

# To Measure COVID-19 Induced Stress and Sleep Disturbance in College Students and Young Adults- A Questionnaire Based Survey

Rammehar Kangra<sup>1</sup>, Dr. R. K Mudgil<sup>2</sup>, Dr. Komal<sup>3</sup>

<sup>1</sup>B. P. Th., M. P. Th (Neurology) student (2019-2021 Batch) Department of Physiotherapy Jagannath university (Bahadurgarh, Haryana 124507 (India).

Email: [dr.ramkangra51\[at\]gmail.com](mailto:dr.ramkangra51[at]gmail.com)

<sup>2</sup>B. P. Th., M. P. Th (Musculoskeletal) Head of Physiotherapy Department Jagannath University Bahadurgarh Haryana 124507 (India).

Email: [dr.rkmudgil04\[at\]gmail.com](mailto:dr.rkmudgil04[at]gmail.com)

<sup>3</sup>B. P. Th., M. P. Th (Neurology) Assistant Professor, University Bahadurgarh Haryana 124507 (India)

Email: [komalbadgujjar\[at\]jagannathuniversityncr.ac.in](mailto:komalbadgujjar[at]jagannathuniversityncr.ac.in)

**Abstract:** **Background:** COVID-19 disease represents a serious issue in public health. In India the lockdown was started from March & partially ended in June 2020. The social isolation during lockdown has a major effect on health physically, psychologically. There was a significant increase the stress level in college students. **Methods:** Two scales related to sleep and stress level (Perceived stress questionnaire and Sleep quality questionnaire) have been used to collect the data from the participants via mails. Participants complete the questionnaire after giving informed consent. Our sample included 100 students: 63.1% female & 36.9% male. **Results:** Study concludes that increases the stress level in college students during lockdown. The  $\chi^2$  (chi-square) value shows that there is a significant difference association between the stress score level with the gender  $\chi^2=8.547$  at  $p<0.05$  during COVID-19 lockdown. Other demographic variables age & education and sleep also affected but not significant. The correlation between sleep and stress is negative ( $r=-0.327$ ) at  $p<0.05$  with gender. **Conclusion:** COVID-19 lockdown has an effect on stress sleep quality in college students. Stress has a significant effect.

**Keywords:** COVID-19, stress level, sleeps disturbance, PS scale, SQ scale.

## 1. Introduction

COVID-19 disease represents a serious issue in Public Health. several epidemic disease (SARS, H1N1 influenza, MARS,) and now COVID-2019 or SARS-COV 2. The outbreak of unexplained lower respiratory infection was detected in Wuhan city Hubei area, China in December 2019. They are unable to identify the causative agent and this was classified as the Pneumonia of unknown etiology [1]. This new virus is very contagious and spread quickly human to human transmission occurs. On Feb.2020 the (WHO) director general announced the disease caused virus was a COVID-19 virus, because it spread by the virus which belongs to the corona virus family and 19 synonyms are used because it outbreak in 2019. Nowadays this disease spreads all over the world, approximately 4.2 million cases and 3 lakhs deaths occur all around the world and WHO declare the pandemic [1].

Initially, the new virus was called 2019-nCoV. experts of the International Committee on Taxonomy of Viruses (ICTV) termed it the SARS-CoV-2 virus as it is very similar to the one that caused the SARS outbreak (SARS-CoVs). there are a large family of single stand RNA virus with nucleocapsid that are found different animals species like, (bats, camels). it crown (crown Latin means crown) like appearance under an electronic microscope due to projection like spike in its outer surface [1].

SARI-an acute respiratory infection with a history of fever or measured temperature  $>38^{\circ}\text{C}$ , and cough, onset within 10

days and requiring hospitalization. Patients with acute respiratory illness and at least one of the following close contacts with a confirmed or probable case of SARS-COV-2 in the 14 days before illness onset of symptoms where patients with hospital associated SARS-COV-2 infection were reported. A sensitive and specific definition for community based surveillance remains elusive [2].

