

Impact of Online Education on Student Health

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Abstract

The coronavirus had forced the closure of all schools and universities worldwide. With the tremendous rise of online education, teaching is now done remotely on digital platforms using computers and mobile devices. Numerous studies have demonstrated that prolonged or excessive screen use can have an adverse effect on both physical and mental health. Stress, depression, irregular sleep patterns, negative effects on vision, posture pain, hand impairments, and musculoskeletal disorders are just some of the mental and physical afflictions.

Keywords: Online classes, COVID-19, mental health, physical health, teaching methods

INTRODUCTION

Every school system in the globe has been impacted by the COVID-19 pandemic. Most nations have made the decision to temporarily close educational facilities in order to stem the spread of COVID-19. Pandemic-related school closures affected approximately 825 million students as of January 12, 2021. In March 2020, the number of COVID-19 cases began to increase and school and university closures continued. Almost 75 million children and adolescents had been banned from school worldwide. About 7% of the world's students were affected by the 23 countries and 40 local shutdowns imposed at the same time, according to UNICEF monitoring. Schools were open in rest 112 countries.

People with fewer financial resources had fewer educational opportunities, while those with more had access to education. People who depended on schools instead of computers and home schooling faced more challenges as new online programs shifted the burden of education from schools to families and individuals. Early childhood education and care and school closings had its impacts on pupils, their parents, and teaching staff. School closings brought to light a variety of social and economic issues, including access to childcare, healthcare, housing, the internet, and disability services, as well as student debt, digital learning, food hardship, and homelessness. The impact has been particularly severe on children in poor households, disrupting their education, jeopardizing their nutrition, creating childcare problems and costing families unable to work.

Mobile phones and laptops play an important role in modern education. The widespread use of online classes facilitates access to course materials. Many studies have shown that excessive or prolonged screen time can affect mental health by causing stress, depression and sleep disorders, as well as physical health by causing eye strain, postural pain, hand injuries and musculoskeletal disorders. Increased screen time is directly linked to depression. Online learning during the time of COVID-19 and the academic stress of students has caused a sudden change in teaching method from traditional mode to virtual framework system which can cause stress in students. According to

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the effect of online learning and technology on the physical, mental, emotional and social health of students, it affects the self-esteem, personal value of students and causes excessive stress. The intensity or frequency of cell phone use can be the cause of several mental health problems among students. There is a significant positive correlation between the duration of mobile phone use and the intensity of neck problems, including the worsening of musculoskeletal problems, which causes significant costs to the health system.

According to the literature, increased engagement with any digital device for at least 3 h/day increases the incidence of depression. Depression is now recognized as a major risk factor for suicidal ideation in young people. A recent behavioral study found higher rates of low self-esteem, sadness, distress and depression in the online community. The light emitted by cell phones can disrupt the regular sleep cycle and cause sleep disturbances. Sleep disturbances, hopelessness, somatic pain and increased screen exposure cause significant changes in office workers and students, including fatigue and an increase in depressive symptoms, which is alarming.

Owing to the COVID-19 epidemic, numerous schools worldwide have begun utilising video conferencing tools like Zoom, Google Classroom, and/or Google Meet for instructions. The Organization for Economic Cooperation and Development has developed a framework to guide distance learning during the COVID-19 pandemic. Teachers were better able to deal with change than their counterparts who had to rely on asynchronous education when it was possible to educate in real time.

LITERATURE

Online education promoted a more sedentary lifestyle, resulting in laziness. The online education effect is that it has an impact on students' mental and physical health. It is because of the amount of time spent doing homework, research, and other activities that lead to stress and anxiety. The amount of time spent on these activities can affect individuals in a negative way. There will be both short-term and long-term impacts.

The short-term effects are that students may become stressed or anxious about their work because they spend so much time on it. This can cause them to have difficulty in sleeping at night or having a lack of energy throughout the day. This can also cause them to get depressed because they feel like they have no control over their life [1].

The long-term effects are similar to the short-term effects, but instead of causing depression, it can cause anxiety over their performance in school or job interviews. While online classes provided independence for students to work in their own space and pace, sitting through online classes has been linked to health problems and heart diseases. Problems associated with online courses, are delivery, communication, assessment, and health issues. We have conducted comparison analysis to comprehend how online education has affected the kids at the institute. Studies show that students are not coping with sudden changes in lifestyle and learning environment. Many students report suffering from severe mental health issues. Data below shows how students react to online education.

