

Impact of Electronic Media on Sleep

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Abstract: With technological advances there is increase in usage of electronic gadgets like computer, cell phone, MP3 player, tablet, game console, television, TV-games and computer games. With electronic media and social media addiction quality of sleep is hampered particularly with smartphone usage near bedtime. Electronic media usage disrupts sleep by displacing sleep time, making falling asleep difficult and disturbing circadian rhythm. Prolonged media use causes muscular pain and headache. The screen's bright light decreases melatonin release which alters sleep wake cycle. Frequency of visits to electronic media affects sleep more than the total duration of screen time. Increased electronic media usage is associated with increased use of sleep medication, daytime sleepiness, decreased motivation, mood disturbance, and impaired cognition. With sleep deprivation, immune system and endocrine system are impaired. By avoiding electronic media for atleast 30 minutes before bedtime, restraining screen time of 30 minutes a day, dimming screens and enabling blue light filter addiction and health hazards from gadgets can be minimised.

Keywords: Sleep, Social media, smartphone addiction.

INTRODUCTION

Sleep is the foundation of physical and mental health. However due to recent technological advances, there are various electronic gadgets available which are often harmful. Nowadays, there is a rapid increase in usage of electronic media like computer, cell phone, MP3 player, tablet, game console, television, TV-games (PlayStation, Xbox, Wii) and computer games among all age groups. Electronic devices have become integral part of everybody's life.

However due to frequent usage of electronic media and social media addiction the quality of sleep is hampered. The pressure to be available 24/7 on social media causes anxiety and depression. Poor quality sleep is more significant with smartphone and social media usage near bedtime.

There are multiple ways by which excessive electronic media usage disrupts sleep like 1) displacing sleep time by late night engagement, 2) making falling asleep difficult by triggering emotional, cognitive and psychophysiological arousal reactions and 3) disturbing circadian rhythm by light emitted by computer screens and electromagnetic radiation [1]. Moreover prolonged media use causes physical discomfort like muscular pain and headache. The blue light emitted from these devices suppresses production of brain chemicals that make us sleepy. The screen's bright light decreases melatonin release which alters sleep wake cycle. There is also decrease in slow-wave sleep, REM sleep and sleep efficiency [2]. Exposure to bright screen for consecutive 5 nights delays body clock by 1.5 hours.

Among adolescents, gender differences are noted among electronic media usage with boys using game consoles, whereas girls using online chatting, cell phones and Mp3 players [3]. Adolescents experience longer Sleep onset latency due to biologically based delayed circadian rhythm occurring during puberty. Adolescent sleep data have shown that media usage is associated with late bedtime, long sleep onset latency and short sleep duration of approximately 6.5 h on weekdays, contributing to daily sleep deficiency of about 2 h [4]. In children also, presence of electronic media like TV in children's bedrooms has been shown to reduce sleep duration and delay bedtimes [5].

The frequency of visits to electronic media like repeated checking e-mails or updating facebook profile, looking for notifications in social media affect sleep more than the total duration of screen time. Hence treating obsessive checking behaviour is highly effective. Indiscriminant use of social media and smartphones have reached a stage of media and

cellphone addiction. A decade ago with addiction to first successful smartphone BlackBerry, the word crackberry was used for cellphone addiction [6].

Risk of Sleep onset latency more than 60 min and sleeping less than 5 h increases with using multiple electronic devices [3]. Increased electronic media usage is associated with increased use of sleep medication, poorer sleep efficiency, daytime sleepiness, preoccupation with sleep, decreased motivation, mood disturbance, and impaired cognition [7]. With sleep deprivation, performance, memory and attention span decrease, immune system and endocrine system are impaired [8]. Sleep deprivation associated abnormal endocrine responses include raised evening cortisol level, increased sympathetic activation, decreased thyrotropin activity, decreased glucose tolerance and altered secretory patterns of appetite-regulating hormones (decreased leptin and increased ghrelin secretion) which increase appetite thereby causing obesity. Impaired sleep causes metabolic disease, diabetes, and cardiovascular disease, risk taking behaviour, low self-esteem and depression [6].

Awareness about healthy media use should be made. Those suffering with troubled sleep should avoid electronic media for atleast 30 minutes before bedtime. Television should not be present in the bedroom. Keeping track of time spent on social media with various tracking apps, restraining to screen time of 30 minutes a day and keeping cellphone outside bedroom can reduce screen time. Playing games on phone or checking social media should not be the last thing before going to bed. Dimming screens, enabling blue light filter and night settings improve sleep quality. Starting a technology free period before bed and reading an actual book would help wean from night time media use. Free software program for computers and laptops like flux decreases blue light from screens. Orange-tinted glasses can be worn which block blue light. Digital gadgets should be kept at least 14 inches from face to reduce the light disrupting normal

melatonin production. With judicious use, electronic media and technological advances can serve our future without causing addiction and health hazards.

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