The indicator for referral and their outcome impact are yet to be ascertained systematically. The most common symptoms at illness onset are fever (99%) fatigue (70%) dry cough (60%) myalgia (44%) and dyspnoea. Less common symptoms are headache, dizziness, diarrhea, nausea and vomiting. Symptoms such as pharyngeal pain, dyspnoea, dizziness, abdominal pain and anorexia are more likely to be present in patients with severe illness. In addition, patients who are elderly, have underlying comorbidities including hypertension, diabetes, cardiovascular disease and cerebrovascular disease are more likely to have adverse outcomes [1].

Lock down popularly known as the Junta Curfew in our country is the practice of complete shutdown of all the public, government and private sectors except important centres such as the hospitals, police stations etc. This is followed strictly to preventing the covid-19 disease. A prolonged isolation can result in change in the life cycle of the individual and has a greater impact on both physical and mental status of the individuals [3].

Home isolation minimizes physical activity and the exposure

Volume 12 Issue 3, March 2023

[www.ijsr.net](http://www.ijsr.net)

Licensed Under Creative Commons Attribution CC BY

to daylight, and increases the level of stress due to social isolation (e. g. avoid social contact with family and friends) and the impossibility to engage in satisfying activity and disrupt night time sleep. And increase the risk of mental health problems. Because of lockdown people are social distancing them so social media and online apps are only mode of stay connected to friends, family and information. social isolation, but the use of digital media near bedtime could have a broadly negative effect on sleep outcomes of younger-adults. We were interested in characterizing the change in digital media use before going to bed, in sleep quality and timing, and in the subjective experience of time flow, and their relation to sleep disturbance and stress levels [4].

Stress can be understood as the generalized, no specific response of the body to any factor that overwhelms or threatens to overwhelm, the compensatory ability to maintain homeostasis. When the body is overwhelmed by stimulus, then it can say that the person is stressed. Kecklund and Akerstedt [5] grouped stressors conceptually into physical versus psychological or social, acute versus chronic and high intensity versus low intensity. Although there are numerous animal models of social stress, it is still challenging to generalize psychosocial stress responses in animals to those in humans [6].

Different approaches to the study of stress and well-being. The first approach, the life events tradition 'Holmes & Rahe' [7], focuses on the global impacts of life changes. Relatively infrequent in occurrence, major life events, such as death of a family member or marital separation, often result in long-term changes in lifestyle, residence, financial well-being, and social relation [8, 9]

The second approach focuses on everyday or 'quotidian' stressors [10]. which are defined as the routine challenges of day to day living, including arguments with family members or unexpected deadlines. Life events and daily stressors differ in terms of frequency and may also have differential effects on well-being and health [11]. Work-related stress is considered to be harmful when physical and emotional responses occur when there is a mismatch between job requirements and the workers' capabilities, resources, or needs. Most researchers agree that workplace factors can cause work – related stress [12]. Work-related stress usually influences individual and organizational issues including behavioral, mental, as well as physical outcomes, performance, job satisfaction, and organizational commitment. High levels of work stress are associated with low levels of job satisfaction [12].

Covid-19 disease and the associated restriction in lockdown duration that change the routine and lifestyle that overwhelm individual so much that also causes of stress, depression, anxiety, sleep disturbance and their coping strategies may not be enough to overcome this overwhelm, because all the students locked inside their home and the students had a lot of stress related to exam, complete syllabus and closed at their home with no freedom to move outside the home [13].

Sleep and mental health are closely connected. Sleep deprivation affects your psychological state and mental

health. And those with mental health problems are more likely to have insomnia or other sleep disorders [14]. Sleep researchers have focused on primary sleep disorders such as sleep apnea, narcolepsy, or periodic limb movement disorder; but common knowledge has it that the stresses of daily life can perturb even healthy sleep [6]. Covid-19 worldwide pandemic that has left a major impact on the mental health, psychological status, physiological status of individual. People are confined in their home and social interaction level has been restricted. The lockdown/home confinement have brought the changes in sleep and stress level of an individual. The need to conduct this study to find out the impact of covid-19 on sleep and stress level of college students.

