RESEARCH ARTICLE

Information and Communication Technologies Effects on Mental and Physical Health

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Abstract

In our everyday life we use a wide range of technologies for communication and information purpose, ranging from established audiovisual devices, such as the television, followed by the personal computer (PC) and later tablets, mobiles and other types of electronic aides .Indeed parents increasingly expose young children to mobiles to keep them entertain and quite, so that they would not disturb the parent's daily routines. The use of such technologies leads to objective behavioral and clinical changes in both children and adults. Excessive use of these technologies leads to addictive behaviors followed by pathological changes in eye function, with clinical repercussion. This article presents a detailed review of all the symptoms of information and communication technologies' misuse by children and adults.

1. Introduction

Humans created new technologies to make the performance of their activities, faster and easier. Likewise, information and communication technologies (ICTs) are intended to advance communication. However, one of the greatest risks of our era is the lack of preparation of the cohorts of users of those technologies by their creators. The abuse of ICTs using and the excessive constellations of their use leads to physical, behavioral, and cognitive failure. This review article presents some of the risks and recommendations of how to overcome them in both childhood and adulthood.

2. ICT use in Childhood

Modern life demands that both parents must work to achieve a normative standard of life. At the end of the day parents return home eager for some tranquility. One of the ways to achieve that goal is to expose their infants and children to TV or mobile devices. Yet over exposure at a young age can be dangerous. The American Academy of Ophthalmology (AAO) published guidelines, which are based on consensus statements, recommending that children under 18 months of age avoid all digital screen time with the exception of video chatting on platforms such as Skype or WhatsApp, which involve natural visual stimuli.

Among children aged 18-24 months of age, AAO recommends that parents and other members of family gradually introduce digital screen time to the children. Children's viewing activity should be supervised, as adults should monitor the content-matter.

For children aged 2-5 years, AAO recommends limiting screen time no more than an hour per day .In this regard screen is any one of TV ,PC, mobile, tablet,. The best way to avoid a strain on the eyes, moreover, is to limit screen no more than half an hour sessions followed by a break of half hour at least.[1]

Regarding children of ages six years and above, the maximal daily screen time exposure should not surpass two hours in total, including all types of screens, in half-hour sessions. Granted, some children need to prepare sometimes homework on PC.

Parents should be involved in managing the time spent and what the program used.

The conclusion of certain clinical studies is that more than 2 hours of exposure to screen can lead to headache, a burning sensation, motor tics, fatigue and refractive error.[2]

3. ICT use by Adults

Practitioners of many professions need to use a PC for extended hours at work. Indeed, in certain occupations the norm is to spend eight to twelve hours in front of the screen. Such practices can lead to symptoms including headache, red eyes, fatigue, blurred vision, and dry eye

sensation, jointly known as Computer Vision Syndrome.

People who must work long periods of time in front of screen should make brakes of five minutes every 90 minutes of work. During these breaks, they should administer artificial tears drops in each eye and close the eye for the full five minutes. Eye exposure to screen and focused attention on computerized texts have been found to diminish the people's normal blinking reflex. As a result, eyes get dry and the cornea and the conjunctiva start to suffer from this dryness. This condition creates inflammation followed by redness of conjunctiva, and an itching sensation. The permanent need to create near to focus, on near-by images, creates a sense of fatigue, as well as changes in the eye refraction.

Prolonged work, in front of PC screen, must be mitigated by taking breaks of five minutes after every hour- and-a- half of work.

4. Psychological aspects

Children

A number of studies were conducted on the association of screen-time with inattention problems in preschoolers. CHILD is Canadian Healthy Infant Longitudinal Development study, involved eight institutional partners. Participant parents completed the Child Behavior Checklist (CBCL) when their children were five years old. Children's screen-time was categorized using the recommended threshold of two-hours per day for five years or one-hour per day for three years .Multiple linear regression was applied to examine associations between screen-time and externalizing behavior in children, such as inattention and aggression. Multiple logistic regression identified characteristics of children at risk for clinically significant externalizing problems (CBCL T-score>65).

