



The Impact Of Smartphones On Child's Health & Lifestyle And Safety Protocols Through Ayurveda

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Abstract: The increasing use of smartphones among children has raised concerns about its impact on their physical, cognitive and emotional well-being. While smartphones offer convenience, communication and access to information, excessive screen time has been linked to various health risks, including obesity, sleep disturbances, postural issues, cognitive impairments and behavioral disorders such as ADHD and Autism Spectrum Disorder. Exposure to blue light and violent or addictive content further exacerbates these issues, affecting children's academic performance, mental health and social interactions. From an Ayurvedic perspective, smartphone addiction is associated with *Manas Dosha* imbalances, particularly *Rajoguna* and *Tamoguna*, affecting cognitive functions and emotional regulation. Ayurvedic interventions such as *Satvavajaya Chikitsa* (psychotherapy), *Medhya Rasayana* (cognitive-enhancing herbal remedies), *Padamshika Karma* (gradual withdrawal), and *Yoga therapy* offer natural solutions for managing addiction. These approaches emphasize mindful regulation, self-discipline, and cognitive enhancement to counteract the negative effects of excessive gadget use. Preventive measures, including parental guidance, regulated screen time, and lifestyle modifications, are crucial to mitigating the adverse effects of smartphone overuse. Integrating Ayurvedic principles with modern interventions provides a holistic strategy for promoting healthy digital habits among children.

Keywords- Behavioural issues, Neurological disorders, *Ayurveda*, *Acharrasayana*, Smartphone Addiction.

INTRODUCTION

The youngest members of our society are impacted by the pervasive usage of technology. It should come as no surprise that children's wish lists now include cell phones and tablets instead of basketballs and baby dolls.¹ Today's children are growing up in an environment that has never been exposed to radiofrequency in human history. Cell phones unquestionably have many benefits, including efficiency, simplicity of communication and anytime, anywhere contact with friends and family. But there are also corresponding disadvantages to any technical advancement that offers such striking advantages. Teenagers and children's cell phones and cordless phones release radiofrequency radiation when they are in use. The child's brain is not strong enough to resist the impacts of radiation from smartphones. Moreover, smartphones are psycho-rationally compelling, and the radio frequencies released from them may impact a child's brain development.² Smartphones have proliferated as a currently known phenomenon. These little instruments are comparable to a minicomputer. They may do anything -anything from a routine phone call to online browsing. This technology is influencing children as well as adults.³

HARMFUL EFFECTS OF SCREEN TIME ⁴

Policymakers, paediatricians and parents must be aware of the adverse effects of children spending time on screens. The most investigated electronic media is television exposure; additional areas that are important include internet access, gaming addiction, social media addiction and mobile dependence and some harmful effects are described in this article to understanding the serious impact in human body. This review will include all disorder arise due to excessive screen time. These are: -

1. Obesity

Numerous randomised controlled trials (RCTs) and longitudinal cohort studies have shown a causal link between screen media consumption and obesity.⁵ It has also been demonstrated that preschoolers who watch television for more than two hours a day become obese.⁶ One significant connection between media use and the intake of unhealthy foods and the ensuing obesity is food advertising.⁷ Reduced sleep, increased consumption of high-calorie, low-energy foods and decreased physical activity are other hypothesised processes linking screen time to obesity. Lack of sleep causes ghrelin and leptin levels to fluctuate, which increases hunger and decreases fullness. Insufficient sleep duration increases the amount of harmful calories consumed by snacking and eating outside of regular mealtimes, particularly at night.⁸ Sitting in one single place for longer duration while using smartphone increases *meda dhatu* which leads to obesity (*sthaulya*)⁹

2. Sleep Disturbance

Electronic media emit blue light, which inhibits and interferes with the release of melatonin. Utilising light-emitting devices before bed is linked to a reduction in perceived drowsiness and inhibits the late-evening rise of pineal melatonin.¹⁰ Children who see violent or sexual content in the media may become excited, afraid or stressed, which can force them to sleep later than they should. Exposure to violent daytime media has also been linked to nightmares, insomnia and night terrors, all of which negatively impact the quality of sleep.¹¹ Internet browsing and social media use have been linked to midsleep awakenings and maximum sleep onset latency.¹² It was discovered that using media as a sleeping aid was linked to increased levels of weariness, later bedtimes, less hours of sleep per week and lower-quality sleep.¹⁰⁻¹² states that sleep disturbances occur due to excess *Vata* and *Pitta* aggravation, leading to an overactive nervous system and mental instability.¹³ Sensory stimulation (like screen exposure) disturbs the equilibrium of *Tarpaka Kapha*, leading to sleeplessness.¹⁴

3. Visual Disturbance

These arise because the visual needs of the task exceed the visual ability of the individual to comfortably do that task. At greater risk for developing computer vision syndrome are those people who spent eight or more hours daily at computer.

