

Health Hazards Related to the Pathological Use of Digital Technology Among Secondary School Students in Egypt.

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Abstract

Background: Pathological use of digital technology is a chronic phenomenon associated with serious bio-psychosocial health hazards of secondary school students with an uncontrollable desire to use the technology. **Aim:** to assess health hazards related to the pathological use of digital technology among secondary school students in Egypt. **Design:** A descriptive-correlation design **Results:** showed that, secondary school students were exposed to various health hazards such as uncomfortable bad body mechanics (94.3%), low concentration (91.3 %), general body weakness (92%), vision impairment (68%) hearing (67.4%), and there is a significant relation between levels of education and pathological use of digital technology. **Conclusions:** Secondary school students had various health hazards related to the pathological use of technology. **Recommendation:** The study recommended applying frequent educational sessions about the safe use of digital technology.

Keywords: Health Hazards, Pathological Use, Digital Technology, Secondary School Students.

Introduction:

Digital technology usage is increasing among school students. In this millennial age, it is common to figure that school children are more likely to spend their time browsing the internet, playing games, and listening to music or songs than engaging with parents and family members when they are at home. Changes in bio-psycho-social development among secondary school students are prominent factors influencing their behavior in using digital technology excessively. Uncontrolled usage of digital technology will result in addiction (Agbaria, & Bdier, 2021).

Digital technology has been gaining worldwide popularity in recent years, but a loss of control over use might lead to negative health hazards in secondary school students' daily lives. Pathological computer or smartphone use is a growing social issue that is being debated worldwide. The Pathological use of digital technology ruins lives by causing neurological complications, disturbances, and social problems (Basel et al., 2020). Pathological digital technology use refers to unfavorable or overuse of technology and spending a large sum of time surfing the internet; playing games and listening to songs or music, to the point where other areas of life (such as relationships, work, or health) are allowed to suffer and it inevitably brings negative effects to its users (Almasi et al., 2017).

Variation in the prevalence of pathological use of digital technology among adolescents has been indicated in many studies. A nationwide study in 11 European countries reported variation in the prevalence of pathological digital

technology (PDT) use ranging from 1.2% in Italy to 4.8% in Germany. However, the prevalence of PDT in Arab countries is much higher, Egypt in 2013, 2.6% of the studied high school students were Problematic Internet Users (PIUs) and 18.2% were Potential (PIUs), a recent study (2019) demonstrated that the prevalence of PDT among adolescents in Egypt was 65.6%, while Face book addiction prevalence was 92.8% in Arab countries, 15.8% of Moroccan adolescents, and 5.3% of high school students in Saudia were PDT users, while the prevalence of moderate to severe PDT in Jordan reached 65% of the Jordan adolescents (Abd El-Mawgood et al., 2021).

There are some health hazards associated with the pathological use of digital technology. In Egypt, in 2015, 43.3% of the Egyptian population was internet users. This number was projected to be 53.5% in 2019. Excessive digital technology use, as proved by many evidences, leads to psychosocial health problems. This can be seen through the activities of boys and girls which are different when using digital technology. Boys tend to watch films and play violent online games while girls do the total opposite. In addition, boys are often engaged in casual online activities such as games, while girls seek anonymous friendship and communication or often seek love in cyberspace (Ramadan, 2022).

Usually, students prefer to spend their time browsing social networking sites. The pleasurable sensation of surfing social networking sites affects students' consciousness about the time being as they have spent too much time surfing the internet (Milushkina et al., 2020). This could be a fundamental problem in learning acquisition at

school because late-night surfing has eventually led them to experience a lack of sleep, hence disturbing the learning process. Most online games such as Mobile Legends, PUBG, Fortnite: Battle Royale, and other online gaming are also the main reasons that students spend more time with activities on the internet, leading to pathological symptoms (Bilgehan et al., 2020).

According to the American Psychological Association (ASA,2020), Adolescents are exposed to 2.4 hours of music per day or more than 16 hours per week. There are few limits to youths' access to music; 98% of children and adolescents live in homes with both radios and CD/MP3 players, and 86% of 8–18-year-olds have CD/MP3 players in their bedrooms. These figures have increased even over the past several years. Furthermore, current popular music is saturated with references to biopsychosocial problems.

Music and its technologies have evolved, along with the development of publishing and its tools. The music and creative production available on the internet has become greater than ever, to the point where the use of censorship and restrictions becomes absurd. Egyptian street pop music meaning festivals – which raised controversy over the concept of barring itself and the right of freedom of artistic and literary creation. Mahraganat lyrics have corrupted society and are loaded with sexual innuendo and offensive language. Mahraganat is a genre of electro-shaabi and has become very popular among all social classes and is now performed at weddings, cafes, and nightclubs. It burgeoned from impoverished Cairo neighborhoods and has boomed in the last nine years. Mahraganat is also performed in films and television series (Melika et al., 2019).

Parents play a pivotal role in controlling the pathological usage of digital technology for their children. Parents can help children to form a positive attitude. Thus, they are responsible for forming positive attitudes in children by controlling their moral conduct primarily related to digital technology use activities through supervision of child privacy online protection by reviewing (Hasan & Bao, 2020). The children aged 13 to 17 years; were in the form of focus groups and responses received. In addition, tight and secure parental supervision can diminish the risky behaviors associated with the use of digital technology among children (Gjelaj et al., 2020).

