

THE PSYCHOSOCIAL IMPACT OF SOCIAL MEDIA ON HIGH SCHOOL STUDENTS IN TUNISIA

IMPACT PSYCHOSOCIAL DES RESEAUX SOCIAUX SUR LES JEUNES LYCEENS EN TUNISIE

R. KAMMOUN^{1,2}; H.GHABI^{1,2}; S. BELGHITH²; E. BARGAOU²; H. NEFZI^{1,2}; M. KAROUI^{1,2} ET F. ELLOUZE^{1,2}

1: University of Tunis El Manar, Faculty of medicine of Tunis
2: Razi Hospital, Psychiatric department G, Mannouba, Tunisia.

Abstract

Social media is central to adolescent life, raising health concerns during this critical developmental stage. A descriptive cross-sectional study was conducted on 401 high school students in Sfax (Oct–Dec 2022) to describe its use. The mean age was 15.3 years, with 81% accessing the Internet at home. Mean daily use was 3.5 hours over 5.3 years, with Instagram most popular (53%). The main online activities were social media (39.4%) and YouTube (21.2%). Half reported parental monitoring, but 26.2% noted complaints. Negative effects were: sleep problems (43%), eating disorders (42.9%) and irritability/aggression (13%). Despite these issues, 85.5% engaged in offline leisure. Excessive social media use harms adolescents' physical and mental health. Families, schools, and providers must promote balanced digital habits.

Key – Words : High school; Adolescents; Internet; Social media.

Résumé

Les réseaux sociaux occupent une place centrale dans la vie des adolescents, ce qui soulève des préoccupations sanitaires à cette étape cruciale de leur développement. Une étude descriptive transversale a été menée auprès de 401 lycéens à Sfax (octobre-décembre 2022) afin de décrire leur utilisation. L'âge moyen était de 15,3 ans, et 81 % avaient accès à Internet à domicile. L'utilisation quotidienne moyenne était de 3,5 heures sur 5,3 ans, Instagram étant le plus populaire (53 %). Les principales activités en ligne étaient les réseaux sociaux (39,4 %) et YouTube (21,2 %). La moitié des élèves ont déclaré être surveillés par leurs parents, mais 26,2 % ont signalé des plaintes. Les effets négatifs étaient : troubles du sommeil (43 %), troubles alimentaires (42,9 %) et irritabilité/agressivité (13 %). Malgré ces problèmes, 85,5 % des élèves pratiquaient des loisirs hors ligne. L'utilisation excessive des réseaux sociaux nuit à la santé physique et mentale des adolescents. Les familles, les écoles et les fournisseurs d'accès doivent promouvoir des habitudes numériques équilibrées.

Mots - Clés : Lycée ; Adolescents ; Internet ; Médias sociaux.

ملخص

تعد وسائل التواصل الاجتماعي عنصراً أساسياً في حياة المراهقين، مما يثير مخاوف صحية خلال هذه المرحلة الحرجة من النمو. أجريت دراسة وصفية مستعرضة على 401 طالباً في المدارس الثانوية في صفاقس (أكتوبر - ديسمبر 2022) لوصف استخدامها. كان متوسط العمر 15.3 سنة، مع 81% يستخدمون الإنترنت في المنزل. وبلغ متوسط الاستخدام اليومي 3.5 ساعات على مدى 5.3 سنوات، وكان Instagram هو الأكثر شعبية (53%). وكانت الأنشطة الرئيسية على الإنترنت هي وسائل التواصل الاجتماعي (39.4%) ويوتيوب (21.2%). أفاد نصف المشاركين بوجود رقابة أبوية، لكن 26.2% أشاروا إلى شكاوى. كانت الآثار السلبية: مشاكل النوم (43%)، واضطرابات الأكل (42.9%)، والتهيج/العدوانية (13%). على الرغم من هذه المشكلات، شارك 85.5% في أنشطة ترفيهية خارج الإنترنت. يؤدي الاستخدام المفرط لوسائل التواصل الاجتماعي إلى الإضرار بالصحة البدنية والعقلية للمراهقين. يجب على الأسر والمدارس ومقدمي الخدمات تعزيز العادات الرقمية المتوازنة.

