (183 responses)	Yes	No	May be/don't know (if applicable)
Do you think there is a stark difference in your changes in lifestyle due to the lockdown? (Changes in going out, chilling at home, sleeping all day anyways, etc.)	76.5	15.8	(may be) 7.7
Do you think this lockdown is necessary to help control the pandemic?	89.6	2.2	(may be) 8.2
Are you missing your friends and/or human interaction?	86.9	13.1	–
Have you been in touch with your friends on Social media like WhatsApp, Facebook, Instagram, etc.?	87.4	12.6	–
Do you think you are spending more time with your family as a consequence of the lockdown?	83.1	9.3	(don't know) 7.7
Do you feel refreshed after waking up from sleep?	53.6	27.3	(don't know) 19.1

**Fig. 1** Subjective comparative rating of their bond with family before and during lockdown (On a scale of 1–10, where ‘1’ is ‘no bond at all’ and ‘10’ is ‘greatest bond’)

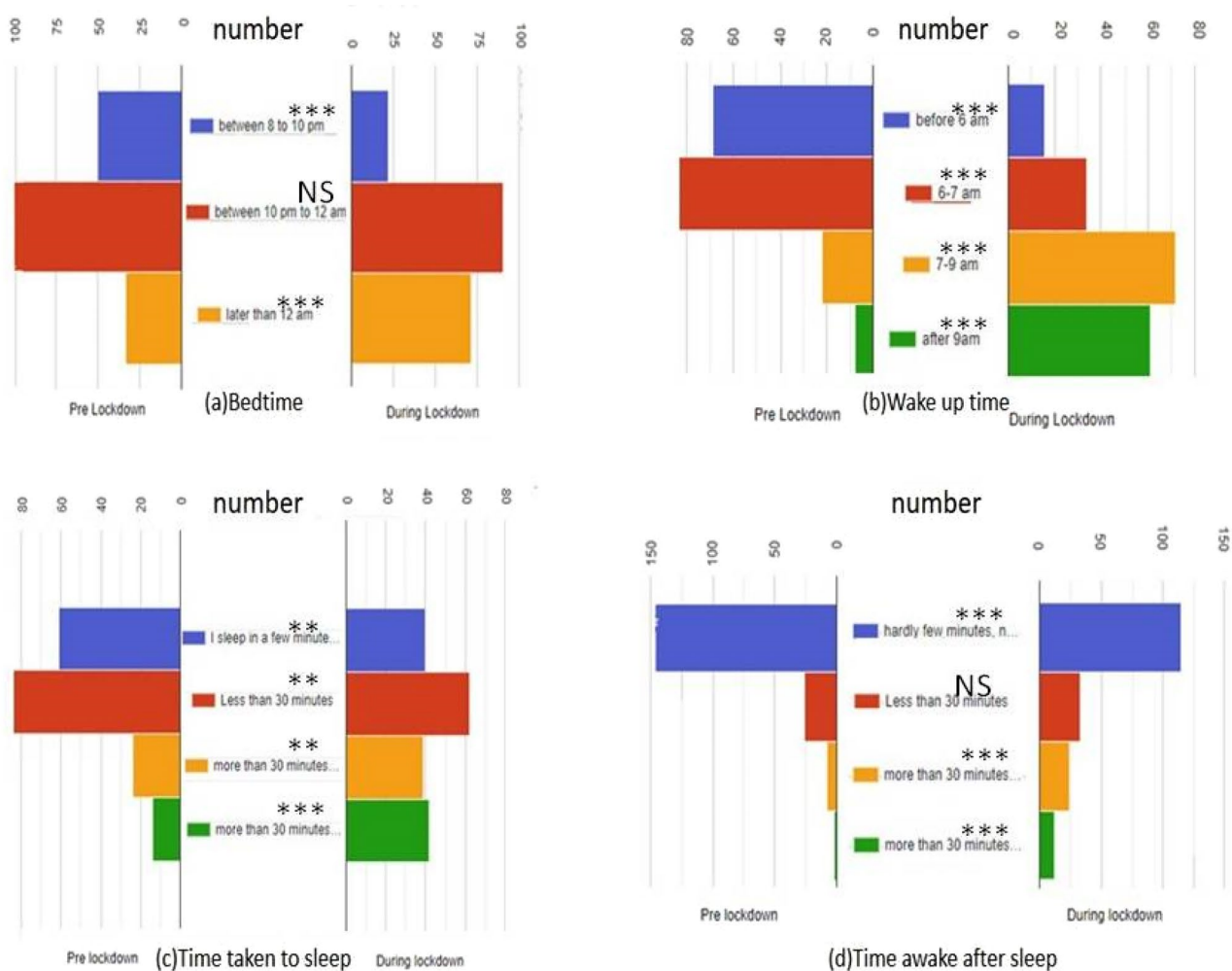


**Fig. 2** Subjective comparison of number of respondents about meeting on social media as compared to real life (On a scale of 1–10 where ‘1’ is ‘horrible’ ‘5’ is ‘same’ and ‘10’ is ‘much better than in-person’)

difference between pre-lockdown and during lockdown in the various subjective sleep parameters of bed time, wake-up time, time taken to sleep, and time awake after sleep. Detailed table of the sleep habit and sleep profile data is shown in Table 2.

### 4 Discussion

In our study, we found that 86.9% of students were missing their friends. 87.4% reported that they were in interacting



**Fig. 3** a–d Comparative rating of students' sleep habits before and during lockdown (\*\* $p < 0.005$ ; \*\*\* $p < 0.0005$ ; NS not significant)

with the help of social media. A definite requirement of meeting the friends' in-person could be sensed. Similar findings were found by Sawyer et al. [3].

In our study, a delay in time of going to bed was found during the pandemic lockdown, with a majority of students going to bed after 12 midnight, compared to that in pre-lockdown period. There was also a significant delay found in wake-up time during lockdown as compared to that in pre-lockdown period. A study done by Gruber et al. [4] during COVID on 45 adolescents found that there was a staggering delay of approximately 2 h in both the wake-up time and the sleep time during the COVID pandemic. In their study, they reported an improvement in sleep quality. However, we found a significant increase in the time taken by the school children to go off to sleep after going to bed, that is, the sleep onset latency was significantly increased. The number of respondents, complaining of a sleep onset