The role of the community health nurse, thus, represents the professional who works as a sort of conjunction ring among the members of the team that is taking care of the student. The nurse must deeply know the typical aspects related to the

pathological use of digital technology and understand the special meaning of specific attitudes or sentences told by the student. The health worker becomes a sort of translator of the implicit language of these pathological health hazards (Jaafar et al., 2022).

Aim of the study:

The current study aims to assess health hazards related to the pathological use of digital technology among secondary school students in Egypt.

Research questions:

- 1) What are the health hazards related to the pathological use of digital technology among secondary school students in Egypt?
- 2) What are the types of pathological use of digital technology among secondary school students in Egypt?
- 3) What are the Precautionary measures to control the pathological use of digital technology among secondary school students in Egypt?

Operational definitions

Health hazards related to the pathological use of digital technology: are defined as self-reported physical, mechanical, and psychosocial health problems that affect secondary school students as a result of prolonged use of digital technology.

Pathological use of digital technology: is defined as self-reported excessive use of mobile internet, playing games, and listening to Egyptian street pop or rape music or song leading to health hazards related to secondary school students and is classified into **Mild**; self-reported excessive use of digital technology for 3 -4 hours per day leading to acute health hazard, **Moderate**; self-reported excessive use of digital technology for 5- 6 hours per day leading to chronic health hazards and **Severe**; self-reported excessive use of digital technology more than 6 hours per day leading to complication from hazards.

Material and Method:

Design

A descriptive correlation design was used.

Setting: This study will be conducted at two secondary schools (Al-Sunni Secondary School for girls and Khedive Military Secondary School for Boys)

Sampling

A multistage stratified sample of 334 students aged 15–18 years was selected

Tools and data collection:

Data of this study was collected through:

Tool I: Students' health assessment questionnaire. It was developed by the researchers after an extensive review of the literature. It includes three parts: a) The first part includes student factors

which include the following: 1 - Demographic characteristics of students as age, educational level, area of residence, etc. b) The second part includes types of digital technology which include the following: 1- Electronic games as duration of playing games, how many times playing games per day, what was attracted e in playing games, etc. 2- Music and song as duration of listening, how many times listening per day, methods used during listening, types of music or song listening, what was attracted e in listening music and song, etc. 3- Browsing the Internet and social networking sites as duration of browsing the internet , how many times browsing the internet per day, different sites used to browsing the internet through , what was attracted e in browsing the internet, etc. c) The third part includes student's reported health hazards related to pathological use of digital technology which include the following: **1-** Physical hazards which include : musculoskeletal problems as low back pain , inflammation in joints ,etc , sensory problems as vision problems, hearing problems , etc and miscellaneous problems as headache , obesity , general weakness , etc. **2-** Mechanical / ergonomic hazards which include: repetitive movement used by finger or hands, uncomfortable body mechanic, etc. **3-** Psychosocial hazards which include: as violence, depression, isolation, difficult concentration, etc. Scoring system: each item will be scored as no or yes and if yes it will be scored as acute, chronic, or complicated. d) The fourth part includes the precautionary measures to control the pathological use of digital technology among secondary school students which include nine items the following: time organization, decreasing hours spent using technology, etc. Scoring system: All items (responses) of the precautionary measures will be scored based on the 5-item Likert scale (0: don't know/not applicable, 1: strongly disagree, 2: often disagree, 3: often agree, and 4: strongly agree). The scores were categorized into three levels: favorable (mean score of higher than 75), partly favorable (mean score between 50-75), and unfavorable (mean score of less than 50)(Khodaveisi, Omid, Farokhi& Soltanian,2016).

Validity & Reliability

The study tool was reviewed for content validity by a panel of three experts in the field of community health nursing and occupational and

Results

environmental medicine to assess the relevancy and clarity of the tools. Cronbach's alpha was used to determine the internal consistency of the tool. A coefficient of 0.00 indicates a lack of reliability, a coefficient of 1.00 indicates perfect reliability and a reliability coefficient of 0.70 is acceptable. The Cronbach's alpha for the first tool scale was 0.80.

Data collection:

Students were being asked to participate in the study and the researchers explained the aim of the study to all students. Also, written consent was obtained from every student who agreed to participate. Data was collected when the researchers met the students for 3 days/week from 8 am - 1 pm at Al-Sunni Secondary School for girls and Khedive Military Secondary School for boys. The questionnaire was done in Google format and the link was distributed to the students' WhatsApp and those who didn't have WhatsApp or Google mail were interviewed individually at school day to complete tool I. The duration of completing the tool ranged from 15-25 minutes. For ethical measures, students found to have health hazards were referred to a medical facility and provided with precautionary measures to control the pathological use of digital technology.

Ethical consideration:

The researchers emphasized that participation in the study was entirely voluntary, written informed consent was obtained from each participant, after explanation of the study objectives and procedures. Anonymity and confidentiality were assured. Participants were assured that all data would not be reused in another research without taking the permission of the participants.

Data Analysis

Statistical Package for the Social Sciences (SPSS) program, version 26. Descriptive statistics such as mean, standard deviation, and Spearman correlation were utilized in analyzing data. The chi-square test (X²) was used to identify the relation among the study variables, threshold of significance is fixed at the 5 percent (P-value). The P-value > 0.05 indicates a non-significant result. The P-value ≤ 0.05 is significant. The P-value < 0.01 indicates a highly statistically significant difference.

