Health Issues Associated With Increased Smart Phone Usage Among Students During Covid-19 Pandemic Wave 2.0 In India

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Abstract:

Background: In recent years, as smart phones have grown in popularity, problematic cell phone use has gotten more attention among students. Due to the quarantine period, loneliness, and online classes, students' use of smartphones rose during the COVID-19 epidemic, affecting their physical and psychological well-being. **Aim:** To assess the health impact on excessive usage of smart phone and their effects among students during the COVID-19 pandemic wave-2.0 in India. **Settings and Design:** Data was acquired using a semi-structured Google Forms and responses were collected via social media via Google form among students across India during COVID-19. **Results:** Our research study shows that students were experiencing health problems like headache (86%), vision problems (68%), sleep pattern disturbance (79%), lack of attention (66%). The average usage of smart phone usage among the students were found to be greater than 4 hours per day for 85% of the students. Smartphone usages were more prevalent in males (56%) than in females (44%). The online classes cause increased usage of smartphone and affects their health more and 83% of the participants felt that they were addicted to smartphone. **Concusion:** Smartphone usage is becoming a necessity, even though students should be educated regarding proper usage and handling of smartphones and school/college should follow Government Guidelines for minimizing health hazards.

Key-Words: *Health, Smartphone, Students, COVID-19.*

Key Messages: This COVID-19 pandemic quarantine period and digital learning led to increased usage of smartphone among students. Smartphone addiction is escalating global concern among students, which has devastating impacts on the physical and mental wellbeing.

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Introduction:

COVID Breakout And Lockdown:

In December 2019, a cluster of pneumonia cases in Wuhan, China, was identified to be SARS-CoV-2. The Corona virus had spread to countries like South Korea, Iran, Italy, the United States, India, and Pakistan in just a few weeks.[1] The Corona virus quickly spread throughout the country, prompting the government to proclaim a state of emergency in a dozen major cities. To prevent COVID-19 transmission, India imposed a state-by-state lockdown, resulting in the closure of several companies, academic institutions, markets, and public gatherings.

Smartphone usage:

According to a recent global survey, nearly 70% of internet users, particularly the younger generation, are utilizing their smart phones or mobile phones more as a direct result of the corona virus pandemic.[2] Many individuals are unaware that smartphone addiction is a significant problem that can negatively impact

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a person's thoughts, behaviour, habits, feelings, and overall well-being. Overuse of smartphones can result in poor physical and mental health, as well as musculoskeletal pain in the neck, lower back, and shoulders, sadness, and anxiety.

Excessive usage of smart phones has the potential to develop gaming and internet use problems, as well as a psychosocial crisis (sleep deprivation, stress, mood disorder, and anxiety), which could be the result of the COVID-19 phase.[2] It's thought that not only may smartphone addiction impact one's mental and behavioural health, but that those with mood disorders are more likely to get addicted to their phones.[3]

Academic workload:

As a result of school closures and severe containment measures, not all children have the knowledge, skills, or resources they need to stay safe online. Many of these kids have taken online classes and spent more time on virtual platforms, putting them at risk of being exploited online.[4] Children have been exposed to potentially hazardous and violent content, as well as a heightened risk of stalking, as their online study time has increased and become more unstructured.[5]

Students' mental health:

The pandemic has generated a lot of anxiety, stress, and grief. These stressors can cause mental health problems for anyone, and they can trigger acute symptoms in persons who already have mental health problems. Quarantine, Mandatory confinement can cause impatience, rage, bewilderment, frustration, loneliness, denial, and despair in the short term. Long-term forced quarantine has been shown to produce post-traumatic stress disorder (PTSD) in youngsters.

Academic achievement is frequently affected by mental health difficulties. Mental illness can have an impact on students' motivation, attentiveness, and social connections, all of which are important variables in their academic success.[6]

Subjects And Methods:

Materials And Methods:

The average smart phone usage was determined by developing an online questionnaire, validating it, and conducting a pilot survey among students, after which the responses were collected via social media via Google form across India. After each response, we used an e-poster and an e-video to raise awareness among students about how to address the issues.

