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Impact of COVID-19 Lockdown on Sleep Quality in Students: A Cross Sectional Study

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ABSTRACT

Background: On March 25th 2020, the Indian Government enforced and announced the national lockdown to control the viral infection and to reduce physical social contact with infected and exposed COVID-19 people. People were isolated and home quarantined with limitations in every outdoor activity. Previous studies have postulated that this type of isolation create a negative impact on the psychological aspect on those who have infected and their families, which may leads to sleep disturbances and post-traumatic stress. Aim: We aim to assess neuro psychological impact on sleep quality and sleeping habits in students due to the COVID-19 emergency lockdown. **Methods:** This study is an online survey on college students to assess the effects of lockdown on sleeping habits using PSQI questionnaire. **Results:** 50% students reported delay in bed time, 36% reported increase in number of minutes to fall asleep. Usual getting up time was delayed in 47%, Number of hours of sleep per night was increased in 43%. Despite increase in number of hours of sleep we found that the proportion of poor sleepers (i.e., PSQI > 5) increased from 28% to 38%. **Conclusion:** We conclude that effective psychological interventions are needed which may be helpful in curing these deteriorations in sleep quality and to maintain daytime productivity in students.

Keywords: Corona Virus, COVID-19, Pandemic, Mental Health, psychological issues, Anxiety, Depression, Stress and Sleep disorder, Public Issues.

INTRODUCTION

An outbreak of the Pneumonia like infection was reported in Wuhan, a city in china in the end of December 2019 due to an unknown microbial pathogen, which spread globally. A novel coronavirus was identified as the pathogen and was named as COVID-19 or SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2).[1] India rapidly became one of the top country in the world with highest COVID-19 infections.[2]

On March 25th 2020, the Indian Government immediately enforced and announced the national lockdown to control the viral infection and to reduce the contact with infected COVID-19 people. People were isolated and home quarantine with limitations in every activity. Social distancing measures were to be followed. These new restrictions and phobias of getting infected suddenly changed the way of living, behaviour and social relations, These restrictions have led to lots of psychological distress like anxiety, depression, and sleeplessness in world populations.[3]

This nationwide lockdown was adopted to prevent disease or contamination but it created negative impact on people's mental health, suddenly people were limited to small houses.[4] Previous studies have postulated that this type of isolation create a negative impact on the psychological aspect on those who were infected and their families, which may leads to post-traumatic stress.[5] The event, like sudden national lockdown due to global spread creates a psychological distress and anxiety and poor sleep quality.[6,7] This post-traumatic stress disorder (PTSD) creates an immense impact on individual's personality which also decreases the quality of life of the individual.

Studies conducted on mental health and COVID-19 confirmed the role of both medical impacts of the infection and psychological impact, like sleep quality, anxiety, depression, poor quality of life or complex syndrome like Post Traumatic Stress Disorder (PTSD).[8,9]

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Aim:

We aim to assess neuro psychological impact on sleep in students due to the COVID-19 emergency lockdown.

MATERIALS AND METHODS

Participants:

This study is based on a survey in college students to assess the effects of lockdown on sleeping habits and sleep quality in college students. We contacted participants via e mail and social media groups to participate in the survey online. They were asked if they agree to participate in this online survey

anonymously. They have to agree to the informed consent form available online. This web based survey was conducted from April to May 2020.

Pittsburgh Sleep Quality Index:

The PSQI is a questionnaire for evaluating sleep quality over the previous month. The original PSQI questionnaire comprised of 19 questions, out of which Question 10 of the PSQI was removed from the questionnaire based on the advice of copyright owner of PSQI. All participants were asked to complete the English version of Pittsburgh Sleep Quality Index (PSQI).[10] Participants were asked to fill the PSQI questionnaire based on their memory for the month before lockdown and after one month of lockdown.

Statistical Methods:

Unpaired t test was used to compare the sleep quality before and during lockdown.

RESULTS

Demography: A total of 556 participants agreed to fill in the survey form, most of the participants were students of colleges in national capital region. 26 participants left the survey incomplete and they were excluded from the survey. 530 participants completed the survey online anonymously. The mean age of the participants was 20.74, SD 2.36. 300 male (Mean age & SD 21.3 & 1.9) and 230 females (Mean age & SD 19.7 & 1.78).

