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(Co)existence with a Smartphone in the Student Population

POVZETEK – *Cilj raziskave je bil raziskati stališča in razmišljanja študentov, ki študirajo na hrvaških univerzah, glede na smer študija o pogostosti in razlogih za uporabo pametni telefonov. Raziskava je bila izvedena na vzorcu 267 študentov v Republiki Hrvaški. Kar 85 % anketirancev na vseh področjih znanosti uporablja pametni telefon tik pred spanjem. Ponoči se 26,9 % vseh vprašanih zbuja zaradi zvoka obvestil na pametnem telefonu, največ s področja naravoslovja. Pametnega telefona kot budilke ne uporablja skupaj 8,3 % anketirancev, medtem ko ga kot budilko večinoma uporabljajo anketiranci s področja interdisciplinarnih ved. Ko se ponoči zbudijo, 16,2 % anketirancev brska po vsebinah na pametnem telefonu, največ pa to počnejo anketiranci s področja naravoslovja. 43 % anketirancev se zjutraj počuti utrujeno. S skrajšanjem časa, preživetega s pametnim telefonom, bi pridobili čas, ki bi ga lahko izkoristili na več načinov (telovadba, sprehodi, druženje brez uporabe pametni telefonov in druge aktivnosti), ki bi pozitivno vplivali na njihovo splošno zdravje in počutje!*

ABSTRACT – *The aim of the research was to investigate the attitudes and reflections of students studying at universities in Croatia, with regard to their field of study, on the frequency and reasons for using smartphones. The research was conducted on a sample of 267 university students in the Republic of Croatia. A total of 85 % of respondents in all fields of science use a smartphone just before going to bed. During the night, 26.9 % of all respondents wake up to the sound of notifications on their smartphones; most of them study natural sciences. A total of 8.3 % of respondents do not use a smartphone as an alarm clock, while it is mostly used as an alarm clock by respondents from the field of interdisciplinary sciences. When they wake up during the night, 16.2 % of respondents browse content on a smartphone, and this is mostly done by respondents from the field of natural sciences. A total of 43 % of respondents feel tired in the morning. By reducing the time spent on smartphones, individuals could use the extra time in many other ways (exercise, walking, socializing without using smartphones and other activities), which would have a positive impact on their overall health and well-being!*

1 Introduction

Today, mobile phones (smartphones) are used by almost all generations and they are increasingly used by younger generations and students. Cvek and Pšunder (2019) state that the youth are not critical enough of using mobile phones.

The generation born after 1993 is called the Google generation. It is the generation that has no memory of a world without computers, the Internet, and Google search (Spitzer, 2018, p. 200).

In Europe, according to a survey conducted in 2019 (EU-27) among young people aged 16–29, a total of 94 % use the Internet daily, 92 % access the Internet via mobile phones away from home or work (Eurostat, 2020). In the world (DataReportal, 2021),

a total of 67.1 % of the population (5.29 billion) owns a mobile phone, while there are 4.55 billion active users of social networks or 57.6 % of the population.

The time that the younger generation spends on smartphones is getting longer. A study conducted on a sample of 188 respondents of a men's college of medicine in Bisha (Al-Shahrani, 2020) showed that in most respondents, smartphone usage amounted to at least 4 h per day (76 %). A study conducted in Romania (Cocorada̧ et al., 2018) on a sample of 717 students showed a high rate of mobile phone addiction, especially among female respondents. One of the favourite activities on smartphones is access to social networks. Posting one's status, checking "likes", following influencers, posting posts, following other content on social networks are just some of the activities that are available to them almost instantly. Communication is increasingly taking place through various (mostly free) applications available on smartphones and other electronic devices. It often happens that individuals are not aware of the amount of time they spend on social media. Opić, Đuranović and Klasnić (2016) also state that the vast majority of young people are not even aware that their behaviour on the Internet is a danger to their security.

A study (Erjavec, 2013) conducted on a sample of 209 students of the University of Ljubljana states that 67.5 % of respondents use the social network Facebook at least once a day, mainly for entertainment.

A study (Kolhar et al., 2021) conducted on a sample of 300 students aged 17 to 29 showed that 97 % of respondents use social networking applications, while only 1 % of respondents use social networks for academic purposes. A total of 68 % of respondents stated that their time spent on social networks delays their sleep time and that social networks had an impact on their social interactions (59 %).

Researchers El-Khoury et al. (2021) have concluded that there is a strong correlation between students who believe that they spend too much time on social media and their desire to stop doing so. A correlation was also found between the claim that they were told by others that they spend too much time on social media and their own opinions on the matter. A total of 40 % of respondents have had a "social media detox" period.