Cognitive Disorders

Cognitive disorders are characterized by changes in thinking ability or memory deficit due to certain things like stress, lack of sleep, fatigue or anxiety among others. These changes may appear as symptoms of depression or anxiety but they can also be caused by not getting enough sleep at night or just being too tired during the day because of having too much work on your mind instead of getting enough rest during the day. It can therefore be easily interpreted as the development of thinking processes, problem-solving skills, reasoning, and decision-making from childhood through adolescence to adulthood. People with cognitive impairment experience memory loss, attention deficit, difficulty

recognizing information, difficulty recognizing people, places, or objects, and sudden, severe mood swings. Cognitive impairment, a neurological ailment that prevents the efficient processing and retrieval of information, is another name for this condition. It is found that people are spending more than 2 h in front of a screen each day. The longer you spend, the worse your cognitive test results will be [2].

The average recommended screen time per day is 3.6 h. Unfortunately, many students do not have the privilege of following the recommended screen time (no more than 2 h/day), sleep (9–11 h/day) and physical activity (60 min/day). Online education has wreaked havoc on children's growing brains. They argue that online learning poses misalignment risks for young learners.

Online studying creates cognitive overload resulting in inadequate processing and internalization of course instructor-distributed content. Our brains have to work harder to stay focused during online classes, which causes mental fatigue, resulting in students not being able to focus. It also claims that the transition from traditional classrooms to a virtual space has made students more aware of their facial expressions and body postures [3].

Computer Vision Syndrome

Computer Vision Syndrome (Digital Eye Syndrome) is a growing problem in the world of online education. It is caused by long hours spent in front of a computer screen, staring at a computer monitor and not being able to take breaks for exercise or even social interactions. The symptoms are similar to those experienced by people suffering from eye strain, such as headaches and blurred vision. Some people also experience eye fatigue after only a few hours of use [4].

Many students find it hard to concentrate because they are constantly distracted by the flashing lights on their computer screens and other gadgets that make noise and emit annoying sounds. This can lead to headaches, eyestrain and decreased productivity. It addresses a number of eye problems such as tears, eye fatigue, burning, headache, blurred vision, redness and diplopia, which have increased in COVID (Figure 1).

Insomnia

Insomnia is an important health problem for students in online education (Figure 2). The lack of sleep can cause health problems, including fatigue, irritability and memory loss. These can all have an impact on a student's capacity for learning. Individual sleep difficulties are a definition of insomnia. The act of sleeping allows the body to rest and reduces its engagement with the outside world, which

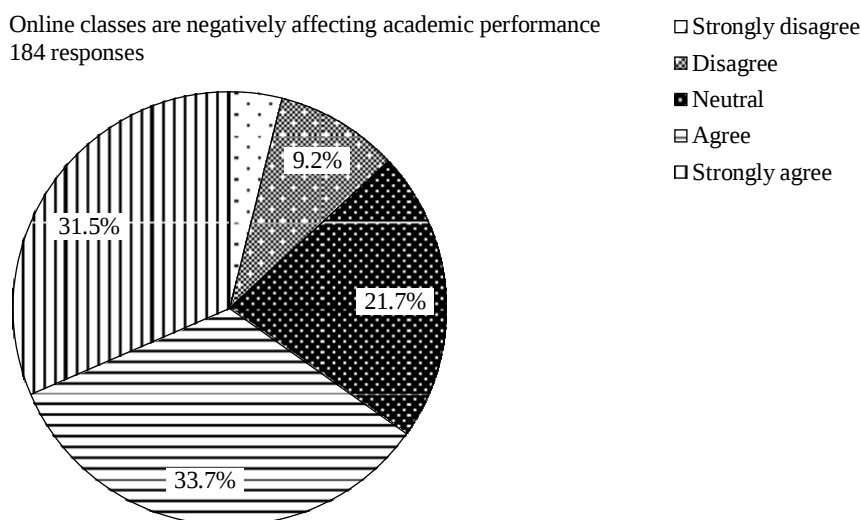


Figure 1. Computer vision syndrome.