latency of more than 30 min for more than 3 times a week, considerably increased from 14 in pre-lockdown period to 42 during the lockdown period, out of a total of 183 students. This relative sleep disturbance (in terms of delayed sleep onset) despite the respondents mentioning that they were having more family time (83.1%) and also were in touch with their friends via social media (87.4%); seems concerning. A relative leniency on the part of the parents was observed on the use of phones which may be responsible for increased use of social media. Increased use of social media and a relative delay in sleep latency has been reported earlier in Indian school going children [5]. Use of screens at night has also been shown to affect the circadian rhythm and probably affecting melatonin secretion [6]. Murata et al. reported that adolescents during COVID-19 were found to have increased symptoms of anxiety, sleep problems, and depression as compared to adults. An

**Table 2** Analysis of the sleep habits and sleep profile pre-lockdown and during lockdown

	Pre-lockdown (%)	During lockdown (%)	<i>p</i> value
Q11. What time did/do you usually sleep?			
(a) Between 8 and 10 pm	27	12	<0.0001
(b) Between 10 pm and 12 am	55	49	0.1028
(c) Later than 12 am	18	39	<0.0001
Q 12. What time did/do you usually wake up?			
(a) Before 6 am	38	9	<0.0001
(b) 6–7 am	46	19	<0.0001
(c) 7–9 am	12	39	<0.0001
(d) After 9 am	4	33	<0.0001
Q 13. How long do you take to sleep after lying in the bed? ( after deciding to sleep, how long does it take for you to actually go to sleep)			
(a) I sleep in a few minutes, no disturbance	33	22	0.0016
(b) Less than 30 min	46	34	0.0011
(c) More than 30 min for less than three times a week	13	21	0.0013
(d) More than 30 min for more than three times a week	8	23	<0.0001
Q 14. For how long is your sleep disturbed in the middle of the night for no apparent cause? (waking up after having gone to sleep)			
(a) Hardly few minutes, no disturbance	80	62	<0.0001
(b) Less than 30 min	14	18	0.1189
(c) More than 30 min for less than three times a week	4	13	<0.0001
(d) More than 30 min for more than three times a week	2	7	<0.0001