Table (1): Percentage distribution of demographic characteristics of the Secondary school students (N=334).

Demographic characteristics	Number (No)	Percent (%)
Age		
< 15	23	6
15 < 16	155	46.4
16 < 18	156	46.7
(mean ±SD)	15.9±0.7	
Sex		
Male	160	47.9
Female	174	52.1
Level of education:		
First-level secondary school	170	50.9
Second-level secondary school	164	49.1
Place of residence		
Rural	135	40.4
Urban	199	59.6

Table (1) shows that 47.9% of secondary school students were male sex and 52.1% were female sex. 46.4 % of secondary school students were aged from 15 years to less than 16 years old, while 46.7% were aged from 16 years to less than 18 years old, and 6% were aged less than 15 years old with a mean age of 15.9 years and SD ± 0.7. Regarding the level of education, 50.9 % of the secondary school students from the first level, and 49.1% from the second level. Regarding place of residence, 459.6 % of students were from urban areas and 40.4% were from rural areas.

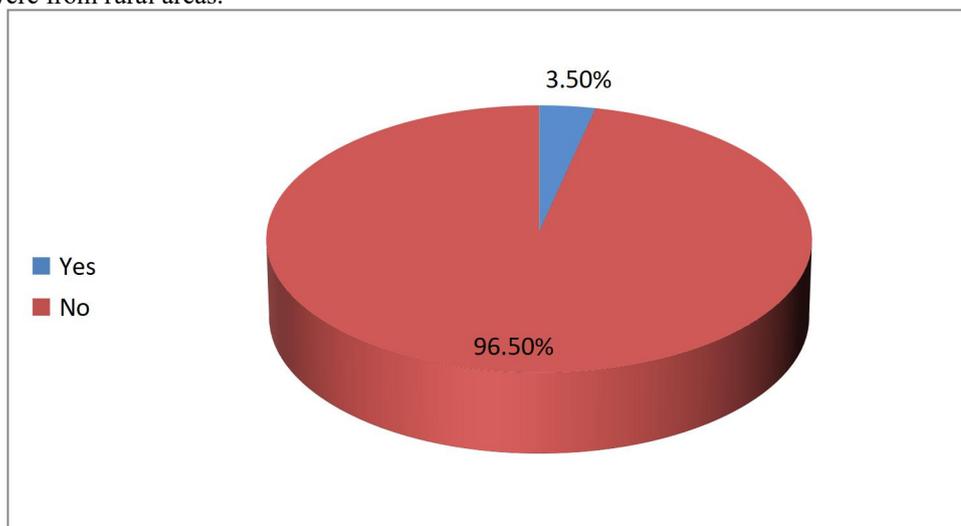


Fig. (1): Distribution of secondary school students according to smoking (N=334).

Figure (1) shows that the majority (96.5%) of the secondary school students were nonsmokers.

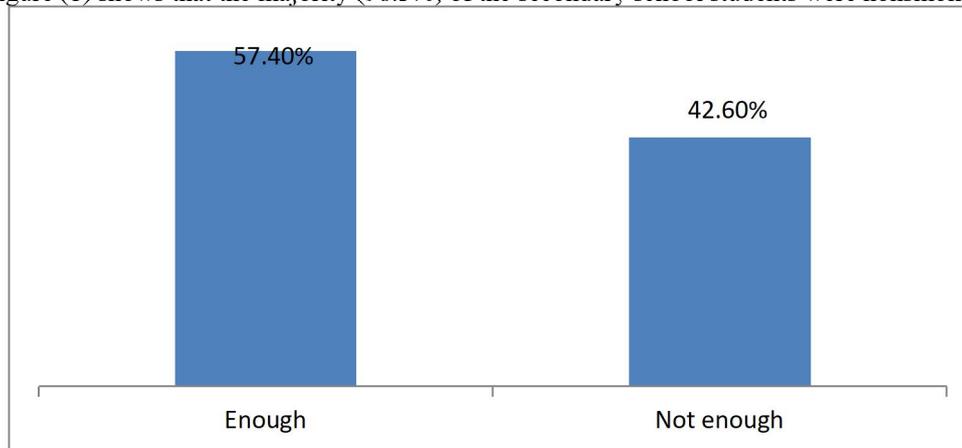


Fig. (2): Distribution of secondary school students according to sleeping hours (N=334).

Figure (2) shows that 42.6% of secondary school students didn't have adequate sleep and 57.4% of them had enough sleeping hours.

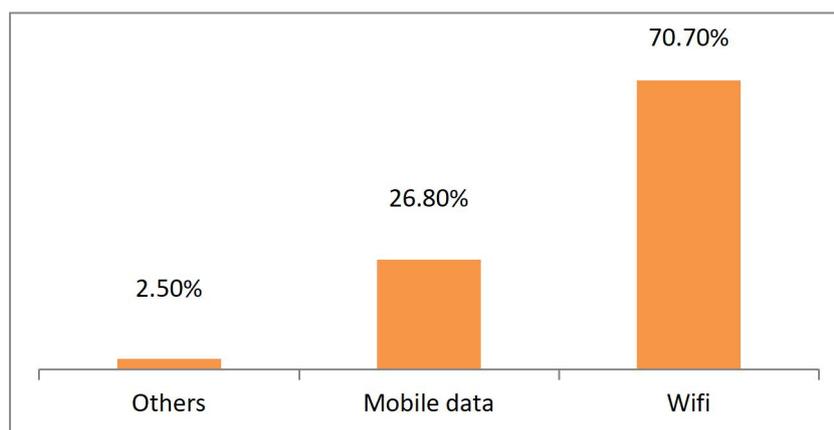


Fig. (3): Distribution of secondary school students according to internet access (N=334).