Usual bed time: Usual bed time was considerably delayed and 50% participant reported delayed bed time. The average delay in bed time for all the participant during lock down was 38 minutes. [Table 1]

Number of minutes to fall asleep: Number of minutes to fall asleep was increased in 36% during lockdown from an average of 24 mins before lockdown to 44 mins average time to fall asleep during lockdown. [Table 1]

Usual getting up time: Usual getting up time is delayed in 47%, an average delay of 30 mins during lockdown. [Table 1]

Number of hours of sleep per night: 43% participants reported an increase in the number of hours of sleep per night while 8% reported decreased hours of sleep per night. [Table 1]

Table 1: Comparison of sleeping habit before and during lockdown

S. No	Sleeping Habits	Students reporting no change during lockdown	Students reporting change in Sleeping Habits during lockdown
1	Bed time	36 %	64% (delayed-50%, earlier-14%)
2	Number of minutes to fall asleep	48%	52% (increase-36%, decrease-16%)
3	Usual getting up time	39%	61% (delayed-47%, earlier-14%)
4	Number of hours of sleep per night	49%	51% (increase-43%, decrease-8%)

Table 2: Component Scores before and during lockdown

S. No	Component scores	Before lockdown Mean ± SD	During lockdown Mean ± SD	p value
1	Subjective sleep quality	1.11 ± 0.78	1.32 ± 0.87	< 0.0001
2	Sleep Latency	1.10 ± 0.84	1.48 ± 0.97	< 0.0001
3	Sleep Duration	0.76 ± 0.78	0.94 ± 0.83	0.0003
4	Habitual sleep Efficiency	0.56 ± 0.87	0.77 ± 0.89	0.0001
5	Sleep disturbances	0.98 ±0.46	1.21 ± 0.57	< 0.0001
6	Use of sleep medication	0.08 ± 0.38	0.13 ± 0.46	0.0540
7	Daytime dysfunction	0.85 ± 0.68	1.03 ± 0.80	< 0.0001

Component Scores [Table 2]: Responses to PSQI questionnaire were combined into 7 clinically-derived component scores, range for each score is from 0-3. Almost all the component scores showed significant difference in sleep components before and during lockdown ($p \leq 0.05$). Use of sleep medication didn't show significant difference in students sleep medication (p=0.0540).

Global PSQI score:

Global PSQI score is derived from the combined score of the seven components. Range for global PSQI score is from 0-21, where 0 indicates no difficulty in sleeping and 21 score means severe difficulty in all areas of sleeping. There was a significant difference in the PSQI score of students before and during lockdown. Percentage of students who showed higher Global PSQI score increased from 14.7% to 16.8%.

We observed a significant increase of the PSQI score under the restriction, the average global PSQI score increased from 5.6 to 6.5. The proportion of poor sleepers (i.e., PSQI > 5) increased from 28% to 38%.

DISCUSSION

It has been found that outbreak of infectious disease is associated with psychological distress.[11] People under quarantine, even if they don't suffer from the infectious disease, still they suffer from post-traumatic disorder symptoms. Severity of post traumatic symptoms increases with longer duration of quarantine.[12,13] Post traumatic symptoms include multiple psychiatric illness like depression, stress and sleep disorder.[15] The PSQI is a questionnaire for evaluating sleep quality over the previous month.[10]

Yu in their study on Hong Kong population reported sleep disturbance and attributed it to the stock of mask but in India the probable concern of students was more for uncertain future, jobs placements, year loss and college fees.[16,17]

We observed that the sleep quality have become poorer during lockdown, 38% participants reported deterioration in their global PSQI score. 40 % participants reported an increase in sleep latency during lockdown. Our findings were similar to the findings of Cellini et al 2020, who also found a significant change in the sleeping pattern in Italian population during lockdown.[18] They also found a delay in bed time as well as wakeup time, we also found an increase in sleep latency which may be due to decreased physical activity and smart phone use in bed which is very common in students.[19]

CONCLUSION

We conclude that sleep in younger population is also affected by this lockdown, so effective psychological interventions are needed which may be helpful in curing these deteriorations in sleep quality and to maintain daytime productivity.

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