Common symptoms include: Eyestrain, headaches, blurred vision, difficulty in changing focuses between far and near, dryness of eyes, irritated eyes, tired eyes, redness, contact lens discomfort.

Netra Roga (Eye Disorders): Excessive screen time causes "*Timira-Avyaktarupa*"¹⁵(blurred vision), "*Shushkakshipaka-Aviladarshana*"¹⁶(dry eye syndrome), and eye strain due to prolonged exposure to blue light.

*Purvarupa: Avila, samrambha, ashru, kandu etc.*¹⁷

According to *Acharya Vaghbhatta* is characterized by *Gharshna* (foreign body sensation), *Toda* (pricking pain), *Upadeha* (loss of clear vision due to waste deposition), *Rooksha Daruna Vartma* (hardness and roughness of the eye lids), *Krichra, Unmeela Nimeela* (difficulty in closing and opening of lids), *Shushkata* (dryness), *Shoola*(Pain)

4. Postural Disorder

Prolonged smartphone use can lead to musculoskeletal problems. Neck, shoulder, and thumb pain are common in smartphone users, and their severity increases with prolonged duration of use. Postural deviations such as forward head posture (FHP), slumped posture or rounded shoulders are common end-results of prolonged smartphone use. In addition, prolonged FHP posture has been associated with various musculoskeletal disorders of the cervical and lumbar spine.

Long hours of improper sitting cause *Griva Stambha* (neck stiffness), *Kati Shoola* (lower back pain), and spinal deformities due to excessive strain.¹⁸

5. Mental and Emotional Health Issues

Manasika Vyadhi (Psychological Disorders): Overuse of smartphones leads to stress, anxiety, depression, insomnia, and behavioural disorders, which can be correlated with "*Chittodvega*" (mental restlessness) and "*Anidra*" (insomnia).

Dhi, Dhriti, Smriti Hani (Cognitive Impairment): Reduced attention span and memory loss are due to constant digital distraction, affecting *Buddhi* (intelligence) and leading to *Medha Kshaya* (decline in intellect).¹⁹

5. Body Image Perception and Emotional Disorders

Comparing oneself unfavourably to others on social media, such as receiving fewer likes on a post can have detrimental effects on body image and mental health, particularly in individuals with vulnerable minds.²⁰ Research has also shown that exposure to television at a young age, specifically at 1 and 3 years old, is linked to attention problems later in childhood, around 7 years old.²¹ Furthermore, comprehensive reviews and analyses of multiple studies have revealed a significant, albeit small, correlation between social media usage and symptoms of depression.²²⁻²⁴

6. Drug and Substance Abuse

Media violence exposure can cause anger, arousal and aggressive thoughts and actions later on.²⁵ Movie smoking exposure has been found to be a risk factor for children to start smoking.²⁶ Comparing alcohol ads to non-alcohol ads, it has been discovered that watching alcohol ads increases immediate alcohol consumption.²⁷ Cyberbullying can have a significant psychological impact and appears to be more closely associated with substance misuse and sadness related to substance abuse than traditional bullying.²⁸ Sending or receiving sexually explicit messages or images is known as sexting. Adolescent sexting has the potential to result in sexual harassment and undesirable sexual behaviours. It has also been connected to adverse consequences like low self-esteem and sadness.²⁹

Their capacity to learn is impacted; smartphones are a continual source of distraction for both adults and child. The hands-on activities that are crucial for the development of sensorimotor and visual motor abilities may be replaced by smartphones and tablets. Children's reading and learning skills are hampered and their creativity is also constrained.³⁰

7. Behavioural issues

Such as attention deficit hyperactivity disorder and autism spectrum disorder in children who use smartphones constantly and without breaks are more likely to be obnoxious. Even during casual conversations, they have a tendency to become increasingly aggressive and agitated. These kids are completely dependent on their phones and they get upset if they are separated from them for even a short while. When their children are having a tantrum, parents typically give them a smartphone or tablet to help them relax. Young children will struggle to build their own internal self-regulation system if these gadgets take over as the primary means of calming and diverting them.