Figure (3) shows that around two-thirds of students get internet access through Wifi and 26.8 % of them get access through mobile net data.

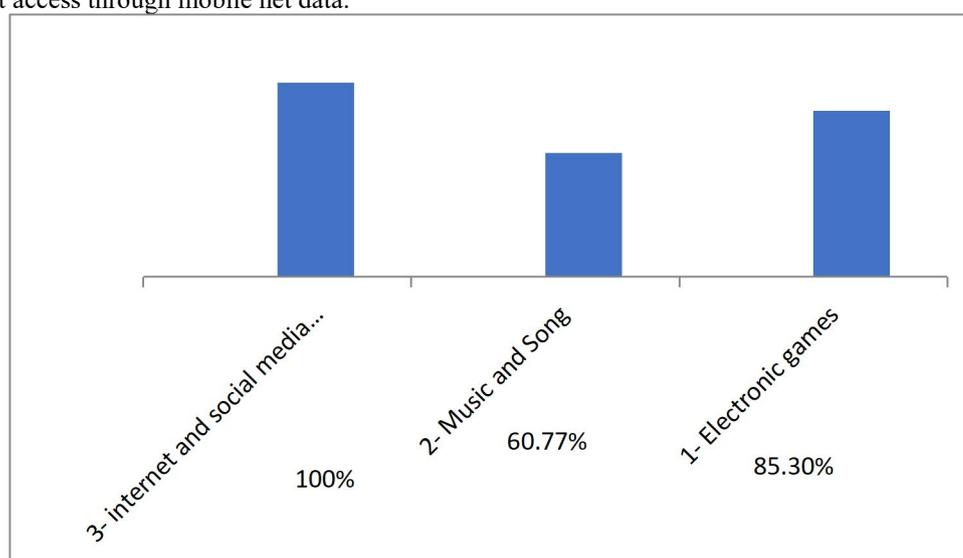


Fig. (4): Distribution of secondary school students according to types of digital technology used (N=334).

Figure (4) shows that all of the students (100%) surveyed the internet and social media, the majority of them (85.3%) play electronic games while more than half of them (60.77%) listen to music and songs.

Table (2): Percentage distribution of sample according to patterns of using digital technology (N=334):

Types of digital technology	A- Electronic games n=285 (No) %	b- Music and songs n=203 (No) %	C- Internet & social media survey n=334 (No) %
1- Number of hours using the internet /day			
< 3 hours	180 (63.15)	93 (45.8)	11 (3.29)
3-4 hours	85 (29.8)	90 (44.33)	160 (47.90)
5-6 hours	15 (5.26)	18 (8.86)	118 (35.32)
>6 hours	5 (1.75)	2 (0.98)	45 (13.47)
(mean ±SD)	3.5±2.8	3.2±2.5	4.5±1.25
2- Time span			
Continuous	265(93)	100(49.2)	240(71.9)
Disrupted	20(7)	103(50.8)	94(28.1)
3- Onset of using digital technology			
From 8 years	13(4.5)	45(22.2)	0 (0.00)
11 years till now	272(95.4)	158(77.8)	334(100)

Table (2) shows that the majority of the students started using digital technology 11 years ago. Regarding the number of hours spent playing electronic games, 63.15% of the students play less than 3 hr/day, 29.8 % play 3-4 hr/day, 5.26% play 5-6 hr /day and 1.75 % play more than 6 hr /day with 93 % of students had a continuous period of playing. Regarding the number of hours spent listening to music and song, 45.8% of the student listen less than 3 hr/day, 44.33 % listen 3-4 hr/day, 8.86% listen 5-6 hr /day and 0.98 % listen more than 6 hr /day with 49.2 % of students had a continuous period of listening. Regarding the numbers of hours spent during surveying the internet and social media, 3.29% of the student surveyed less than 3 hr/day, 47.9 % surveyed 3-4 hr/day, 35.32% surveyed 5-6 hr /day, and 13.47 % surveyed more than 6 hr /day with 71.9 % of students had continuous time span of surveying .

