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Sara Sayed Abdalla

The British University in Egypt, sara.sayed@bue.edu.eg

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Effect of Internet Addiction on Academic Achievement among Primary School Children

Manal Mohamed Ahmed Ayed⁽¹⁾, Ghada.A.Hassan⁽²⁾, Sara Sayed Abdalla⁽³⁾, Donia Elsaid Fathi Zaghamir⁽⁴⁾

1 Assistant Professor of Pediatric Nursing, Faculty of Nursing, Sohag University, Egypt

E-mail: Manal_ayed@yahoo.com, DOI: <https://orcid.org/0000-0003-0922-5823>

2Lecturer of Pediatric Nursing, Faculty of Nursing, Menoufia University

3Child and Adolescents health nursing, Faculty of Nursing, British University in Egypt

4Pediatric Nursing Department, Faculty of Nursing, PortSaid University

Abstract

Internet addiction (IA) is a relatively new subject of study in academia, and it has several effects on a person's life in a variety of ways, including academic achievement, relationships, physical and mental health. **Aim:** To describe the effect of internet addiction on academic achievement among primary school children. **Research Design:** A descriptive research design was used in the current study. **Settings:** The study was applied in two primary schools in Sohag City. **The Study Sample:** A multi-stage random sample of 720 primary school children was recruited using a multi-stage random sample technique. **Tools:** There were three tools used in the current study, (I) demographic assessment tool, (II) Young's Internet addiction scale, and (III) academic achievement assessment tool. **Results:** more than half of the primary school children were female; the mean age them was 9.34 ± 1.64 years. Half of them spent 3-5 daily times on the internet. There was an association between internet addiction and academic achievement. The majority of primary school children agree to improve awareness about internet addiction and its effects through holding classes as proposed preventive interventions to reduce harm from IA. **Conclusion:** Excessive internet usage was shown to be one of the most common behaviors among primary school children, which can lead to addiction and harm their personal, social, and academic achievement. **Recommendation:** Children should be aware of the potentially detrimental effects of internet addiction, as well as the necessity to restrict internet usage, which can have a severe impact on kids' academic progress.

Keywords: academic achievement, Internet addiction, primary school children.

Introduction

The internet has been accessed in schools, and the lack of parental control has become one of the key causes contributing to children's online addiction. Accordingly, prior research conducted among primary school children revealed a greater prevalence rate of Internet addiction among them, which was reported to be 4% in the United States, 10.6% in China, 5.9% and 17.9% in Taiwan, and 34.7 percent in Greece (Frangos & Sotiropoulos, 2018).

Today's primary school children can't consider academic or research pursuits without access to the internet. People from all sectors of science and education are connected through the Internet, and achieving academic goals has never been easier thanks to modern technology (Chen, 2017).

Primary school children who are addicted to the Internet spend more time on it than other

students, chatting, perusing online, gaming, and visiting intriguing websites. As a result, kids have less time and interest to complete their responsibilities and study their courses, which may be one of the reasons for their academic failure. These elements may encourage primary school children to engage in addictive behavior (Lan & Lee, 2017).

In comparison to those who are not online addicts, the prevalence of internet use among primary school children has increased dramatically in the previous ten years (Wu et al., 2017). The indications and symptoms of online addiction differ from person to person; for example, there are no specific hours per day or quantity of messages sent that may indicate Internet addiction. However, there are some general warning signs that internet use has become a problem, such as losing track of time online, having difficulty completing tasks at work or home, isolation from family and

friends, feeling guilty or defensive about internet use, and experiencing euphoria while participating in internet activities (Spada, 2018).

There are many steps for minimizing internet addiction and assisting primary school children in gaining control of their internet use, including recognizing any underlying problems that may support the internet addiction, developing coping skills, strengthening a support network, gradually modifying Internet use, and setting goals for when the internet can be used. Setting a timer, scheduling use for certain times of day, or making a commitment to turn off the computer, tablet, or smartphone at the same time each night, for example, or rewarding self with a certain amount of online time once completing a homework assignment or finishing the laundry, and replacing internet usage with healthy activities are all good ideas. If you're bored and lonely, fighting the impulse to go online can be challenging, so make a plan for something else to do with your time, such as going to lunch with a coworker, taking a class, or inviting a friend over (Jang & Ji, 2019).

Care for primary school children who are using the internet included preventing internet addiction. Primary school children who are hooked to the internet require a great deal of assistance and consideration, therefore, caregivers should be aware of the prevalence of the problem and the problematic behaviors that come with it to intervene early. It is also vital to educate young people and their parents about the hazards of internet addiction, as well as the consequences and identification of potentially life-threatening actions (Mazhari, 2018). As a result, the study's objectives were to describe the impact of internet addiction on academic achievement among primary school children and to develop preventive interventions for children to reduce IA-related harm.