الكلمات المفتاحية : المدرسة الثانوية، المراهقون، الإنترنت، وسائل التواصل الاجتماعي

Correspondance

Rania kammoun : Razi Hospital, Psychiatric department G, Mannouba, Tunisia.

E-mail : rania.kammoun.siala@gmail.com

Cet article est en libre accès distribué selon les termes et conditions de la licence Creative Commons Attribution (CC BY) (<https://creativecommons.org/licenses/by/4.0/>).

INTRODUCTION

Social media includes any digital application or software that facilitates social interaction within a virtual community [1,2]. As of 2022, out of a global population of 7.91 billion, 4.62 billion individuals had active accounts on social networks, with a significant proportion comprising adolescents. According to the Pew Research Center (2021), over 90% of individuals under the age of 18 use social media, and nearly half of them report being "almost constantly" connected to these platforms [3]. This phenomenon can be attributed to adolescents' natural predisposition for exploring new experiences and their inclination toward risk-taking behaviors [4,5]. In January 2023, Facebook, Instagram, and Twitter accounted for 2.9 billion, 1.2 billion, and 433 million active users worldwide, respectively, marking a 35% increase in user numbers between 2017 and 2023 [6].

Today's adolescents rarely restrict themselves to a single platform; most cultivate a "social media portfolio" comprising several platforms, including Facebook, Instagram, Snapchat, Twitter, Skype, YouTube, and others [1,7].

Social media offers certain benefits, particularly for students. It can enhance academic performance and learning by facilitating access to online courses, enabling research, providing reading material, and allowing students to engage with teachers' feedback on various educational platforms [8,9]. However, the rapid growth and widespread use of social media have profoundly transformed human interactions. Today, a significant portion of interpersonal communication occurs in online environments. This exponential increase in social media usage has sparked interest in exploring its impact on users' health and well-being, particularly among adolescents. Adolescence is a critical developmental stage, marked by the shaping of personality and behavior, making young people especially vulnerable to the negative effects of excessive social media use. Prolonged use of social media has been linked to mental health issues, including social withdrawal, anxiety, depression, self-harm, and suicidal ideation.

Studies suggest that nearly a quarter of young people experience cyberaddiction, particularly to certain platforms and online video games, which stimulate the brain and trigger significant dopamine release [3]. Cyberaddiction has been shown to adversely affect young people's ability to

communicate in real life, exacerbating shyness, diminishing self-confidence, and creating emotional distance within families by reducing interactive activities. Cognitively, it impairs concentration, attention span, critical thinking, and decision-making abilities [3].

The detrimental impact of social media is particularly pronounced among young adolescents. In Tunisia, 7% of Internet users are aged between 13 and 17. Among these, 7% (n=490,900) are active on Facebook, 8% (n=248,200) on Instagram, and 5% (n=17,400) on Twitter [10].

We conducted a study with the following objectives:

1. To assess the usage patterns of social networks (Facebook, Instagram, Twitter, Skype) among secondary school students in the Sfax region.
2. To examine the social and psychological impacts of this usage on this population

METHODOLOGY

1. Type of study

This study is a monocentric, descriptive, cross-sectional analysis conducted among 401 high school students. It took place at Habib Thameur High School in Sfax over a three-month period, from October to December 2022.

Participants were invited to complete a self-administered questionnaire during a weekly school visit after being informed of the nature and purpose of the study. The survey was conducted in the school's medical office following a physical examination of the students.

2. Study population

2.1. Inclusion criteria

We included students:

- in their first year of secondary school.
- consenting to the study
- aged less than or equal to 19 years.

2.2. Non-inclusion criteria

In our survey, we did not include high school students:

- not consenting to the study
- absent on the day of the check-up.

2.3. Exclusion criteria

- High school students whose observations were incomplete.

3. Evaluation tools

Data collection was conducted using a structured self-administered questionnaire with five sections:

3.1. Socio-demographic information

Information collected included age and gender of participants.

3.2. Media use information

We asked participants about: place of Internet use, devices used to access Internet, types of Internet activities, date of first Internet use, daily time spent online, most frequently used social network, daily time spent on Facebook.

3.3. Family Circumstances

Participants provided information about parental marital status, level of parental supervision of internet use, parental complaints regarding internet usage.