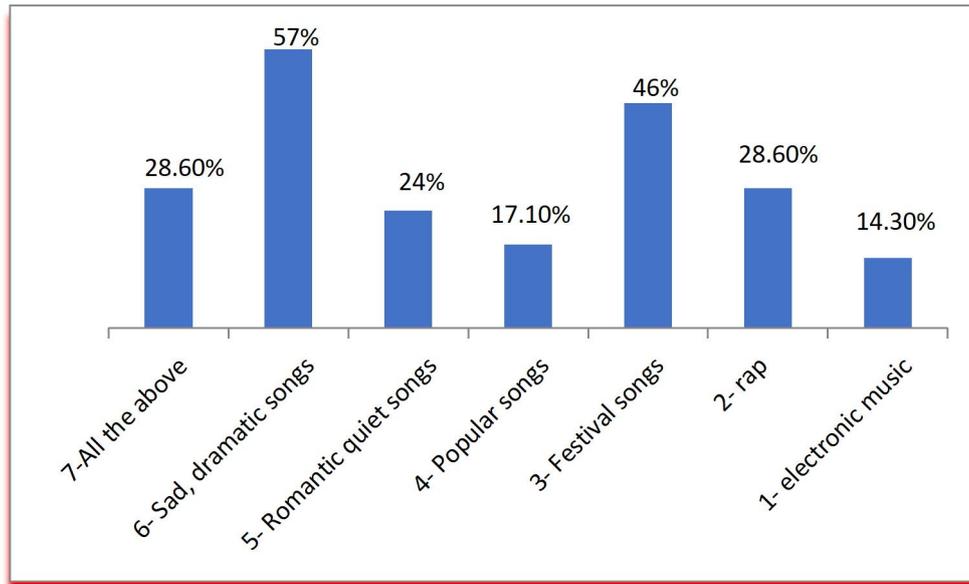


Figure (5): Distribution of secondary school students according to the kind of music or songs they keep listening to (N=334).

Figure (5) shows that more than half of secondary school students (57%) listen to sad, dramatic songs, 46 % of them listen to festival songs, 28.6 % listen to Rap, 24 % listen to romantic quiet songs, 17.1 % listen to popular song, 14.3 % listen to electronic music and 28.6 % listen to all kinds of music and song.

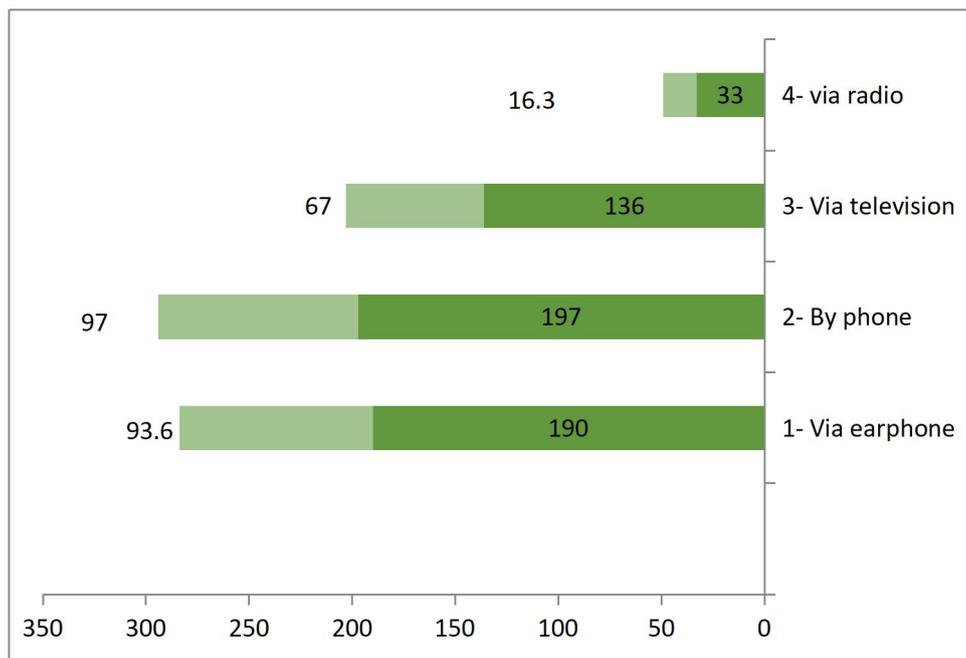


Fig. (6): Distribution of secondary school students according to methods used during music and song listening (N=334).

Figure (6) shows that the majority of the students (97&93.6%) listen to music by phone and via earphones respectively, 67 % of them via TV, and 16.3% via radio.

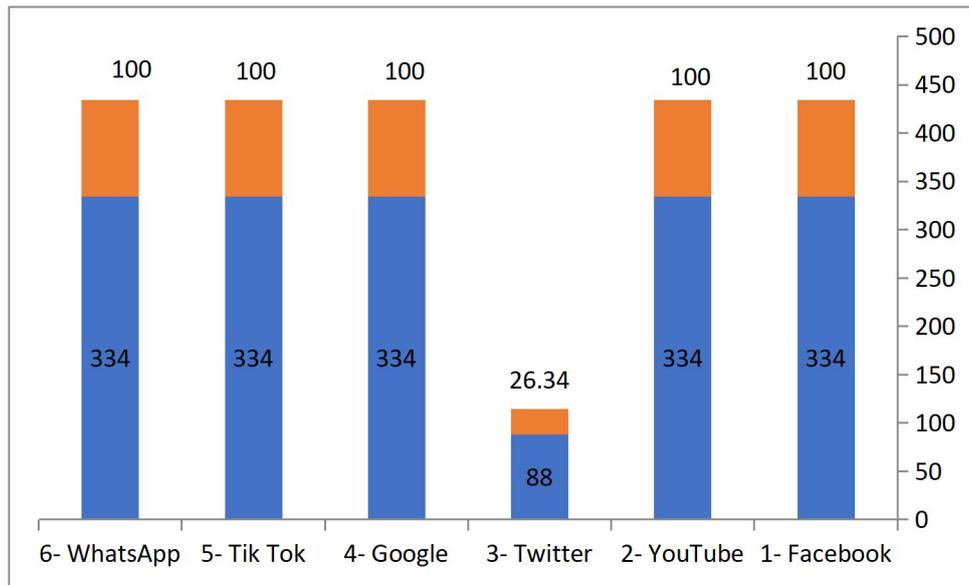


Fig. (7): Distribution of secondary school students according to sites used to browse the internet (N=334).

