Effect of Digital Detox Program on 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. As digital consumption continues to surge, there is an urgent need for effective interventions to mitigate excessive screen use. **Aim:** This study aimed to explore the effect of a digital detox program on electronic screen addiction among early adolescent students in Port Said City. **Methods:** A quasi-experimental one-group pre-test, post-test, and follow-up 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 findings revealed a statistically significant reduction in screen usage behaviours and addiction levels post-program and at follow-up ($p < 0.001$). Notably, excessive screen time decreased from 54.7% to 4.0%, and compulsive behaviour scores reduced. Similarly, loss of control indicators improved significantly. Overall addiction scores declined post-program. **Conclusion:** The digital detox program effectively reduced electronic screen addiction among early adolescents. Significant improvements were observed in screen usage patterns, compulsive behaviours, and control over screen use. **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: Digital detox, Early adolescents 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. Teenagers 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).

A digital detox is a time when a person abstains from using all electronic gadgets. This idea came about as technology and digital gadgets became more and more integrated into our daily lives. It particularly refers to people intentionally taking breaks from digital gadgets such as computers, cellphones, tablets, and others. Digital detox aims to lessen the harmful consequences of continuous digital connectivity, including stress, anxiety, and even physical health issues. By taking breaks from the digital world, people can improve their physical and mental health and lead more balanced lives. (Syvertsen, 2023).

Schoolchildren's 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

Early adolescents are among the most frequent electronic screen users. A study carried out in Egypt found 69.6% of preparatory students 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 Facebook and the Internet were more likely to have problematic Internet use and, to a lesser extent, Internet addiction, both of 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, there is limited research focused on developing educational programs aimed at improving adolescents' knowledge and practices regarding the responsible use of electronic screens. Additionally, a number of studies suggest more research be done on electronic screen syndrome, especially in school-age children.

AIM OF THE STUDY

Explore the effect of digital detox program on 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. Design a digital detox program for early adolescent students in Port Said city.
4. Implement a digital detox program for early adolescent students in Port Said city.
5. Evaluate the effect of digital detox program on electronic screen addiction among early adolescent students in Port Said city.

Research Hypothesis:

H1: The implementation of the digital detox program will lead to a reduction in electronic screen addiction levels among early adolescent students in the post-program phase compared to the pre-program phase.

H2: Following the implementation of the digital detox program, electronic screen addiction levels among early adolescent students are expected to decline.

SUBJECTS AND METHOD

Study Design:

A quasi-experimental research design; pre and post-test and follow-up 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:

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.

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

Where:

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), compulsive behavior (11 items number) and loss of control (11 items number).

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. 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.

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. The study was carried out in four phases: Assessment, planning, implementation, and evaluation phase. Data were collected by the researcher using a pre-constructed tool.

Phase 1: Assessment phase (pre- program):

Data was collected from early adolescent students. Confidentiality of all collected information was strictly maintained. The researcher began to fill in the written pre mentioned tools individually (pretest). The time required to complete each tool ranged from 15 to 30 minutes depending on the each student response.

Phase 2: Planning phase:

Based on the information obtained from the initial assessment and literature review, the researcher designed digital detox program in a simple Arabic language under the guidance of the supervisors. The program aimed to reduce electronic screen addiction levels after the program compared to before. In addition, a simple booklet was developed based on recent literature the review of the recent literature to serve a reference for adolescents' students.

Digital Detox Program

Aim To: Apply digital detox program to decrease electronic screen addiction levels.

Specific objectives:

By the end of this program, early adolescents' students will be able to:

1. Recognize the purpose of the program.
2. List the different levels of addiction for electronic screen among early adolescents' students.
3. Identify the importance of digital detox program in reducing electronic screen addiction.
4. Apply the various steps of the digital detox program to reduce electronic screen addiction.

Phase 3: Implementation phase:

In this program, a total of 150 early adolescent students will be divided into six groups, with 25 students per group. Each group will participate in six structured digital detox sessions over the course of three months (12 weeks). Each week, three sessions will be conducted, one per day, allowing for an efficient rotation of groups. The groups will be divided into two alternating sets: Groups 1-3 will attend sessions during weeks 1, 3, 5, 7, 9, and 11, while groups 4-6 will attend during weeks 2, 4, 6, 8, 10, and 12. This alternating weekly structure ensures that each group completes their six sessions by the end of the 12- week period, while maintaining a manageable pace for facilitators and avoiding overcrowding.