3.4. Leisure activities

We asked participants about the presence of a leisure activity and to specify it: going out with friends, practicing sports, playing music, or other activities.

3.5. Side effects of social media use

We asked questions about:

-**Physical side effects:** headache, eye pain, neck pain, weight change.

-**Psychological side effects:** sleep disorders, behavioral disorders, eating disorders.

-**Social side effects:** social isolation and reduced participation in leisure activities.

4. Ethical considerations

No conflicts of interest were associated with this study. Authorization to conduct the study was obtained from the high school's headmaster. All participants were informed about the study's purpose and nature, and oral informed consent was obtained. Confidentiality and anonymity of participants were strictly maintained.

RESULTS

1. Characteristics of the population

In this study, we included 401 high school students.

1.1. Age

The mean age of the study sample was 15.31 with a standard deviation of 0.8 and extremes ranging from 14 to 19 years of age

1.2. Gender

Our sample was composed of 48.9% men (n=192) and 51.1% women (n=200), i.e. a sex ratio equal to 0.96.

2. Information on media use

2.1. Place of internet use

Eighty-one percent of the participants used the internet at home (n=325), 11% at a coffee shop (n=44), and 5% in the classroom (n=21)

2.2. Devices used to access Internet

A mobile phone was used by 64.3% of students (n=258), a computer by 26.7% (n=108), and a tablet by 9% (n=32).

2.3. Types of internet activities

The reported activities were categorized as follows: social media accounted for 39.4% of cases (n=158), YouTube for 21.2% (n=85), gaming for 14.7% (n=59), and school-related research for 9.5% (n=38). (Figure 1)

2.4. Date of first Internet use

In our sample, the average duration of internet use was 5.32 years, with a standard deviation of 2.3 and extremes ranging from 1 to 11 years.

2.5. Daily time spent online

In our sample, the average time spent using the internet was 3.5 hours with a standard deviation of 1.15. The percentages were distributed as follows: 35.7% of secondary school students (n=142) spent between 2 and 4 hours on Internet, 27.4% (n=110) spent between 1 and 2 hours a day and 26.4% (n=106) spent more than 4 hours a day online.

2.6. Most frequently used social media

The most used social media among the study population was Instagram, reported in 53% of cases (n=213), followed by Facebook, used by 37% of high school students (n=149), and Twitter, mentioned in 4% of cases (n=17).

2.7. Frequency of Facebook use

Among the participants, 30.2% of high school students (n=121) reported checking Facebook 2 to 5 times per day.

3. Information relating to family circumstances

3.1. Parents' marital status

In the sample studied, 93.3% of high school students (n=374) had married parents, while 5% (n=16) had divorced parents.

3.2. Parental supervision

In our sample, half of the participants had their social networking activities monitored by their parents.

3.3. Parental complaints

In our sample, 26.2% of participants (n=105) said that their parents complain about their excessive use of social networks.

4. Leisure activities

Among the study population, 85.5% of secondary school students (n=342) engaged in other leisure activities. The most common activities, ranked in descending order, were spending time with friends outdoors (33.2%, n=133), participating in sports (26.4%, n=106), and listening to or playing music (15.2%, n=61).

5. Side effects of Internet use

5.1. Physical side effects

In our sample, more than a third of participants complained of physical health problems such as neck pain, which was noted in 22.7% of secondary school students (n=91), headaches in 34.4% of cases (n=138), visual problems and eyestrain in 38.9% of cases (n=156).

We found that 8.7% of the young participants surveyed (n=35) had noticed a change in their weight (5.5% had increased their weight, and 3.2% had lost weight).

5.2. Psychological side effects: (Table I)

In our study, 42.9% of young people (n=172) reported having an eating disorder such as hyperphagia in 29% (n=116) of subjects and dietary restriction in 13.9% (n=56).

Forty-three per cent of participants (n=174) reported a sleep disorder such as insomnia on falling asleep.

Thirteen per cent (n=52) complained of behavioral problems such as anger and aggressive behavior.

5.3. Social side effects

In our study, 85.5% of the adolescents (n=343) reported taking part in other leisure activities, while 9.8% (n=39) reported total isolation and a lack of social integration.