Data Collection:

Data was acquired using a semi-structured Google Forms questionnaire that included a consent form. The questionnaire link was distributed by email, WhatsApp, Facebook, and other social media platforms. Participants are encouraged to share the survey to as many students as possible. Participants will be routed to study information and informed consent after receiving the link and clicking it. They will fill out the demographic information after accepting the survey. Then a series of questions will display in order, to which the participants will respond.

Statistical Analysis:

The data was analysed using Microsoft Excel 2019 and IBM SPSS Statistics version 26. The data was modified, sorted, and coded using Microsoft Excel. The excel file was then loaded into the SPSS programme. SPSS software was used to perform chi-square test to identify the significance between the groups. The significance level was set at 0.05.

Results:

A total of 1190 students participated in our study, and 56% (663) of them were male and 44% (527) were female. The majority of students, 530 (44.5%), were in the 19-22 age group, with 422 (35.5%) in the 15-18 age group and 238 (20%) in the 23-25 age group as shown in Figure 1.

Over time, smartphones were used by 513 (48%) UG students, 495 (31.80%) HSC students, 166 (13.90%) UG students, and 16 (6.30%) SSLC students. Students utilised smart phones for digital learning in 98% of cases, entertainment in 66% of cases, social networking in 52% of cases, and gaming in 36% of cases. Figure 2 illustrates the average daily duration that students used their smartphones during the COVID-19, and the findings show that 80% of students used their smartphones for more than 4 hours.

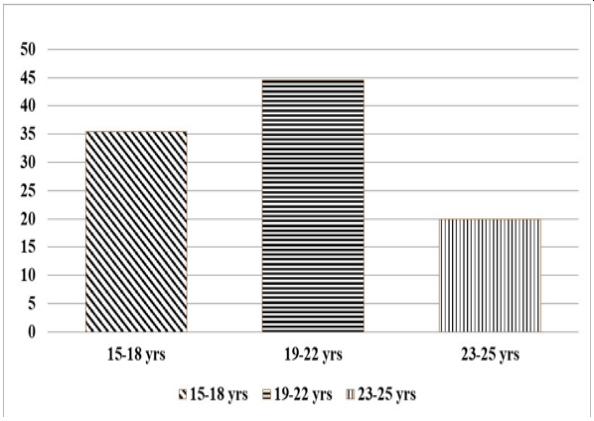

Figure1: Age wise distribution of respondents

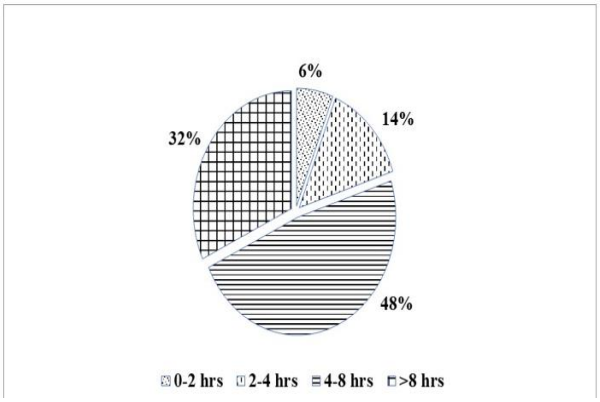

Figure2: The Average usage of your smart phone in a day during this covid-19 pandemic situation?

Approximately, 60% of students used smart phones for online classes for 4-8 hours per day, 37% of students used smart phones for 2-4 hours per day, 48% of students used smart phones for gaming for 4-8 hours per day, and 60% of students used smart phones for entertainment for 4-8 hours per day.