Session 1: Introduction to Digital Health

Session 2: Screen time and The Brain

Session 3: Self- Monitoring & Awareness

Session 4: Emotional Regulation without Screens

Session 5: Digital Boundaries & Assertiveness

Session 6: Reflection& Future Planning

Phase 4: Evaluation phase:

After the implementation phase, the researchers began measuring electronic screen addiction post-test and follow up.

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. 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 majority of fathers having basic (35.3%) or high education (30.0%), while mothers mostly have high education (38.7%). Father's occupation is predominantly as employees 55.3% and daily workers 44.6%. Similarly, mothers are mostly not working 77.3.0%.

Table 2 illustrates the distribution of general information related to electronic screen usage among the studied students across three periods: pre, post-program, and follow-up. The devices most used by students, with the majority (76.7%) preferring smartphones at all phases. The time spent on social networking sites dramatically, with 96.7% of students reducing their usage to half hour daily post- program and 90% at follow-up. TV watching also declined dramatically only 12 % of students watched less than half hour daily before the program compared of 92.7% post- program and follow-up. Similar trends are observed for watching videos on platforms like YouTube and TikTok, where 91.3% of students reduce their viewing time to less than half hour post- program and 88% at follow-up. Video game playing time is also significantly reduced, with 90.0% playing for less than half hour post- program and 86.7 at follow-up as $p > 0.001$. Regarding bedtime phone habits, more students start using silent or vibration mode (40.0%) post- program.

Table 3; shows a significant reduction in excessive screen time among students over the study periods (pre, post, program and follow-up). The total average scores for electronic screen addiction significantly declined from 13.16 ± 1.45 (pre-program) to 5.49 ± 1.09 (post program), indicating a marked improvement in the participants' self-reported addiction levels. Also, highlights a significant decrease in compulsive electronic device usage among students throughout the study phases (pre, post program, and follow-up). The mean total score for compulsive behavior fell from 30.06 ± 3.21 (pre) to 12.33 ± 3.18 (post- program), demonstrating a significant improvement in managing compulsive device behaviors. The mean total score for loss of control declined from 30.02 ± 2.92 (pre) to 12.05 ± 2.27 (post-program), indicating a substantial reduction in feelings of loss of control. All changes were statistically significant ($p < 0.001$), suggesting that the program effectively lowered electronic screen addiction and reduced compulsive screen time behaviors and helped students regain control over their electronic device use.

Figure 1; illustrates the distribution of students according to the electronic screen addiction levels over three periods: pre- program, post- program, and follow-up. Pre-program: the majority of the students (72%) fell into the levels of severe addiction. No students were classified as non-addicted. Post- program: there was a significant shift, with 96.7% of students moving to the non-addicted category. The students with moderate addiction dropped to 3.3%, and no students were classified as severely addicted. At follow-up: the results showed a slight regression compared to post- program but still indicated substantial improvement from the pre- program. 92.7% of students remained in the non-addicted level, while severe addiction reappeared in 7.3% of students. There were no students in the moderate addiction category at follow-up.

Table 4; reveals significant relations between the electronic screen addiction levels and personal characteristics among students. Pre-program, younger students aged 12 were more prone to moderate or severe addiction, with 80.6% falling into these categories as $p < 0.001$. However, post- program and at follow-up, nearly all age groups showed substantial improvement. Gender disparities were evident, with 100.0% of females categorized as non-addicted post- program, compared to 94.0% of males as $p < 0.001$. 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 better post- program outcomes. These findings underscore the necessity of tailored program considering demographic variables to effectively mitigate electronic screen addiction among adolescents.