8. Mental Health:

One of the most important aspects of our success as human beings is learning how to communicate with others. We pick up these abilities through early interactions with one another. Children lose out on the development of those abilities that are so vital to a rich and fulfilling life if they spend more time on technology than connecting with others. Low self-esteem, poor sleep, anxiety and depression have all been linked to youth feeling pressured to be active on social media twenty-four hours a day, seven days a week.

9. Brain function affected

Smartphone addiction has significant negative effects on brain structure, function and overall well-being. Neuroimaging studies reveal that it alters brain regions responsible for attention, decision-making, emotional regulation and cognitive control. It is linked to increased impulsivity and reduced grey matter volume in critical executive areas like the prefrontal cortex and anterior cingulate cortex. Additionally, addiction disrupts inhibitory control and white matter integrity, leading to impaired connectivity between brain regions. Dopamine-related dysfunctions in the brain's reward system further contribute to addictive behaviours, similar to substance abuse. This addiction negatively impacts cognitive function, academic performance, mental health and even physical well-being, causing stress, anxiety and postural issues.

Ayurveda Approach in Smartphone Addiction

Hetu

1. AsatmeindriyarthaSamyoga

Excessive gadget use can lead to sensory overload, causing subjective experiences that can cause ill effects, anger, delusions, memory loss and intellect destruction, ultimately affecting decision-making.

*Asatmyendriyartha Samyoga*³¹: Overexposure to violent or inappropriate content disturbs the natural *Manas Prakriti* (mental constitution) and increases aggression, social withdrawal, and reduced empathy

2. Pradnyaparadh³²

The terms *Pradnya* (intellect) + *Dhruti* (control) + *Smriti* (memory) and *Aparadh* (misdemeanour) combine to form the word *Pradnyaparadha*. Thus, disturbed cognition, control and memory lead to *Pradnyaparadha*. Additionally, (which could be of any kind), the addict's mental capacity is impaired, which in turn impairs their ability to make morally sound decisions.

Dosha

ManasDosha

Raj Guna is associated with the clinical symptoms of gadget addiction, while *TamoGuna* is the predominant feature.³³

Dehadosha

Vata: *Vata Dosha* controls the mind; with gadget addiction, the mind's ability to restrain itself is retarded.³⁴

Pitta: In *Sadhaka Pitta*, gadget addiction causes a delay in intelligence.³⁵

Dushya: *Buddhi* - *Buddhi*'s function is to influence a person's intellect, restraint, and memory. We can infer from the aforementioned clinical aspect that the primary *Dushya* in gadget addiction is *Buddhi*. *Adhishtan* - *Manas* (Mind)

Preventions

Ayurvedic Safety Protocols to reduce Smartphone Harm in children

Ayurveda is known as leading science and describe way to prevent the harmful effect of smartphones. Various modalities according to *ayurved* for prevention of smartphone harm are following: -

a. Limiting Screen Time and Following *Dinacharya* (Daily Regimen)

Follow *Brahma Muhurta Jagran* (Waking up early at 4-6 AM) and avoid screen exposure immediately after waking.³⁶

Encourage *Vyayama* (exercise), *Pranayama*, and Sunlight exposure to counteract the effects of sedentary screen time.³⁷

b. Eye Protection Measures

Netra Prakshalana (Eye Washing): Wash eyes with *Triphala Kashaya* (herbal decoction) to prevent dryness and strain.³⁸

Netra Tarpana (Eye Nourishment Therapy): Application of cow ghee or *Triphala ghee* for lubrication and rejuvenation.³⁹

c. Diet and Herbal Remedies for Brain Health

Medhya Rasayana (Cognitive Boosting Herbs): *Brahmi*, *Shankhpushpi*, *Guduchi*, and *Yashtimadhu* enhance memory and reduce mental fatigue.⁴⁰

Nidra (Proper Sleep Routine): Encourage *Shiro Abhyanga* (head massage with oil) and warm milk with *Ashwagandha* before bed to prevent digital insomnia.⁴¹

Preventive measures for staying safe when using smartphones (As per conventional system)

The IAP Guidelines and Recommendations Regarding Children's Media Use in 2022:⁴²

Table :01

Age	Minimal time spent on screens
0-23 month	Children below 2 years age should not be exposed to any type of screen
24-59 month	Limit screen time to a maximum of 1 hour per day (with each session not more than 20-30 min); the lesser, the better.
5-10 year	Limit screen time to less than 2 hours per day; the lesser, the better. This includes recreational screen time, and time spent on screen at home to complete educational and extra-curricular assignments.
10-18 years age	Balance screen time with other activities that are required for overall development.

