

Increased Paediatric Screen Time During Pandemic: A Cause of Concern to Child Health

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Abstract

COVID-19 has put the globe in an unforeseen and unexpected situation. COVID-19 has affected everyday life all over the world. Human population came face to face to this virus so gravely for the first time. During the initial days nearly all countries imposed lockdown to break the chain of viral spread. This created significant knock-on effects on the daily life of citizens. With the updates on COVID-19, the guidelines issued by medical authorities, categorized geriatric and paediatric age groups to be at high risk. In order to flatten the rising curve of exponential spread of the virus ban on gatherings resulted in enforced shut down of schools. Therefore children were bound to stay home. They were automatically exposed to the over use of electronic gadgets for recreation as well as education purpose. Hence, their screen time increased many fold. This paper describes the impact of COVID-19 and use of electronic screen on children.

Keywords: COVID-19, Lockdown, screen time, children.

Introduction

COVID -19 has taken a toll on every aspect of human life. Its rapid spread around the world, has posed enormous health, economic, environmental and social challenges to the global population. As a result, for the protection of their population mostly all the countries opted for lockdown. Nearly all nations are trying to slow down disease transmission by monitoring and treating patients, quarantining suspected individuals by touch surveillance, banning large gatherings, enforcing complete or partial lock-downs etc. The pandemic of corona virus is a serious disruption to the global economy. With the passage of time, to boost the sinking

economy, gradually lockdowns are being lifted up. As, no records of any clinically approved antiviral drugs or vaccines that are effective against COVID-19 have been published so far. Therefore clinically vulnerable geriatric and paediatric age groups are forced to stay indoors, only. Due to schools shut all over still, over 1.2 billion children are out of the classroom globally. [1,2] As, the pandemic continues to exist globally, the education sector had to shift to the online method of teaching and learning.

During lockdown, children were already made to sit home. Due to lack of physical activity and social interaction, children engaged themselves with cell phones, computers, laptops, tablets and televisions. This added to many fold increase in the screen time of children. Parents also are struggling to maintain balance between work and childcare [3] This is also one of the factors contributing to acceptance of kids engaging with gadgets.

Though, earlier there was high growth in education technology, it has been observed that there is a significant rise in usage of language apps, virtual tutoring, video

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conferencing tools, or online learning softwares, since COVID-19.^[4]

The World Bank is working actively with education ministries in dozens of countries to support their efforts to use all kinds of educational technologies to provide distant learning opportunities to students while schools are closed, as a result of the COVID-19 pandemic.^[5]

The Diksha, E-pathshala, Swayam, The National Repository of Open Educational Resources, are various free digital e-Learning platforms shared by the Ministry of HRD, India.

The decision of online schooling, is however, contributing to the increased screen time. During pandemic, the start of online education, urged parents to buy smart phones for schooling of kids. Not just schooling, many other online hobby classes also emerged on the web platform. Kids are being engaged in these activities, too. Thus, children are definitely spending much time on screen.

Aims: To assess the impact of pandemic on children education and health

Objectives:

1. To understand the effect of Covid-19 on education sector
2. To know the effect of online and offline screen activities on child health
3. To explore the possible solution to the problem

Materials and Method

Various Research articles, news bulletins, international reports, websites online available books, book chapters were reviewed thoroughly to understand and produce the contents.

Discussion

Many a number of researchers have done a comprehensive study on the evil effects of smart phones or cell phones on human health. Smartphones, Cordless phones emit radiofrequency radiation (RF). During the use of cell phones, brain is the easy target for radiations. Considering this fact, IARC (International Society for research on Cancer)evaluated the knowledge in case-control human studies by the Hardell group from Sweden and the IARC Inter-phone study .These studies provided supportive evidence of increased risk for brain tumors,

like glioma and acoustic neuroma. (IARC Monograph, 2013). The scientific panel concluded that RF radiation in the frequency range 30 kHz–300 GHz is a Group 2B possible human carcinogen^[6].

There are various possible health risks associated with overuse of mobile phones to mental and physical well-being, especially low IQ & inadequate behavioral growth in children, sleep deprivation, brain tumors and psychiatric disorders are major problems.^[7]

During growing age, healthy spine is a prerequisite. When kids are slouching over a cell phone for many hours every day, their neck and back muscles are affected. So, they experience nagging pain in these parts. Pain, strain and aching neck muscles can cause a severe headache. Berolo, Wells, & Amick III in 2011 and Ning, Huang, Hu, & Nimbarte, in 2015, mentioned that hand held devices like smart phones and tablets have been associated with musculoskeletal pain and discomfort, particularly in children^{[8][9]}

Riadh et al., 2011 stated that as kids develop more quickly, their cell division is faster. Also their heads are more slender, hence they have bigger effect on their brain. Now, the prevalence of mobile phones use is increasing in children and possibility of children to be more sensitive than adults to potential adverse effects from exposure to RF-EMF, continuous monitoring of children’s health in relation to mobile phones and tablets is needed.