Figure (7) shows that all the students surveyed Facebook, YouTube, Google, TikTok, and Whatsapp while 26.34 % surveyed Twitter.

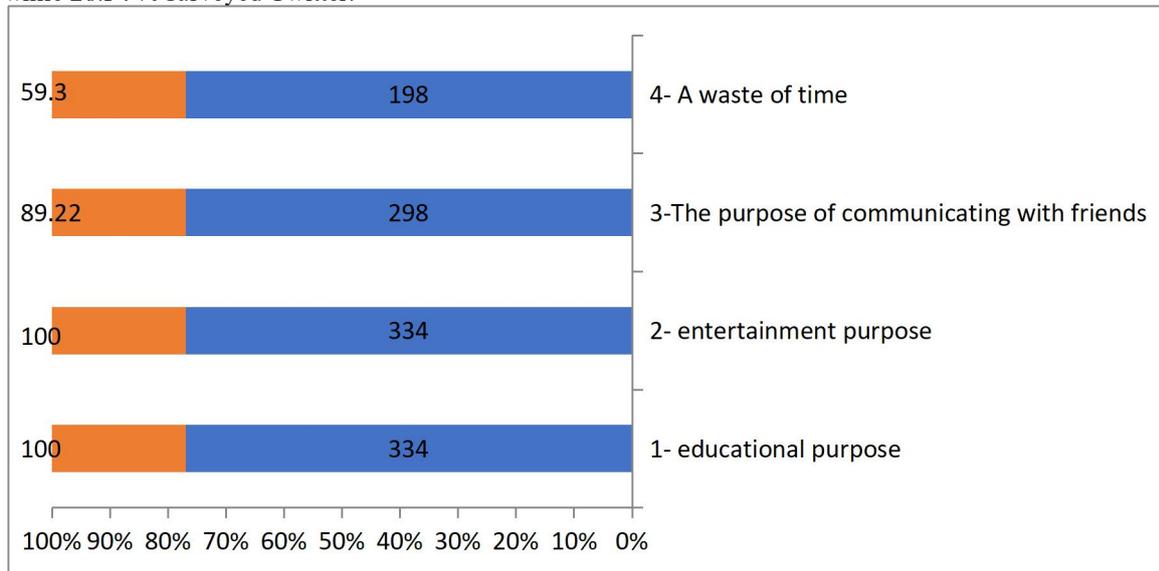


Fig. (8): Distribution of secondary school students according to causes of browsing the internet (N=334).

Figure (8) shows that all the students survey the Internet for educational purposes and entertainment, while 89.22% browse the Internet to communicate with friends and more than half of the students (59.3%) browse the Internet to waste time.

Section (II): Reported health hazards of Secondary school students related to pathological use of digital technology

Table (3): Percentage distribution of sample according to reported exposure to musculoskeletal & ergonomic hazards (N=334):

Health hazards	Yes [no (%)]	No [no (%)]
1-Musculoskeletal problems :		
Bone pain	213 (63.8)	121(36.2)
Arthritis	183 (54.8)	151(45.2)
Low back pain	231(69.2)	103(30.8)
Muscle pain	127(38)	207(62)
2-Ergonomic hazards:		
Repetitive movement	310(92.8%)	24(7.2%)
Uncomfortable bad body mechanics	315(94.3%)	19(5.7%)

Table (3) Regarding Musculoskeletal problems, the above table illustrates that 69.2 %, 63.8%, 54.8%, and 38% of the secondary school students were exposed to low back pain, bone pain, arthritis, and muscle pain respectively. Regarding ergonomic hazards, the majority of the students (92.8% &94.3%) respectively have repetitive movement and uncomfortable body mechanics.

Table (4): Percentage distribution of sample according to reported exposure to Psychosocial hazards, Sensory problems & Miscellaneous Problems (N=334):

Health hazards	Yes [no (%)]	No [no (%)]
3-Psycho social hazards:		
Stress	123(36.8%)	211(63.2%)
Anxious	123(36.8%)	211(63.2%)
Burnout	0(0.00%)	334(100%)
Depression	227(68%)	107(32%)
Isolation	113(33.8%)	221(66.2%)
Violence	122(36.5)	212(63.5)
Low concentration	305(91.3)	29(8.7)
4. Sensory problems:		
Hearing Impairment	225(67.4)	109(32.6)
Vision Impairment	227(68%)	107(32%)
Eye Allergy	223(66.8)	111(33.2)
Eye Dryness	122(36.5)	212(63.5)
5. Miscellaneous Problems		
Headache	295(88.3)	39(11.7)
Obesity	190(56.9)	144(43.1)
Laziness	223(66.8)	111(33.2)
Sleeping disorders	197(59)	137(41)
Colonic and gastric disorder	227(68%)	107(32%)
Absenteeism	122(36.5)	212(63.5)
Cardiovascular problems	27(8)	307(92)
General body weakness.	307(92)	27(8)

Table (4) Regarding Psychosocial hazards, the above table illustrates that 91.3% and 68 %) of secondary school students were exposed to low concentration and depression. None of the students reported burnout. Regarding sensory problems, more than half of the students (68 %, 67.4% &66.8) respectively have vision impairment, hearing impairment, and eye allergy movement Regarding miscellaneous problems, the table also indicates that 92% of the academic nursing students reported general weakness and 88.3 % reported headache.