Social media detox refers to the intentional (voluntary) cessation of the use of social media in order to improve mental well-being and functionality. The problematic use of social networks among students (Jiang, 2021) predicts their level of anxiety. A term that is increasingly encountered today among smartphone users is nomophobia. According to the Cambridge Dictionary, "nomophobia is the fear of being out of mobile phone contact." Having no bars or a discharged phone is leading to anxiety and panic attacks in an increasing number of people. Similar terms are associated with the problematic use of smartphones, addiction to smartphones, etc.

Nomophobia (Daei et al., 2019) is moderate among the 320 surveyed students and is significantly related to gender, age group, level of education; it is more prevalent among male respondents. There is also a positive correlation between nomophobia and the frequency of smartphone use. Addiction to smartphones is also a growing phenomenon. A total of 22.7 % of medical students (Randjelovic et al., 2021) consider themselves addicted to smartphones. A survey on smartphone addiction (Laurence et al., 2020) conducted among 257 Brazilian students found that respondents who own an iPhone and use the social networks Snapchat and Instagram achieved significantly higher results on smartphone addiction.

Nevertheless, Čepon (2018) states that Snapchat as the fastest-growing image-based instant messaging service provides an opportunity to improve students' motivation with a view of achieving better learning results.

In addition to smartphones being used for more and more activities, such as Internet access for Internet browsing, social networking, phone calls, messaging using apps like Viber, WhatsApp, Telegram, Zoom, Skype, e-learning platforms and more, they are also used as alarm clocks, "mini screens" for watching movies, series, videos and the like. They are often in the users' hands or next to them at night. Instead of spending their time preparing for sleep and going to sleep, users engage in activities on mobile phones, which shortens sleep time.

Quality, invigorating sleep is extremely important for the overall health of an individual. Today, preparing to go to bed without the use of different screens is almost unthinkable, especially for young people. Many authors (Exelmans and Van de Bulck, 2016; Liu et al., 2019; Rafique et al., 2020; Huang et al., 2020; Islam, 2021) have conducted research on the effects of mobile phones on sleep in the student population. The findings of the study confirmed that the use of smartphones just before bedtime affects the quality of sleep and functioning during the next day.

Sleep is one of the essential factors for brain maturation (Perrault et al., 2019) and one of the key factors that indicate good academic performance. In a sample of 569 adolescents in Geneva, 47.5 % of boys concluded that restricting the use of screens in the evening (after 9 pm on weekdays) can improve sleep and general functioning over the next day, and health in general.

During the COVID-19 pandemic (Islam et al., 2021), a survey conducted on a representative sample of 5,511 students in Bangladesh aged 18 to 25 showed that problematic smartphone use and problematic social media use are positively associated with younger age, poor sleep, social networks, watching TV, anxiety and depression.

The use of smartphones before bedtime (Exelmans and Van de Bulck, 2016), which includes correspondence and/or telephone calls, has an impact on sleep latency, general poor sleep quality, dysfunction during the next day and other sleep disorders, according to a survey of 844 Flemish adults aged 18 to 94, half of whom own a mobile phone.

Sleep problems (Lin et al., 2019) were experienced by a total of 40 % of 503 respondents, affecting their quality of life and potentially contributing to psychosomatic disorders. A total of 52.4 % of 1,545 respondents have poor sleep quality (Ozcan and Acimis, 2021) and it is more present in students who are addicted to smartphones.

During the day, fatigue (Matar Boumosleh and Jaalouk, 2017) is felt by 35.9 % of students (a sample of 688 Lebanese university students) due to late-night smartphone use. 35.8 % of respondents have reduced sleep quality and 35.8 % of them sleep four hours less due to mobile phone use.

The use of smartphones (Pebriani and Marleni, 2020) has a direct impact on sleep quality; sleep quality has a negative direct impact on learning motivation, while smartphone use has no direct impact on learning motivation.

Researchers Aker et al. (2017), Abid et al. (2020), Ratan et al. (2021) state that disorders such as depression, anxiety and other mental disorders may correlate with problematic smartphone use. Poor sleep quality (Huang et al., 2020) was reported by

one in ten respondents among 439 students in China and poor sleep quality was significantly associated with poor physical health, depression, smartphone overuse and mobile phone addiction.

Internet and smartphone addiction (Wan Ismail et al., 2020) have a significant positive correlation with depression, anxiety, stress and suicide in a study conducted among students in Malaysia. Excessive use of smartphones as well as non-compliance with the ergonomics of using mobile phones have significant impacts on an individual's physical health.

