

NEGATIVE IMPACT OF ELECTRONIC DEVICES ON STUDENTS' HEALTH AND PERFORMANCE

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The amount of time people spend using electronic devices at home, at university or a workplace is currently going up, especially when tele-working or taking on-line courses. This work focuses on the impacts of electronic devices on human health, in general, and aims to identify how they influence SB students' health and performance, in particular.

Key words: electronic devices; devices' impact on humans; gadgets; overuse of devices; students' health; memory and vision; behavioral patterns.

Today, gadgets are a means of escaping from reality and they are addictive. Everyone wonders why they have depression, irritability, dissatisfaction with life, lack of goals and understanding where to go next. The dependence on a gadget can negatively affect a person's psychological health and lead to compulsive behavior. Too frequent use of a smart-phone is often associated with anxiety, irritability, frustration, and impatience.

The objective of our work is to identify the negative effects electronic devices exert on human health, to find out how deep the impact is on SB students, and to draw up strategies to overcome this negative impact. The object of study is students' behavior in terms of using devices. The subject is manifestations of negative impacts from device overexposure. The methodology includes the analysis of secondary sources, an empirical study, surveying SB students, and a statistical interpretation of the results.

The work is relevant since the amount of time spent behind the computer screen is on the rise, and our students, would-be-managers, need to create healthy working habits not to overuse devices and avoid compulsive behavior patterns. The findings can be applied in the course of Safety and Well-being, and the recommendations can be used in information sessions with students.

BACKGROUND OF THE STUDY

It is now known for certain that mobile phone radiation is so strong that it can interfere with the operation of sensitive equipment in an airplane or in a hospital. At the International Agency for Research on Cancer (IARC), scientists have long concluded that using a mobile phone may increase the risk of developing certain types of brain tumors: if the phone lies at night on the right side, the risk increases exactly on the right, as is illustrated by fig. 1 [1].

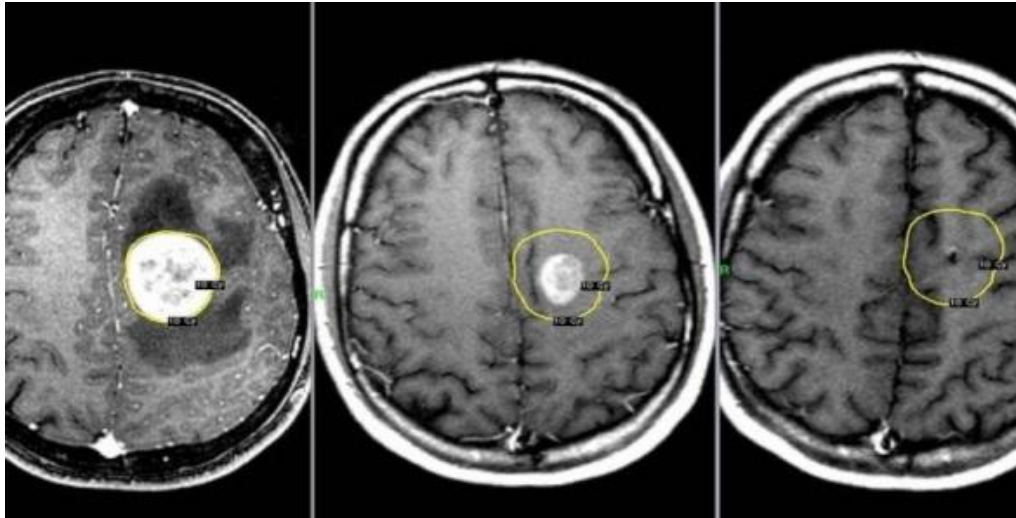


Fig. 1. Tumor development on the right side of the brain

Findings show that although radio frequencies emitted from cell phones are weak, they can activate human tissues. Even 15 minutes of exposure to a cell phone was associated with increases in glucose consumption by the brain. According to statistics, 89% of American students have at least once complained that they feel a phantom call from their smartphone [2]. Belarusian students are not an exception, they get distracted every time they receive a notification and pick up the phone to read the message or answer a call.

Throughout the day, a person constantly checks notifications on their phones such as alarm clocks, new messages, work emails, and other alerts. The human body has not had time to adapt. Having a smartphone always at hand, we are overloaded with information 24/7; this prevents us from having any free time, and stress increases the level of cortisol in our bodies.

It was revealed that young people are more receptive to the dopamine released while multi-tasking [3]. But such a habit of doing several things at the same time reduces the ability to concentrate on a specific task, which negatively affects their performance.