Section (III): The Relation between level of Education and pathological Use of Digital Technology:

Table (5): The relation between academic level and pathological use of digital technology (N=334).

* Significant

Pathological use of digital technology :	1 st level (n=170)	2 nd level (n=164)	Total N=	X2	P
			334		
	%	%	%		
Mild	9.99	28.41	38.4	29.86	0.042
Moderate	3.94	7.36	11.3	9.010	0.001*
Severe	17.1	41.31	58.4	9.862	0.009

** Responses aren't mutually exclusive

Table (5) reveals that, statistically significant differences between levels of education and pathological use of digital technology (as p-value < 0.5).

Section (IV): The relation between level of education and reported health Hazards:

Table (6): The relation between level of education and reported health hazards (N=334).

* Significant

Reported Health hazards :	1 st level (n=170)	2 nd level (n=164)	Total N=334	X2	P
	%	%	%		
Musculoskeletal	11.5	38.41	1.84	29.86	0.000*
Ergonomic	2.63	1.31	1.31	9.010	0.109
Psychosocial	13.42	12.89	4.21	9.862	0.079
Sensory	8.94	4.73	3.94	34.45	0.000*
Miscellaneous	5.52	8.94	0	61.81	0.000*

** Responses aren't mutually exclusive

Table (6) reveals statistically significant differences between levels of education and reported health hazards (as p-value < 0.5).

Section (III): Precautionary measures to control pathological use of digital technology:

Table (7) Percentage distribution of Precautionary measures to control pathological use of digital technology (N = 334).

Item	Don't know/ Not applicable (0)	Strongly disagree (1)	Often disagree (2)	Often agree (3)	Strongly agree (4)
1- Organizing time and performing daily tasks according to a pre-scheduled schedule	17.47%	23.80%	24.81%	14.68%	19.24%
2- Gradually reduce the number of hours you use digital technology per week.	10.38%	10.63%	32.15%	15.70%	27.34%
3- Allocating specific times for your use of digital technology for non-practical purposes.	20.76%	16.71%	29.87%	12.91%	17.72%
4- Refrain from the most seductive type of use, in the sense that if the individual is addicted to "chat sites, video games, etc.," he must specifically refrain from that while allowing himself to use other means of entertainment available via the Internet.	13.16%	15.19%	27.59%	13.42%	29.37%
5- Organizing sleep times to avoid drifting behind the distractions of digital technology for late hours.	5.82%	8.10%	15.70%	17.47%	51.90%
6- Replacing digital technology with some useful activities and hobbies such as drawing, writing, sports, etc.	29.62%	18.99%	19.75%	13.16%	1.91%
7- Strengthening social ties by allocating time for family and friends.	5.32%	6.08%	13.16%	18.23%	57.22%
8- Set an alarm before accessing digital technology to ensure that the time set for its use is not exceeded.	9.62%	4.05%	16.71%	17.97%	50.13%
9- Write down the achieved achievements every week, as this is a strong motivation to continue reducing the number of hours of using digital technology.	68.10%	11.90%	11.65%	4.30%	2.28%

Table (7) shows, on a five-frequency-adverb scale, from don't know/ not applicable to strongly agree, the secondary school students indicated the precautionary measures used to control the pathological use of digital technology. 24.8% of students often disagree with organizing time and performing daily tasks according to a pre-scheduled schedule, and 32.15% often disagree with gradually reducing the number of hours you use digital technology per week. 29.87% often disagree with allocating specific times for your use of digital technology for non-practical purposes. 29.37% strongly agree to refrain from the most seductive type of use, in the sense that if the individual is addicted to "chat sites, video games, etc.," he must specifically refrain from that while allowing himself to use other means of entertainment available via the Internet.

Also, the table shows that 51.9% strongly agree with organizing sleep times to avoid drifting behind the distractions of digital technology for late hours. 29.6% not applicable to replacing digital technology with some useful activities and hobbies such as drawing, writing, or sports, and 57.22% strongly agree to strengthening \ social ties by allocating time for family and friends. 50.13% strongly agree to set an alarm before accessing digital technology to ensure that the time set for its use is not exceeded. 68.1% not applicable to writing down the achieved achievements every week, as this is a strong motivation to continue reducing the number of hours of using digital technology.

Discussion

Within recent years there has been increasing societal concern around the compulsive and excessive use of digital technology, such as the use of social media or online video gaming, and associated psychological and physical harms. However, pathological use is not yet included as a diagnosable mental health issue in any major diagnostic system and the conceptualizations of the phenomena are still inconsistent. Digital technology is an emergent research area that explores the pathological usage of digital devices. This includes discussions on whether this behavior can be considered a health hazard condition (Basel, McAlaney, Skinner, Pleva & Ali, 2020).

The findings of the present study revealed that all secondary school students survey the internet and social media and the majority of them listen to music and songs and play electronic games. A study conducted by Almasi, Machumu, and Zhu(2017) explored internet use among 310 secondary school students and its effects on their learning in Belgium. The results unveiled that majority of students 170 (54.8%) had accessed the internet through smartphones, internet cafes 100(32.3%) personal computers,15(4.8%) via schools infrastructures, and homes 25(8.1%).