When compared to other age groups, we found that the students between the ages of 19 and 22 spend more time on their smartphones, especially in online classes and for entertainment ($p<0.02$). As a result of the lockdown, students turn to their smart phones for entertainment, which provides about 65%, resulting in increased smart phone usage during the COVID-19 epidemic. Smart phones were the most often used electronic source by students for attending online classes when compared to laptops, computers, and tablets. In addition to the pandemic phase, online classes were one of the causes of increased smart phone usage among students. In our survey, we found that around 91% felt frustrated during online classes, and also that 98% who participated felt that their smart phone usage had increased as a result of digital classes. Through this research, 78% indicated that their use of smart phones had escalated as a result of loneliness. 83% of our survey participants reported being attached to their smartphone, and there were no significant variations in smart phone addiction by gender. In our research, we also examined at the psychological and physiological effects of smartphones, and the results are shown in tables 1 and 2 respectively.

Table 1: Health assessment questionnaire among student's smartphone usage during the COVID-19 pandemic

S.No	Health assessment	Yes (number of participants)	No (number of participants)
1	Do you experience headache, while using smart phone for a long time during this covid-19 pandemic situation?	1053 (86%)	137 (14%)
2	Do you experience eye pain, while using smart phone for long time during this covid-19 pandemic situation?	967 (81%)	223 (19%)
3	Do you experience vision problems (blurred vision), while using smart phone for a long time during this covid-19 pandemic situation?	812 (68%)	378 (32%)
4	Do you experience neck pain, while using smart phone for long time during this covid-19 pandemic situation?	435 (37%)	755 (63%)
5	Do you experience ear pain, while using smart phone for a long time during this covid-19 pandemic situation?	395 (33%)	795 (67%)
6	Do you experience pain in finger, while using smart phone for a long time during this covid-19 pandemic situation?	372 (31%)	818 (69%)

Table 2: Psychological assessment questionnaire among student's smartphone usage during the COVID-19 pandemic

Sl.No	Psychological assessment	Yes (number of participants)	No (number of participants)
1.	Do you feel depressed after using smart phone for a long time?	685 (48%)	505 (52%)
2.	Has your sleep pattern disturbed due to smart phone usage during this covid-19 pandemic?	944 (79%)	246 (21%)
3.	Do you feel a lack of attention to others while using smart phone?	785 (66%)	405 (34%)
4.	Do you feel shortness of temper when someone disturbs you while using smart phone?	520 (44%)	670 (56%)

Discussion:

Males (56%) were more likely to use a smartphone than females (44%) ($p<0.00$). In our survey, 48% students used their smartphones for 4-8 hours every day, while 32% used their smartphones for more than 8 hours. The outcomes were comparable to those of research done in Oman by Datta S et al., which found that more than half of the students spent

more than four hours using their smartphones. Individuals spend 4-6 hours a day with their smart phones, according to a study done in the United States by Amez S et al.,[7]

In our research, we found that during the COVID-19 epidemic, the majority of students (72%) spent more time on their smartphones. The results were similar to those of a study conducted in Malaysia by Parasuraman S et al.,[8] which found that 70.4% of study participants used their smartphone for longer than they intended, and that 86.8% of the participants were aware of EMR and 82.6 percent of the study participants were aware of the dangers of EMR from smart phone usage.

According to a study done in Hong Kong by Li L et al.,[9] excessive mobile phone utilization, can result in negative health effects such as blurred vision, tiredness, wrist and neck pain, anxiety, and insomnia, all of which can contribute to a lower quality of life (QOL).

As per the results, the majority of students (79%) reported that their sleep pattern had been disturbed as a consequence of excessive smart phone usage, 66% a lack of attention, and 48% reported feeling depressed as a result of excessive smart phone usage. A cross-sectional study conducted by Matar Boumosleh J et al.,[10] Notre Dame University-Louaize, Lebanon, found that roughly one-third of university students felt depressed following excessive smart phone usage. Excessive mobile phone usage has been linked to sleep disruptions, poor sleep quality, and insomnia, according to Munezawa T et al.,[11] a Japanese study of 94,777 teenagers.