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

Personal characteristics	No.	%
Gender		
Male	83	55.3
Female	67	44.7
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	
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

SD.: **Standard deviation**

Table 2: Distribution of the studied students according to their general information related to electronic screen pre, post -program and follow up (n=150)

General information related to electronic screen	Pre		Post		Follow up		Fr	p
	No.	%	No.	%	No.	%		
The most devices used								
Television	11	7.3	11	7.3	11	7.3	-	-
Mobile phone (regular)	1	0.7	1	0.7	1	0.7		
Smartphone	115	76.7	115	76.7	115	76.7		
Computer (computer or laptop)	23	15.3	23	15.3	23	15.3		
The time spent on social networking sites (Facebook, Twitter, WhatsApp)								
Half hour daily	56	37.3	145	96.7	135	90.0	167.866*	<0.001*
From one to less than four hours daily	21	14.0	5	3.3	15	10.0		
Four hours or more daily	73	48.7	0	0.0	0	0.0		
The time spent in watching TV shows or movies								
Less than half hour	18	12.0	139	92.7	136	90.7	262.060*	<0.001*
Half hour	4	2.7	11	7.3	14	9.3		
One hour	65	43.3	0	0.0	0	0.0		
Two hours	51	34.0	0	0.0	0	0.0		
Three hours	12	8.0	0	0.0	0	0.0		
The time spent in watching videos (such as YouTube and Tik Tok)								
Less than half hour	1	0.7	137	91.3	132	88.0	293.512*	<0.001*
Half hour	29	19.3	13	8.7	18	12.0		
One hour	37	24.7	0	0.0	0	0.0		
Two hours	33	22.0	0	0.0	0	0.0		
Three hours	36	24.0	0	0.0	0	0.0		
Four hours or more	14	9.3	0	0.0	0	0.0		
The time spent in playing video games on a computer, TV, phone, or other device (PlayStation)								
Nothing	9	6.0	15	10.0	15	10.0	275.524*	<0.001*
Less than half hour	2	1.3	135	90.0	130	86.7		
More than half hour	66	44.0	0	0.0	5	3.3		
One to less than two hours	55	36.7	0	0.0	0	0.0		
Two to four hours	18	12.0	0	0.0	0	0.0		
Phone usage behavior before bed								
I turn off the phone	32	21.3	32	21.3	20	13.3	36.548*	<0.001*
Put it on silent or vibration mode	37	24.7	60	40.0	115	76.7		
Leave the phone's sound on	19	12.7	14	9.3	12	8.0		
You put it outside the room where you sleep	44	29.3	26	17.3	3	2.0		
Do not use the phone two hours beforehand	18	12.0	18	12.0	0	0.0		

Fr: Friedman test

P: p value for comparing between **the three studied periods**

*: Statistically significant at $p \leq 0.05$

Table 3: The Total scores of electronic screen addiction subscales "Excessive screen time, Compulsive behavior and Loss of control" pre, post-program and follow-up (n = 150)

Dimensions / Min. – Max. / Mean ± SD.	Pre	Post	Follow up	Test of Sig.	p
Excessive screen time	8.0 – 15.0 13.16 ± 1.45	5.0 – 11.0 5.49 ± 1.09	5.0 – 11.0 6.19 ± 1.75	F= 1350.75*	<0.001*
Mean ± SD.	2.63 ± 0.29	1.10 ± 0.22	1.24 ± 0.35		
Compulsive behavior	24.0 – 33.0 30.06 ± 3.21	11.0 – 27.0 12.33 ± 3.18	11.0 – 33.0 13.21 ± 5.68	F= 1074.44*	<0.001*
Mean ± SD.	2.73 ± 0.29	1.12 ± 0.29	1.20 ± 0.52		
Loss of control	25.0 – 33.0 30.02 ± 2.92	11.0 – 22.0 12.05 ± 2.27	11.0 – 33.0 13.28 ± 5.62	F= 1251.98*	<0.001*
Mean ± SD.	2.73 ± 0.27	1.10 ± 0.21	1.21 ± 0.51		

F: F test (ANOVA) with repeated measures

p: p value for comparing between **the three studied periods** *: Statistically significant at $p \leq 0.05$