As children grow up, it is crucial to take the proper precautions to protect their mobile phone safety.⁴³

- As adults, parents and other household members should limit their phone use while they are near children. This will prevent radiation exposure and establish a habit of behaviour.
- Don't give child younger than sixteen cell phones. Due to their immature skull bone density and lack of brain-protective tissue, young children are more susceptible to the radiation's effects.
- Promote outside play activities that will teach him how to interact with other children.
- Strictly prohibit your child from bringing phones to class. In the event of an emergency, keep the school's phone number handy and provide it to them.
- Before going to bed, don't let your child use their phones.
- Keep an eye on how they use their phones to prevent them from developing a bad habit. Alike are addicted to cell phones.

Management as per Ayurveda

1. Cognitive Behavioural Therapy

Cognitive Behavioural Therapy (CBT) is the most effective method for managing smartphone addiction. It helps individuals recognize addictive behaviours, develop coping strategies and prevent relapse. The therapy follows five stages: pre-contemplation (breaking denial), contemplation (acknowledging the need for change), preparation (planning for change), maintenance (gaining control over gadget use) and termination (preventing relapse). CBT not only reduces addiction but also improves mental and physical health. However, it is costly, time-consuming, and requires trained professionals, making accessibility a challenge, especially in rural and developing areas. According to *ayurveda Chitta Prasadana* (Mind Purification) – Achieved through *Japa* (Chanting), *Pranayama*, Meditation, and Yogic Practices, which resemble mindfulness and relaxation techniques in CBT. *Ahara-Vihara* (Diet & Lifestyle Modification) –

Just like CBT integrates behavioural changes, *Ayurveda* emphasizes *Sattvic Ahara* (pure diet) and *Dincharya* (daily routine) to support mental stability.

2. *Padamshika karma*

This method offers a gradual transition from unwholesome to wholesome habits by reducing them in increments. Over time, negative habits should be completely abandoned, while positive habits are gradually adopted. This method was given by *Acharyas* in managing *Apathyas* of patients. In case of smartphone addiction if a child is using smartphone for 4 hours daily then the *Padamshika Karma* can be as follows:

Table:2

Day	<i>Padamshika karma</i>
1	3 hours smartphone, 1 hour other activity
2	4 hours smartphone
3	3 hours smartphone, 1 hour other activity
4	2 hours smartphone, 2 hours other activity
5	3 hours smartphone, 1 hour other activity
6	3 hours smartphone, 1 hour other activity
7	2 hours smartphone, 2 hours other activity
8	1 hour smartphone, 3 hours other activity
9	2 hours smartphone, 2 hours other activity
10	2 hours smartphone, 2 hours other activity
11	2 hours smartphone, 2 hours other activity
12	1 hour smartphone, 3 hours other activity
13	4 hours other activity
14	1 hour smartphone, 3 hours other activity
15	4 hours other activity

3. *Satvavajaya chikitsa*

Satvavajaya Chikitsa is a psychological approach aimed at gaining control over the mind. It includes techniques like reassurance, emotional replacement, guidance, patience control and decision-making support. *Acharya Charaka* emphasized various psychological methods under this therapy, which can be useful in managing gadget addiction by reshaping children's thinking. This therapy requires minimal infrastructure and family members can easily be trained to apply it. Additionally, it has been traditionally practiced, making it widely acceptable. Studies suggest that *Satvavajaya Chikitsa* improves short-term memory and helps manage anxiety (*Chitodvoga*).

4. Yoga therapy

Acharya Patanjali defines *Yoga* as *Yogah Chitta Vritti Nirodhah*, meaning it helps control the mind and thought process. *Yoga* is not just physical exercise but consists of eight steps: *Yama* (self-regulation), *Niyama* (self-discipline), *Asana* (posture), *Pranayama* (breathing control), *Pratyahara* (sense withdrawal), *Dharana* (concentration), *Dhyana* (meditation) and *Samadhi* (self-realization). *Yoga* detoxifies the mind, body and soul, helping with addiction cravings, compulsive behaviour and emotional regulation. Regular practice activates brain waves linked to better memory and mood. It also increases grey matter volume, counteracting the effects of internet addiction. Thus, *Yoga* is beneficial for de-addiction and managing gadget addiction.

5. Aachara Rasayana

Aachara Rasayana is an ethical guideline that prevents wrong actions and avoids *Pragyapradha*, *Asatmendriyarthasamyog* and *Parinam* by emphasizing do's and don'ts for maintaining physical and mental well-being. It helps achieve balance in daily life. Behavioural medicine, influenced by *Aachara Rasayana*, plays a crucial role in addressing modern challenges like smartphone addiction in children, which often arises from stress and an unhealthy lifestyle.

