Assessment of Electronic Screen Addiction among Early Adolescent Students in Port Said City

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ABSTRACT

Background: The rising prevalence of electronic screen addiction among early adolescents poses significant threats to their mental, physical, and academic well-being. **Aim:** This study aimed to assess electronic screen addiction among early adolescent students in Port Said City. **Subjects and Method:** A descriptive research design was utilized. The study was conducted in four randomly selected governmental preparatory schools in Port Said. A purposive sample of 150 students aged 12–15 years who met the inclusion criteria participated. Data were collected using a self-administered questionnaire and the Electronic Screen Addiction Scale. **Results:** The study revealed a statistically significant increasing in screen usage behaviours and addiction levels. Notably, excessive screen time was 54.7%, and compulsive behaviour scores was a mean of 30.06 ± 3.21. Similarly, high loss of control indicators. Overall addiction scores were 13.16 ± 1.45. **Conclusion:** electronic screen addiction among early adolescents was ranged from moderate to severe level. **Recommendations:** The study recommends integrating digital detox education into school health programs and promoting parental involvement. Further research should investigate the long-term effects of such programs.

Keywords: *Early adolescent students, Electronic screen addiction.*

INTRODUCTION

Adolescent students are one of the valuable most resources for the future. Adolescence is a transitional stage from childhood to maturity; Egypt's young population growing significantly approximately 17 million individuals aged 10- 19 years represented around 19% of the population (UNICEF Egypt, 2022). Electronic screen media is becoming more and more prevalent in adolescents'

lives. Adolescents utilize media for entertainment, education, communication, information gathering, social support, and self-expression. A mescapable feature of contemporary technology, screens have an impact on productivity, physical and mental health, and everyday social interactions. The excessive screen use can negatively impact psychological development and lead to anxiety, depression, and sleep disorders (Mohamed, Abdallah & Ali, 2023).

Electronic screens devices such as TV, Smart Phone, Tablet and Laptops have become central to everyday life for all age groups particularly adolescents (Manwell, Tadros, Ciccarelli & Eikelboom, 2022). Electronic screen addiction (ESA) is characterized by a repetitive pattern of excessive use of screens often leading to passionate and societal issues, commonly alluded to as "loss of control." The generally utilization of the electronic screen known as "checking habit," which is the propensity of checking electronic screens more regularly, driving to impedances with other viewpoints of everyday life (Galeotti, 2022).

Electronic media utilization can have a hindering effect on Adolescents scholarly accomplishment, behavior and wellbeing. Adolescents spend a measurably critical sum of time on their phones, observing savage TV, or play savage videos recreations. An addiction to electronic screens has moreover created into an extreme issue with mental and physiological impacts. Besides, expanded smartphone utilization has been connected to insomnia, mental and physical wellbeing impacts (Raj, Sharma & Arora, 2024).

Adolescents' addiction to electronic screens can be reduced in large part by psychiatric nurses. As members of a multidisciplinary team, school health nurses evaluate, organize, plan, and carry out student education programs to help them understand the origins, difficulties, effects, and remedies of screen addiction. Moreover, clarifying leading strategies for utilize electronic screens admirably among adolescents to avoid negative results (Galeotti, 2022).

Psychiatric health nurses, on the other hand, need to help parents comprehend what their children are seeing and help them limit their everyday usage of screens, including computers, TVs, mobile devices, and DVD players. Additionally, provide parents with health education regarding the significance of keeping an eye on their children's media consumption and the apps they download or use, testing apps before letting them use them, playing together, asking the child what they think of the apps, and preventing screen time in bedrooms, during mealtimes, and during parent-child playtimes.

Additionally, educating the parents on the value of family time and suggesting that they set their phones to "do not disturb" at these times (Drouin, McDaniel & Newsham, 2020).

Significance of the study

Adolescents are among the most frequent electronic screen users. A study carried out in Egypt found 69.6% of preparatory students (out of a sample of 333) was electronic screen users daily (Nafee, Mohammed, & Al-Hamdan, 2018). The same study also reported 46.3% of them exhibit a high level of smartphone addiction. Additionally, another Egyptian study assessing students who were addicted to internet which have a detrimental effect on academic performance. Moreover, electronic addiction has been linked to potential functional damage to the brain (Hutton, Dudley, Horowitz-Kraus, DeWitt, & Holland, 2020). While many Egyptian researchers have investigated electronic screen addiction prevalence and psychological effects on children.