The risks and "side effects" of digital information technology affect the body and mind. Physical risks include: lack of movement, obesity, poor posture, diabetes, high blood pressure, myopia, sleep disorders, risky behaviour (traffic accidents, sexually transmitted diseases). Mental side effects include: anxiety, mobbing, attention disorders, decreased mental productivity, decreased level of education (consequence: dementia), depression, lack of empathy, reduced life satisfaction, and addiction (Spitzer, 2021, p. 211).

These possible risks to the overall health of an individual with excessive, inadequate use of smartphones, especially during the time allotted for going to bed, with using smartphones at night, morning fatigue and difficulty paying attention to classes (especially in the morning) are presented in a study conducted among students who study at universities in Croatia.

2 Research

Research goal

The aim of this research was to examine the attitudes and thinking of students studying at universities in Croatia about the use of smartphones; whether they use smartphones just before going to bed; whether they are awakened by the sound of notifications on smartphones at night; whether they use smartphones as an alarm clock; whether they read notifications on smartphones when they wake up at night and immediately after waking up; whether they feel tired after waking up; whether they find it difficult to follow lectures in the morning; which social network they most often access using a smartphone; whether they often think about their smartphone; whether they will never give up using the smartphone even when they are told that they are using it too much.

Measuring instrument

A survey questionnaire designed specifically for the purposes of this research was used. It consisted of one independent variable (field of study) and 13 dependent variables related to:

- ☐ I use my smartphone just before going to sleep;
- ☐ During the night I am sometimes awakened by sound (messages, notifications on social networks);
- ☐ When I wake up during the night I browse the contents on my smartphone;

- □ I use my smartphone as an alarm clock;
- □ Immediately after waking up, I browse notifications, content, messages on my smartphone;
- □ I often wake up tired in the morning;
- □ I sleep on average;
- □ I use social networks most often via my smartphone;
- □ The smartphone is always on my mind;
- □ During the night the smartphone is in my immediate vicinity;
- □ It is difficult for me to follow the lectures, especially in the morning;
- □ I will always use my smartphone;
- □ I use my smartphone too much.

The questionnaire was created using the Google Form tool. The survey was posted in Facebook groups for students throughout the Republic of Croatia and was conducted during the academic year 2020/2021. The research was conducted on a sample of 267 students in the Republic of Croatia. The code of ethics was fully respected: the respondents were given written instructions on how to fill in the measuring instrument; they were guaranteed anonymity and the possibility of not giving further answers; they were informed that the data obtained by this research will be used exclusively for scientific purposes.

Since the questionnaire was used for the first time, it was necessary to determine its basic metric characteristics. The reliability of the scale statement expressed by Cronbach's alpha coefficient showed that it satisfies Nunnally's and Bernstein's internal consistency criterion 0.70. Namely, the obtained coefficient of internal consistency is 0.734. Alpha is bigger than 0.70, so it is considered acceptable. The processing of data obtained in this study was performed using the statistical package IBM SPSS Statistics 20.

3 Results and discussion

90.6 % of female respondents and 8.6 % of male respondents participated in the research.

The characteristics of research participants with respect to age show that the largest number of respondents is in the age bracket of over 20 and under 25 (80.9 %), while the smallest number of respondents is in the age bracket of over 30 (3.4 %). A total of 9.4 % of respondents were under 20, and a total of 6.4 % of respondents were over 25 and under 30. The following statistical values were obtained with the independent variable of scientific field: arithmetic mean $M = 2.54$, standard deviation $SD = 1.652$, and variance $(SD2) = 0.292$.

According to the field of study, 43.1 % of respondents from social sciences participated in the research, 7.9 % from arts and the humanities, 25.5 % from biomedicine and health sciences, 6.4 % from biotechnical sciences, 9.7 % from natural sciences, and 7.5 % from interdisciplinary sciences.

In order to determine whether there are statistically significant differences in the distribution of research participants with regard to the field of study, the Kolmogorov-Smirnov test was applied. Table 1 shows the results of the distribution normality test with respect to the listed independent variables. Normality is shown to be statistically insignificant (random) deviation from normality when the value of significance is greater than 0.05. In our case Sig. is 0.000, which indicates that the normality of the distribution has not been confirmed. Therefore, by applying the above test, it was found that there are statistically significant differences in the normality, i.e., regularity of the distribution of these independent variables. This means that the analysis of these distributions (claims, items) using parametric tests is not allowed, so non-parametric tests were used. The table shows that the significance is less than 0.05, so the deviation from the normality is not statistically significant, i.e., the significance in our case is $p = 0.000 < 0.05$, which means that the normality of the distribution is confirmed and therefore accepted as such.