## 2. Material and Method

A total of 100 participants from various colleges and universities out of which 63.1% female and 36.9% males completed the web-based survey after giving electronic informed consent from March to May 2020. This web based descriptive study included 18-35 years male and female. Excluded from the study those have neurological, Psychological, Musculoskeletal, terminal illness. All participants complete the self administered question related to sleep and stress level. Perceived stress scale in which 10 questions maximum score=40 & minimum score=0. In which (severe stress=27-40), moderate stress=14-26, mild stress=0-13. Sleep quality questionnaire included 9 questions related to sleep pattern. In which Maximum score=36 & minimum score=0. Informed consent is sent via mail and with the help of Google forms. And data is received to the therapist through the same channels all the scores of the scales are evaluated and data is analyzed by using SPSS Version 21

## 3. Result and Discussion

Study concludes that increase the stress level in college students during lockdown. The  $\chi^2$  (chi-square) value shows that there is significant difference association between the stress score level with the gender  $\chi^2=8.547$  at  $p<0.05$  during covid-19 lockdown. Other demographic variables age & education and sleep also effected but not significant. The correlation between sleep and stress is negative ( $r=-0.327$ ) at  $p<0.05$  with gender.

**Table 1:** Stress score according to age groups

Age (yrs)	Mean	SD ( $\pm$ )
18-23	21.67	7.16
24-29	22.33	7.17
30-35	20.43	8.75

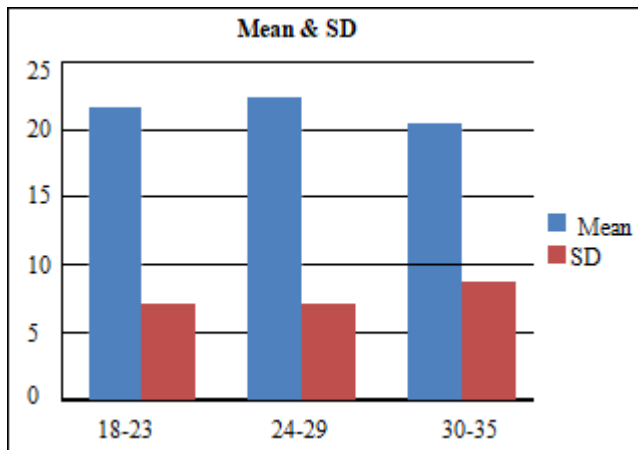


Figure 1: Showing the Mean & S. D stress score according to age group.

Table 2: Sleep score according to age groups

Age (yrs)	Mean	SD (±)
18-23	22.77	8.22
24-29	24.17	6.60
30-35	22.43	8.16

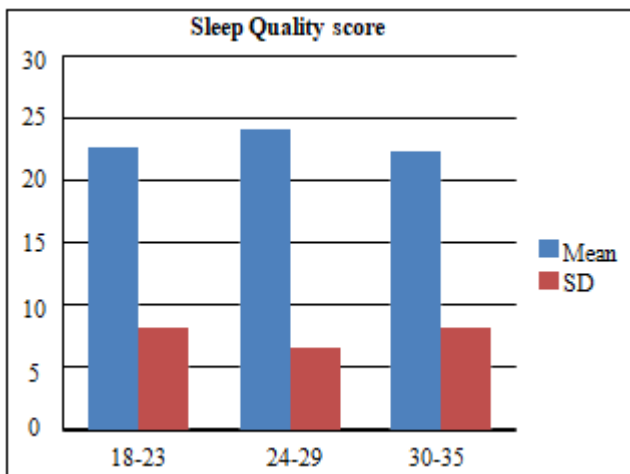


Figure 2: Graph is showing Mean ± S. D of various age group on sleep score.

Table 3: Showing Mean ± S. D of stress score

Gender	Mean	SD (±)	T-test		Result
Male	20.27	8.67	t-value	P-value	Significant
Female	22.87	6.04	2.095	0.038	

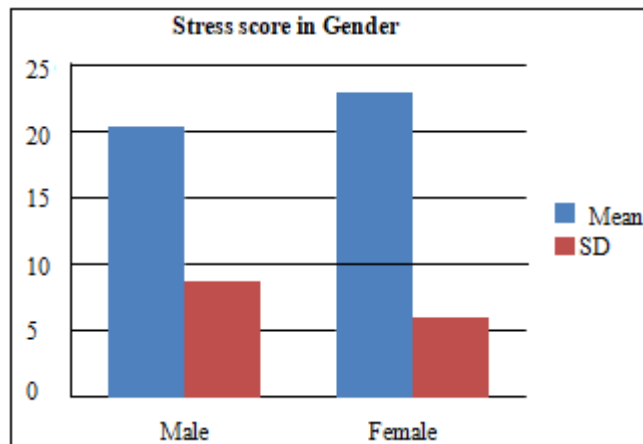


Figure 3: Showing Mean & SD in gender and their effect on stress score.