Do you feel strain in your eyes due to online classes?
184 responses

□ Often
▨ Sometimes
■ Rarely
□ Never

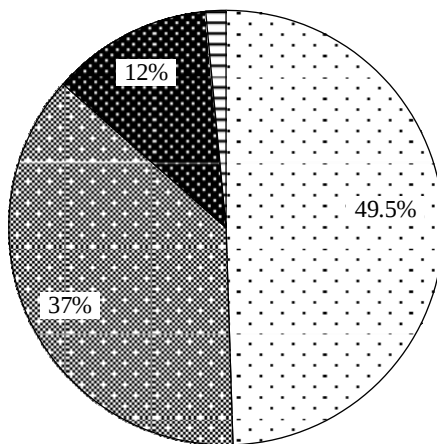


Figure 2. Impact of online classes on eyes.

Do you own a pair of blue lens glasses?
184 responses

□ Yes
▨ No
■ Never heard of blue lens

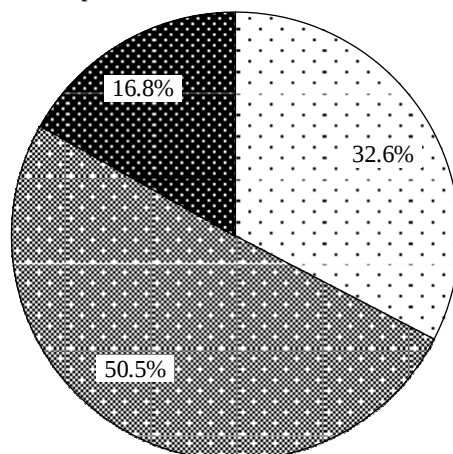


Figure 3. The number of people having blue lens.

Do you feel sleepy during online classes?
184 responses

□ Yes
▨ No
■ Sometimes

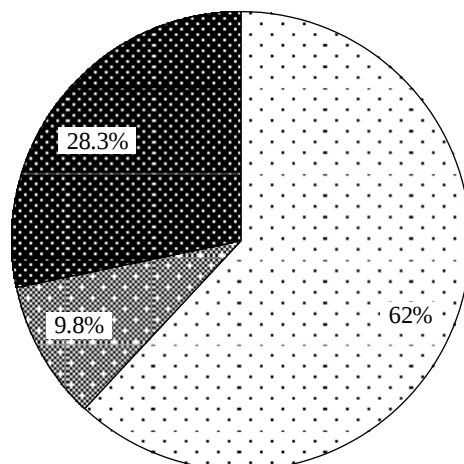


Figure 4. Feeling during online class.

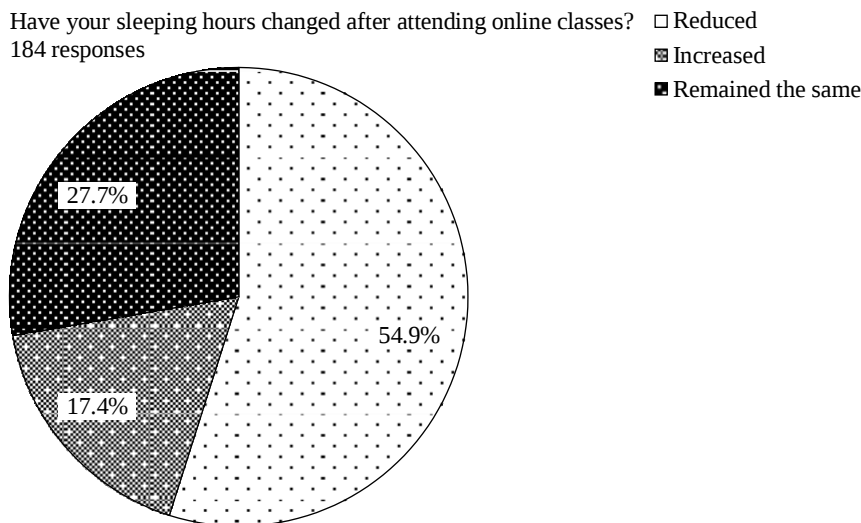


Figure 5. Changes in the sleeping hours.

aids in the body's recovery from daily exhaustion (Figure 4). Irregular sleep schedules can negatively affect memory [5], concentration, and performance. Spending more than 6 h/day in front of digital screens significantly affected their sleep quality, making it difficult for them to fall asleep. The online work culture can cause many people significant stress, anxiety and worry about health, social isolation, employment, finances and challenges in balancing work and family responsibilities. Such a stressful environment can cause likely disrupted sleep; and during detachment rhythm, when good sleep is especially important to survive and adapt to this crisis and uncertain future argues that during COVID-19, increased screen time affects students sleep health adverse effect. Blue light from digital devices can disrupt the regulatory function of endogenous circadian melatonin release. Hormonal dysfunction leads to nocturnal readiness time, sleep latency, and rapid eye movement sleep (Figure 5).