Table 1

One-Sample Kolmogorov-Smirnov Test

		Field of Study (N = 267)
Normal Parameters[a,b]	Mean	2.54
	Std. Deviation	1.652
Most Extreme Differences	Absolute	0.256
	Positive	0.256
	Negative	–0.175
Kolmogorov-Smirnov Z		4.175
Asymp. Sig. (2-tailed)		0.000

Analysis of variance was performed and the ANOVA method was used to compare the arithmetic means of several samples. Since the empirical levels of significance in variables 1 (Sig. = 0.631), variable 2 (Sig. = 0.237), variable 4 (Sig. = 0.647), variable 5 (Sig. = 0.758), variable 6 (Sig. = 0.333), variable 9 (Sig. = 0.735), variable 10 (Sig. = 0.290), variable 11 (Sig. = 0.406), variable 12 (Sig. = 0.270), variable 13 (Sig. = 0.475) are higher than theoretical, the null hypothesis cannot be rejected and it is concluded that there is no statistically significant difference between the observed groups.

In addition, the chi-square and the chi-square significance were determined. In order for the value of the chi-square to be significant, Sig. needs to be 0.05 or less. Tables are shown in which the chi-square values were significant.

According to the field of study, a total of 87.9 % of respondents from all study fields use a smartphone just before bedtime. 61.1 % of respondents answered with the statement "I completely agree", and 26.8 % with the statement "I agree". It is mostly used by respondents (those who fully agree with the statement) that study in the field of social sciences (67 %). The value of the chi-square test is $df = 20$, $p = 0.912$.

A total of 4.5 % of respondents fully agree and 7.5 % of respondents from all fields of science agree with the statement that they are awakened during the night by the sound of a notification on a smartphone. Although the percentage is small, the respondents should certainly consider setting the smartphone to quiet mode at night, if they keep it near their beds. The value of the chi-square test is $df = 20$, $p = 0.368$.

A total of 16.2 % of respondents, of whom 10.2 % agree with the statement that when they wake up during the night, they view content on a smartphone and 6 % fully agree, indicates that the smartphone is still on during the night. The value of the chi-square test is $df = 20$, $p = 0.012$. The obtained data can be considered statistically significant.

That the phone is probably present in the room (space) where the respondent sleeps is evident from the data that 74.3 % of respondents fully and 17.4 % agree with the statement that they use a smartphone as an alarm clock, which may indicate that immediately after waking up, they browse contents on the smartphone. The value of the chi-square test is $df = 20$, $p = 0.487$.

More than half of the respondents from all fields of study, i.e., 52.1 %, fully agree, and 26.4 % agree with the statement that they view content on a smartphone immediately after waking up. Respondents in the field of social sciences agree the most with this statement (58.3 %) and respondents in the field of biotechnical sciences agree the least. The value of the chi-square test is $df = 20$, $p = 0.477$.

A total of 19.6 % of respondents completely agree with the statement that they are tired in the morning and a total of 23.4 % of respondents agree. It is possible to conclude that fatigue is related to using a smartphone in bed, to waking up during the night and reading messages, and to leaving the sound on and disturbing sleep with notifications during the night. The value of the chi-square test is $df = 20$, $p = 0.032$. The obtained data can be considered statistically significant.

A total of 48.3 % of respondents sleep seven to eight hours on average, and 1.1 % of respondents sleep less than five hours, which is considered insufficient. According to the obtained data, most respondents from interdisciplinary fields sleep more than eight hours, while those from the field of social sciences sleep the least. The value of the chi-square test is $df = 20$, $p = 0.309$

The social network most often accessed by respondents via smartphones is the social network Instagram (67.7 %), followed by the social networks Facebook (25.5 %), Tik-Tok (4.9 %) and Snapchat (1.9 %). The value of the chi-square test is $df = 15$, $p = 0.513$.

3.4 % of respondents answered that they fully agree with the statement that the smartphone is always on their minds, while 7.9 % of respondents agree. Respondents from the field of social sciences mostly agree with the statement (3.5 %). 52.9 % of respondents from the field of biotechnical sciences completely disagree with the statement, which is the biggest percentage. The value of the chi-square test is $df = 20$, $p = 0.431$.

