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Health Effects of Screen Time on Children

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Introduction

Development happens quickly in young children, especially those under the age of three. Children learn through exploring their surroundings and observing and copying the grownups in their life. However, prolonged screen time can impair children's capacity to see and experience the usual daily activities they will have to participate in and learn and grow, resulting in tunnel vision that can harm their growth and development and harm other body systems.

Scientific Inquiry

Which Body Systems are affected?

The first system that is affected by excess screen time on children is the nervous system. Extreme exposure to digital environs, particularly during infantile, causes vitamin D and melatonin deficiency, which interferes with the healthy modulation of the neurotransmitter serotonin within the body. In contrast, reward dwellings associated with digital obsession alter the modulation of dopamine receptors in the brain. This fact highlights a complex basis and effect sequence that connects plentiful time indoors on electronic devices. On the contrary, digital addiction, overall deregulation of neurotransmission involved in the brain function of children's entire metabolic rate, from dietary behavior and sleeping habits to overall mental capability, alters dopamine receptors' regulation in the brain. *Serotonin* is a neurotransmitter that helps regulate various physiological functions. Its production rests on adequate amounts of vitamin D and melatonin—light influences vitamin D and melatonin fusion, implicated in melatonin secretion. *Serotonin* is a neurotransmitter found in nerve terminals and the brain that functions as an inhibitory and excitatory neurotransmitter. Vitamin B6, zinc, Magnesium, and vitamin C are all required combinations for serotonin production. N-acetyltransferase enzyme

transforms serotonin to N-acetyl serotonin in the pineal gland and retina. It is then transformed to melatonin by five hydroxyindole O transferase enzymes and enters the bloodstream and cerebrospinal fluid (Nightingale et al., 2017). This process needs vitamin B6 in its active form. As a result, the serotonin neurotransmitter paths provide principal brain regulation of the sleep and wake cycle and the entire organism's immunological response. In the melatonin and serotonin deficiency syndrome, commonly identified in mature persons, this control breaks broken.

This syndrome could be a predictor of premature aging, and its presence in children due to excess screen time signals that the mind and body system is beneath significant strain. *Serotonin* is a neurotransmitter that plays a crucial function in decision-making. Serotonergic antidepressants, anxiolytics, and antipsychotics are commonly used to treat neuropsychiatric diseases characterized by poor decision-making. Enhanced reversal education, better attentional set changing, more minor suspension discounting, and increased reply inhibition are all linked to high serotonin levels. Another system affected by excessive screen time in children is the optical system, thus leading to Myopia and early blindness. Limited exposure to outside sun is the leading cause of childhood myopia. In addition, the prevalent type of this disorder is axial Myopia, which is a type of early Myopia in children caused by excessive eye growth in the longitudinal direction that results from excessive screen time. However, if this condition remains unaddressed, the illness worsens, causing significant vision impairment and eventually blindness. Additionally, various eye problems like glaucoma, myopic retinal detachment, cataracts, and macular degeneration are linked to Myopia. Therefore, once Myopia has developed, therapy should be started immediately to prevent the condition from progressing to total blindness.

Methods

The method used in researching this inquiry is the qualitative approach because the main objective is determining what body systems were affected by excessive screen time in children. Therefore, case study research, for instance, a study conducted by Stiglic and Viner (2019), was instrumental because it provided insights into the relevant data that was already available. Similarly, another approach employed in data collection for this inquiry was content analysis since there exists a lot of information on the topic already; thus, there was a need to analyze the information.

Results

Excessive internet activity and screen time have lately been linked to a considerably increased Body Mass Index in children, suggesting that digitization and childhood obesity are linked. Consequently, obesity contributes to multitudes of bodily structures dysfunction. Examples of body systems affected are the endocrine system and respiratory system as well as cardiovascular system together with digestive system, musculoskeletal system and immune system. Furthermore, according to the findings of a study conducted by Stiglic and Viner (2019), the degree of a teen's obesity surges as the hours of everyday screen usage increase. Previously, hypotheses that attempted to describe the connection between screen time and childhood obesity relied on the notion that extreme screen time diminishes time expended being active physically, causing the child to gain weight.

On the contrary, epidemiologic research indicates far more complex causal relationships. In contrast, experimental investigations concerning the impact of decreased screen time on computable improvements in physical activity have no definitive conclusions. Therefore, this shows that a lack of bodily activity is not a self-contained cause of obesity. Increased calorie

consumption as a critical instrumental relationship among screen time and children obesity has more evidence. According to epidemiologic research, youngsters who spend extra screen time typically eat fewer vegetable fruits and more energy refreshments. They also take carbonated beverages, or junk food, thus obtaining a greater proportion of their vitality from fats and greater overall energy consumption.