Aim of the study

Assess electronic screen addiction among early adolescent students in Port Said city.

Research Objectives:

1. Assess daily living activity on electronic screens among early adolescent students in Port Said city.
2. Determine the levels of addiction to electronic screens among early adolescent students in Port Said city.
3. Assess the relation between student's personal characteristics and their levels of electronic screen addiction in Port Said city.

SUBJECTS AND METHOD

Study Design:

A descriptive research design was utilized in this study.

Study Setting:

The present study was conducted at four preparatory governmental schools in Port Said city, which were selected randomly among four educational directorates: The East Port Said directorate,

North Port Said directorate, South Port Said directorate and Al-Zhour directorate. The selected schools were Port Said Preparatory School for Girls, Al-Nasr Preparatory School for Boys, Hafez Ibrahim Preparatory School for Boys and Fatima Al-Zahraa Preparatory School for Girls. Each school contains classes from first to third preparatory grades.

Study Subjects:

A purposive sample with total number of 150 early adolescent students from educational directorates in Port Said city.

Inclusion Criteria:

- Students aged 12–15 years.
- Both sexes.
- Have smart phones, tablets or laptops.
- Spending from less than half hour to more than four hours on electronic screens.

Sample technique:

A strata sampling technique was used to select participants. Initially, one school was randomly selected from each educational directorate in Port Said City. From each selected school, an identified number of students were included in the study. Number of students from each school has been determined according to the following equation: Total number of students in the school * Total sample size / Total number of all school' students.

School Name	Total Number of Students in School
Port Said Preparatory School for Girls	300 students
Al-Nasr Preparatory School for Boys	250 students
Hafez Ibrahim Preparatory School for Boys	400 students
Fatima Al-Zahraa Preparatory School for Girls	420 students

- **Final sample size was 150 students.**

So:

- Port Said Preparatory School for Girls=33 students

- Al-Nasr Preparatory School for Boys= 27 students
- Hafez Ibrahim Preparatory School for Boys= 44 students
- Fatima Al-Zahraa Preparatory School for Girls= 46 students

Sample Size:

A sample size was determined by using single population proportion formula (Lachin, 1981).

Sample size (n) = [(Zα/2)2 *p (100-p)]/ d2

Sample size (n) = $[(1.96)^2 *22.5(100-22.5)]/ 49 =$**136**

The calculated sample size was **136** students. Due to the expected non-participating rate (10%), the final sample size was **150** students.

Tools of Data Collection:

Data was collected by using the following tools:

Tool I: Self-Administered Questionnaire about Student's General Information related to Electronic Screen:

This tool was developed by Mohammed, Abdallah and Kotb (2022) in an Arabic language to assess students' and parents' personal data, and students' daily living activity on electronic screens. It includes two parts:

Part 1: Students' and Parents' Personal Data:

This part assessed students' and parents' personal data. It consisted of seven questions. The questions were mutated as open-end questions: students' age, sex, grade, parent's educational level and occupation. It was used only before the application of the educational program.

Part 2: Students' General Information related to Electronic Screen:

This part assessed daily living activity on electronic screens among early adolescent students. It consisted of six questions related to the most used electronic devices, the number of hours spent on social media, watching TV or videos and playing video games. It was used as a pre-test and post-test and follow up program. The questions were mutated as multiple-choice questions with correct or incorrect options. The student's responses were reflected his/her point of view.

Tool II: Electronic Screen Addiction Scale:

This scale developed by Saritepeci (2021) in an English language and was translated into an Arabic language by Mohammed et al., (2022). The scale was used to determine the levels of

addiction for electronic screens among early adolescent students. It consisted of 27 items. The scale was divided into three domains: Excessive screen time (5 items number; 1-2-3-4-27), compulsive behavior (11 items number; 6-8-9-10-11-13-15-17-18-19-20) and loss of control (11 items number; 5-7-12-14-16-21-22-23-24-25-26).