A total of 77.9 % of respondents hold a smartphone nearby during the night (33.5 % agree with the statement, and 44.4 % completely agree with the statement). A total of 57.1 % of respondents from the humanities fully agree with the statement. The value of the chi-square test is $df = 20$, $p = 0.740$.

In the morning, 39.7% of respondents find it difficult to follow lectures, the majority of respondents who fully agree with the statement come from the field of biotechnical sciences (35.3%), followed by respondents from social sciences (28.1%) and the humanities (23.8%). Furthermore, a total of 23.8% of respondents from the humanities and 19.3% of respondents from the field of social sciences do not completely agree with the statement. The value of the chi-square test is $df = 20$, $p = 0.150$.

A total of 7.2% of respondents fully agree with the statement "I will always use my smartphone", most of whom (7%) are from the social sciences. A total of 15.5% of respondents agree with this statement, of whom a total of 42.9% come from the humanities. The obtained results indicate possible dependence and/or nomophobia, and insufficient awareness of excessive use. The obtained data that 27.9% of respondents neither agree nor disagree with the above statement may indicate an insufficient awareness of the amount of time they spend on a mobile phone. The value of the chi-square test is $df = 20$, $p = 0.014$. The obtained data can be considered statistically significant.

Respondents most often use smartphones to browse social networks (77.9%); social networks are most often visited by respondents from the humanities. This is followed by browsing content on the Internet (16.9%); respondents from the field of biotechnical sciences browse the most content on the Internet via smartphones (23.5%). Only 5.2% of respondents use smartphones for telephone calls, most of whom come from the humanities (14.3%). The value of the chi-square test is $df = 10$, $p = 0.583$.

4 Conclusion

A total of 267 students studying at universities in Croatia participated in the research, of whom 8.6% were men and 90.6% were women. According to age, most respondents are over 25 and under 30 (96.6%), followed by 90.3% of respondents aged over 20 and under 25, while only 9.4% of respondents are younger than 20 and 3.4% are older than 30. According to the obtained data related to one independent and 13 dependent variables, the following data were obtained:

The majority of respondents fully agree with the statement of using a smartphone before going to bed (61.1%). Over 60% of respondents from all fields of study, except biotechnical sciences (47.1%), use a smartphone before bedtime. Considering the combined statements "I agree" and "I completely agree", 85% of respondents or more use it. Using a smartphone just before going to bed (Alshobali and AlYousefi, 2019) can result in poor sleep quality and lower academic achievement (Ragupatji et al., 2020); excessive use can lead to depression, anxiety (Guo et al., 2020), and has an impact on daily fatigue and academic achievements (Mohsin and Faisal, 2021). A total of 48.3% of respondents sleep seven to eight hours on average; 16.1% of respondents sleep more than eight hours on average; the recommended amount of sleep for young adults and adults is from 7 to 9 hours (Suni, 2020).

When smartphones are close to respondents and stay on during the night, it has been observed that 26.9% of respondents wake up during the night due to the sounds of their smartphone, which may indicate calls, message notifications, social networks and the

like. Respondents who most often wake up to the sound of a mobile phone at night are respondents from the field of natural sciences (26.9 %).

Although survey data show that a total of 59.6 % of respondents completely disagree and 22.6 % disagree that the sound of smartphones wakes them up at night, they should consider not keeping a smartphone in their immediate vicinity when sleeping and, if necessary, turn it off, or switch it to silent mode or airplane mode.

Given that the data showed that 91.7 % of respondents use a smartphone as an alarm clock (mostly used by respondents from the field of interdisciplinary sciences, 57.9 %), it has been concluded that the smartphone is located near the bed in the case of 77.9 % of all respondents, most of whom come from interdisciplinary fields of science (89.5 %).

16.2 % of respondents answered in the affirmative to the question of whether they view content on a smartphone when they wake up during the night; most of them come from the field of natural sciences (38.4 %), followed by respondents from biomedicine and health sciences (22.4 %). It could be concluded that reading messages at night and the effects of the artificial light (despite activating filters for, e.g., blue light, which can partially reduce the negative effects, or night mode) of screens of electronic devices can have negative effects on the circadian rhythm, sleepiness, sleep and wakefulness (Rathakrishnan et al., 2021). Watching the blue light (Jniene et al., 2019) on devices before going to sleep is also associated with poor sleep quality.

It would be more beneficial to replace reading text on the screens of electronic devices with reading printed books and materials.

Fatigue during the next morning is felt by a total of 43 % of respondents; 57.9 % of those who feel it the most come from the field of interdisciplinary sciences. Fatigue can be one of the factors related to the use of smartphones when going to sleep and at night, which can result in greater difficulty in following lectures, especially in the morning, and poorer academic performance (Rayzah, 2021), which was demonstrated by a total of 39.7 % of respondents, most of whom came from the field of biotechnical sciences (52.9 %).