Conclusion:

In this present study, due to the quarantine periods, loneliness and online classes the usage of smartphones had increased, which affects the students' health and psychological wellbeing. MHRD (Ministry of Human Resources and Development)[12] under PRAGYATA Guidelines recommend the usage of smartphones for not more than 4 hours a day, but in our study, most of the students were used more than 4 hours a day. The relationship between depression and smartphone addiction is an escalating global concern that necessitates future studies to investigate further on these aspects; smartphone usage is becoming a necessity, even though students should be educated regarding proper usage and handling of smartphones. The government should monitor schools/ colleges regarding guidelines that are prescribed by the government for minimizing health hazards.

Limitation Of The Study

1. In this study we evaluated the effects by self-reported questionnaire through online. Yet, we did not perform any physical examination to confirm the association between depression and stress.
2. This survey was conducted all over India, but the majority participants responded, from the southern part of India compared to the north.
3. As we had not used many languages, this may the reason for getting limited responses.

Relevance Of The Study:

The use of smartphones among students has escalated throughout this epidemic. Furthermore, the advent of online education has led students to spend more screen time, which will affect both their physical and mental health.

References:

Casagrande M, Favieri F, Tambelli R, Forte G. The enemy who sealed the world: effects quarantine due to the COVID-19 on sleep quality, anxiety, and psychological distress in the Italian population. Sleep Med. 2020; 75: 12-20.

Ratan Z, Zaman S, Islam S, Hosseinzadeh H. Smartphone overuse: A hidden crisis in COVID-19. Health Policy Technol. 2021; 10(1):21-22.

Alhassan A, Alqadhib E, Taha N, Alahmari R, Salam M, Almutairi A. The relationship between addiction to smartphone usage and depression among adults: a cross sectional study. BMC Psychiatry. 2018; 18(1):148-156.

Pokhrel S, Chhetri R. A Literature Review on Impact of COVID-19 Pandemic on Teaching and Learning. High Educ Future. 2021; 8(1):133-141.

Erunao Muwanguzi S, Taddeo Kaahwa Y, Itaaga N. Teacher Generated Pamphlets as a Feasible Covid-19 Learning Alternative in Uganda: A Review of Existing Global and Domestic Pandemic Pedagogies. Am J Educ Res. 2021; 9(9):580-586.

American Psychological Association. Student mental health during and after COVID-19: How can schools identify youth who need support?. https://www.apa.org/topics/covid-19/student-mental-health Accessed date: January 08, 2022.

Amez S, Baert S. Smartphone use and academic performance: A literature review. Int J Educ Res. 2020;103: 101618.

Parasuraman S, Sam A, Yee S, Chuon B, Ren L. Smartphone usage and increased risk of mobile phone addiction: A concurrent study. Int J Pharm Investig. 2017; 7(3):125-131.

Li L, Lok GKI, Mei SL, Cui XL, Li L, Ng CH, Ungvari GS, Zhang J, An FR, Xiang YT. The severity of mobile phone

addiction and its relationship with quality of life in Chinese university students. PeerJ. 2020; 8:e8859.

Matar Boumosleh J, Jaalouk D. Depression, anxiety, and smartphone addiction in university students- A cross sectional study. PLoS One. 2017; 12(8):e0182239.

Munezawa T, Kaneita Y, Osaki Y, Kanda H, Minowa M, Suzuki K, Higuchi S, Mori J, Yamamoto R, Ohida T. The association between use of mobile phones after lights out and sleep disturbances among Japanese adolescents: a nationwide cross-sectional survey. Sleep. 2011; 34(8):1013-1020.

Ministry of Education. Pragyata-guidelines: Ministry of humanresourcedevelopment. https://www.education.gov.in/sites/upload_files/mhrd/files/pragyata-guidelines_0.pdf Accessed date: January 08, 2022.

Recommendation:

Smartphone addiction is escalating global concern among students, which has devastating impacts on the physical and mental wellbeing. During these COVID-19 pandemic, usage of smartphone among students is being increased. Smartphone usage is becoming a necessity, even though students should be educated regarding proper usage and handling of smartphones.