

Increasing Sleep Disorder in Children: The Dark Shade of Technology

Vaibhav Jaisawal¹

¹Assistant Professor, Dept. of kaumarbhritya/ Balroga, Faculty of Ayurveda, IMS, BHU.

Abstract

Television (TV), smart phones, iPod's and video games have become an integral part of our children's daily lives. No one can think life without these. Its like food or may can compare with oxygen to children. The media has demonstrated potentially profound effects, both positive and negative, on children's cognitive, social, and behavioral development. Hours of television and mobile, even more in this Lockdown period, increasing the screen time have been linked with poor sleep quantity and quality as well. Poor sleep quality is highly prevalent in children with behavioral or emotional problems such as anxiety, depression, or attention-deficit/hyperactivity disorder (ADHD). Good sleep is essential and advantageous to the quality of life. A number of vital physiological changes occur during sleep and help people stay healthy and function at their best. Ayurveda regards *Nidra* (sleep) as one of the most essential factors responsible for a healthy and fulfilling life. It is one of the *Trayopastambhas* (three great subsidiary pillars) on which a person's health is firmly balanced. Now as a part of practice a pediatrician need to educate children as well as parents about the adverse effect of mobile and other gadgets.

Keywords: Lockdown, ADHD, Nidra, Education.

Introduction

Children comprise one of the largest consumer groups of technology [1]. Television (TV), smart phones, iPod's and video games have become an integral part of our children's daily lives. No one can think life without these. Its like food or may can compare with oxygen to children. We live in a generation that relies heavily on technology. Whether for personal use or work, wireless devices, such as cell phones, are commonly used around the world, and exposure to radio-frequency radiation (RFR) is widespread, including in public spaces [2,3]. A study modeling the exposure of children 3-14 years of age to Radio frequency radiations (RFR) has indicated that a cell phone held against the head of a child exposes deeper brain structures to roughly double the radiation doses (including fluctuating electrical and magnetic fields) per unit volume than in adults, and also that the marrow in the young, thin skull absorbs a roughly 10-fold higher local dose than in the skull of an adult male [4]. Thus,

children are among the most vulnerable to RFR exposure. The increasing use of cell phones in children, which can be regarded as a form of addictive behavior [5], has been shown to be associated with emotional and behavioral disorders. Divan et al., studied 13,000 mothers and children and found that prenatal exposure to cell phones was associated with behavioral problems and hyperactivity in children.[6]

Sleep is an opportunity for the body to conserve energy, restore its normal processes, promote physical growth, and support mental development. The most recognized consequence of inadequate sleep is daytime sleepiness. However, sleepiness in children commonly manifests as irritability, behavioral problems, learning difficulties, and motor vehicle crashes in teenagers, and poor academic performance. [7-9] Distinguishing significant sleep disruptions from normal age-related changes can be challenging and can ultimately delay treatment.

Good sleep is essential and advantageous to the quality of life. A number of vital physiological changes occur during sleep and help people stay healthy and function at their best. Ayurveda regards *Nidra* (sleep) as one of the most essential factors responsible for a healthy and fulfilling life. It is one of the Trayopastambhas (three great subsidiary pillars) on which a person's health is firmly balanced. Sound sleep at night is a natural and nourishing phenomenon, so it is also called *Bhutadhatri* (nourishes all living beings). Quality sleep is an indicator of good health as it is stress relieving and normalizes bodily tissues. An adequate hour of sleeping is required for all the levels of wellbeing such as mental, physical and emotional levels. In almost all Samhitas, there is detail description of *Dinacharya*, *Ratricharya*, *Ritucharya*, *AharaVidhi*, *Adharaniya* and *Dharaniyavega*, *Sadvritta* etc. is given which are very helpful to an individual for healthy life and prevention of diseases. *Nidra* is part of lifestyle and may cause many diseases if it is not ideal. While discussing about *Nidra*, the ancient Acharyas have stated that happiness (*sukh*) and sorrow (*dukh*), growth (*pusti*) and wasting (*Krishyam*), strength (*Bala*) and weakness (*abalama*), virility (*Vrishya*) and impotence (*Kleebata*) and the knowledge (*Gyanam*) and ignorance (*agyanam*) as well as the existence of life and its cessation depend on the sleep (*Nidra*). [10]

Hours of television time have been linked with poor sleep quantity and quality as well. A study of children ages 4 to 11 found that increased screen time was associated with increased sleep anxiety, increased night waking, and increased total sleep disturbance.[11] Studies of pediatric populations have also shown that watching evening television resulted in significantly shorter total sleep duration.[12]

A systematic review of 36 research studies investigating technology use in children proposed mechanisms by which electronic use before bed could cause sleep disturbance. [13]

Numerous studies have established that poor sleep is associated with behavioral and emotional problems in childhood and adolescence. Poor sleep quality is highly prevalent in children with behavioral or emotional problems such as anxiety, depression, or attention-

deficit/ hyperactivity disorder (ADHD). Poor sleep quality, in turn; can also compromise mental and physical functioning. [14-16]

Melatonin hormone is responsible for sleep and secreted at night. Increase exposure of mobiles, television at night disturbed its secretion. Melatonin is primarily produced by pineal gland and its synthesis is directly inhibited by ambient light exposure, resulting in diurnal secretory pattern. Melatonin secretion is important in regulation of circadian rhythms and sleep. [17] The circadian rhythm of melatonin production (high melatonin levels at night and low levels during day) by the mammalian pineal gland is modified by visible portion of electromagnetic spectrum i.e light and reportedly by extremely low frequency (ELF) electromagnetic fields. Both light and non-visible electromagnetic field exposure at night depress the conversion of serotonin to melatonin within pineal gland. [18]

Our Acharya has stated that a person not taking proper *Nidra* can have problem like headache, body ache, drowsiness, pain in eyes, yawning, delusion, lassitude. [19,20] So a proper sleep is very important for healthy life.

Conclusion

A ship in harbor is safe, but that is not what ships are built for. J. A. Shedd. It is widely accepted that media has profound influence on child health, including violence, obesity, tobacco and alcohol use, and risky sexual behaviors. Simultaneously, media may have some positive effects on child health. We need to find ways to optimize the role of media in our society, taking advantage of their positive attributes and minimizing their negative ones. Sleep is a state when both the mind and the body are at rest. We must educate our children not to watch mobiles, television for long time especially during nighttime and we also need to follow the same. At every point of contact, its now duty of pediatrician to educate and aware parents about hazardous effect of technology and should always keep record of screen time of their children especially during night. Parents and clinician should be a role model for them and encourage their child for *Yoga*, Meditation that will help them in promoting concentrations and sleep too. By emphasizing an appropriate routine and timings of the day's natural cycle (*dincharya*), we can promote the sleep state, and, in turn, promote health.

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