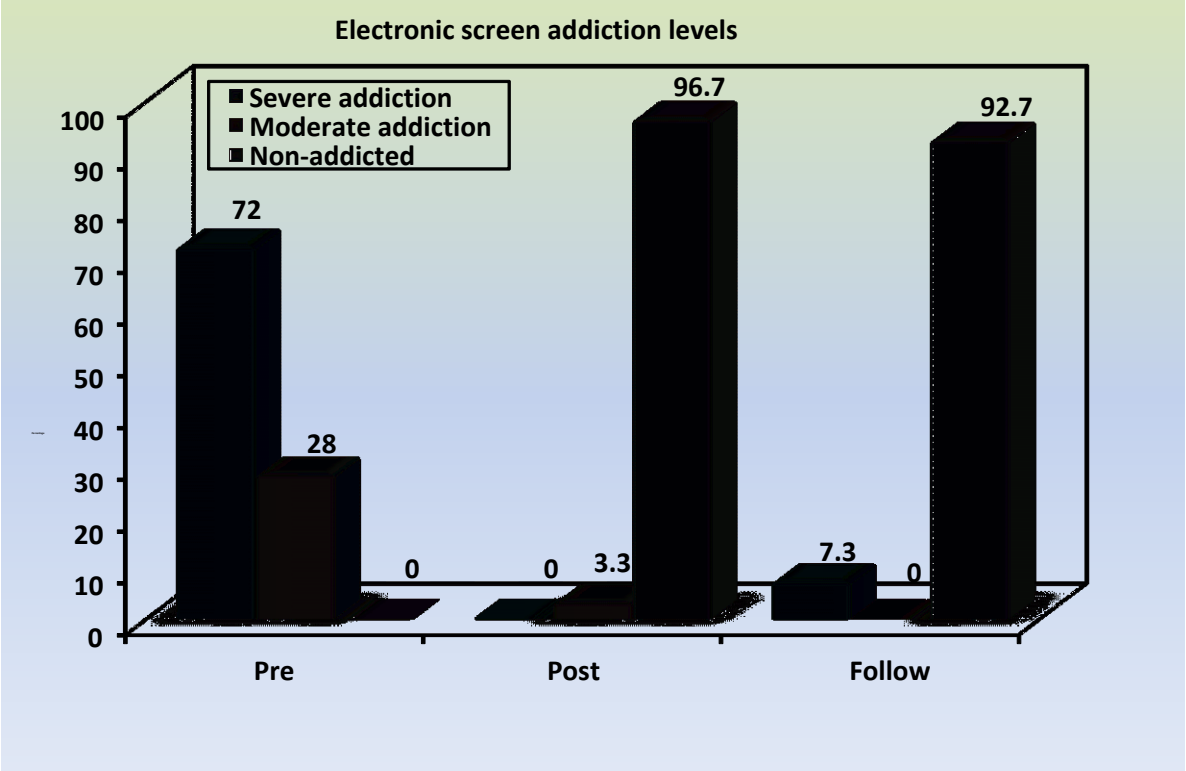

Figure 1: Distribution of the studied students according to electronic screen addiction levels (n=150)