Depression and Anxiety

Depression and anxiety are common among students in online education. In fact, depression is the most common mental health condition in college students. Depression can be a difficult condition to treat, but it does not have to get in the way of your education. It is important to understand the symptoms of depression and how you can manage them so that you can continue to learn and succeed in school. It is defined as a state of stasis which disrupts self-concept of the patient. Sadness and loneliness are experienced by people suffering from depression (Figure 6). These conditions are often caused by stressors in a student's life at home or at school that make them feel isolated or overwhelmed [6].

The COVID-19 pandemic is having a significant impact on the mental health and well-being of the residents. Social isolation caused by online classes increased the risk of clinical depression due to the inability to interact with teachers and academic colleagues. Regrettably, online programs do not provide much space for things that can stress out a developing mind (Figure 7). While this may seem like an exaggeration, it is not uncommon for students to be depressed in online education because they are unable to attend lectures or interact with their peers face-to-face during class time. This can lead to feelings of isolation and loneliness as well as anxiety over missing out on things that other people take for granted such as social events and friendships. It adds to mental health concerns harming students' social cognitive skills. Based on the above research, it can be concluded that although health issues have received satisfactory attention in the era of global pandemics, little research has been conducted to understand the correlates of student health responses and issues raised by online classes and media stories (Figure 8) [7].

Online classes have severely affected the quality of sleep.
184 responses

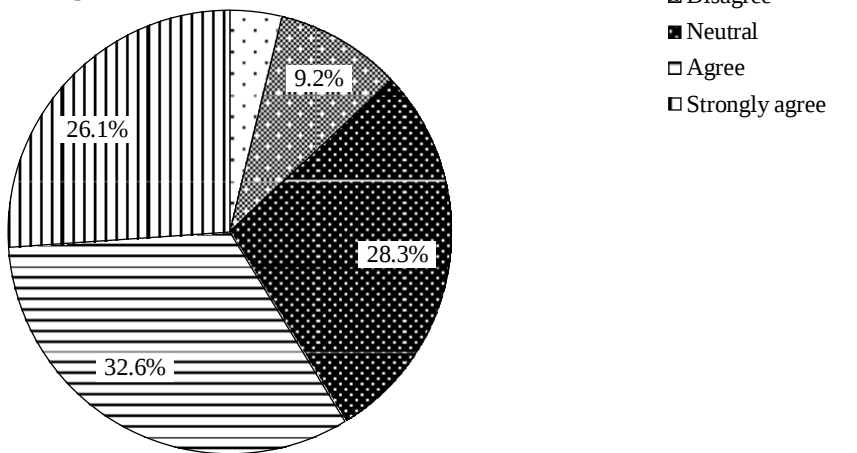


Figure 6. Quality of sleep.

Do you feel that poor quality sleep is affecting your attention span during class?
184 responses

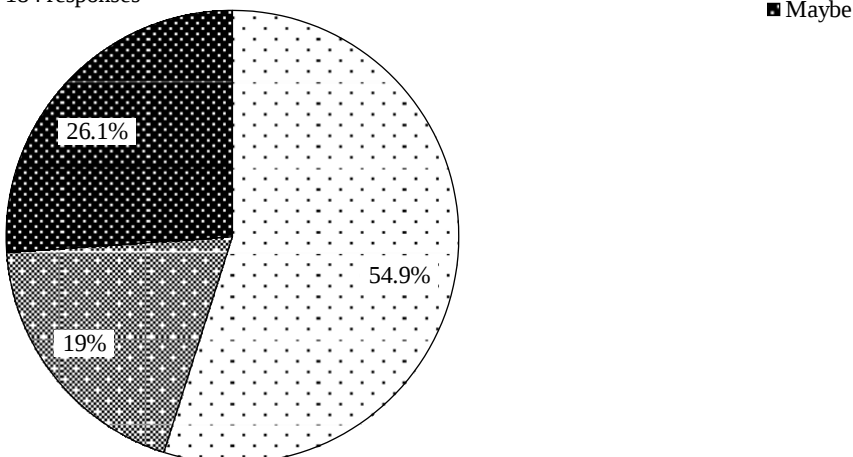


Figure 7. Attention span.