The present study demonstrated that more than half of the secondary school students were exposed to low back pain, bone pain, arthritis, and muscle pain. Regarding ergonomic hazards, the majority of the students had repetitive movement and uncomfortable body mechanics. Also, the present study revealed that the majority of secondary school students were exposed to low concentration and depression. None of the students reported burnout. Regarding sensory problems, more than half of the students had vision impairment, hearing impairment, and eye allergy movement Regarding miscellaneous problems, the majority of the secondary school students reported general weakness and headache.

A study was conducted by Melika, Hassan, and Hassan (2019) to evaluate the effect of the Prevention program on health hazards related to the usage of electronic devices among preparatory school students in Egypt. The study showed that 28% of students' body weight increased, 46.5%of their sleeping patterns were affected because of electronic devices and 53% of them suffered from neck and backache after browsing the internet. It is suggested a prevention program on health hazards related to the pathological use of digital technology among secondary school students.

The findings of the present study revealed statistically significant differences between levels of education and pathological use of digital technology and reported health hazards (as p-value

< 0.5). It could be a result of maturation raise, different preferences, and age differences among levels of education

The current study assessed the prevalence of pathological use of digital technology,38.4 % of the study subjects were mild users of digital technology 11.3 % of them were moderate users of digital technology, and 58.4% were severe users of digital technology. These findings are much higher than a previous study conducted on high school students in Upper Egypt by Alya, Abd El-Mawgood, and Fouad. Yousef, and Ali (2021) to assess the prevalence and predictors of IA among high school students in Sohag, Egypt, and its effects on their mental health in Sohag governorate. Where more than one-third (34.8%) of the studied high school students were mild Internet addicts, 21% were moderate Internet addicts and 4% were severe Internet addicts. Moreover, the results of the current study are higher and this could be a result of heterogeneity of assessment instruments, using varying samples and designs in the conducted studies and varying target populations.

Also, the present study showed, on a five-frequency-adverb scale, from doesn't know/ not applicable to strongly agree, the secondary school students' precautionary measures used to control the pathological use of digital technology. Around a quarter of the students of students often disagreed with organizing time and performing daily tasks according to a pre-scheduled schedule, More than a quarter of the students often disagreed to gradually reduce the number of hours used while using digital technology per week. More than a quarter of the students often disagreed with allocating specific times for using digital technology for non-practical purposes. More than a quarter of the students strongly agreed to refrain from the most seductive type of use, in the sense that if the individual is addicted to "chat sites, video games, etc.," he/ she must specifically refrain from that while allowing themselves to use other means of entertainment available via the internet.

Also, more than half of the students strongly agreed to organize sleep times to avoid drifting behind the distractions of digital technology for late hours. More than a quarter of the students reported the non-applicability of replacing digital technology with useful activities and hobbies such as drawing, writing, sports, etc. More than half of the students strongly agreed to strengthen social ties by allocating time for family and friends. Half of the students strongly agreed to set an alarm before accessing digital technology to ensure that the time set for its use is not exceeded. More than half of the students reported non-applicability of writing down the achieved achievements every week, as this is a strong

motivation to continue reducing the number of hours of using digital technology.

In the previously mentioned study having much free time which is usually spent on entertainment by using digital technology was shown as a predictor of pathological use among the study subjects. It appears that digital technology has become a primary source of entertainment for the participants as it allows them access to countless products and services such as text, moving images, animation, audio, video, games, and video chatting.

Awareness and capacity building of students on keeping themselves safe online, any technological solution that monitors and controls devices used by secondary school students for their content and screen time will not deliver the desired results. Therefore, just developing privacy settings, parental controls, etc. will not be sufficient. There will always be a need for other solutions that require building the knowledge and skills of adolescents to be safe and secure. Developing and disseminating digital technology safety rules will not deliver the desired results as shown in the findings of this study where the incidents and their reporting did not find the required direction even when the students had information about the rules. Real knowledge and skills of using and practicing those rules need to be built among secondary school students with the help of teaching and learning. Therefore, these safety rules and practices need to be made part of the secondary school curriculum as well as teacher training programs. So, effective interventions are needed to allow better control of the use of digital technology to enhance the reduction of pathological use.

The question today on the use of technology does not concern the paradigm of whether it is positive or negative. Today, the use of digital technologies in the education system is inevitable. Rather, different stakeholders involved with student development should acknowledge both the benefits and risks that technology use brings to students and teachers. Continuous cooperation between parents and teachers should be facilitated to ensure prospects of maximizing its benefits and alleviating potential risks in secondary school student's education.

Conclusion:

In light of the findings of this study, it can be concluded that ' although digital technology is a useful tool for providing various sources of information and learning its pathological use is left to the students to make his/her choice of what to go for. Students' learning is negatively affected as students themselves are portrayed in their pathological use of digital technology leading to various health hazards. The introduction of electronic games, surveying the internet and social media, and listening to songs and music has

brought digital technology closer to students, but professional use of digital technology is something students should be guided and taught about.

Recommendations:

According to the result, the following recommendations are suggested:

- 1- A curriculum on the subject of safe use of digital technology should be created and integrated into school subjects or taught separately as an extra curriculum.
- 2- Activate the role of the community health nurse in such high-risk areas through frequent educational sessions about the safe use of digital technology.
- 2- Further research to assess health hazards related to the pathological use of digital technology and prevent its outbreak in different levels of education and different age groups.

Source of Support: Self

Conflict of Interest: None

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