

## Influence of Internet Addiction in Sleep Quality among University Students During Covid-19

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### ABSTRACT

COVID-19 has made a great impact on the life of human beings. India along with the whole world is fighting to destroy COVID-19 from the whole universe. COVID-19 not only made changes in affected people but also a lot in the day-to-day routines of others too. Sleep is one of our basic needs in our life. Life without sleep is similar to a day without sun. Internet is one of the other factors which become more popular in the COVID era. The Internet has a basic ability to bring people into its magnetic field so to find its effect on sleep quality among university students, 199 participants were selected by the method of convenient sampling. Students from inside and outside of India have participated in the study but most of them are from Kerala. Data collection was done by sending google forms which consist of three sections. In the first section socio-demographic data was collected in the second and third section The Pittsburgh Sleep Quality Index (PSQI) and Young's Internet Addiction Test was insisted to complete. Frequencies, Pearson's correlation coefficient, Spearman's correlation, and Student's t-test were analyzed. Results state that there is a positive correlation between low sleep quality and internet addiction at 0.01 level significant also study states that gender do not have a role in sleep quality (The t value for internet addiction is .108) and internet addiction (The t value for internet addiction is .890) during COVID-19. The Internet has a great role in determining university student's sleep and day-to-day routine. More studies are needed to know the factors behind internet addiction and sleep.

**Keywords:** COVID-19, Internet, Sleep, Addiction, Sleep Latency, Sleep Medications, Sleep Behavior, Poor Sleep, Sleep Deprivation

The whole world is going through the crisis of the COVID-19 pandemic people are locked inside their houses and they are stressed during this pandemic period. Stay at home reduces the chance to get corona infection, but at the same time, it reduces an individual's mobility, opportunity to work, entertainment, socialization. (Nagaur,2020) When technology advances the way of usage is changing day by day during this pandemic period online mode becomes more important. Today in this current period internet has a great role in every individual. It is used for education, entertainment, and communication. During the pandemic, online classrooms become an alternative form of the traditional

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method. Life without the internet is not possible in the future. People with Internet addiction (IA) have a high degree of anxiety, depression, poor sleeping quality, mood swings, and poor health consequences such as social alienation, low self-esteem, and obesity, according to various reports. Internet Addiction Disorder (IAD) is described as a collection of behaviors or impulses related to computer use and Internet access that are excessive or poorly regulated and result in disability or diversion. Internet addiction, according to Kandell (1998), is a psychological dependency on the Internet; the activity varies from person to person. Researches demonstrated internet addiction may lead to an inability to express emotions (Oktug, 2012).

We cannot measure IA always based on time, but we can measure it based on where they are spending time. We can also measure it based on one of the physiological factors of sleep. Late-night logins are triggering sleep habits to switch. People are spending more time on the internet during night time which is affecting their sleeping pattern. Currently, most of them are late-night sleepers. Caffeine pills are used in extreme situations to allow for longer Internet sessions and to prevent sleep for a while. Sleep deprivation causes extreme exhaustion, decreases academic or job efficiency, and can weaken the immune system, rendering the addict more prone to disease. Many external factors are becoming a major factor for lack of sleep such as alcohol consumption, smoking, use of drugs, improper diet, and lack of exercise. In a nutshell, sleep loss is caused by a lack of sleep or a decrease in sleep quality. Sleeping for less than 7 hours in a single day can cause several health problems. Our bodies require sleep to function at their highest levels. Our bodies recover and help to regulate brain chemistry as we sleep.

If you are not working right now or your weekly hours have been reduced due to COVID-19, you may be tempted to oversleep each morning, according to Sleep Foundation.org. Even if you have an alarm clock, sleeping more than seven to eight hours a night will make waking up on time much more difficult. During the day, over sleepers can feel groggy, irritable, and unfocused. Excessive screen time in the evening hurts sleep as well. Melatonin is an essential component of the sleep cycle. Blue light from screens can interfere with the body's natural development of melatonin, a hormone that helps sleep. (*11 Effects of Sleep Deprivation on Your Body*, 2020) The study focused to discover the effect of internet addiction on sleep quality during COVID-19.