This claim can be correlated with the claim that a total of 78.5 % of respondents browse content on a smartphone when they wake up during the night.

A total of 11.3 % of respondents constantly think about smartphones, most of whom come from the field of biotechnical sciences (17.7 %). It could be concluded that there is a great possibility for them to become addicted to smartphones, which can be correlated with the claim that they will never be without a smartphone, with which a total of 22.7 % of respondents agree and fully agree, most coming from the humanities (47.7 %).

The primary activity on smartphones among respondents is accessing social networks (77.9 %), and most often respondents from interdisciplinary fields access social networks via smartphones (85 %). The next activity is browsing content on the Internet (16.9 %) and the last activity is making telephone calls (5.2 %).

Smartphones are being used more and more often and for longer periods of time. To be "immediately" available; instant reactions and "instant" activities on social networks; the time allotted for going to sleep being replaced by browsing content; falling asleep with smartphones and waking up at night caused by the sounds of certain notifications; using smartphones as alarm clock replacement; the impact of artificial light

from the screen on circadian rhythm; fatigue; disturbed sleep; poor sleep quality; poor academic performance; the possibility of mental disorders – those are just some of the consequences for the overall health of the individual.

Dr. Maja Ružić Baf

(So)obstoj s pametnim telefonom v študentski populaciji

Nove informacijske in komunikacijske tehnologije so prisotne v skoraj vseh generacijah, od najmlajših do starejših, še posebej, ko gre za uporabo pametnih telefonov in možnosti, ki jih danes ponujajo vse modernejši modeli. Pametni telefoni so postali "must have" naprave, brez katerih je življenje številnih generacij, predvsem mlajših, dobesedno nepojmljivo (Cvek in Pšunder, 2019). Zaradi trenutne dostopnosti informacij na pametnih telefonih so ti skoraj popolnoma nadomestili tiskane medije, kamere, pri mnogih pa celo namizne in prenosne računalnike, dlančnike in druge elektronske naprave. Večina aktivnosti poteka prek pametnih telefonov z uporabo vse manjših zaslonov, pri čem se vsekakor postavlja vprašanje ergonomije in vpliva na celoten razvoj posameznika.

Vse pogostejša uporaba pametnih telefonov in aplikacij lahko povzroči številne stranske učinke, kot so preveč časa, porabljenega za pametne telefone, odvisnost od pametnih telefonov, nomofobija, fomofobija, selfifobija, težave s pozornostjo, koncentracijo, dolgčas, nestrpnost, pomanjkanje gibanja in telesne dejavnosti, debelost, neskladnost z ergonomskimi pravili, težave s spanjem (motnja faz spanja, nočno prebujanje, jutranja utrujenost), tesnoba, depresija, nizka samopodoba, slaba samopodoba, prenasičenost z informacijami, neupoštevanje pravil lepega vedenja na spletu in druge možne duševne motnje, vpliv na čustveno in fizično zdravje posameznika. Študija je razdeljena na dva dela. V teoretičnem delu prispevka je poudarek na prekomerni uporabi pametnih telefonov in možnih posledicah, ki jih le-ta ima na učence in se kažejo predvsem kot motnje spanja, utrujenost, težave s spremljanjem pouka, depresija, tesnoba ipd. V drugem delu prispevka so predstavljeni rezultati raziskave.

Cilj raziskave je bil raziskati stališča in razmišljanja študentov, ki študirajo na univerzah in politehnikah v Republiki Hrvaški, glede na študijsko področje o pogostosti in razlogih za uporabo pametnih telefonov. Anketni vprašalnik je bil ustvarjen za raziskovalne namene in je bil sestavljen iz neodvisne spremenljivke – področje študija – in skupaj trinajstih odvisnih spremenljivk: pametni telefon uporabljam tik pred spanjem; ponoči me včasih zbudi zvok (sporočila, obvestila na družbenih omrežjih); ko se ponoči zbudim, brskam po vsebinah na pametnem telefonu; pametni telefon uporabljam kot budilko; takoj po prebujanju po pametnem telefonu brskam po obvestilih, vsebinah in sporočilih; zjutraj se pogosto zbudim utrujen/utrujena; spim povprečno; družbeno omrežje, ki ga najpogosteje uporabljam prek pametnega telefona; pametni telefon mi je nenehno v mislih; ponoči je pametni telefon v moji neposredni bližini; zjutraj težko spremljam pouk; nikoli se ne bom odpovedal uporabi pametnega telefona, tudi če to vpliva na moje vsakdanje življenje; preveč uporabljam svoj pametni telefon. V raziskavi je sodelovalo 267 študentov, ki študirajo v Republiki Hrvaški. Anketni vprašalnik je bil izdelan z orod-