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

Personal-characteristics	N	Electronic screen addiction levels											
		Pre				Post				Follow up			
		Moderate addiction (n=42)		Severe addiction (n=108)		Non-addicted (n=145)		Moderate addiction (n=5)		Non-addicted (n=139)		Moderate addiction (n=11)	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Gender													
Male	**83**	40	48.2	43	51.8	78	94.0	5	6.0	74	89.2	9	10.8
Female	**67**	2	3.0	65	97.0	67	100.0	0	0.0	65	97.0	2	3.0
χ^2 (p)		**37.583* (<0.001*)**				**4.175 (FEp=0.065)**				**3.369 (FEp=0.112))**			
Age (years)													
12< 13	**31**	25	80.6	6	19.4	31	100.0	0	0.0	31	100.0	0	0.0
13< 14	**41**	13	31.7	28	68.3	41	100.0	0	0.0	39	95.1	2	4.9
14< 15	**45**	3	6.7	42	93.3	40	88.9	5	11.1	38	84.4	7	15.6
15	**33**	1	3.0	32	97.0	33	100.0	0	0.0	31	93.9	2	6.1
χ^2 (p)		**63.262* (<0.001*)**				**FET=7.717* (0.006*)**				**FET=6.373 (0.071)**			
Academic Grade													
1st preparatory school	**62**	39	62.9	23	37.1	62	100.0	0	0.0	60	96.8	2	3.2
2nd preparatory school	**41**	3	7.3	38	92.7	36	87.8	5	12.2	36	87.8	5	12.2
3rd preparatory school	**47**	0	0.0	47	100.0	47	100.0	0	0.0	43	91.5	4	8.5
χ^2 (p)		**62.443* (<0.001*)**				**FET=9.857* (0.001*)**				**FET=3.173 (0.212)**			
Father's education													
Do not read or write	**5**	0	0.0	5	100.0	0	0.0	5	100.0	0	0.0	5	100.0
Reads and writes	**9**	3	33.3	6	66.7	9	100.0	0	0.0	9	100.0	0	0.0
Basic education	**53**	28	52.8	25	47.2	53	100.0	0	0.0	53	100.0	0	0.0
Intermediate education	**38**	3	7.9	35	92.1	38	100.0	0	0.0	35	92.1	3	7.9
High education	**45**	8	17.8	37	82.2	45	100.0	0	0.0	42	93.3	3	6.7
χ^2 (p)		**FET=27.283* (<0.001*)**				**FET=36.575* (<0.001*)**				**FET=30.471* (<0.001*)**			
Father's occupation													
Employee	**83**	31	37.3	52	62.7	83	100.0	0	0.0	78	94.0	5	6.0
Daily worker	**67**	15	16.1	52	83.9	57	91.9	10	8.1	56	90.3	11	9.7
χ^2 (p)		**FET=8.116* (0.013*)**				**FET=7.081* (0.024*)**				**FET=0.799 (0.680)**			
Mother's education													
Do not read or write	**5**	0	0.0	5	100.0	0	0.0	5	100.0	0	0.0	5	100.0
Reads and writes	**9**	7	77.8	2	22.2	9	100.0	0	0.0	8	88.9	1	11.1
Basic education	**39**	8	20.5	31	79.5	39	100.0	0	0.0	36	92.3	3	7.7
Intermediate education	**39**	1	2.6	38	97.4	39	100.0	0	0.0	39	100.0	0	0.0
High education	**58**	26	44.8	32	55.2	58	100.0	0	0.0	56	96.6	2	3.4
χ^2 (p)		**FET=35.868* (<0.001*)**				**FET=36.602* (<0.001*)**				**FET=30.243* (<0.001*)**			
Mother's occupation													
Employee	**34**	5	14.7	29	85.3	34	100.0	0	0.0	32	94.1	2	5.9
Not working or house wives	**116**	37	31.9	79	68.1	111	95.7	5	4.3	107	92.2	9	7.8
χ^2 (p)		**25.289* (<0.001*)**				**FET=8.504* (0.003*)**				**FET=1.094 (0.664)**			

χ^2: **Chi square test** FET**: Fisher Exact Test**
p: p value for comparison between **the different studied categories**
*: Statistically significant at $p \leq 0.05$

DISCUSSION

Electronic screen media (ESM) is becoming more and more prevalent in the lives of children and teenagers. Teens utilize media for communication, education, self-expression, entertainment, and information and social support. Nowadays, screens are a necessary component of daily life, impacting social interactions, physical and mental

health, and productivity. The excessive use can negatively impact psychological development leading to anxiety, depression, and sleep disorders (Mohamed, Abdallah & Ali, 2023).

This emphasized need to a balanced approach for technology use in schools, when the use of digital devices must be combined with activities that support students' emotional and social development. Digital detox efforts that involve reducing dependence on technology can help create a healthier learning environment and reduce negative impact on students' well-being (Hasanah & Hamdi, 2025). Thus, the purpose of the current study was to investigate how a digital detox program affected early teenage students in Port Said city's addiction to electronic screens.

Based on the general information collected from the studied students regarding electronic screen use before, after and during follow up of the program the findings illustrated that smartphones were the most preferred devices among the majority of students before the program. Most students reduced their time spent on social media and Television watching to approximately half an hour daily after program and during follow up. Additionally, most students reduced their time of playing electronic games for less than 30 minutes and seeing videos on websites like YouTube and TikTok after program and follow up phases. Regarding bedtime phone habits, about two fifth of students reported switching to silent or vibration modes post program, indicating statistically significant behavior changes.

This positive change may be attributed to the program effectiveness in inspiring students to utilize technology more responsibly by assisting them in drawing boundaries between phone time and personal time especially before bed. In order to keep control over their gadget usage, this would have encouraged students to deliberately choose to turn off their phones or take them out of the bedroom. In the line with these finding, Salepaki, Zerva, Kourkouridis & Angelou, (2025), reported that nearly three quarters of students spent over five hours daily on mobile phone and social media.

