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Prevalence and Behavioral-Emotional Correlates of Excessive Screen Time among Children in Upper Egypt: A Cross-Sectional Study

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ABSTRACT

Background: This is a cross-sectional comparative study to access the impact of screen time for long time daily on the behaviors, emotions and cognitive abilities in the school aged children.

Objectives: Studying the effect of long-time daily screen time using and its correlates to the commonest emotional, behavioral, and cognitive disorders in children, which were aggression and bad academic performance.

Patients and Methods: 300 children in 2 equal groups (case, control) to compare between them in their screen time using and the levels of the aggressive and academic performance, accessed by validated translated into Arabic questionnaires to study the correlation among them with different gender, age, and socioeconomic levels of the school aged children in both groups. **Results:** There was a highly significant difference between both case and control group children in relation to screen time, aggression levels and the academic performance levels.

Conclusion: The importance of parental control of their children's screen time and applying strict boundaries and limits for the quantity and quality of screens using.

Keywords: Screen, Aggression, Academic performance, Children.

INTRODUCTION

Consumed screen time among children nowadays is considered high especially with the easy availability of using mobile phones, computers, tablets, and TV, which can reach up to more than 3 hours daily with reflected bad effects on the children especially with the purpose of entertainment as video games, videos streaming, and other entertainment media leading to bad changes in their emotions and behaviors especially aggressive behaviors, in addition to decreasing in the cognitive, attention abilities that has a touchable bad impact on their academic performance [(1)].

Using screen media among the children and adolescents became a central aspect and it is so difficult now for them to live without smart phones that provide easily to join with video games, social medias and watching videos, that can be considered as a new addictive type for technology [(2)]. World Health Organization (WHO) and the American Psychological Association (APA). recommended to find alternative activities and to put boundaries to limit the overuse of screens to be used in another healthy way without any problems affecting the children and adolescents [(3)].

A lot of studies reported that the parents do not restrict their children access to technology, and almost 75% of these children are having their own devices in their bedrooms that facilitates more screen time. The digital technology use can also include a positive impact by enforcing the education skills. While the negative impact of technology overuse could lead to a lot of psychological and physical health problems [(4)].

An Egyptian study was also carried out to identify the prevalence and risk factors for aggression, violence and criminal behavior among children aged between 11-19 years old. Overall, 26.9% of children were assessed to be at high risk and 20.2% at extremely high risk of aggression and criminal behavior. The study also reported that one of the causes were misuse of digital technology among students [(5)].

This study is focused on the aggressive behaviors and low academic performance, that were more obvious and commoner than other predicted bad impacts of the screen time as loneliness, sleep disturbance and other psychological disorders in the school aged children.

PATIENTS AND METHODS

Study Design and Setting

This is a cross-sectional, comparative study that was conducted between January and June 2025 at Pediatrics Outpatient Clinics of Luxor University Hospital and Minia Health Insurance Hospital for the Neuropsychiatric Disease.

Because of the presence of the study in 2 different governorates, it could give the chance to meet lot of children not only from Luxor city and Minia, but also from other upper Egypt cities, but living in these two cities, and it was helpful for this study to communicate with them and giving more validity to the objectives of this study.

Participants:

A total of 300 children were recruited using stratified random sampling from urban and semi-urban schools. The sample was divided into two equal groups:

- Control group (n=150): children with daily screen time ≤3 hours.
- Exposure group (n=150): children with daily screen time ≥3 hours.

Inclusion criteria:

1- School aged children (8-12) years with different gender, and variable socioeconomic levels
2- They were intact clinically by physical examination.

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3- There were no other psychiatric or mental disorders affecting their emotional, behavioral or academic achievement development.
4- The children and their parents or caregivers were announced by the importance of this research, which was ethically approved before its applying.
5- The included children in the case group were consuming more than 3 hours in front of screens daily.

Exclusion criteria: Included presence of neurodevelopmental disorders, chronic neurological or medical illness, or prior psychiatric diagnosis under pharmacological treatment.

The Measures:

1- Demographics and socioeconomic status, age and gender were recorded. Socioeconomic status was assessed using parental education and household income, categorized as low, medium, or high [(6)].
2- Screen Time Quantity and Quality
- Daily screen time (hours): self-reported by parents and children, averaged across weekdays and weekends.
- Screen Time Quality: assessed using the Screen questionnaire [(7)], a validated 26-item parent-report tool evaluating content type, context, and adherence to the American Academy of Pediatrics guidelines. Higher scores indicate poorer quality use. A categorical item was also added to classify predominant screen use as educational, entertainment, or mixed.

3- Aggression:
- Aggression was measured using the Arabic version of the Buss–Perry Aggression Questionnaire-Short Form (BPAQ-SF), a 12-item validated self-report scale assessing physical aggression, verbal aggression, anger, and hostility [(8)].