### **Sample**

The study used a group of 199 college students -89 boys and 110 girls between the ages of 18 and 22. The sample was taken using convenience sampling. They were all university students seeking bachelor's degrees mostly in Kerala. Students were included in the study as per inclusion and exclusion criteria.

### **Instruments**

The following tools were used to calculate the variables in the current study:

**Pittsburgh Sleep Quality Index:** Pittsburgh Sleep Quality Index (PSQI) is used to determine sleep quality and habits. The students' sleep quality will be assessed over a month using the Pittsburgh Sleep Quality Index (PSQI) questionnaire. The PSQI is a validated instrument for measuring sleep efficiency and quantity. It is made up of 9 things that combine to form 7 components that assess sleep quality, length, latency, habitual sleep effectiveness, sleep difficulties, sleeping pill use, and daytime dysfunction. The score ranges from 0 to 3 for each part. Sleep quality is measured by a global score derived from the total of the component scores, which range from 0 to 21. The standard of sleep declines as the

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global score grows. Students who received a score of  $\geq 5$  were classified as bad sleepers, while those who received a score of  $< 5$  were classified as strong sleepers. Cronbach's alpha is 0.632, suggesting that the scale has a sufficient degree of internal consistency. (*Assessment, Pittsburgh Psqi.Pdf*, 1989)

**Young's Internet Addiction Test:** The Internet Addiction Test (IAT) developed by Young is used to assess Internet addiction in students. The examinee gave the IAT overall score for the 20 item responses. Scores ranging from 0 to 30 indicate a safe level of Internet use; 31 to 49 indicate a mild level of Internet addiction; 50 to 79 indicate a moderate level, and 80 to 100 indicate serious internet addiction. Cronbach's alpha is 0.914, suggesting that the scale has a high degree of internal accuracy. (*Iat-Manual.Pdf*, 1998)

### ***Procedure***

The samples used in this study included 199 college students- 89 males, and 110 females, and they were be selected based on the inclusion-exclusion criteria. Informed consent was obtained from all the respondents before collecting the data. The study collected responses from people inside and outside India. Convenience sampling was used, which is a form of non-probability sampling that involves choosing a sample from a portion of the population that is close to hand. Two questionnaires regarding Internet addiction and sleep quality were administered to them along with a sociodemographic sheet. The scale was administered to the participants through Google Forms.

### ***Inclusion criteria:***

- College students
- Age range: 18-22
- Knowledge of the English language

### ***Exclusion criteria***

- People with major physical and psychological illnesses
- People who do not know English

### ***Data Analysis***

After the collection of data through online Google Sheets, each participant's sleep quality and Internet addiction scores were measured individually, and statistical analysis was carried out using Microsoft Excel and SPSS. The first step for the analysis was to sort of data and eliminate those that did not meet the criteria for inclusion in the test. Nongenuine data was not considered for the study. Shapiro-Wilk test was used to find the normality of the test and the parametric test was used for further analysis of data it is based on the nature of the data obtained.

The method of data analysis was done in two sections where the first section was used to find the frequency distributions and measures of central tendency based on the information from the socio-demographic datasheet which included age and gender. The second section included descriptive statistics to provide information regarding the variables chosen for the test. It includes Pearson's correlation test to describe the relationship among the variables (internet addiction and sleep quality). Along with Pearson's correlation test, t-Test was also used to find out if there was any substantial variance in the responses given by male and female participants of the study.

## RESULT

The results obtained from the data are used to make an analysis. This section manages the outcomes and the conversation of the information gathered. The data is genuinely broke down to discuss and interpret the outcomes.

### *Sample description*

**Table 1 Description of the participant based on gender**

Gender	Frequency	Percent
Female	110	55.3
Male	89	44.7
Total	199	100.0

Table 1 shows the result from the socio-demographic data sheet corresponding to gender. The total included 199 respondents out of which 110 were female respondents and 89 were male respondents.