According to the data collected before the program nearly half of the studied students related to the time spent on social media, after the program and during follow up the current showed that almost all of students spent half an hour or less with a notable decline after the program. During follow-up, the majority of the students continued to spend half an hour or less. This may be attributed to program effect on reshaping students' behavior through raising awareness regarding serious side effects of electronic screen addiction and involved in healthier alternatives. In this respect Salepaki et al., (2025), found that nearly three quarters of respondents use their mobile phone more than five hours a day. After using effective screen time management methods, social media usage reduced to half an hour per day.

As regard to the studied students' general information related to the time spent in watching videos before, after the program and during follow up the current study showed that a minority of students reported watching videos for less than half an hour daily. After program, most of the students watched videos for less than half an hour, with similar patterns observed during follow up, more than one tenth of them for half an hour indicating a significant and sustained reduction in video watching time after program. This may be because excessive screen time is associated with psychiatric problems such as depression, anxiety, social isolation and become less involved with family.

These results are in agreement with Gholamian, Shahnazi & Hassanzadeh, (2019), who demonstrated that an educational intervention based on behavior intention, attitude, subjective norms and enabling factors model for reducing internet addiction among female students: A quasi-experimental study" , and stated that the intervention group revealed a significant decrease in time of watching videos on the internet after program implementation. These results were different from the study conducted by Abo-Ali et al., (2022) showed that most participants reported using their smartphones to view videos and browse social media for at least five hours every day.

The current study found a significant reduction in (excessive screen subscale) in the students' excessive use of electronic devices across all study periods. Initially, the majority of participants strongly agreed that they spent more a time on electronic devices than intended, which this proportion significantly decreased after the program and during follow-up phases. The total mean scores for electronic screen addiction significantly declined after program implementation. This might be the result of the program's success in shifting students' attitudes and behaviors regarding the use of electronic devices in a more responsible and balanced manner as they became aware of the benefits of reducing screen time, which included improved academic performance, better relationships, and improved physical health.

These results were to some extent in harmony with Buctot, Kim & Park, (2018), who studied "Development and evaluation of smartphone detox program for university students" and reported that smartphone addiction decreased significantly after program implementation. The finding agreed with Sarıtepeci, (2021), who studied "Multiple screen addiction scale: Validity and reliability study" and stated that participants were able to stay away from devices.

According to the studied students compulsive behavior subscale items before, after the program and during follow-up the current study showed a significant decrease in compulsive electronic device usage among students throughout the study phases. Before the program three quarters of participants strongly agreed that they found certain applications difficult to resist. However the percentage decreased to a minority after the program. Similarly, the belief that they could not reduce their device use dropped from majority to more than one tenth. Also students who felt attached to their devices decreased from nearly three quarters before program to minority after the program. This may be due to shift in students priorities toward more productive or meaningful activities, such as academic work, hobbies, or socializing in person after program implementation.

These results were similar with the study performed by Mohamed, Abdallah & Ali, (2023) demonstrated that there were a highly statistically significant differences between total compulsive behaviour scores among school students in pre-and posttests. Whereas compulsive electronic device usage decreased after program. In this regard Buctot, Kim & Park, (2018), found that compulsive electronic device usage decreased significantly after program implementation.

Concerning the studied students' loss of control subscale items before, after the program and during follow-up the current study highlighted a significant improvement in students' perception of their electronic device usage over the study phases. Initially, half of participants reported that their academic performance was negatively affected by excessive device use before the program. While the observed improvements are likely attributed to the program, other external factors such as increased parental monitoring and maternal developmental changes over time may also have contributed. In this regard, Lin et al., (2021) demonstrated that educational interventions targeting parents significantly improved children's control over screen time.

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. Additionally, there was a significant shift, with most of students moving to the non-addicted category after program implementation. This may be because students' might not see their activities as problematic if they are not given enough instruction or direction on good screen habits and many 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, Abdallah & Ali, (2023), who revealed that the high rate of screen addiction among students dropped to less than one fifth in the posttest compared with one fifth in the pre-test. Moreover, the students' proportion with moderate screen addiction dropped from nearly two thirds on the pre-test to more than two fifth on the posttest. 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. The overall mean score of screen use decreased significantly post-intervention.