jem Google Form in je bil v študijskem letu 2020/2021 objavljen na družbenih omrežjih študentskih društev in na študentskih spletnih straneh. Etični kodeks je bil v celoti spoštovan, anketiranci so dobili jasna navodila za izpolnjevanje vprašalnika, anonimnost je bila zagotovljena, dana je bila možnost umika kadarkoli, hkrati je bilo obrazloženo, da bodo podatki, pridobljeni s to raziskavo, uporabljeni izključno v znanstvene namene.

Pridobljeni podatki raziskave so pokazali, da skupaj 85 % anketirancev uporablja pametni telefon tik pred spanjem na vseh področjih znanosti, največ pa ga uporabljajo anketiranci, ki študirajo biotehniške vede (47,1 %). Ponoči zvok obvestila po pametnem telefonu zbudi skupaj 26,9 % vseh anketirancev, največ pa anketirancev s področja naravoslovja. Skupaj 8,3 % anketiranih ne uporablja pametnega telefona kot budilke, medtem ko ga za budilko največ uporabljajo anketiranci s področja interdisciplinarnih znanosti (57,9 %). Ko se ponoči zbudijo, 16,2 % anketirancev brska po vsebinah na pametnem telefonu, to pa večinoma delajo anketiranci s področja naravoslovja. Skupaj 43 % anketirancev čuti zjutraj utrujenost, večinoma anketiranci s področja interdisciplinarnih znanosti. Anketiranci najpogosteje dostopajo do družbenih omrežij prek mobilnih telefonov (77,9 %), večinoma pa to počnejo anketiranci s področja interdisciplinarnih znanosti. Vsebine na spletu si večinoma ogledujejo anketiranci (16,9 %) s področja biotehniških ved, pametne telefone za telefonijo pa večinoma uporabljajo anketiranci s področja humanistike (5,2 %). O pametnih telefonih nenehno razmišlja 11,3 % anketirancev, med katerimi je največ anketirancev s področja biotehniških ved (17,7 %). Lahko sklepamo, da obstaja velika verjetnost, da postanejo zasvojeni s pametnim telefonom, kar lahko povežemo s trditvijo, da ne bodo opustili uporabe mobilnih telefonov, ko se zavedajo, da to vpliva na njihovo vsakdanje življenje, s čimer se strinja in se popolnoma strinja 22,7 % anketirancev, najbolj pa se strinjajo anketiranci s področja humanistike (47,7 %). Upoštevati je treba tudi odgovor 27,9 % anketirancev, ki so odgovorili z "niti se strinjam niti se ne strinjam", kar si lahko razlagamo kot nezavedanje, da to vpliva na njihovo vsakdanje življenje.

Uporaba družbenih omrežij je ena najljubših dejavnosti mladih. Pridobljeni podatki raziskave so pokazali, da skupno 77,9 % anketirancev dostopa do družbenih omrežij prek pametnega telefona, 16,9 % anketirancev si ogleduje vsebine na spletu, le 5,2 % anketirancev pa ga uporablja za telefoniranje. Čeprav je bil primarni namen mobilnih telefonov klicanje in pošiljanje SMS-sporočil, smo danes priča času, ko se s pametnim telefonom izvaja veliko več dejavnosti, povezanih z dostopom do spleta z uporabo številnih aplikacij za komunikacijo in drugih vsebin. Spremljanje družbenih omrežij se pri večini mladih kaže tudi v neki obliki angažiranosti, ki se kaže kot spremljanje objav, spremljanje vsebin, "likov", komentarjev, spremljanje vplivnežev, objavljanje vsebin, ustvarjanje in nalaganje vsebin na profile različnih družbenih omrežij in v obliki številnih drugih dejavnosti. Večinoma gre za aktivnosti in vsebine, ki so jim na voljo v zelo kratkem času, nekatere pa tudi "takoj".