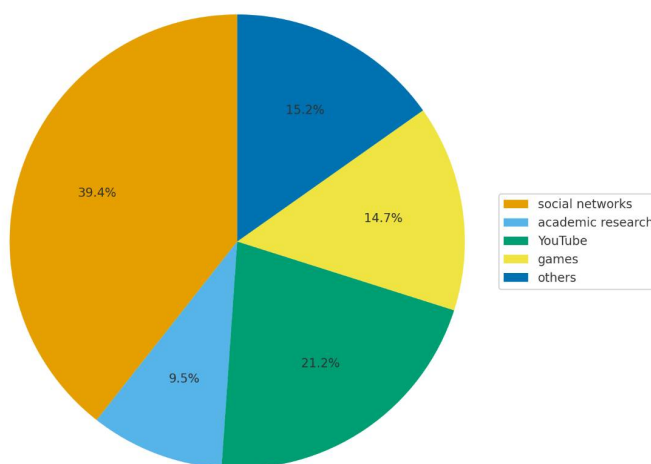


Figure 1: Distribution of Media Use Purposes

Table I. Psychological Impact of Prolonged Media Use

Psychological Effects	Yes	No
Eating behavior disorders	42.9% (n=172)	57.1% (n=229)
Insomnia	43.6% (n=174)	56.4% (n=227)
Aggressive behavior and anger	12.9% (n=52)	87.1% (n=349)

DISCUSSION

1. Information about media use

1.1. Place of internet use

In the sample studied, 81% of secondary school students used the internet at home, since they had more free time. In addition, certain video games, streaming platforms and other forms of digital entertainment are more accessible at home. Another reason for this home use was the fact that Internet access was free. In fact, at home it is usually the parents who pay for the Internet, whereas elsewhere young people are obliged to pay for their mobile data packages (4G), which are generally expensive and of limited consumption.

Eleven per cent of surveyed secondary school students reported using the internet in the coffee shop. The coffee shop could be a comfortable place to meet up with friends while staying connected online, listening to music and watching videos. Sometimes young people prefer to do their school projects in a group while enjoying a drink or a snack.

Only 5.2% of secondary school pupils used the internet in classroom. This could be explained by the fact that secondary school administration generally places certain restrictions on the use of mobile phones and require young people to be disciplined and concentrated in lessons. When comparing Internet use in secondary schools with that in primary schools, pupils use their phones less to go online because of the stricter control imposed by both schools and parents.

1.2. Devices used to access Internet

Most of the surveyed adolescents (64.3%) used their mobile phones due to their constant accessibility, regardless of time or place. Mobile phones serve as a versatile tool for accessing online courses, playing games, watching videos, conducting school research, and exchanging messages through social networks. They are therefore perceived as a convenient, affordable, and practical source of information, communication, and entertainment. Similar findings were reported in Japan, where a survey by the Ministry of Internal Affairs and Communications (MIAC) revealed that 59.7% of 478 respondents accessed the Internet via mobile phones, citing their availability as the primary reason [11].

In addition, 26.7% of the young people in our study continued to use the computer, mainly to play games online and to watch films or series, given

that the screen was bigger and clearer, making viewing more comfortable.

1.3. Types of internet activities

In our study, we found that using social media was the activity most shared by young people (39.4%). This could be explained by the multi-purpose service provided by social networks, namely chatting with others either by message or video call, accessing online broadcasts and videos and music, exchanging data with others by sharing publications, and completing schoolwork. The use of social media for online education constitutes a new virtual learning method. Our results are close to those in the literature, where social networks are the main activity among young people, noted among 68.4% according to the MIAC survey in Japan.

As for the use of YouTube, this was noted in a quarter of cases (21.2%). YouTube offers a wide range of content, from educational videos and tutorials to entertainment videos, music and vlogs (which are blog posts in video form, where the speaker addresses the audience directly and talks freely about a specific subject, personal experiences, or gives an insight into his or her life). In India, YouTube was also chosen as the preferred platform for adolescents [12].

1.4. Date of first Internet use

In our sample, 26.9% of participants stated that they had been using the internet for 3 to 5 years, and 25.9% had been using it for more than 5 years. These findings align with a study conducted in South Korea, where most secondary school students reported having been using the Internet for 3 to 5 years (37%), while 35% had been online for more than 5 years [13].