Scoring System:

The scale was on a three-point Likert scale, ranging from strongly agree= 3, neutral= 2, to disagree= 1. Total scale scores ranged from 27 to 81. High scores showed a high level of electronic screen addiction among preparatory students. The following scores were used to determine the levels of addiction for electronic screens: Severe addiction scored from 60–81 (≥75%), moderate addiction scored from 40–60 (50% to <75%), less than 40 (<50%) was considered non-addicted.

Validity and Reliability of the Scale:

The scale was tested for its validity and reliability by Mohammed et al., (2022). The Arabic version of the electronic screen addiction scale was tested for validity for electronic screen addiction scale was asserted by a jury consists of seven experts in the specialty of psychiatric nursing to review the translated tools for clarity, relevance, understanding, comprehensiveness and applicability. Cronbach's Alpha was used to determine the internal consistency of the developed tool, which was 0.774.

Operational design:

The Operational design included a preliminary phase, validity and reliability tests, fieldwork, and a pilot study.

Preparatory phase:

It was included reviewing related literature, various studies and theoretical knowledge of the problems using books, research articles, internet and periodicals. The study tools were also revised with the supervisors. Additionally, approval was obtained from the Directorate of Education in Port Said to conduct the study.

Pilot Study:

A pilot study was conducted before the data collection phase on 10% of the study subjects including 15 randomly students selected to evaluate the applicability, feasibility, and objectivity of the study tool and estimate time needed to complete the questionnaires. No modifications were

required as the study tools were clear and vibrant. Students in the pilot study were excluded from the entire sample of the research work. It was carried out in February 2024 and lasted for one week.

Fieldwork:

The official permission was obtained from the administrative authority before starting data collection. Early adolescent students who met the inclusion criteria were included in the study. The researcher attended the preparatory schools in Port Said city three days per week (Sunday- Mondays, and Wednesday) from 9 am to 1 pm. Field study was conducted for three months from the beginning of February 2024 to the end of May 2024. Data were collected by the researcher using a constructed tool.

Administrative Design:

Before initiating the study, an official letter explaining the aim of the study was issued from the Dean of the Faculty of Nursing, Port Said University to the Directorate of Education in Port Said to obtain their permission and cooperation to conduct the study.

Ethical Considerations:

The study paper was approved by The Scientific Research Ethics Committee at Port Said University's Faculty of Nursing Code number NUR (1/6/2025) (50). Approval was also obtained from the Directorate of Education in Port Said**.** All ethical issues were taken into consideration during all phases of the study and included the following: Explain the aim of the study to each participant to be familiar with the importance of his participation. Participants were assured that all collected data would be kept strictly confidential and used solely for research purposes. Informed consent was obtained prior to participation. Furthermore, participants were informed of their full right to voluntarily withdraw from the study at any time without any consequences**.**

Statistical Design:

Data were collected, organized, tabulated and statistically analyzed using SPSS version 25. Quantitative data were expressed using means and standard deviation. Qualitative data were expressed using the numbers and percentage. Proper statistical tests employed to evaluate a significant statistical difference between the study's variables. The following statistical methods were used: Percentage, Chi-square (X2), Pearson correlation coefficient (r), and proportional probability of error (P-value). For all statistical tests, the significance level is set at P-value ≤ 0.05.

RESULTS

Table 1, provides a comprehensive overview of the personal data of the studied students. Results revealed that more than half of the students (55.3%) were male, their age ranged between 12-15 years with mean age ± SD of 13.53± 1.05 years. The age of less than one third of them (30.3%) ranged between 14 to less than 15 years. Regarding academic grades, 41.3% of students were in the first preparatory school, 27.3% in the second, and 31.3% in the third. Parental education varies, with the more than one third of fathers having basic education (35.3%), while more than one third (38.7%) of the mothers. Father's occupation is predominantly as employees 55.3% and daily workers 44.6%. Similarly, mothers are mostly not working 77.3%.

Table 2, illustrates the distribution of general information related to electronic screen usage among the studied students. As shown the majority of the studied students (76.7%) prefer using smartphones. In relation to time spent on social networking sites as (48.7%) of the studied students spending four hours or more. 43.3 % of them watching TV, While, 24.7% of the studied students watching videos on platforms like YouTube and TikTok. Regarding to Video game playing time, 44.0% of them playing for more than half hour. According to bedtime phone habits, (29.3%) of students put their telephones outside the room where sleep.