Are you plagued by body pain?
184 responses

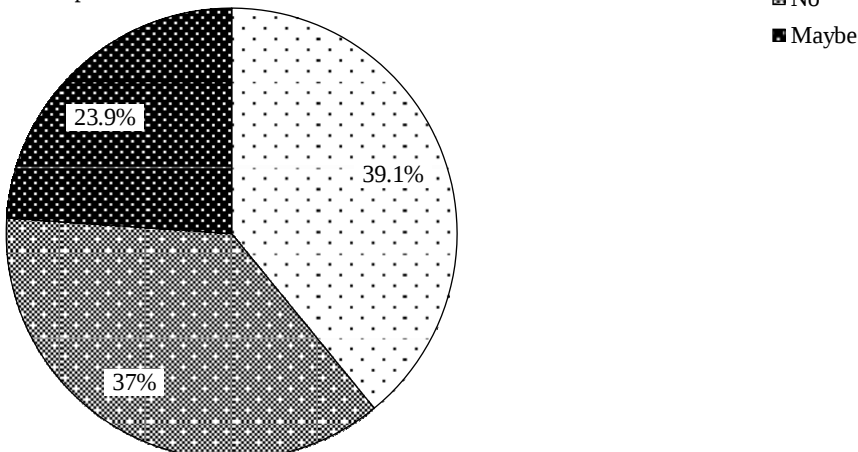


Figure 8. Body pain.

METHODOLOGY

The study was a descriptive study that examined student and media responses, both quantitatively and qualitatively, to reports of emerging physical and mental health issues. In order to better understand the health problems faced by students, we asked the responses of students between the ages of 17 and 25 years, who were studying for degree and Masters and were expected to sit in front of a computer more than 8 h each day. Google Forms were used to collect information. A detailed questionnaire was distributed by us. The aim of the questionnaire was to collect data on health conditions most frequently reported by news organizations.

Findings and Discussions

It is well known that online education has been a major factor in education. Students have embraced this technology to improve their knowledge and skills. It has become an integral part of the educational system, especially for students who are not able to travel or because of their age or health condition [8]. This survey will help us understand the impact it has on the students' mental and physical health (Figure 9). Data analysis shows that 81% of students believe that E-lessons serve as a supplement to lessons but cannot completely replace the actual lesson. Respondents indicate that online classes take place all day long, leaving very little room for extra-curricular activities. Furthermore, 65.2% of students having online courses adversely affected cognitive processing, leading to poorer academic performance. Students reported that the computer screen contained a lot of information that was difficult to understand and very difficult to understand. It creates confusion in their minds and leads to stress and fatigue. Understanding what information should be included and what may be safely ignored by students is quite challenging. Since 55% of students reported symptoms including exhaustion, irritability, loss of confidence, and lack of motivation, it can be inferred from the data that online courses hinder students' ability to cognitively filter information. We are confirming that our investigation found that you are suffering from an issue.

Students can definitely make up missed classes using online courses. Yet, constant exposure to screens over an extended period of time can cause dry eye syndrome, burning eyes, loss of concentration, and flexibility. It causes serious health problems such as nearsightedness and retinal damage. Eye issues are more prevalent than ever today. 6 out of out of 10 wear glasses. Statistics like this send shivers down the spines of most parents concerned about the health and well-being of their, children [9]. A study aimed to count the number of people who experienced eye strain while taking online courses. 86.5% of students experience eye strain and need eye cream or glasses. Clinical issues