1.5. Daily time spent online

In our sample, more than a third of high school students (35.7%) spent between 2 and 4 hours a day on social networks, and 26.4% spent more than 4 hours a day. There are several possible explanations for this [14]. Firstly, some students use the internet for educational purposes, especially after the Covid-19 pandemic, when online education was institutionally introduced. Furthermore, activities such as interacting on social networks, staying updated on news, and using streaming platforms (e.g., YouTube) can engross adolescents for extended periods, often without them realizing it. Additionally, in the absence of alternative leisure activities, young people tend to

turn to social networks as a way to fill their free time and seek entertainment.

1.6. Most frequently used social network

In our study, the main social network found according to high school students surveyed was Instagram (among 53.1%). There are various reasons for this. Instagram is a platform based on highlighting photos and videos using filters, making for aesthetically appealing content. Furthermore, this tool encourages communication with friends, influencers and even celebrities. Besides, young people can share their daily lives in stories and interact with others. Finally, they can earn money by advertising various products, including clothes, cosmetics, food, and even cafés and restaurants. This finding was also noted in Iran, England and the Middle East [15-17].

In our study, Facebook was the social network most used by 37.2% of the young people questioned. In the Middle East and India, Facebook use was 66% and 28% respectively [12,15]. The advantage of this application is that it allows them to communicate with others via messaging or video calls, share photos, videos, publications, events or music, and so on. On Facebook, adolescents can also take part in online group games.

Twitter was used by only 4.2% of the young people we surveyed, while in the Middle East and India it was used by 9% and 16% respectively [12,15]. Today's adolescents prefer the visual content found on Instagram and TikTok, for example, to the text-based format of Twitter. They would also rather send private messages via Snapchat, WhatsApp and Messenger to communicate with their friends than share public messages on Twitter.

1.7. Parental supervision of internet use and parental complaints

In our study, half of the participants reported that their social media use was monitored by their parents, and 26.2% stated their parents complained about excessive media use. Family support and time spent with parents can protect against problematic internet use by fostering a sense of acceptance and safety. Research shows that positive family involvement, especially in online gaming and social networking, can improve internet behavior. Conversely, a distant parent-child relationship may lead to feelings of rejection and increase the risk of social media addiction [18,19].

Gunuc and Dogan's study found that spending more time with mothers reduces the risk of internet

addiction [18], as it provides a space for emotional support and meaningful interaction, reducing reliance on social media. However, excessive parental control can negatively impact internet use. Studies show that adolescents experiencing high parental pressure exhibit higher levels of social media-related disorders [18]. In Korea, 17% of young people reported poor relationships with parents due to pressure, contributing to media addiction [13].

Three parental mediation strategies for controlling children's social media use are proposed: restrictive mediation (limiting access), active mediation (discussing use time and content), and co-viewing (parents and children using internet activities together) [20].

2. The impact of Internet use on physical health

2.1. Vision-Related Issues

In our sample, more than a third of participants reported vision problems such as a sensation of reduced visual acuity, fatigue and redness of the eyes. Prolonged exposure to blue light from screens and continuous media viewing can lead to eye fatigue and a reduction in eye blinking. In literature, ocular damage was frequent, in the form of eye redness, eye fatigue, myopia or acquired strabismus. It is significantly influenced by the amount of time spent in front of screens and prolonged media use [14,15,21] and may have an impact on school performance. Eyestrain is thought to make it more difficult to concentrate and review lessons, which in turn has a negative impact on academic performance.

2.2. Headaches

We noted that 34.4% of secondary school students complained of headaches. These are thought to be linked to eyestrain and muscular tension. In the Middle East and Norway, headaches were present in 42.6% of young people [15,21,22]. These headaches could lead young people to consult a doctor more often, request costly investigations and lead to non-anodyne investigations. These headaches could be linked to repeated absenteeism, thus affecting school results.

2.3. Neck pain

We found that 22.7% of secondary school students reported neck pain, explained by an uncomfortable position during prolonged use of the media. According to the literature, skeletal damage in the

form of neck pain, scapulargia and spinal pain was described in Norway as a symptom due to excessive use of mobile phones [14,22]. Furthermore, according to data from Health Behaviour in School-aged Children (HBSC), around 4% of the increase in the prevalence of spinal pain in Europe could be explained by the excessive amount of time spent in front of screens [22]. This favours the onset of disability in the future [21].