Significance of the Study

Because of their academic and educational needs, primary school children have become a high-risk category for internet addiction. They are unable to control the amount of time they spend on the internet. In both Western and Eastern societies, Internet addiction has been observed from 1.4 percent

to 17.9 percent of young students. Egyptian primary school children used the internet the most frequently (93 %), and 26.9% of Egyptian students used the internet late at night regularly (Jang & Ji, 2019). Furthermore, there was minimal evidence-based research that determined whether or not there is a link between IA and academic achievement. As a result, the current study aimed to describe the effect of internet addiction on academic achievement among primary school children and develop preventive interventions for students to reduce IA-related harm.

Aim of the Study

To describe the effect of internet addiction on academic achievement among primary school children through:

1. Assessing the internet addiction level between primary school children.
2. Identify academic achievement levels between primary school children.
3. Assessing preventive interventions was used among primary school children to reduce IA-related harm
4. Investigate the effect of internet addiction on academic achievement among primary school children.

Research questions:

- 1- What is the internet addiction level among primary school children?
- 2- What is the academic achievement level among primary school children?
- 3- What preventive interventions were used among primary school children to reduce IA-related harm?
- 4- What is the effect of internet addiction on academic achievement among primary school children?

Materials and Methods:

Research Design:

A descriptive cross-sectional research design was used to achieve the aim of the current study. In a cross-sectional study, the investigator measured the outcome and the exposures in the study participants at the same

time. This type of research can be used to describe characteristics that exist in a community, but not to determine cause-and-effect relationships between different variables. This method is often used to make inferences about possible relationships or to gather preliminary data to support further research and experimentation.

Settings:

The study was applied in two primary schools in Sohag City. They included El-shaheed Abd- El-Moneim Riyad and Omer Ebn Abd El Aziz primary schools. Sohag City contained 10 primary schools. The researchers selected 20% of the total number of schools by multi-stage random sample which was two primary schools.

Study Sample:

A multi-stage random sample of 720 primary school children recruited for the midterm exam was selected randomly from two primary schools in Sohag City in November 2018, after taking consent from their parents. The total number of primary school children in all primary schools was about 18000 children; the researchers selected two primary school children which was about 3600 and then took the researchers took 20% of children from the two schools which were approximately 720 children.

Sample size:

It was calculated by (Epi-Info 6.04d) with a 95% confidence level using the sample size equation for the estimation of a single proportion. The optional sample size was 683. The actual sample increased to 720 students to compensate for any dropout.

Inclusion criteria included:

- Children aged from 6 to 12 years
- Children enrolled in the previously selected primary school
- From both sexes (girls and boys)
- Free from cognitive disabilities.

Exclusion criteria included:

- (1) Children suffering from chronic and physical health problems.

Tool for Data Collection

Three tools were used to achieve the aim of the current study as the following:

Tool I: Demographic characteristics assessment tool was developed by the researchers after reviewing the related literature and research studies, (**Kakkar et al., 2018 and Lam, 2018**) that contain questions about the children regarding; age, sex, residence, and daily times spent on the internet and number of hours spent on the Internet.

Tool II: Internet Addiction Test (IAT) that was administrated to assess the prevalence rate of IA among children. IAT was designed by **Young in 1998**. It is comprised of 20 multiple-choice questions written on a 5-point Likert scale, classified as rarely, occasionally, frequently, often, and always; given a total score ranging from 20 to 100 points, with higher scores reflecting a greater tendency toward addiction. A three categorical score was given to describe the level of Internet addiction as follows: a score of 20-49 suggests controlled or average usage (mild addiction), a score of 50-79 suggests occasional or frequent problems (moderate addiction); and a score of 80-100 suggests significant problems (severe addiction). IA was assessed by summing the scores and scores ≥ 50 were classified as IA. The tool validity and reliability were confirmed through a reported study that illustrated adequate reliability of Chinese, Arabic, and English (Cronbach's $\alpha \geq 0.90$).

Tool III: Academic achievement assessment tool: Academic achievement of the primary school children was developed by the researchers after reviewing the related literature and research studies (**Asiri et al., 2018 and Galgao, 2018**) to measure the grade achieved in the midterm exam of the second semester for the science course.

The scoring was judged by the percentage of marks the primary school children received on the midterm science course exam, with

scoring 50% or higher passing and those scoring less than 50% failing in a midterm exam during the first semester of the school year.

Validity of tools:

The content validity was tested and submitted to a panel of five experts in the pediatric nursing field with more than ten years of experience in the field. Modifications of the tools were performed according to the panel's judgment on the clarity of sentences, appropriateness of the content, sequence of items, and accuracy of scoring and recording of the items. Examination of the content validity index (CVI) showed that CVI = 86%.

