



## ADVERSE EFFECTS OF SMART PHONES ON CHILD HEALTH & THEIR SAFETY MEASURES

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### ABSTRACT

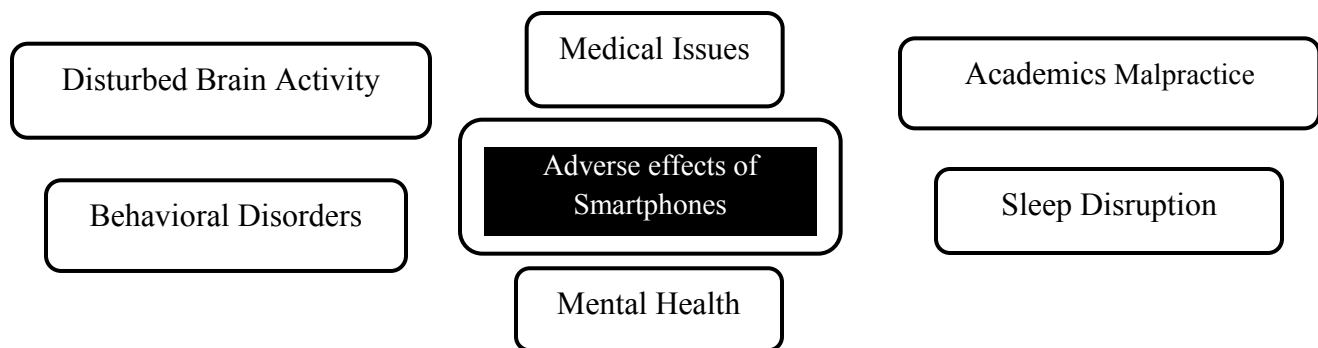
Technology is playing a bigger role in our lives on what seems to be a daily basis. In the future, our children will interact with technology in a manner that cannot even imagine. The use of digital technology has grown rapidly during the last couple of decades. No doubt, there are many benefits of the cell phones such as the ease of communication, the anytime, anywhere contact with friends, family and the efficiency. But like every technological advance that provides such dramatic benefits, it has also consequential costs. During use, mobile phones and cordless phones emit radiofrequency radiation. A child's brain is too sensitive to withstand the effects of smartphones radiation. Smartphones are also psychologically addictive, and the radio frequencies emitted from them can affect the childhood brain development. With respect to health implications of digital technologies, it is of importance that neurological diseases, psychological addiction, cognition, sleep, and behavioral problems are considered in addition to cancer. Well-being needs to be carefully evaluated as an effect of change behavior in children and adolescents through their interactions with modern digital technologies. This article describes the potential serious health threats from digital devices to the children and their safety measures.

**Keywords:** *Smartphones, Digital technology, Neurological diseases, Psychological addiction, Cognition, Behavioral problems.*

## INTRODUCTION

The widespread use of technology trickles down to the youngest member of our society. It should come as no surprise that smartphones and tablets have now replaced basketballs and baby dolls on a child's wish list. [1] Today's children are growing up in a radio-frequency environment that never existed in human history before. No doubt, there are many benefits of the cell phones such as the ease of communication, the anytime, anywhere contact with friends, family and the efficiency. But like every technological advance that provides such dramatic benefits, it has also consequential costs. Children just like the teens are addicted to the smartphones. During use, mobile phones

and cordless phones emit radiofrequency radiation. A child's brain is too sensitive to withstand the effects of smartphones radiation. Smartphones are also psychologically addictive, and the radio frequencies emitted from them can affect the childhood brain development. [2] Smartphones have become a widespread phenomenon in the present time. These pocket-sized tools are not less than a minicomputer. They can do anything- from a standard phone call to surf the internet. Not just the adults this technology is affecting the kids as well. [3]



According to the opinion of the Russian National Committee on Non-Ionizing Radiation Protection in a 2008 report to WHO, the following health hazards are likely to be faced by the children mobile phone users in the nearest future: [4]

### 1. Medical issues:

**Smartphones promote sedentary behavior, which leads to obesity;** using a smartphone, a tablet or any other form of screen media generally requires a lot of sitting in order to pay attention to it. [5] Children addicted to technologies will always choose to engage in their addiction when given the choice of engaging in other activities, including physical activities. This puts them at risk for obesity and other illness, which can later develop into many harmful diseases such as diabetes, hypertension, heart disease etc.