4- Academic Performance:
- By using academic performance teachers' reports and school records to classify academic achievement into high, medium, or low by using The **Arabic Academic Performance Rating Scale** which was developed and validated to evaluate students' academic performance through teacher assessments [(9)].

Ethical approval:

The Ethics Committee of the Luxor Faculty of Medicine has given its clearance for this work. the IRB local approval number : Luxmed-30625-101. Parents provided written informed consent to participate in the study. Throughout its implementation, the study followed the Helsinki Declaration.

Statistical analysis

SPSS version 24 for Windows® was used to code, process, and analyze the gathered data. Frequencies and relative percentages were used to illustrate the qualitative data. To determine the difference between two or more sets of qualitative variables, X^2-test was used. The mean ± SD was used to express quantitative data. Two independent groups of normally distributed variables (parametric data) were compared using the independent samples t-test. When the p-value was equal to or less than 0.05, it was deemed significant.

RESULTS

This study was applied on 300 children aged (8 – 12) years, 150 of them were of control group and the rest were of case group. There was no significant difference between the control and case group regarding age, gender, and socioeconomic level, which was mostly of middle socioeconomic level as shown in **table (1)**.

Table (1): Sociodemographic data of the studied cases and controls:

Demographics	Controls No=150	Cases No=150	p
Age Range Mean±SD	 8-12 9.8±1.3	 8-12 9.9±1.4	0.5
Gender Female Male	 81(54%) 69(46%)	 68(45.3%) 82(54.7%)	0.1
Socioeconomic Status 1-Low 2-Middle 3-High	 44(29.3%) 75(50%) 31(20.7%)	 43(28.7%) 84(56%) 23(15.3%)	0.4

There was a highly significant difference in between control group and case group children related to their daily screen-using, which did not exceed 3 hours daily for control group and in case group it exceeded 3 hours daily with a mean of (7.6) hours daily as in **table (2).**

Also, there was a highly significant difference between both groups concerning the purpose of screen time usage, as for control group, it was was mostly for educational reason while in case group it was for entertainment reason as shown in **table (2).**

Table (2): Comparison of screen time data between the studied cases and controls:

	Controls No=150	Cases No=150	p
Screen time Range Mean±SD	 1-3 2.05±0.8	 5-10 7.6±1.6	0.0001*
Screen time quality Educational Entertainment Mixed	 64(42.7%) 24(16%) 62(41.3%)	 17(11.3%) 86(57.3%) 47(31.3%)	0.0001*
Screen Q score Range Mean±SD	 0-14 6.3±2.9	 8-23 15.2±2.9	0.0001*

*: Significant.

This study showed a highly significant difference, in the aggressive effect of the screen time on children, between case and control groups, as the aggressive level in control children was mostly low level, but in case group, it was mostly moderate and high level as in **table (3).**

Table (3): Comparison of aggression between the studied cases and controls:

Aggression	Controls No=150	Cases No=150	p
Total aggression score Range Mean±SD	10-95 29.3±18.9	10-100 53.4±27.5	0.0001*
Low	109(72.7%)	40(26.7%)	0.0001*
Moderate	36(24%)	62(42%)	
High	5(3.3%)	47(31.3%)	

*: Significant.

This study showed a highly significant difference in the comparison between effect of the screen time on the academic performance of the children between both case and control groups, as the low academic performance level was mostly low in case group while it was mostly high in control children as shown in **table (4).**

Table (4): Comparison of academic performance between the studied cases and controls:

Academic performance	Controls No=150	Cases No=150	p
Low	15(10%)	62(41.3%)	0.0001*
Medium	46(30.7%)	57(38%)	
High	89(59.3%)	31(20.7%)	

*: Significant.

There was no significant difference in the relation between the socioeconomic state level of both the case and control group children, and the aggression levels. The aggression scores were high with moderate and low socioeconomic state levels than with high socioeconomic state level in both case and control groups children, as shown in **table (5).**

Table (5): Relation between socioeconomic state and aggression among the studied cases and controls

	Socioeconomic state							
	Controls No=150				Cases No=150			
	Low	Moderate	High	P	Low	Moderate	High	p
Total aggression score Mean±SD	32.2±20.7	28.2±19.07	27.9±15.7	0.4	48.5±27.02	57.7±27.6	46.7±26.5	0.09
Aggression category								
Low	31(70.5%)	56(74.7%)	22(71%)		15(34.9%)	17(20.2%)	8(34.8%)	
Moderate	12(27.3%)	16(21.3%)	8(25.8%)	0.9	18(41.9%)	36(42.9%)	9(39.1%)	0.2
High	1(2.3%)	3(4%)	1(3.2%)		10(23.3%)	31(36.9%)	6(26.1%)	

There was no significant difference in the relation between the socioeconomic state level of both the case and control group children, and the academic performance levels. The academic performance levels were low with moderate and low socioeconomic state levels in case group children, while it was high academic performance with high socioeconomic state in case group children, as shown in **table (6).**