Using the phone in the evening is bad for the amount and quality of sleep. The light from the gadget makes the brain stop producing melatonin so necessary for sound sleep and slowing down or preventing the development of cancer and other diseases. Thus, when the night comes and we are engrossed in our phone, the brain gets confused. Sleep cycles are disturbed, sleep becomes broken and restless, resulting in headaches, tiredness, nervous system exhaustion and stress. It is advised not to use a gadget an hour before bedtime, to switch it to night mode, and not to put it under your pillow.

The most obvious damage devices do is visual impairment. It is not so much the light from screens as the improper mode of operation or lighting conditions of use. Neglecting basic rules of tension and relaxation of the eyes while working and afterwards is also the cause of visual impairment. The hu-

man eye sees far located objects without any tension, but when we sit at a computer or with a phone for a long time, the eyes look in a certain direction. The gaze is focused at a close range and the eye muscles tighten, so the lens is in the same position which can change its curvature.

Besides, the conditions of use are very important. The bluish light from a tablet or smartphone negatively affects the retina of the eye and damages it, which is especially bad in the dark; not only the structures of the eye are irritated, but our optic nerve also suffers. The glow from the screen is perceived as daylight, which increases brain activity, anxiety, and creates the illusion the night has not arrived. In the short term, this can lead to insomnia, in the long term – to serious health problems.

An important component of the educational process is our memory, and memory can deteriorate when the brain is regularly exposed to phone radiation. Those who hold the phone to the right ear while talking are the most affected, as this part of the brain is responsible for memory.

According to one study, the mere presence of the phone triggers automatic attention. The phones create a persistent sense of urgency and drain away cognitive resources that could be used for studying. It was discovered that student performance was at the highest when their phones were in a separate room; it was lower with the phone in a bag or pocket; the lowest performance was shown with their smartphone placed on their desk [4].

As found in the Brigham Women's Hospital, frequent headaches occur with those who use the phone or tablet for a long period of time. They often bend their neck, and this pose causes tension in the spine, so the stress leads to headaches. This syndrome is also called the "text neck [5].

SURVEY FINDINGS AND DISCUSSION

To reveal students' habits connected with the usage of devices, a survey was conducted. About fifty students of the School of Business were asked to answer 17 questions related to their daily habits, physical and mental state. Some of the questions are as follows: "How much time do you usually spend on the Internet per day?", "Have you noticed that after using your gadget you have a headache?", "Do you think that the use of devices can affect our memory?", "Do you have a dependency on your phone?"

The survey has shown that a great number of students spend more than 4 hours on the Internet per day; 80 % spend 2 and more hours online "doing nothing", whereas others kill less than 1 hour. More than half of the students have admitted they are addicted to their devices. The study has found out that the devices do distract students from studies, so half of them turn off alerts while studying, although there are those who do not get disturbed by incoming messages and calls. More than a half report they can focus for about an

hour, one-third are not distracted at all, but some get distracted every 15 minutes. Students receive alerts every 60 minutes, but only a third of them check their phones immediately.

Regarding the students' health condition during and after using devices, the survey has revealed that about 50 % feel a headache after using devices. Almost all students are confident that devices adversely affect our memory. Moreover, 65 % of them use reminders to remember to do something, because they cannot keep several things in mind. 64 % feel that their eyes are tired after using devices, and 41% have vision impairment due to gadget overuse. Only 19 % of the respondents take into account lighting conditions. A small percentage does exercises for the eyes after working with a gadget. 72 % of students turn off their phones just before they go to sleep. 70 % of the surveyed have an average mark between 8 and 9, while 30 % have a mark between 6 and 7.

CONCLUSION AND RECOMMENDATIONS

After comparing the results of the survey with the information obtained from various sources, we can state that BSU students do have an addiction to their devices considering the amount of time they spend on them. Most students are dismissive of the rules for using devices, which undoubtedly adversely affects their health. Thus, it is vital to provide some tips to prevent fellow-students from having health issues.

Firstly, you should not hold the smart phone on the right side during a phone call, as this part of the brain is responsible for memory. It is also advised to turn off notifications for as long as possible, not to put the phone under the pillow, but a few meters away, or turn it off at least 1 hour before bedtime. After its use, it's necessary to do eye exercises to relieve tension. Do one thing at a time and avoid switching from one to another in order to maintain concentration. Remember to keep your neck straight in order to reduce the load on your back and thus avoid headaches. Also, consider the lighting conditions when working with devices to maintain your vision. And most importantly, limit yourself in the time of usage of the devices.

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