3. The impact of Internet use on psychological health

3.1. Sleep disorders

In our study, 43.6% of the secondary school students questioned suffered from sleep problems such as insomnia on falling asleep. This could be due to the blue light emitted by screens, which suppresses melatonin (a hormone involved in controlling circadian rhythms and regulating the day-night rhythm). This suppression of melatonin is thought to make it difficult to fall asleep. In addition, certain online games, exciting videos and surfing the Internet could mentally stimulate adolescents, making it more difficult to transition to a state of relaxation conducive to sleep. These findings are consistent with those in literature. Excessive use of mobile phones was associated with poorer sleep quality and higher levels of stress. The daytime sleepiness induced by this use led to attention and concentration problems [17].

Compared with video games, social networks may have a greater impact on reducing sleep duration, because they are more easily used just before bedtime via mobile phones [21,23].

3.2. Aggressive behavior

In our study, 12.9% of secondary school students reported having behavioral problems such as angry outbursts and aggressive behavior. Internet use does not necessarily lead to aggressive behavior. However, there are a few additional individual factors that could contribute to this type of behavior. Certain personality traits in adolescents, especially boys, such as impulsiveness, aggressiveness and anger, family conflicts and relationships with parents may encourage this type of behavior.

In addition, certain factors linked to Internet use, such as anonymity and distant social relationships, may encourage young people to express their opinions more intensely and aggressively, which in

some cases can lead to cyberstalking, with harmful psychological consequences for the stalker, victim or bystanders.

According to a Canadian study, exposure to violent content on social media platforms (such as YouTube, TikTok, Facebook, Twitter and Instagram) and video games can reduce empathy and lead to an increase in aggressive thoughts, anger and risky behavior such as fighting, conduct disorders and hostility, especially among teenagers [24,25].

3.3. Eating disorders

In our study, 42.9% of young people reported eating disorders, with 29% experiencing hyperphagia and 13.9% restricting food intake. This may result from individual predispositions and platform-specific influences. Kelly et al. highlighted that platforms like Instagram promote idealized aesthetic standards, emphasizing slim bodies and healthy lifestyles, which negatively affect self-perception [26]. This can lead to psychological issues, including low self-confidence, social isolation, and academic difficulties.

Diet- and exercise-related content, such as fad diets and weight-loss tips, can exacerbate dissatisfaction and trigger disordered eating behaviors [23]. In our sample, 3.2% of adolescents reported weight loss from skipping meals or following strict diets inspired by media content. In the U.S., Instagram and Twitter are strongly linked to young people's attempts to achieve ideal body standards [27].

Conversely, weight gain was observed in 5.5% of participants, often linked to sedentary habits, lack of physical activity, and consumption of unhealthy, quick-preparation foods [23]. Regular moderate physical activity is recommended to reduce screen time and social media use, thereby improving both physical and mental health in adolescents [21,22].

4. Consequences of Internet use on social life

In our study, 9.8% of young people reported feelings of isolation and lack of social integration. Their underdeveloped emotional regulation skills lead to avoidance of social activities, reinforcing loneliness [28]. Excessive internet use, especially social networks, reduces real-life interaction. Highlighting filtered and idealized lives online fosters unrealistic expectations, dissatisfaction, and isolation through unfavorable comparisons.

Online games also consume significant time, reducing face-to-face interactions and contributing

to social withdrawal. Studies associate heavy social media use with problematic internet behaviors and diminished offline interaction [29,30]. Adolescents often prioritize phones over family activities due to FOMO (Fear of Missing Out), a phenomenon linked to platforms like Instagram and Twitter [15,28,31].

Research by Frison and Eggermont indicates boys are less sociable, making them more prone to isolation [32]. In our sample, 85.5% of adolescents reported engaging in leisure activities, such as walking with friends (33.2%), playing sports (26.4%), or music (15.2%). These activities often co-occur with internet use, like sharing photos or checking messages during outings, without disrupting social experiences. Teenagers also use social media to share sports experiences, exchange tips, or find motivation through music.