According to relationship between electronic screen addiction levels and personal characteristics of the studied students the current study revealed that before the program, younger students aged 12 were more prone to moderate or severe addiction. However, after the program and during follow-up, nearly all age groups showed substantial improvement, with the majority transitioning to the non-addicted category, all of females categorized as non-addicted after the program. Also, students from higher educational levels and those with parents of higher education and professional occupations exhibited better post- program outcomes.

This may be because younger students' brains are still developing the skills needed for balance and self-control. Additionally, higher education level students often use screens for academic tasks like research, note-taking, or writing papers rather than mainly for entertainment, this academic use, while still screen-based, doesn't typically lead to the same kind of compulsive or addictive behavior. These results were supported by Lin et al., (2021), who revealed that digital detox program and parental education is an effective intervention for reducing screen time among children.

CONCLUSION

The digital detox program effectively reduced electronic screen addiction among early adolescents. Significant improvements were observed in screen usage patterns, compulsive behaviours, and control over screen use.

Recommendations

Ultimately, students may struggle with digital detox programs if they lack motivation, do not have engaging alternatives, experience social pressure, or lack support from their surroundings. Additionally, students' emotional reliance on screens and the lack of clear program structure can significantly hinder their success. To address these challenges, the following recommendations may be made:

1. Implement a gradual reduction strategy—such as gradually reducing screen time by 15–30 minutes per week, establishing specific hours for device usage, or limiting access to certain apps.
2. Assist students in discovering enjoyable offline activities, such as sports, creative hobbies, music, journaling, or social events that can satisfy similar needs.
3. Engage parents and peers in the process by promoting group challenges, establishing family screen-free hours, or creating peer accountability partnerships.

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تأثير برنامج التخلص من السموم الرقمي علي إدمان الشاشة الالكترونية لدي الطلاب في مرحلة المراهقة المبكرة بمدينة بورسعيد

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الخلاصة

يؤدي الاستخدام المتزايد لإدمان الشاشات الإلكترونية لطلاب المراهقة المبكرة تهديدًا كبيرًا لسلامتهم النفسية والجسدية والأكاديمية. ومع استمرار تزايد ذلك، لابد من تدخلات فعّالة للحد من الإفراط في استخدام الشاشات. الهدف: هدفت هذه الدراسة إلى استكشاف تأثير برنامج التخلص من السموم الرقمي علي إدمان الشاشة الالكترونية لدي الطلاب في مرحلة المراهقة المبكرة بمدينة بورسعيد. نوع الدراسة: استُخدم تصميم شبه تجريبي لمجموعة واحدة، يتضمن اختبارًا قبليًا واختبارًا بعديًا ومتابعة. أُجريت الدراسة في أربع مدارس إعدادية حكومية مختارة عشوائيًا في بورسعيد. شاركت عينة من 150 طالبًا تتراوح أعمارهم بين 12 و15 عامًا. ادوات جمع البيانات: جُمعت البيانات باستخدام استبيان ذاتي ومقياس إدمان الشاشات الإلكترونية. النتائج: كشفت النتائج عن انخفاض ذي دلالة إحصائية في سلوكيات استخدام الشاشة ومستويات الإدمان بعد البرنامج وأثناء المتابعة. والجدير بالذكر أن وقت الشاشة المفرط انخفض من 54.7% إلى 4%، وانخفضت درجات السلوك القهري. وبالمثل، تحسنت مؤشرات فقدان السيطرة بشكل ملحوظ. وانخفضت درجات الإدمان الإجمالية بعد البرنامج. الاستنتاج: قلل برنامج التخلص من السموم الرقمية بشكل فعال من إدمان الشاشة الإلكترونية بين طلاب المراهقة المبكرة. ولوحظت تحسنات كبيرة في أنماط استخدام الشاشة والسلوكيات القهرية والتحكم في وقت استخدام الشاشة. التوصيات: توصي الدراسة بدمج التثقيف حول التخلص من السموم الرقمية في برامج الصحة المدرسية وتعزيز مشاركة الوالدين. وينبغي إجراء المزيد من البحوث للتحقيق في الآثار طويلة المدى لهذه البرامج.

الكلمات المرشدة: برنامج التخلص من السموم الرقمي، الطلاب في مرحلة المراهقة المبكرة، إدمان الشاشة الإلكترونية.