**They can cause eye discomfort;** staring at screens for long period of time can cause discomfort to the eyes. Both children and adults can experience it, but children may be more susceptible to developing symp-

oms commonly referred to as “digital eye strain”, symptoms usually include pain, fatigue, blurred vision, headaches and dry eyes. [5]

**Bodyache:** smartphones use forces people to tilt heads down to look at them while moving their wrists and fingers in unnatural ways. Doing this frequently and for prolonged periods can cause pain and even permanent damage to bones and joints in the upper part of the body- especially the neck and spine. [5]

**2. Disturbed Brain Activity:** Smart phones primarily function on electromagnetic waves for all forms of communication. In children, the waves from the phone can easily penetrate right into the interior parts of the brain, as they do not have a strong shield. Research has shown that by merely talking on the phone for 2 minutes, the electrical activity inside a child's brain can be changed. This disturbed brain activity could impair mood patterns and behavioral tendencies. [6] **It affects their learning ability;** smartphones are a constant dis-

traction for not only adults but children as well. Smartphones and tablets may replace the hand-on activities that are so important in the development of sensorimotor and visual motor skills. This impairs children’s ability to learn and read, and also limits creativity. [7]

3. **Behavioral disorders (Attention Deficit Hyperactivity Disorder, Autism Spectrum Disorder etc.):** as smartphones are keeping the brain continuously busy without any rest, kids tend to be more annoying. They tend to become more violent and irritated even at the normal discussions. These children are so obsessed for their phone and become irritable if they have to be away from their phone for any period of time. Parents usually give a smartphones or tablet to calm down their kids in the midst of a temper tantrum. If these devices become the main way to calm and distract young children, they will have difficulties developing their own internal mechanism to regulate themselves. [8]
4. **Academic Malpractice:** many children carry phones along with them to their schools. Chatting with friends or playing games during school breaks or even in class, is increasing day by day. This results in children failing to pay attention in the class, missing out on important lessons, and

consequently, being clueless about studies and examination. Using an inbuilt calculator in exams where it isn’t allowed, storing photographs or reference information to cheat in the examination, have been widely observed in various schools. Such behavior not only affects academic performance, but also results in a personality issue. [6]

5. **Sleep Disruption:** [4] Disturb sleep among adolescents seems to be a growing problem, children may stay up late talking to friends, playing games, or scrolling through social media, which over a period of time, causes fatigue and restlessness and troubles sleeping. Sleep also disrupts academic life, as kids are too sleepy to concentrate on what is taught in school.
6. **Mental Health:** learning to interact with others is a critical component in our overall success as human beings. We learn these skills when we interact with one another starting at a young age. If children are spending more time with technology than interacting with others, they miss out on the development of those skills that are so essential to a rich and rewarding life. The pressure for teens to be available on social media 24 hours a day and seven days a week was attributed to low self-esteem, poor sleep quality, anxiety and depression.

**In 2016 American Association of Pediatrics (AAP) Updated Their Recommendations About Children’s Media Use:** [9]

Age	Limited screen time
<24 months	Children should not have any screen time.
2 - 5 year	Limit their exposure to 1 hour per day. Parents should watch with their children so that they understand what they are seeing.
6 years and older	Limit their exposure to 2 hours per day and monitored to ensure that it does not take the place of sleep, physical activity and other activities essential to developmental health.

**Safety Tips to avoid the risk of Smartphones:**[6]  
Taking the right measures to ensure mobile phone safety for kids is extremely important while they are growing up.

- As an adult, it is important for parents and other people in the house to restrict their use of phones when they are around children, this will not only

avoid radiation but also create a behavior pattern as well.

- Avoid giving cell phones to children under the age of 16. Young children are yet to develop the required skull bone density and protective tissue for the brain, making them vulnerable to effects of the radiation.

- Encourage outdoor activities that will help him learn to play with other kids.
- Completely restrict your child from taking phones to school. Keep the school's contact number and provide them yours in case of an emergency.
- Do not let your child use smartphones before sleep.
- Monitor their use of smartphones so that it does not become a habit for them.

## DISCUSSION

There are many potential health risks to mental and physical well-being related to overuse of cell phones, especially low IQ, improper mental growth in children, sleep deprivation, behavioral disorders and disruptive brain activity are hot-button issues. These wireless devices are now part of our everyday life, but they can be used in a manner that is safe enough for children, such as limit their screen time, restrict their use of phones when they are around children, encourage their outdoor activities, monitor their use of smartphones provides a thousand times reduction in risk.

## CONCLUSION

There is the need to understand potential serious health threats from digital devices and the wireless technology emissions they produce, as well as the unprecedented effects of changed behavior in children and adolescents that take place through their interactions with mobile phones and other modern digital technologies. Frequent mobile device use is likely to increase children's social isolation, and hinder opportunities for social interaction with family, friends, that benefits the development of social competence, resulting in various emotional/behavioral problems. <sup>[10]</sup> It is not realistic to expect that we cannot take technology completely away from our children, nor it is productive. However, what we can do is assume responsibility for our children's technology habits by limiting their exposure. Children are resilient and will get used to whatever limitations placed on them.

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