Social networks can enhance social interaction, reduce loneliness, and improve life satisfaction [19]. Platforms like Facebook help build relationships that may transition offline, though they can hinder offline social skills. Online platforms allow controlled self-presentation, reducing social isolation for those engaging with posts, photos, or videos [2,32]. Thus, balanced online and offline interactions are vital for fulfilling social life and avoiding the negative impacts of excessive digital media use.

5. Limitations of the study

Our study had certain limitations.

The evaluation was subjective; We opted for a qualitative evaluation without using a scale exploring social networking behavior and psychiatric disorders.

The small size of the population; The population is not representative of the entire high school population in Tunisia, since only one high school was included.

CONCLUSION

While social networks offer benefits in communication, education, and entertainment, their excessive use among high school students in Tunisia has significant negative effects on physical, mental, and social health. Our study found issues such as eye strain, sleep disturbances, eating disorders, and social isolation, highlighting the risks of prolonged screen time during adolescence. Family support and parental mediation are key in reducing these impacts, and it is crucial to implement a health strategy involving teenagers, families, and healthcare professionals to promote

balanced internet use, support emotional and social development, and improve overall well-being and academic performance.

CONFLICTS OF INTEREST: None

REFERENCES

- [1]Gupta C, Jogdand S, Kumar M. Reviewing the impact of social media on the mental health of adolescents and young adults. *Cureus*. 2022 Oct;14(10):e30143.
- [2]PhuB, Gow AJ. Facebook use and its association with subjective happiness and loneliness. *Comput Human Behav*. 2019 Mar;92:151-159.
- [3]Varona MN, Muela A, Machimbarrena JM. Problematic use or addiction? A scoping review on conceptual and operational definitions of negative social networking sites use in adolescents. *Addict Behav*. 2022 Nov;134:107400.
- [4]Çimke S, Yıldırım Gürkan D. Factors affecting body image perception, social media addiction, and social media consciousness regarding physical appearance in adolescents. *J Pediatr Nurs*. 2023 Nov;73:197-203.
- [5]Dalvi Esfahani M, Niknafs A, Alaedini Z, Barati Ahmadabadi H, Kuss DJ, Ramayah T. Social media addiction and empathy: moderating impact of personality traits among high school students. *Telemat Inform*. 2021 Mar;57:101516.
- [6]Digital Discovery. Les chiffres clés des réseaux sociaux en Tunisie 2023 [En ligne]. Mai 2023 [Consulté le 19 déc 2023]. Consultable à l'URL: <https://www.digital-discovery.tn/chiffres-reseaux-sociaux-tunisie-2023/>
- [7]Reid Chasiakos Y, Radesky J, Christakis D, Moreno MA, Cross C. Children and adolescents and digital media. *Pediatrics*. 2016 Nov;138(5):e20162593.
- [8]Shafiq M, Parveen K. Social media usage: analyzing its effect on academic performance and engagement of higher education students. *Int J Educ Dev*. 2023 Apr;98:102738.
- [9]Martin AP, Keskes H, Heni W, Burton P, Deliege A, Rabhi C, et al. From entertainment to extortion: Tunisian children's online experiences. *Child Abuse Negl*. 2023 Nov;145:106405.
- [10]Digital Discovery. Les chiffres clés des réseaux sociaux en Tunisie 2023 [Internet]. 2023 [cité 18 avr 2023]. Disponible sur: <https://www.digital-discovery.tn/chiffres-reseaux-sociaux-tunisie-2023/>
- [11]AlAnsi AM, Hazaimh M, Hendi A, ALhrinat J, Adwan G. How do social media influencers change adolescents' behavior? An evidence from Middle East countries. *Heliyon*. 2023 Apr;9(5):e15983.
- [12]Sobaih AE, Palla IA, Baquee A. Social media use in e-learning amid COVID 19 pandemic: Indian students' perspective. *Int J Environ Res Public Health*. 2022 Apr;19(9):5380.
- [13]Kim MR, Oh JW, Huh BY. Analysis of factors related to social network service addiction among Korean high school students. *J Addict Nurs*. 2020 Jul;31(3):203-212.
- [14]Tomczyk Ł, Selmanagic Lizde E. Is real screen time a determinant of problematic smartphone and social network use among young people? *Telemat Inform*. 2023 Jul;82:101994.
- [15]Schenkel K, Radtke T, Luszczynska A, Lüscher J, Kulis E, Scholz U. From a mother's point of view: psycho-social predictors of maternal monitoring strategy and adolescents' electronic media use. *J Adolesc*. 2021 Apr;88:134-145.
- [16]Toozandehjani A, Mahmoodi Z, Rahimzadeh M, Jashni Motlagh A, Akbari Kamrani M, Esmaelzadeh Saeieh S. The predictor role of Internet addiction in high-risk behaviors and