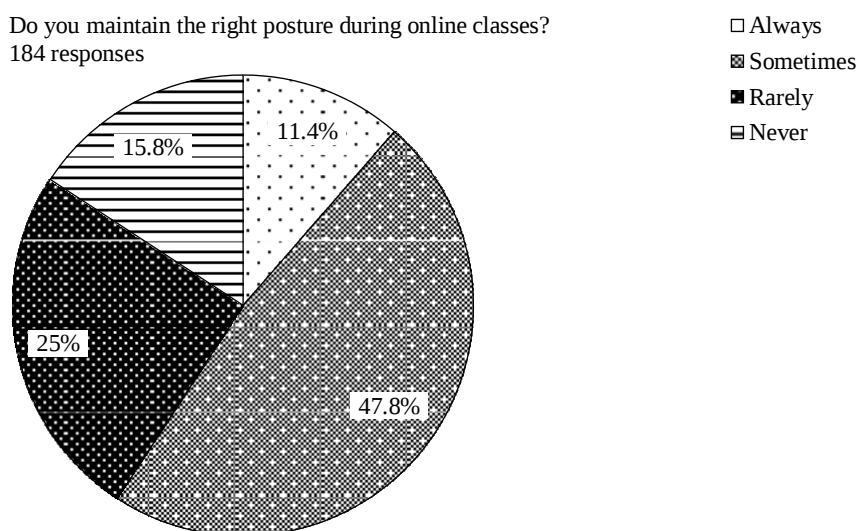


Figure 9. The posture during online classes.

such as eye strain, and insomnia are brought on by computer screens and other digital devices. One of the top causes of these conditions is excessive exposure to blue light emitted from the screens of digital devices. Curiously, blue light is emitted by both the sun and artificial light indoors, but our eyes contain defenses against blue light that limit our exposure to it. Looking at the screen for a long time may cause eye irritation or dryness. Various studies show that people blink significantly less when concentrating on their screen, leading to dry eyes. For clear vision, a clear and stable tear film must be maintained over the eye. According to a poll we did, which included 60% of the responses, 60% of them said they experienced dry eyes and eye irritation. In accordance with our case study, 16.8% of respondents have never heard of blue contact lenses, and 50.5% of college students do not wear them.

The negative effects of blue light have also been discussed by an ophthalmologist interviewed by Hindu magazine. The student had visited a clinic during her COVID-19, complaining of dry eyes and frequent blinking, according to medical experts. These issues are caused by too much screen time. The ophthalmologist suggests maintaining a reasonable viewing distance to avoid clinical problems. Another factor associates with the online course is poor vision, dry eyes, and headaches. Students unconsciously hold devices close to their eyes, overloading eye muscles and ultimately leading to computer vision syndrome (Figure 3). Due to the lockdown, online courses have started without specific guidelines, according to the study, where students remain online in front of a screen from 8 to 12 hour to meet the institution's requirements. Digital Eye Strain (DES) or Computer Vision Syndrome is the clinical name for a group of eye issues brought on by prolonged online contact [10].

Insomnia

Our research shows that 62% of students are sleepy and have trouble concentrating on classes. This was due to changes in sleep styles and deprivation. The 5.9% of students said they experienced stages of insomnia. With flexible class times, recorded lectures are always available, giving students the flexibility to use their digital devices at any time of the day. An unintended consequence of their accumulation is that students use time to review lectures that would otherwise be available for relaxation, self-care, and socializing, resulting in longer screen time to spend. This reduces the hours available for sleep and impacts students' performance the next day. Most respondents say that their sleep quality is affected because their bedroom has become a stressful work space. Respondents indicated that they were mentally tuned to see a bedroom as a place to relax. However, the online course changed that perception and found it very difficult to sleep in the same place after his day of stressful online courses. Most respondents said this change had a significant impact on their sleep quality. According to our survey, over 60.9% of students claim that the availability of online courses has significantly impacted their ability to sleep.

Using digital formats and a wide range of applications in online resources require time and an understanding of technology. Communicating with a mind creates anxiety and ultimately impairs sleep patterns and sleep quality. These circumstances resulted in lack of sleep, which had an immediate effect on pupils' concentration levels.

The research conducted by us, revealed that there are a lot of issues with students who currently follow courses online in India during COVID-19. The absence of physical education lessons is the first significant issue. The students are not able to take part in physical activities as they do not have access to them. The students have no option but to stay at home and watch TV or play games on their phones. This has an adverse effect on the students' mental health and physical fitness. Another major problem we faced while doing this research was that there is no proper monitoring system in place to check whether the students are following their studies properly or not. It seems like a difficult task for parents and teachers to keep track of their children because they have so many distractions at home, so it becomes very easy for them to skip classes and do other things instead of studying. So, even if

someone does not want to study online for any reason, he can just skip classes and continue with his normal life without noticing anything.