Ultimately, screen-time was available for 95% (2,322/2,427 children) in the cohort. The mean screen-time was 1-4 hours per day at five years and 1.5h per day at three years. Those groups were compared to children with less than 30 minutes of screen time per day. Those who watched more than two hours per day had a 2.2 point increase in externalizing T-score and fivefold increased odd for reporting clinically significant externalizing problems. Additionally, parents of children in the latter group were 5.9 times more likely to report clinically inattention problems. Children with a DSM-5 ADHD T-score above the 65 cut-off mark were considered to have significant ADHD symptom (n=24).

The conclusion of the study is clear: *screen-time in pre-school is associated with worse attention deficit problems*.[3]

Students

The student population is the most exposed to screens as most of academic research involves computer usage, most

of the literature is online, and some students also work online.

A cross sectional, multi centric descriptive study was conducted in Barcelona region evaluating 5538 students of ages 12-20, enrolled in years one to four of in High School at 28 schools .Data collection involved self-administered socio-demographic and ICT access questionnaire and validated questionnaires on experience related to the use of the internet, mobile phones and video games (CERI,CERM, CERV).

Findings report the following: problematic use of the internet was observed in 13.6% of the surveyed individuals, problematic use in video games in 6.2% of respondents and problematic use of mobile phones in 2,4% of respondendts. Problematic internet usage was associated with female students, tobacco consumption, the use of cannabis or other drugs, poor academic performance, poor family relationships and intensive use of computers. Factors associated with the problematic use of mobile phones were the same as above, including an addictive behavior of use. Video games were more popular with male students, who were also at greater risk of excessive use of these games.

The study highlights the prevalence of addictive behaviors regarding usage of the internet, mobile phones and video games. The abusive ICT use may related to the consumption of drugs, poor academic performance and poor family relationships.

As such, we might conclude that intensive ICT over-use may lead to addictive behaviors and related complications. [4]

5. Use of Video Display Tecnologies (VDT)

Video display operators (VDOs) often complain about visual fatigue, discomfort and blurred vision .A study was conducted in Italy sought to identify work-related visual symptoms in relation to refractive disorders and psychosocial factors. A group of 3054 operators, who were public employees, was followed-up for ten years with periodic medical examinations including eye evaluation in the period of 2000-2009.The operators who participated worked with VDTs more than 20 hours per week. Medical eye examinations were conducted three or four times during the time during the study, according to age under or over 50 years. At each medical visit the workers filled out a standardized questionnaire comprised of 59 questions, divided into three sections:1)The first part, questions concerning personal data ,years of use of a VDT ,hours of use per day, computer programs used, screen size and type, work breaks, interruptions during VCDT work, work environment in terms of lighting, glare on the screen ,distance between the computer and operator, working desk, environmental noise and temperature ;the second part analyzed workers' life and health, marital status ,schooling, sports, smoking habits, coffee consumption, eye illnesses ,use of lenses,

eye examinations, and joint diseases; finally the third part investigated the frequency of eye-symptoms related to VDT use: fatigue, redness, burning ,tearing, headache, photophobia, far and near blurred vision, myodesopsia, double vision, and any eye drops application related or not related to VDT use.

Visual fatigue was found to be highly common in VDT operators (present 64.03%) and NO relationship between visual fatigue and age, sex, seniority of work, visual acuity and refractory disorders

Visual fatigue was significantly associated with anxiety, perception in a dose-related matter, confidence interval, psychosocial factors, use of lenses, and time of VDT usage.[5]

6. Conclusion

The present review is highlights a warning to all people using information and communication technologies (ICT). ICT were created to facilitate our work and to make it easier, faster and more transferable. Yet abusive use of ITC and addiction to digital technologies is a great danger to mind and physical health. It can lead to anti- social behavior, cognitive problems and wrong decisions of mind. Hence, we should limit ITC usage, according to age, and consider carefully when, for how long and how often we use which ICT.W e must educate our children from an early age and inform regarding healthy usage of ITC . [6,7]

7. References

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