- general health status among alborz students: a structural equation model. *Heliyon*. 2021 May;7(5):e06987.
- [17]Mun IB, Lee S. A longitudinal study of the impact of parental loneliness on adolescents' online game addiction: the mediating roles of adolescents' social skill deficits and loneliness. *Comput Human Behav*. 2022 Nov;136:107375.
- [18]Günüç S, Doğan A. The relationships between Turkish adolescents' Internet addiction, their perceived social support and family activities. *Computers in Human Behavior [Internet]*. 2013 [cité 10 oct 2025];29(6):2197-207.
- [19]Yue Y, Aibao Z, TingHao T. The interconnections among the intensity of social network use, anxiety, smartphone addiction and the parent-child relationship of adolescents: a moderated mediation effect. *Acta Psychol*. 2022 Nov;231:103796.
- [20]Wacks Y, Weinstein AM. Excessive smartphone use is associated with health problems in adolescents and young adults. *Front Psychiatry*. 2021 May;12:669042.
- [21]Nilsen SA, Stormark KM, Heradstveit O, Breivik K. Trends in physical health complaints among adolescents from 2014 – 2019: considering screen time, social media use, and physical activity. *SSM Popul Health*. 2023 Apr;22:101394.
- [22]Serenko A, Turel O, Bohonis H. The impact of social networking sites use on health-related outcomes among UK adolescents. *Comput Hum Behav Rep*. 2021 Jan;3:100058.
- [23]Wallace J, Boers E, Ouellet J, Conrod P. A population-based analysis of the temporal association of screen time and aggressive behaviors in adolescents. *JAACAP Open*. 2023 Dec;1(4):284-294.
- [24]The Lancet Regional Health – Americas. Screen violence: a real threat to mental health in children and adolescents. *Lancet Reg Health Am*. 2023 Mar;19:100473.
- [25]Liu M, Zhuang A, Norvilitis JM, Xiao T. Usage patterns of short videos and social media among adolescents and psychological health: a latent profile analysis. *Comput Human Behav*. 2024 Feb;151:108007.
- [26]Ganson KT, Nagata JM, Jones CP, Testa A, Jackson DB, Hammond D. Screen time, social media use, and weight-change behaviors: results from an international sample of adolescents. *Prev Med*. 2023 Mar;168:107450.
- [27]Azhari A, Toms Z, Pavlopoulou G, Esposito G, Dimitriou D. Social media use in female adolescents: associations with anxiety, loneliness, and sleep disturbances. *Acta Psychol*. 2022 Sep;229:103706.
- [28]Balcombe L, De Leo D. The impact of youtube on loneliness and mental health. *Informatics*. 2023 Jun;10(2):39.
- [29]Çiftçi N, Yıldız M, Çiftçi K. The mediating role of social ostracism in the effect of social media addiction on loneliness in adolescents. *J Pediatr Nurs*. 2023 Nov;73:177-183.
- [30]Sarman A, Tuncay S. The relationship of facebook, instagram, twitter, tiktok and whatsapp/telegram with loneliness and anger of adolescents living in turkey: a structural equality model. *J Pediatr Nurs*. 2023 Sep;72:16-25.
- [31]Capetillo Ventura N, Juárez Treviño M. Internet addiction in university medical students. *Medicina Universitaria*. 2015 Apr;17(67):88-93.
- [32]Frison E, Eggermont S. Toward an integrated and differential approach to the relationships between loneliness, different types of Facebook use, and adolescents' depressed mood. *Communication Research*. 2015;47(5):701-728.