Composed Level 2 Question

What are the possible treatment options for children with severe Myopia?

Mathematical Inquiry

What are the Economic Issues Involved?

Children and young people's health outcomes are linked to their economic status. However, different socioeconomic status variables, like income, education, and impoverishment, measure dissimilar, frequently correlated features, even though they are highly associated (Hankonen et al., 2017). The bodily activity and inactive behavior environments in which children grow up differ depending on their socioeconomic position. Children from lower-income families have much more electronic media gadgets in their bedrooms but less portable play equipment. In lower-income households, the regulations for outdoor play are more restricted. These discrepancies can be detected in both family income and the household's highest degree of educational achievement. Children in low socioeconomic status households spend more time on screens, but there are no disparities in total or home-based moderate to vigorous physical activity or sleep duration. Previous research has established inverse relationships between economic status and screen-based media consumption; therefore, the status variations in screen time are not surprising. The research findings suggested that about half of the children from poor socioeconomic status households had a television in their room. A quarter had a video game

system, which was much higher than the percentage of children from high socioeconomic status families. However, intensive marketing of electronic entertainment gadgets may have a role in the negative health impacts of children's screen time. Furthermore, the higher parental economic status may be linked to a greater understanding of and ability to implement screen time suggestions. Evidence supports the theory that many interventions aimed at improving population health may worsen disparities because social status influences how well people can apply preventive measures care awareness.

According to Krist et al. (2017), there is a correlation between youngsters' screen time and the most significant extent of household education, with lower economic groups having more screen time. These data suggest that screen-viewing behaviors and the amount of time spent on them vary according to the education levels in a family setting, translating to their economic status. These differences are linked to household education rather than area-level impoverishment. This fact implies that long-term socioeconomic factors such as parent involvement, capacity to interact and converse with facilities, and presumably earnings are more imperative than short-term economic factors such as local resource availability. Similarly, possession of electronic devices like televisions, mobile phones, and video game consoles has formerly been related to increased screen watching and inversely to economic factors. Research indicates that the sum of devices in a home varies according to the household level of schooling, with more tablets, television, and gaming systems in families with A level and GCSE qualifications and more PCs in homes with an institution of higher education or higher degree. In addition, various studies have discovered an inverse link involving economic level and sedentary time and screen-viewing, with daily screen time for children ranging from 1.7 to 2 hours each day for great and minimal socioeconomic backgrounds, correspondingly. As children grow up,

they become more sedentary, but because a lot of the information is partial, it is unclear whether various socioeconomic groups transform at almost a similar rate (Mougharbel & Goldfield, 2020). Recurrent evidence suggests that, whereas television viewing rises similarly across educational categories, there might be divergent trends for diverse household wages levels between the ages of 2 and 9.

Composed Level 2 Question

How can households' economic status contribute to mitigating this issue?

Conclusion

Having focused on analysis of essential components from recent literature shows undeniably that the prediction of increasing amounts of time expended online in the house by younger children is likely to jeopardize their bodily and psychological growth and overall well-being. The primary dangers highlighted here include fast childhood myopia, which disrupts circadian pulses, insomnia, unhappiness, and, eventually, dependence and the dysregulation of regulator center roles in the brain, triggered by limited exposure to healthy outside light. Similarly, Myopia is also linked to various eye problems like myopic neurological damage, retinal detachment, cataracts, and glaucoma. Medical research in schools has shown that increasing children's outside time can considerably delay the start of Myopia. Moreover, the recent increase in oxidative stress disorder or anxiety in children is concerning. As previously stated, research studies have connected student depression to their internet activities. There may be other variables at play. However, from many perspectives, a focused public effort targeted raising awareness that excessive screen time is wrong for the optical system and unscrupulous for children’s souls, teenagers, and grownups appears to be a good idea. Youngsters' screen-watching habits vary depending on parental tutoring, with higher magnitudes of exposure among

kids in lower-educated homes. Children from higher-income homes have more access to screen-viewing gadgets as they grow, narrowing socioeconomic divides. Interventions to reduce sedentary time in children, particularly screen time, may need to consider socioeconomic disparities and tailor strategies to specific populations. Specific early education methods to minimize screen time in children from lower economic classes, for example, are expected to assist in preventing the development of high levels of screen time and reduce disparities.

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