Table 4: Showing Correlation Between sleep & stress score

Sleep score (Mean± SD)	Stress score (Mean± SD)	r-value	P-value
23.39 ±7.502	21.91±7.202	- 0.327	0.001

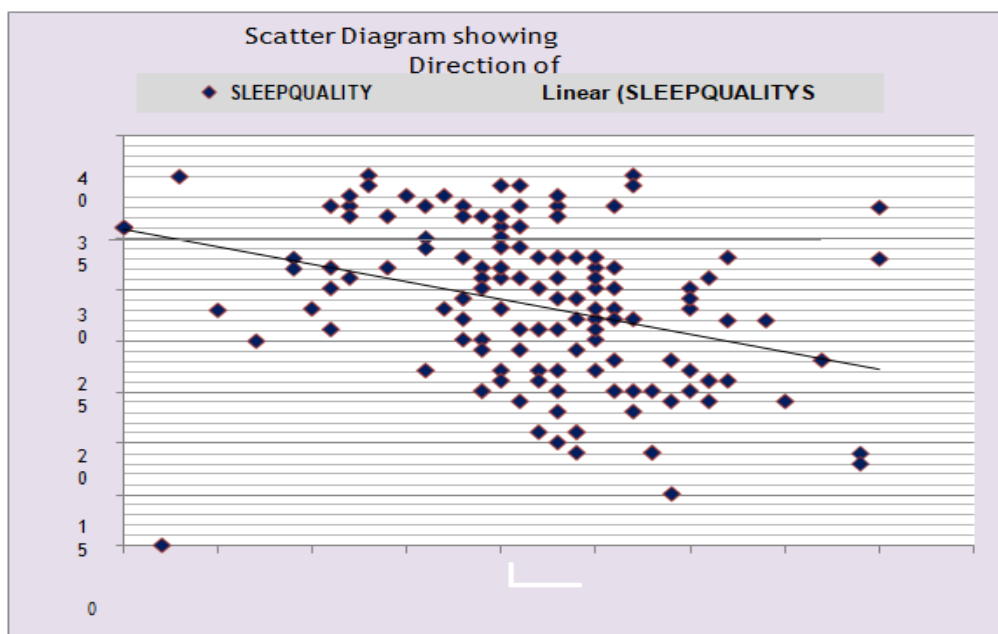


Figure 4: Scatter diagram showing negative correlation between sleep and stress score.

#### 4. Discussion

The current outbreak of the novel coronavirus SARS-CoV-2 (coronavirus disease 2019; previously 2019-nCoV), epicentred in Hubei Province of the People's Republic of China, has spread to many other countries. On 30 January 2020, the WHO Emergency Committee declared a global health emergency based on growing case notification rates at Chinese and international locations.

In India, lockdown started on March and partially ended in June. During the lockdown situation only permission to leave home for buying food and medicine etc. During the social isolation the major effects on health, physically, psychologically. The study was conducted between March 2020 to June 2020 to evaluate the stress level and sleep disturbance in college students.

Our sample included 100 subjects: 37% male 63% female. When we analyzed subjective data about stress and sleep, we found that the lockdown had a significant impact on stress level. Stress score with demographical variables shows that a significance between the level of score and demographical variables gender ( $r=-0.327$ ). Other variables age and education also effected but not significant. Sleep quality also effect spent more time with electronic media, increase bed time, wake-up time, poor sleep hygiene worsening of sleep quality but not so high that did not reach the clinical significant level. The result of study show stress level increase in both male and female but female show more significant increased stress level affected their activity of daily living, social, mental. Similarly sleep pattern are also disturbed and quality of sleep is reduced. Both male and female shows the changes but neither of them display significant. This study is showing negative correlation when gender is correlated with sleep and stress level.