**Table 2 Reliability of the PSQI- scale.**

Cronbach's Alpha	No. of items
.632	7

Table 2 gives the Cronbach's alpha value that is .632 for the PSQI-scale questionnaire. The questionnaire has adequate reliability.

**Table 3 Reliability of the IAT- scale.**

Cronbach's Alpha	No. of items
.914	20

Table 3 gives the Cronbach's alpha value that is .914 for the IAT-scale questionnaire. The questionnaire has excellent reliability.

**Table 4 Summary of Shapiro-Wilk test of Normality of Internet addiction and Sleep Quality.**

Variables	Statistic	Df	Sig.
Internet Addiction	.966	199	.000
Sleep Quality	.965	199	.000

Table 4 shows the Shapiro-Wilk test of normality of internet addiction and sleep quality which indicates that the data is not normally distributed as the significance value falls below 0.05.

**Table 5 The Mean and standard deviation for Internet addiction and sleep quality**

Variable	Mean	Std. Deviation
Internet addiction	35.683	15.57
Sleep quality	4.608	2.732

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Table 5 shows the mean value and standard deviation value for internet addiction and sleep quality. mean value and standard deviation obtained for internet addiction are 35.683 and 15.57 respectively. The mean value and standard deviation obtained for sleep quality are 4.608 and 2.732 respectively.

**Table 6 The Pearson's correlation between Internet Addiction and Sleep Quality.**

Dimensions	Internet Addiction	Sleep Quality
Internet Addiction	1	.402**
Sleep Quality	.402**	1

\*\* Correlation is significant at 0.01 level (2-tailed).

Table 6 shows the correlation between internet addiction and sleep quality. From the table, it's clear that there is a positive correlation between internet addiction and sleep quality at 0.01 level which means that when internet addiction increases sleep quality gets decreased. Therefore, we can say that there will be a significant relationship between internet addiction and sleep quality.

**Table 7 Student's t-test comparing internet addiction among female and male**

Sl. No	Variables	Group	F	t	Mean	Sig.
1.	Internet Addiction	Female Male	1.058	.108	35.791 35.551	.914

Table 7 states that a t-test was conducted on the two groups both female and male by comparing internet addiction among them. The table gives the F value, t value, and the mean of the variable. The t value for internet addiction is .108. So, from the table, it is clear that there is no significant difference between females and males.

**Table 8 Student's t-test comparing sleep quality among female and male**

Sl. No	Variables	Group	F	t	Mean	Sig.
1.	Sleep Quality	Female Male	1.145	.890	4.76 4.42	.374

Table 8 states that a t-test was conducted on the two groups both female and male by comparing sleep quality among them. The table gives the F value, t value, and the mean of the variable. The t value for sleep quality is .890. From the table, there is no significant difference. Therefore, sleep quality is the same among both genders.

## DISCUSSION

The study aimed to understand the relationship between Internet addiction and Sleep quality of university students during Covid-19. The study also tries to find out whether there is any significant difference in sleep quality and internet addiction among females and males. The Pearson's correlation test and t-test were used to find the correlation and the significant of gender comparing with the variables. The reliability score of Internet addiction and sleep quality were .914 and .632 respectively. IAT scale is having reliability compared to the PSQI scale. The test for normality using the Shapiro-Wilk test was done for both the IAT scale and PSQI scale. The normality of the IAT scale and PSQI scales shows that the data is not normally distributed as the significance value falls below 0.05.

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To find out the mean level of internet addiction and sleep quality descriptive statistics were used. According to the results of the descriptive statistics obtained, the mean of 35.683 was obtained for internet addiction, this means that in the sample chosen the mean score was interpreted as a mild level of internet addiction. Similarly, in the sleep quality, the mean score is 4.608 which leads us to interpret it as people are having an average level of sleep quality compared to the sample mean.