Laurence idr. (2020) so na vzorcu 300 študentov, starih od 17 do 29 let, dobili izsledke raziskave, da skupno 97 % anketirancev uporablja aplikacije družbenih omrežij, medtem ko le 1 % anketirancev uporablja družbena omrežja v akademske namene. Skupaj je 68 % vprašanih izjavilo, da jim čas, preživet na družbenih omrežjih, odloži spanje in da imajo družbena omrežja vpliv na njihove socialne interakcije. Skrb vzbujajoči so pridobljeni podatki, ki so pokazali, da je 57 % anketirancev izjavilo, da se čutijo odvisne od družbenih omrežij, pri 52 % pa je ta zasvojenost vplivala na učenje. Poleg

tega problematična uporaba družbenih omrežij med študenti (Jiang, 2021) napoveduje njihovo stopnjo tesnobe.

Prekomerna uporaba pametnih telefonov in neupoštevanje ergonomije uporabe mobilnega telefona močno vplivata na posameznikovo fizično zdravje. Xie, Dong in Wang (2018) so v svoji raziskavi prišli do rezultatov, ki kažejo, da obstaja močna povezava med prekomerno uporabo mobilnih telefonov in telesnimi zdravstvenimi težavami (težave z vidom, hrbtenico, slaba kakovost spanja, pomanjkanje telesne energije, pomanjkanje pozornosti, imuniteta, bolečine v sklepih) med mladostniki v Šanghaju. Pri rokovanju z mobilnim telefonom (pametnim telefonom) (Ružić Baf, 2020) so znatna odstopanja od idealne anatomske ukrivljenosti hrbtenice. Posledice takšne drže se običajno pokažejo čez nekaj časa. Pri uporabi elektronskih naprav so najpogostejše skoliotična in kifotična drža ter težave s pestmi. Največkrat je najbolj travmatiziran vrat in opazna je težava zaradi pretirane uporabe palca in kazalca, predvsem pri pisanju sporočil in krmarjenju po zaslonu.

Depresija, tesnoba in kakovost spanja so lahko povezane z uporabo pametnih telefonov pri študentih. Socialna tesnoba (Annoni idr., 2021) pri mladostnikih je povezana s problematično uporabo pametnih telefonov. Študentje, ki pretiravajo z uporabo pametnih telefonov (“težki” uporabniki pametnih telefonov), trpijo za socialno tesnobo, nagnjeni so k nezaupanju drugim in so izpostavljeni večjemu tveganju kot problematični uporabniki pametnih telefonov.

Pojav, ki ga je danes mogoče prepoznati pri uporabnikih pametnih telefonov, je nomofobija. Po definiciji (Cambridge Dictionary) gre za strah pred tem, da bi bili brez stika z mobilnim telefonom. Če na zaslonu ni črt ali če je telefon prazen, to povzroči tesnobo in napade panike pri vedno večjem številu ljudi.

Pametni telefoni se uporabljajo vse pogosteje in dlje. Dostopnost “takoj in zdaj”, takojšnji odzivi na prejeta obvestila in aktivnosti na družbenih omrežjih so čas, namenjen spanju, nadomestili z aktivnostmi, ki posamezniku ne omogočajo kakovostnega spanca. Na primer vpliv umetne svetlobe z zaslona naprave lahko vpliva na posameznikov cirkadijalni ritem.

Med pandemijo covida-19 je raziskava na reprezentativnem vzorcu 5.511 študentov iz Bangladeša, starih od 18 do 25 let (Islam idr., 2021), pokazala, da so bili problematični uporabniki mobilnih telefonov in problematični uporabniki družbenih omrežij pozitivno povezani z nižjo starostjo, slabim spanjem, uporabo družbenih omrežij, gledanjem televizije, tesnobo in depresijo.

Uporaba pametnih telefonov bi morala biti čim manjša. Ne bi ga smeli uporabljati tik pred spanjem ali ponoči ter takoj po prebujanju. Če se ga uporablja kot budilko, bi ga bilo dobro izklopiti, nastaviti na tihi način ali način letenja. Z zmanjšanjem časa, porabljenega za pametne telefone, bi pridobil čas, ki bi ga posameznik lahko izkoristil na različne načine (za vadbo, hojo, druženje brez uporabe pametnih telefonov in druge dejavnosti), kar bi imelo pozitivne posledice na njegovo splošno zdravje in počutje.

Pravočasno ozaveščanje, najprej v otrokovi primarni skupnosti, jedru (mikrosistemu), in stalno izobraževanje na vseh ravneh izobraževanja lahko močno pripomoreta k zmanjšanju uporabe in s tem zmanjšanju “pandemije” pretirane uporabe pametnih telefonov. Za začetek je dovolj, da pametni telefon postavite v drugo sobo, pripravite telo in duh na spanje (branje tiskanih knjig ipd.) in si podarite – budilko!

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