Children spend 7-8 hours of time on smart phones/ computers alone, which is longer than they spend on any other activity. ^[10]

As children get used to personal space, it may further decrease children’s social interaction. Face-to-face social interaction during childhood, is a major factor affecting the development of children’s social competence ^[11] There is also the possibility of bidirectional associations between child social-emotional development and media use.^[12]

Use of cell phones prior to sleep may affect the initial part of sleep by making changes in brain activity.^[13]

Excessive screen time may lead to accelerated myopia excessive screen time.^[14] Mobile phones are smaller devices that are generally held at a distance of 20–30 cm from the eyes, leading to digital eyestrain. It has been reported by Long et al that if the viewing

distances are closer, the resulting eyestrain symptoms are greater after reading for 60 min from a smartphone.^[14]

Mostly digital screens are backlit and emit blue light or high-energy visible (HEV) light wavelengths. It has been found that eyes are sensitive to blue light exposure. Gradually, after a passage of time the overall damage may increase the chances and severity of eye disorders. (e.g. age-related macular degeneration and cataracts)^[13]

Pediatric age group is growing up with touchscreen technology at their fingertips. The speculations that the rising prevalence of asthenopia in the young may be due to over use of smart phones seems to be reasonable.^[11]

An eye examination, reducing the amount of time that a child can continuously use the computer, the position of the computer, the lighting for glare on the computer screen, reduction of the amount of lighting in the room are the requirements for appropriate viewing habits in children.^[14]

Similarly, the use of smart phones or tablets should also be under proper guidance by following sop of their usage.

Kesari *et al.* reported that mobile phone radiation may increase the reactive oxygen species, which plays an important role in the development of metabolic and neurodegenerative diseases. In an animal study, chronic exposure to Wi-Fi radiation appeared to cause behavioural alterations, liver enzyme impairment, pyknotic nucleus, and apoptosis in brain cortex.

With the advent of digital technology, entire population is exposed to some or the other effects of technology. Earlier generations have never been exposed during childhood and adolescence to this kind of radiation. Hence, it is going to take a long time to evaluate and conclude about the effects of radiation on younger population. Neuro-degenerative and carcinogenic changes take decades to manifest. But when earlier studies have already proved, use of smart phones as one of the possible causes of rise in cancer, education policy makers must keep in mind these established facts while designing education policy for younger population of the country.

In India, Swayam Prabha, a group of 32 Direct To Home (DTH) channels is devoted to telecasting of educational programs round the clock. The programmes are available across the country. The channels air

courses for school education (class 9-12), higher education (undergraduate, postgraduate) as well as for out-of-school children, vocational education and teacher training.

A start up Think Zone” in Odisha, India has taken an initiative to reach out to children with no access to internet facility. It is broadcasting activity based learning modules with the help of a local radio channel for students aged 3 to 10.

Similarly, there is a need to explore other options of teaching and learning which are less harmful to paediatric age group. Many intellectuals assert that education system was already losing its relevance but the varying effectiveness of online learning cannot compete with the absence of classrooms.

Conclusion

To think of any long-term effects of the current online education scenario, will be a hasty step. But definitely a serious thought must be given to the future consequences of screen use by pediatric age group. Perhaps it is too necessary to educate children, but it isn't that big problem at all. So, it is the need of the hour to think about affordability of imparting education at the cost of health. Thus, the other ways out for educating children must be explored. More the hours of use, more will be the absorption of radiations, so children must be taught to refrain from mobile phones. Landlines, Skype, and computer phone services, when connected to the internet with a cable, don't give off radiations, therefore the parents should take care that kids use those. The Wi-Fi routers in the home should be placed away from where people, particularly children, spend most of their time. To keep children healthy, overuse of cell phones and other wireless devices by kids must be restricted. We must not undermine children's mental and physical state day-by-day, caused by the excessive usage of cell phones for education as well as recreation.

Ethical Clearance: Taken from institutional ethics committee.

Source of Funding: Self.

Conflict of Interest: Nil.

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