Orthopedic Problems

In our survey, more than 50% students complain of body pain. Also, we found out if people maintained good posture or worked hard during online classes. The results were surprising. Most students do not maintain a good posture (Figures 10–12).

Depression and Anxiety

According to the survey, 16% of students agree that online education is the main cause of depression. Further, 82% students believe that mandatory lockdowns and online teaching have significantly reduced their academic productivity. 65% of students really believe negative causes of online education are true.

The impact of online education on children and their families is immeasurable. It changed the way they went about their daily lives. The way parents, teachers and students interact with each other has also changed significantly. Online education has brought many new changes to the education system and these changes have impacted every child's life.

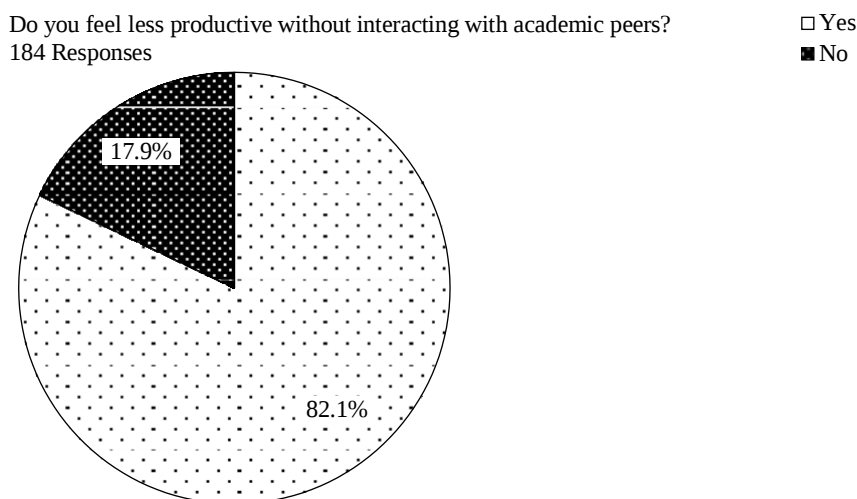


Figure 10. Productivity.

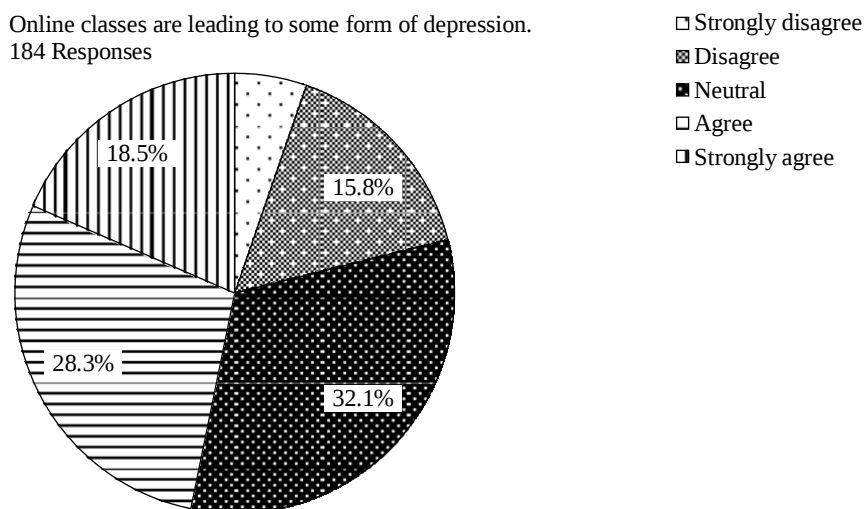


Figure 11. Online classes and depression.