To find the correlation between internet addiction and sleep quality, Pearson's test for correlation was used. As the variables were not normally distributed, both Pearson's and Spearman's test for correlation was used. Both Pearson's and Spearman's test for correlation showed similar results, however, the results of Pearson's correlation was taken into account. From the results of correlation from this, we can conclude that there is a significant positive correlation between internet addiction and sleep quality at 0.01 level which means that the tendency to have good sleep quality depends on the intensity of internet addiction. From the test, we can conclude that there is a significant positive correlation between internet addiction and sleep quality at 0.01 level which means that internet addiction can have a great impact on sleep quality. i.e., when internet addiction decreases sleep quality increases, and also when internet addiction increases sleep quality decreases. Therefore, there will be a significant relationship between internet addiction and sleep quality. An investigation was undertaken in 2019 by Bryan Adrian Garcia-Priego, Arturo Triana-Romero, Samanta Mayanini Pinto-Galvez, Cristina Duran-Ramos, Omar Salas-Nolasco, Marisol Manriquez Reyes, Antonio Ramos de la Medina, and Jose Maria Remes Troche During COVID-19, this study will look at the prevalence and distribution of anxiety and depression in the Mexican population, as well as their relationship with internet addiction. When compared to the control group, they observed a 51 percent rise in anxiety and an 86 percent increase in depression during the first weeks of the lockdown. According to the IAT questionnaire, 62.7 percent of their population had some level of internet addiction, indicating that internet addiction has risen dramatically during the COVID-19 period. (*COVIDScholar*, 2020)

According to table 4.8 of the t-test, it is clear that the table gives the F value, *t* value, and the mean of the variables. The *t* value for internet addiction is .108. The significant value obtained is .914. Also, from the mean value, it is clear that there is no significant in internet addiction among females and males. A survey of 322 medical students in Pakistan found that 175 were males and 147 were females, with an average age of  $19.27 \pm 1.01$  years. Males and females (37.7111.9 vs 38.6314.00,  $p=0.18$  and 25 vs 29,  $p=0.20$ ) had equal total internet addiction scores and frequency of internet addiction. (*Effect of Gender and Physical Activity on Internet Addiction in Medical Students*, 2017)

According to table 4.9 of the t-test, it is clear that the table gives the F value, *t* value, and the mean of the variables. The F-value of sleep quality is 1.145. The *t* value for sleep quality is .890. The significant value obtained is .374. Also from the mean value, it is clear that there is no significant difference. So, from the table, it is clear that there is no significant difference in sleep quality among females and males. Findings are not similar to previous studies in most of the studies females are more affected with sleep quality problems compared to males. Sometimes COVID-19 made this variation in results also cultural difference may be having a role.

For the subjective question "In what online platforms you spent more time?" most of them spend time in movies, games, YouTube, social media, anonymous platforms, etc. Some

people spend time for both educational and entertainment purposes. One other finding is that people with very low internet addiction use it only for education.

### CONCLUSION

In this 21<sup>st</sup> century life without the internet is not possible COVID-19 made a great impact on the day-to-day routine of a human being. Most of the people are having smartphones and internet facilities, and people without much education is also an expert to handle it perfectly. Every coin has two sides. Like that internet also has positives and negatives. The Internet had made a great impact on human sleep quality. During the lockdown period, people spend their time sleeping and on online platforms. Kandell (1998) suggested that Internet addiction is a psychological dependence on the Internet; the activity may vary from individual to individual. Researches demonstrated internet addiction may lead to an inability to express emotions (Oktug, 2012). The study aimed to find the influence of internet addiction on sleep quality among university students during COVID-19. The study concluded that there is a great correlation between internet addiction and sleep quality during COVID-19. Also, the study implies that gender has no role in sleep quality and internet addiction during COVID-19. COVID-19 has made a great impact on the life of university students. People with very low internet addiction use it only for education.

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### Conflict of Interest

The author(s) declared no conflict of interest.

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