increased number of hours on social media was associated with psychiatric sequelae in adolescents [7].

In our study, the students did not feel much of a change about their interaction with friends using social media; however, they reported missing their friends and human interaction during lockdown. Teaching was mostly done online. Physical presence of friends in enhancing learning has been appreciated as an important factor [8].

COVID-19 has disrupted our daily lifestyle and evidence of detrimental effects seen on mental and physical health are emerging [9]. Lack of physical activity, loneliness, sedentary lifestyle, increased screen time, and online classes is also the usual practice during lockdown [10, 11]. It has been found that physical presence of a teacher enhances learning rather than mere presence of material or video or class on a screen; which is evident by the students reporting that the academics seems to have been affected [12].

Physical activity has positive effects on social interactions, thereby increasing trust and trustworthiness ([13]). There is a need for developing social support systems to look after the long-term psychosocial effects of lockdown on children (Ghosh et al.[14], Qi et al.[15], Bates et al. [16]). Bates et al. have emphasised on a socio ecological model with recommendations for children and adolescents at intra-individual, inter-individual, environment, and policy levels. These are centred on imparting awareness to parents and local residential societies. They have also propounded establishing a 24-h day routine for children and adolescents

during COVID-19 which essentially emphasises on distinct time-slots for sleep, physical activity, and limited screen time and sedentary behaviour [16].

A study done by an online survey on 1310 people in Italy during the COVID pandemic showed an increased usage of digital media near bedtime and a delay in the bedtime and wake-up time with lower sleep quality (Cellini et al. [17]). Similar findings were found in our study where the students reported an increased disruption in sleep and an increased discontentment on waking up by reporting that they were not feeling fresh after sleep. Lockdown was found to improve the family time of the participants. 56% (> 5/10) felt disturbed and 76.5% noticed a distinct change in lifestyle. Not meeting friends in person could have been one of the many reasons that affected focus on academics, willingness to communicate, etc. Human adolescents are very sensitive to these effects, as reported by Blakemore et al. [18]. The processing of stimuli for emotional expression is rather complex and is affected at an individual level and also by external factors like stress [19]. There are certain limitations of the present study. This survey was conducted online and to ensure completeness and maintaining brevity and clarity at the same time, and some important factors could not be added. Differences due to the type of school, i.e., public or private school were not studied. Also the type of family type-joint or nuclear, and their socio-economic status could not be ascertained. A larger study on school children may be planned to assess further details based on the present results.



## 5 Conclusion

Indian school children, during COVID lockdown, had a delayed bed time and wake-up time with decreased sleep quality. They were found to miss their friends and school-mates and reported a reduced focus on academics, reduced concentration, and interest in general activities including pursuit of hobbies. These negative feelings need to be addressed, in which parental support and role of local residential societies are of paramount importance. Physical activity for the children and adolescents could be planned, ensuring social distancing. Also, there is a need to make the students aware of the importance of avoiding mobile phone around sleep time, and other principles of sleep hygiene.

There is an overarching requirement to do research at a larger scale for assessment of psychological well-being, early identification of diseases, and its treatment in school children. Schools, parents, teachers, and mentors may take initiative to help spread information about good sleep habits, physical activity which will help enhance immunity and also restore well-being.

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## Declarations

**Conflict of interest** The authors have no conflicts of interest to declare that are relevant to the content of this article.

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