#### 5. Conclusion

Among the study population Covid-19 lockdown has effect on stress and sleep quality in college students. Stress have significant effect.

#### Acknowledgements

I would like to express my great appreciation to Dr. R. K Mudgil for his valuable and constructive suggestions during the planning and development of this research work. His willingness to give his time so generously has been very much appreciated.

I would also like to thank Dr. Komal for their constant inspiration and valuable support of my research study.

I learn lots of things from here which will be more helpful to get the best opportunities in my future.

I will never forget the time that I have spent here. It was beautiful and memorable for me.

I would like to thank all patients for participating in this study.

#### References

- [1] Cascella, M., Rajnik M., Cuomo A., Dulebohn, S. C., Napoli, R. D. (2020). Features, Evaluation, and

- Treatment of Corona virus. In: Stat Pearls [Internet]. Treasure Island (FL): Stat Pearls Publishing.
- [2] Kachroo V. Novel corona virus (covid-19) in India: current scenario. *International Journal of Research and Review*.2020; 7 (3): 435-447.
- [3] Muralidharan, V. A, Lakshmanan, G., Gheena, S. (2020). Does Social Isolation Aggravate psychiatric Problem-popular perception In Covid-19 lockdown. *European journal of Molecular & Clinical Medicine*.7 (1).
- [4] Cellini, N., Canale, N., Mioni, G., & Costa, S. (2020). Changes in sleep pattern, sense of time and digital media use during COVID-19 lockdown in Italy. *Journal of sleep research*, 29 (4), e13074. <https://doi.org/10.1111/jsr.130740>.
- [5] Kecklund, G., & Åkerstedt, T. (2004). Apprehension of the subsequent working day is associated with a low amount of slow wave sleep. *Biological Psychology*, 66 (2), 169–176. <http://doi.org/10.1016/j.biopsycho.2003.10.004>
- [6] Kim, E. J., Dimsdale, J. E. (2014). The effect of psychosocial stress on sleep: a review of polysomnographic evidence. *Behavioral sleep medicine*, 5 (4), 256–278. <https://doi.org/10.1080/1540200070155383>.
- [7] Holmes, T. H., & Rahe, R. H. (1967). The Social Readjustment Rating Scale. *Journal of Psychosomatic Research*, 11 (2), 213–218. [http://doi.org/10.1016/0022-3999\(67\)90010-4](http://doi.org/10.1016/0022-3999(67)90010-4)
- [8] Neugarten, B. L. (1979). Time, age, and the life cycle. *The American Journal of Psychiatry*, 136 (7), 887–894. <https://doi.org/10.1176/ajp.136.7.887>
- [9] Wheaton, B. (1990). Life Transitions, Role Histories, and Mental Health. *American Sociological Review*, 55 (2), 209-223. Retrieved December 27, 2020, from <http://www.jstor.org/stable/2095627>
- [10] Almeida DM. (2005). Silence and vulnerability to daily stressors assessed via diary methods. *Current Directions in Psychological Science*.14: 64–8. doi: 10.1111/j.09637214.2005.00336.x
- [11] Wong, J. D., Seltzer, M. M., Greenberg, J. S., Hong, J., Almeida, D. M., &Coe, C. L. (2012). Stressful life events and daily stressors affect awakening cortisol level in midlife mothers of individuals with autism spectrum disorders. *Aging & mental health*, 16 (8), 939–949. <https://doi.org/10.1080/13607863.2012.688191>.
- [12] Hoboubi, N., Choobineh, A., Kamari Ghanavati, F., Keshavarzi, S., & Akbar Hosseini, A (2017). The Impact of Job Stress and Job Satisfaction on Workforce Productivity in an Iranian Petrochemical Industry. *Safety and health at work*, 8 (1), 67–71. <https://doi.org/10.1016/j.shaw.2016.07.002>.
- [13] Okyere, J. (2020). Stress eating in the midst of a pandemic Manus. <https://doi.org/10.31124/advance.12144882.v1>.
- [14] Harvard medical school (2009): Sleep deprivation can affect your mental health; Sleep and mental health.