Table 3, presents the descriptive statistics of the three subscales of electronic screen addiction among the studied students. The results show high mean scores for excessive screen time (M = 13.16, SD = 1.45), compulsive behavior (M = 30.06, SD = 3.21), and loss of control (M = 30.02, SD = 2.92). The consistently elevated scores across all subscales indicate that excessive and uncontrolled screen use, as well as compulsive electronic device usage, is prevalent characteristics among the studied sample.

Figure 1, illustrates the distribution of students according to the electronic screen addiction levels. The majority of the students (72%) fell into the levels of severe addiction. No students were classified as non-addicted.

Table 4, illustrates the relationship between electronic screen addiction levels (moderate and severe) and the personal characteristics of the studied students. The result reveals significant relations between the electronic screen addiction levels and personal characteristics among students. Older students aged 15 were more prone to severe addiction, with 97.0% falling into these categories as $p < 0.001$. Regarding gender, majority of female had severe addiction. Educational attainment and parental

characteristics also played a role, as students from higher educational levels and those with parents of higher education and professional occupations exhibited moderate or severe addiction.

Table 1: Frequency and percentage distribution of the studied students according to their personal characteristics (n=150)

Personal characteristics	No.	%
Students Gender		
Male	83	55.3
Female	67	44.7
Students Age (years)		
12< 13	31	20.7
13< 14	41	27.3
14< 15	45	30.0
15	33	22.0
Min. – Max.	12.0 – 15.0	
Mean ± SD.	13.53 ± 1.05	
Students' Academic Grade		
1st preparatory school	62	41.3
2nd preparatory school	41	27.3
3rd preparatory school	47	31.3
Father's education		
Do not read or write	5	3.3
Reads and writes	9	6.0
Basic education	53	35.3
Intermediate education	38	25.3
High education	45	30.0
Father's occupation		
Employee	83	55.3
Daily worker	67	44.6
Mother's education		
Do not read or write	5	3.3
Reads and writes	9	6.0

Basic education	39	26.0
Intermediate education	39	26.0
High education	58	38.7
Mother's occupation		
Employee	34	22.7
Not working or house wives	116	77.3

Table 2: Distribution of the studied students according to their general information related to electronic screen (n=150)

General information related to electronic screen	No.	%
The most devices used		
Television	11	7.3
Mobile phone (regular)	1	0.7
Smartphone	115	76.7
Computer (computer or laptop)	23	15.3
The time spent on social networking sites (Facebook, Twitter, WhatsApp)		
Half hour daily	56	37.3
From one to less than four hours daily	21	14.0
Four hours or more daily	73	48.7
The time spent in watching TV shows or movies		
Less than half hour	18	12.0
Half hour	4	2.7
One hour	65	43.3
Two hours	51	34.0
Three hours	12	8.0
The time spent in watching videos (such as YouTube and Tik Tok)		
Less than half hour	1	0.7
Half hour	29	19.3
One hour	37	24.7
Two hours	33	22.0
Three hours	36	24.0
Four hours or more	14	9.3
The time spent in playing video games on a		

computer, TV, phone, or other device (PlayStation)		
Nothing	9	6.0
Less than half hour	2	1.3
More than half hour	66	44.0
One to less than two hours	55	36.7
Two to four hours	18	12.0
Phone usage behavior before bed		
I turn off the phone	32	21.3
Put it on silent or vibration mode	37	24.7
Leave the phone's sound on	19	12.7
You put it outside the room where you sleep	44	29.3
Do not use the phone two hours beforehand	18	12.0

Table 3: The Total scores of electronic screen addiction subscales (n = 150)

Dimensions	Min. – Max	Mean ± SD.
Excessive screen time	8.0 – 15.0	13.16 ± 1.45
Compulsive behavior	24.0 – 33.0	30.06 ± 3.21
Loss of control	25.0 – 33.0	30.02 ± 2.92