Reliability of tools:

Reliability was assessed through Cronbach's alpha reliability test $\alpha = 89\%$ which revealed that each of the two tools consisted of relatively homogenous items as indicated by the moderate to high reliability of each tool.

Pilot Study:

A pilot study was carried out before starting data collection on (10 %) of the study sample for the purpose to test the clarity and completeness and determining the time involvement. According to the results of the pilot study, the needed modification, omissions, and/or additions were done. Participants in the pilot study were excluded from the study subjects.

Field of work:

This research study was conducted in November 2018. The researchers collected data during the school day. Data is collected in accordance with each school's policy. The actual work began with the researchers meeting with the school manager during the morning or evening school day to introduce themselves and give them a complete background about the study and the questionnaire format that the researchers had pre-designed in Arabic to collect the required data. The researchers then went to the participants' classes to introduce themselves to the students, explain the purpose of their visits and the research goals, and invite them to participate in the study by filling out the questionnaire with the researchers' help.

Methods for Data Collection

- Formal administrative approval was obtained from authorities in the setting before starting this study. Permission was obtained from the Ministry of Education in Sohag City and official permission from the managers of the two primary schools. The researchers visited each school three to four times every week to collect the data. Three times a week, from 9 a.m. to 2 p.m., the researchers visited the previously selected settings.
- After obtaining written permission from the schools and oral permission from the primary school children for data collection, the researchers interviewed the primary school children face to face and distributed 720 tools. The participants were invited to complete the questionnaire in the presence of the researcher to assess their level of internet addiction and their academic achievement.
- The children were asked to read each question carefully and to answer the questions honestly. Also, they were asked to circle the answer that best described them. The researchers were available for more clarification whenever needed. Once the children completed the tools, the researchers collected them from the participants by themselves on every visit.
- It takes the students roughly 35-45 minutes to complete the tools. Young's Internet addiction test and academic achievement assessment tool were used to describe the effect of Internet addictions on children's academic accomplishments.
- Primary school children's academic achievement was judged by the percentage of marks they received on the midterm science course exam, with primary school children scoring 50% or higher passing and those scoring less than 50% failing in a midterm exam during the first semester of the school year.

Administrative and Ethical consideration:

Official letters were obtained to conduct the study. Before starting this study,

formal administrative approval was taken from authorities in the setting. Permission was obtained from the Ministry of Education in Sohag City, with official permission from the managers of the two primary schools. After obtaining written permission from the schools, a letter was sent to the parents of the participants to inform them about the research and to request their written consent to participate in the study. The researchers explained to primary school children the aim and methodology and benefit of the study. The children were informed that their participation is voluntary and have the ethical right to participate or refuse participation in the study. It was further emphasized that their responses are confidential, and had the right to withdraw from the study at any time without giving further explanation. Privacy and confidentiality were resolutely kept in all data collection procedures.

Statistical Analysis

Data collected and analyzed by computer program SPSS" ver. 21" Chicago. Data are expressed as mean, Standard deviation and number, percentage. A person's correlation is used to determine significance. N.s $P > 0.05$ no significance, * $P < 0.05$ significant, ** $P < 0.001$ moderate significance, and *** $p < 0.000$ highly significant.

Results

A total of 720 children were included in the study. Regarding demographic characteristics of the primary school children in **Table 1**, the current study revealed that there were (44 %) boys and (56%) girls in the study with mean \pm SD age of 9.34 ± 1.64 years. It is

also illustrated that times spent the internet daily among primary school children, (44%) of them spent 3-5 times followed by (24%) spent 6-8 times, and (20%) spent 0-2 times, the hours spent daily by the studied children on the Internet, 46% of them spent 3-5 hours followed by 28.0% of them spent 6-8 hours and only 11% spent 9-11 hours per day.

Table 2 showed that 15% of the students had severe IA, 18% were moderate IA and most of them 67% were normal users.

Table 3 illustrated that there was a significant relationship between the academic achievement of primary school children and the total internet addiction score. This means that for children who were nearer to internet addiction, their academic performance was less because it was reflected by their marks in the midterm science course exam where internet usage is taking the children away from their books and leading to poor academic performance.

Table 4 demonstrated the frequency of primary school children within each category who passed and failed the science exam, (93%) of children in the 'normal' category passed the exam and 7% failed whereas about 80% in the moderate and severe category passed the exam and 20% failed.

Table 5 showed that the most preventive intervention to reduce harm from IA reported by (39%) of the children was to raise awareness about internet addiction and its effects through holding classes whereas (42%) of them reported participating in group activities and having fun with a group of friends.