6. Pharmacotherapy

a. Medhya Rasayana

Medhya Rasayana consists of *Medha* (intellect) and rejuvenation, meaning it enhances cognitive functions. It strengthens *Dhee* (intelligence), *Dhriti* (patience) and *Smriti* (memory), preventing *Smritibhramsha* (memory impairment) and promoting righteous decision-making. Gadget addiction shares similarities with *Raja* and *Tama Guna* predominance, leading to mental imbalance. To restore equilibrium, increasing *Satva Guna* through *Medhya Rasayana*, counselling, ethical practices (*Sadvritta Palana*), and meditation (*Dhyana*) is essential. Studies confirm that stress, depression and anxiety are linked to addiction. *Medhya Rasayana* acts as a natural antidepressant, anti-stress and anti-anxiety remedy with no side effects, making it a suitable option for managing smartphone addiction in children.

b. Drug and yoga

Drugs (Herbal & Ayurvedic):

- *Brahmi* (*Bacopa monnieri*) – Enhances cognitive function, reduces anxiety.
- *Ashwagandha* (*Withania somnifera*) – Lowers stress and improves mental clarity
- *Shankhpushpi* (*Convolvulus pluricaulis*) – Helps in memory enhancement and relaxation
- *Tagara* (*Valeriana wallichii*) – Induces calmness and reduces hyperactivity
- *Jatamansi* (*Nardostachys jatamansi*) – Supports nervous system and improves sleep

Yoga Practices:

- *Padmasana* (*Lotus Pose*) – Calms the mind and improves concentration
- *Vajrasana* (*Thunderbolt Pose*) – Aids in relaxation and reduces restlessness
- *Anulom-Vilom Pranayama* – Balances nervous system and relieves stress
- *Bhramari Pranayama* – Reduces anxiety and enhances mental peace
- *Shavasana* (*Corpse Pose*) – Deep relaxation and stress relief

DISCUSSION

This review highlights the growing concerns associated with smartphone usage among children, emphasizing both physical and mental health implications. While smartphones offer numerous benefits, such as enhanced communication and accessibility, their overuse presents significant challenges, including radiation exposure, addiction, cognitive impairments and behavioural issues. The study effectively links smartphone addiction to neurological disorders, sleep disturbances, and behavioural problems such as ADHD and Autism Spectrum Disorder. It also sheds light on the negative impact of excessive screen time on children's academic performance, social interactions and physical health. The discussion on radiation exposure is particularly relevant, as children's developing brains are more vulnerable to electromagnetic waves. *Ayurvedic* interventions such as *Satvavajaya Chikitsa* (psychotherapy), *Padamshika Karma* (gradual withdrawal from addiction), *Medhya Rasayana* (cognitive-enhancing herbal remedies) and *Aachara Rasayana* (ethical conduct) offer natural and sustainable solutions. Additionally, *Yoga* and mindfulness practices are emphasized as effective strategies to reduce impulsivity and improve emotional regulation. One of the key takeaways is the need for early intervention and parental control. The article suggests limiting screen time, encouraging outdoor activities and maintaining strict guidelines for smartphone use, aligning with recommendations from the American Academy of Paediatrics. While the study presents compelling arguments, a few areas require further exploration. For instance, while the dangers of smartphone radiation are mentioned, a deeper discussion on scientific evidence supporting these claims would add more credibility. Additionally, the article could explore how technological advancements, such as blue-light filters and parental control apps, can mitigate some negative effects. Overall, this review underscores the necessity of balancing technology use with mindful regulation. Integrating *Ayurvedic* principles with modern interventions presents a promising approach to managing smartphone addiction in children.

CONCLUSION

Nowadays due to modernization, the changes in life style observed and day to day regimen described in *Ayurveda* do not follow properly. So childrens are suffering from these type of harmful effect. The widespread use of smartphones among children has introduced both benefits and significant health risks. While these devices facilitate communication, learning and entertainment, excessive usage has been linked to physical, psychological and cognitive issues. Radiation exposure, behavioural disorders, sleep disturbances, academic decline and mental health challenges are among the primary concerns associated with prolonged smartphone use. This review highlights the urgent need for preventive measures, including parental supervision, screen time and lifestyle modifications. The *Ayurvedic* perspective provides a holistic approach to managing smartphone addiction through practices like *Satvavajaya Chikitsa*, *Medhya Rasayana*, *Padamshika Karma*, and *Yoga therapy*, which promote cognitive balance, emotional stability and self-regulation.

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