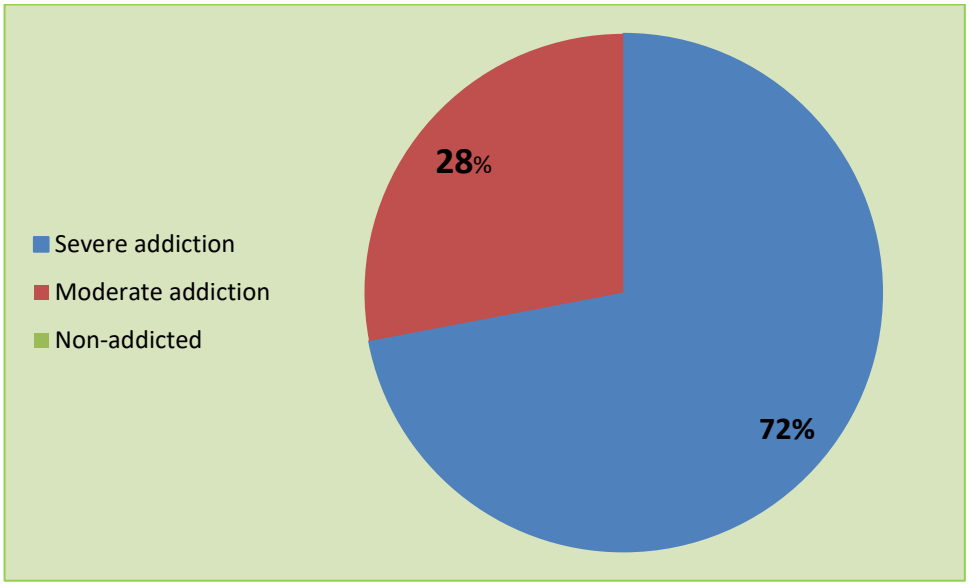

Figure 1: **Distribution of the studied students according to electronic screen addiction levels (n=150)**

Table 4: **Relation between electronic screen addiction levels and personal characteristics of the studied students (n=150)**

Personal-characteristics	N	Electronic screen addiction levels			
		Moderate addiction (n=42)		Severe addiction (n=108)	
		No.	%	No.	%
Students Gender					
Male	**83**	40	48.2	43	51.8
Female	**67**	2	3.0	65	97.0
χ^2 (p)		**37.583* (<0.001*)**			
Students Age (years)					
12< 13	**31**	25	80.6	6	19.4
13< 14	**41**	13	31.7	28	68.3
14< 15	**45**	3	6.7	42	93.3
15	**33**	1	3.0	32	97.0
χ^2 (p)		**63.262* (<0.001*)**			
Students' Academic Grade					

1st preparatory school	**62**	39	62.9	23	37.1
2nd preparatory school	**41**	3	7.3	38	92.7
3rd preparatory school	**47**	0	0.0	47	100.0
χ^2 (p)		**62.443* (<0.001*)**			
Father's education					
Do not read or write	**5**	0	0.0	5	100.0
Reads and writes	**9**	3	33.3	6	66.7
Basic education	**53**	28	52.8	25	47.2
Intermediate education	**38**	3	7.9	35	92.1
High education	**45**	8	17.8	37	82.2
χ^2 (p)		**FET=27.283* (<0.001*)**			
Father's occupation					
Employee	**83**	31	37.3	52	62.7
Daily worker	**67**	15	16.1	52	83.9
χ^2 (p)		**FET=8.116* (0.013*)**			
Mother's education					
Do not read or write	**5**	0	0.0	5	100.0
Reads and writes	**9**	7	77.8	2	22.2
Basic education	**39**	8	20.5	31	79.5
Intermediate education	**39**	1	2.6	38	97.4
High education	**58**	26	44.8	32	55.2
χ^2 (p)		**FET=35.868* (<0.001*)**			
Mother's occupation					
Employee	**34**	5	14.7	29	85.3
Not working or house wives	**116**	37	31.9	79	68.1
χ^2 (p)		**25.289* (<0.001*)**			

DISCUSSION

Electronic screen media (ESM) addiction is increasingly common among early adolescents, who often use smart phones, social media, and online games for learning, socializing, and entertainment. While screens are a major part of modern life, overuse during this critical developmental stage can harm mental health, disrupt sleep, and reduce real life social interactions. Prolonged exposure has linked to anxiety, depression, and attention difficulties, highlighting the importance of prompting balanced and mindfull screen use among young adolescents (Mohamed et al., 2023).