Online classes are spread throughout the day leaving us with little time to focus on extracurricular.
184 responses

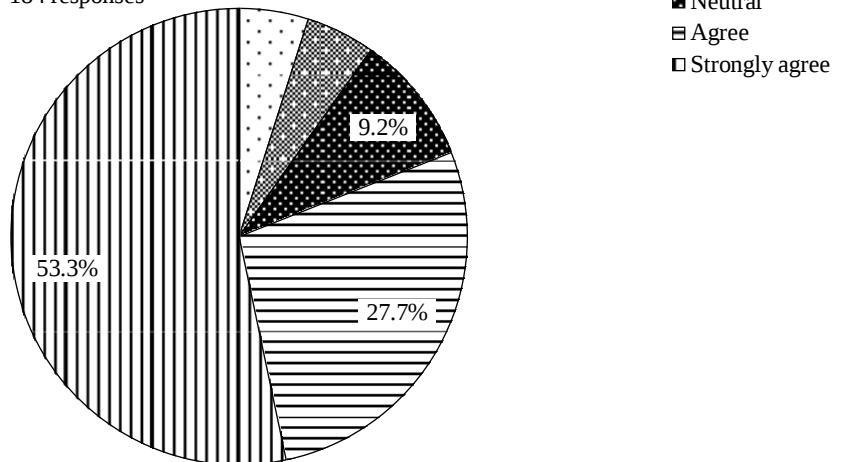


Figure 12. Extra curricular activities.

Online classes are negatively affecting academic performance.
184 responses

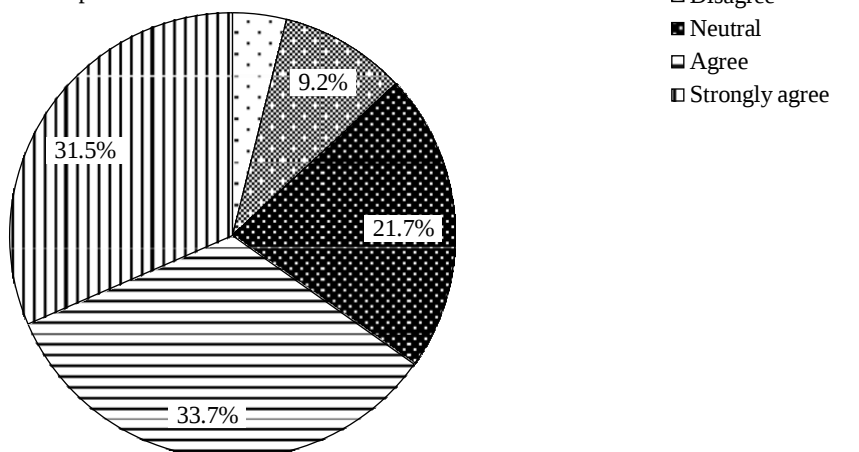


Figure 13. Academic performance.

The idea of online education is not new, but in the last decade it has become popular among students who want to continue their studies at home rather than attending traditional schools. Thanks to the Internet, I was provided with all the facilities I needed for my studies without having to move anywhere or face any problems during my studies. Using their laptops at home, students were able to access a variety of websites containing information about various subjects and tutorials on how to master those subjects better than ever before.

Online Education has made it easier for parents to participate in their child's schoolwork by monitoring them via various video chat services such as Skype and her Google Hangouts. This makes parents more aware of what is going on in school, the goals teachers have set, etc., and lets them know more about their child's performance and progress towards achieving those goals (Figure 13).

CONCLUSION

This poll will be used as a resource for future online courses and classes that will take health concerns into account. This report urges educational leaders, institutions of higher learning, and

governments to think carefully about the social and medical effects of online learning on students' physical and mental health and to take appropriate steps to lessen these effects. It provides conclusive evidence that recommending appropriate strategies is essential. Our research found that the majority prefer the classroom courses over online courses. To make online education more valuable, collaborative efforts involving educators, students, and parents can be launched while taking the pandemic's effects into consideration. Additionally, specific strategies need to be developed to accommodate students with cognitive and other disabilities.

In order to prevent students from spending the bulk of their valuable time in front of screens, course design, online presentations, and the amount and quality of material offered must be changed. Additionally, parents should be aware of the infrastructure and learning attitudes that need to be observed during lessons.

Online education impacts student health in a number of manner like eye pain, loss in focus flexibility, myopia, and retinal damage from prolonged screen exposure. Additionally, screens can greatly affect the amount of sleep you get, and in some cases, even make it difficult for you to fall asleep. The young people experienced symptoms of insomnia and depression. However, depression is occurring not only due to sleep deprivation, but also due to the mental isolation students face due to online classes. To be a viable option, this issue needs to be addressed explicitly.

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