Table (6): Relation between socioeconomic state and academic performance among the studied cases and controls

Academic performance	Socioeconomic state							
	Controls No=150ly				Cases No=150			
	Low	Moderate	High	P	Low	Moderate	High	P
Low	3(6.8%)	8(10.7%)	4(12.9%)		24(55.8%)	30(35.7%)	8(34.8%)	
Medium	17(38.6%)	23(30.7%)	6(19.4%)	0.5	12(27.9%)	36(42.9%)	9(39.1%)	0.2
High	24(55.8%)	44(58.7%)	21(67.7%)		7(16.3%)	18(21.4%)	6(26.1%)	

DISCUSSION

This study was to evaluate the effect of screen time consumption in children aged (8 – 12) years on their academic performance and if it is related to their aggressive behaviors that could be noticed in schools and with their relatives and family members.

In this study, in the case group, the screen time for entertainment by using TV, smart phone or computers such as playing video games or watching movies, internet streaming, was more than consumed time for academic studying, so that it means that aggressive behaviors were commonly associated with screen time consuming for entertainment than for academic study, which was consumed by 11% of the case group children of our study.

The study showed us that the male gender was more than female gender in consuming time in front of screens with moderate aggression level in both genders and that explains that male students are more aggressive than female ones. The aggression includes many forms as bullying, physical fighting, teasing and insulting, which were with moderate level in high percentage among males. The percentage of high aggression level are not commoner as the moderate level of aggression but the low level came at the last percentage among them. The same sequence came also among the female gender students.

Özmert *et al.* [10] reported significant aggressive behaviors for children's students who spend more than 2 hours watching TV, which confirmed our study concerning the time consumed in front of screens more than 3 hours, which was much for the purpose of entertainment.

For the video game playing more than 2-3 hours daily using smart phones or computers, **Demirok *et al.*** [11] detected that it is associated with anger expression for more than half hour daily, which enforced our study about more hours consumed for entertainment daily would be associated with aggressive behaviors. **Janssen *et al.*** [12] also found a strong relation between violence and using screens for video game playing in a large sample of youth. **Busch *et al.*** [13] mentioned that the video games would lead to more bullying and physical fights, which are stronger associates with girls but weaker associates with boys, and that can correlate to our study that showed more than 45% of the study children were of female gender.

Related to this study, it showed variant socioeconomic status levels. The middle socioeconomic status level was the commonest among the students, followed by low then the high ones, which can explain that the most aggressive behaviors were of moderate level then followed by high and low aggressive levels respectively. The high socioeconomic status of families has an important role in giving care and attention to emotional needs of children and the higher educational levels of parents, the more effective control that could reduce the risk of violence and aggressive behavior in their children.

Keikha *et al.* [14] considered that the supervision and giving concern to the children by their parents would decrease and make a limitation to the aggressive effects caused by long time consumption in front of the screens, and that will be achieved more in the high socioeconomic levels, because of higher educational level of the parents and their awareness of the predictable risk of screens on their children

The study reported the effects of screens on the academic performance in the children evaluated by their scores in writing, reading and math.

In the case group, more than 41% of children were with low academic performance, 38% of children with middle academic performance and 5% of them with high academic performance, which means that there was a negative effect of screens mostly on the children.

The study approved that the children who spent not more than 2-3 hours daily on using screens were with high percentage of high academic performance than the children who spent more than 3 hours daily on screens, and their academic performance was mostly low and medium.

The socioeconomic level is playing also an important role in its effect on the academic performance, as the most case children of this study were of low and middle socioeconomic levels and were mostly with low and medium academic performance, while children of high socioeconomic levels were the fewest number among the all-case children and showed mostly medium academic performance. That means how much important is the awareness of the parents and their high educational level to give attention to their children and control their screen time consumption, avoiding any negative and bad feedback on them.

Neophytou *et al.* [15] explained why the long time spent in front of screens is associated mostly with low academic performance, because the long time spent in front of screens may alter children's brain structure, affecting cognitive functions and impairing the acquisition of memories and learning.

Adelantado-Renau *et al.* [16] revealed that the most systematic reviews demonstrated that TV viewing and video gaming were negatively associated with academic outcomes in children and youth, which is also correlated to our study, as the long-consumed hours with different types of screens were associated with low academic performance in schools.

This study showed how much it is important to let children dealing well with the screens to avoid any bad side effects such as what we detected about the aggressive behaviors and bad academic performance, in addition to other bad complications that lead to psychological disorders, loneliness or bad sleep quality.

CONCLUSION

The study clarified well the effect of screen time for more than 3 hours daily on the children (8-12 years) as it had a role in increasing the level of aggressive behaviors and decreasing the academic performance.

The socioeconomic level might have an important role in controlling these bad effects on children, as the high learning levels of the parents would lead to more care and attention to the bad effect of screen time consumption and how could be moderated to be used for increasing their academic achievements.

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