Based on the general information collected from the studied students regarding electronic screen use the findings illustrated that smartphones were the most preferred devices among the majority of students. Most students spent a lot of time on social media and Television watching and playing electronic games and seeing videos on websites like YouTube and TikTok. Regarding bedtime phone habits, about one third of students reported putting their telephones outside the room where sleep. This may be due to lack of awareness regarding serious side effects of electronic screen addiction and maladaptation with effective screen time management strategies. In the line with these finding, Salepaki, Zerva, Kourkouridis and Angelou, (2025), reported that nearly three quarters of students spent over five hours daily on mobile phone and social media. Similarly with Salepaki et al., (2025), found that nearly three quarters of respondents use their mobile phone more than five hours a day.

As regard to the studied students' general information related to the time spent in watching videos, the current study showed that a one third of students reported watching videos for one hour daily. This may be because excessive screen time is associated with psychiatric problems such as depression, anxiety, and social isolation and become less involved with family. These results are in agreement with Abo-Ali et al., (2022) showed that most participants reported using their smartphones to view videos and browse social media for at least one hour every day.

The current study found a significant increasing in (excessive screen subscale) in the students' excessive use of electronic devices. Initially, the majority of participants strongly agreed that they spent more time on electronic devices than intended. The total means scores for electronic screen addiction significantly increasing. This might be the result of bad students' attitudes and behaviors regarding the use of electronic devices in a more irresponsible and imbalanced manner as they became unaware of the disadvantages of increasing screen time, which included reducing academic performance and physical health negatively affected. The finding agreed with Sarıtepeci, (2021), who studied "Multiple screen addiction scale: Validity and reliability study" and stated that participants were unable to stay away from devices.

According to the studied student's compulsive behavior subscale items, the current study showed a significant high compulsive electronic device usage among students. Three quarters of participants strongly agreed that they found certain applications difficult to resist. This may be due to hormonal changes during adolescence affect a teenager's mood and behavior, which may make them more prone to impulsiveness and lack of consideration for consequences or lack of sufficient parental attention and lack of an encouraging school environment. These results were similar with the study performed by Mohamed et al., (2023) demonstrated that there were a highly statistically significant differences between total compulsive behavior scores among school students, whereas compulsive electronic device usage increased.

Concerning the studied students' loss of control subscale items, the current study highlighted a significant reducing in students' perception of their electronic device usage. Initially, half of participants reported that their academic performance was negatively affected by excessive device use. This may be due to lack of parental monitoring and maternal developmental changes over time. In this regard, Ali et

al., (2024) confirmed that self-control levels regarding screen usage decreased significantly among preparatory school students.

As regard to the studied students electronic screen addiction levels. One of the most striking findings of this study was that nearly three quarters of the students had a severe level of addiction. This may be because students' are unaware of how bad their screen addiction has gotten, which can lead to addiction worsening. These results were in the same line with the study conducted by Mohamed et al., (2023), who revealed that the high rate of screen addiction among students. These results were consistent with the study performed by Upendra & Kaur, (2024), who studied "Break from digital screen using digital detox program in nursing students" and showed that more than two fifth of students had high level of screen addiction.

According to relationship between electronic screen addiction levels and personal characteristics of the studied students the current study revealed that younger students aged 15 were more prone to moderate or severe addiction, females categorized as severe addiction. Also, students from higher educational levels and those with parents of higher education and professional occupations exhibited moderate or severe addiction. This may be because Escapism plays a major role, as adolescents turn to the virtual world to avoid life's stressors and problems. Additionally, social influence and peer pressure play a role in the increased screen addiction, and seeking social acceptance and comparison with others. These results were different with Abo-Ali et al., (2022), who revealed that smart phone use was not associated with other socio-demographic or health characteristics among study participants.

Conclusion

In lights of the current study findings, it can conclude that electronic screen addiction among early adolescent students was ranged from moderate to severe level.

Recommendations

The following recommendations may be made:

1- Provide one to one counseling or small group sessions to address underlying issues such as stress, anxiety, or loneliness that may contribute to excessive screen time among early adolescent students.

2- Design a digital detox program to reduce electronic screen addiction among early adolescent students.

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