Table 1: Frequency and percentage distribution of the studied children regarding their demographic characteristics (n= 720)

Items	No	%
Sex:		
Boys	317	44%
Girls	403	56%
Age:(years)Mean ± SD		
9.34 ± 1.64		
Times spent on the Internet daily		
0-2 times	144	20.0%
3-5 times	317	44%
6-8 times	173	24%
9-11 times	94	13%
Over 12 times	79	11.0%
Hours spent daily on the internet		
0-2 hours	202	28%
3-5 hours	331	46%
6-8 hours	108	15%
9-11 hours	79	11%
Others	14	2%

Table 2: Frequency and percentage distribution of the studied children regarding their internet addiction level

Items	No.	%
Normal (20-49)	482	67.0%
Moderate (50-79)	130	18.0%
Severe (80-100)	108	15.0%

Table 3: Relation between internet addiction score among the studied children and their academic achievement

Items Maximum score	Mean ± SD	T	p-value
Internet addiction (100)	35.54 ± 13.69	0.13	0.01*
Academic performance (20)	60.33 ± 9.22		

**Statistically significant difference*

*Chi-square test * Statistical significant difference (P < 0.05)*

Table 4: Frequency and percentage distribution of the studied children's academic achievement with different categories of internet addiction (n= 270).

Items	Pass		Fall		p-value
	No	%	No	%	
Normal	670	93	50	7	0.01*
Moderate +Sever	576	80	144	20	

**Statistically significant difference*

*Chi-square test * Statistical significant difference (P < 0.05)*

Table 5: Frequency and percentage distribution of the studied children concerning preventive interventions to reduce harm from IA

preventive interventions to reduce harm from IA	No	%
Raise awareness about internet addiction and its effects by holding classes	281	39.0
Participate in group activities and have fun with a group of friends	302	42.0
Strengthen support networks, communication skills, and social interactions	295	41.0
Increase family support and good communication between family members	252	35.0
Having an internet usage plan and schedule	166	23.0
Controlling the usage, quality, and quantity of connecting, usage of the internet among families	180	25.0

Discussion

Excessive internet browsing is one of the most common activities among primary school children, and it can lead to addiction and harm their academic performance. This study aimed to describe the effect of internet addiction on academic achievement among primary school children, as well as to develop preventive interventions for students to reduce IA-related harm.

The finding of the present study illustrated that time spent on the internet daily among children was from 3-5 times for about 3-5 hours per day. This is reflected by the cause of negative effects of the internet where children are distracted by the internet for a long time which affected also, negatively their academic achievement. These findings are supported by **El Sayed et al., (2020)** results that half of the students spent 3-5 times, and also half of them spent 3-5 hours.

These results are similar to results done by **Galgao, (2018)** who studied "The Perceived Effects of Internet Usage on Academic Achievement among Southeast Asian Students" and found that internet usage was from 3-5 times a day among half of the students and also half of them spent 3-5 hours online daily.

The finding of the present study indicated that almost twenty percent of the children had severe IA. These results were not in the same line with **Asiri et al. (2018)** who studied "Internet Addiction and its Predictors in Guilan Students" and found in his study that only less than ten percent of them were addicted.

Also, a study in Iranian done by **Mazhari (2018)** studied the prevalent of IA among

medical students and reported that less than one-quarter of students were problematic Internet users, and **Kheirkhah et al. (2018)** conducted a study about the prevalence of Internet addiction in the Mazandaran province and observed that less than one-quarter of Internet users were Internet addicts.

Similarly, **Kakkar, et al., (2018)** in a study about the "Influence of internet addiction on academic performance and mental health of College students" reported that more than one-third and two percent of students were classified as moderate to severe internet addiction respectively. This result is matched with **Alhajjar,(2014)** who did a study about "Internet addiction and psychological morbidity among students in Palestine at Gaza Strip and observed that less than one-third were at risk for internet addiction. Also, **Lam et al. (2018)** studied "Internet Gaming Addiction, Problematic Use of the Internet, and Sleep Problems" and reported that ten percent of studied adolescents were moderately addicted to the Internet, and less than ten percent were severely addicted to the Internet.

The current study indicated that there was a significant relationship between the academic achievement of the children and total internet addiction score. From the researchers' point of view, this reflected the negative effects of the internet. This result is similar to the study conducted by **Khan et al., (2016)** who studied "Effect of Internet Addiction on Academic Performance of Students" and found the same result. And usually spend more time using the Internet in doing chat, web surfing, gaming, and using interesting websites. Thus they have less time and interest to do their duties, homework, and study their lessons and this can be one of the causes of academic failure.

Along the same line **Gorgich et al., (2016)** studied “The Association of Internet Addiction with Academic Achievement, Emotional Intelligence and Strategies to Prevention of Them from Student’s Perspectives”, **Kakkar et al., (2015)**, **Akhter, (2018)** studied “Relationship between Internet Addiction and Academic Performance among University Undergraduates”, **Asemah et al., (2013)** who studied “Influence of Social Media on the Academic Performance of the Students of Kogi State University, Anyigba, Nigeria”, and **Wang et al., (2016)**, also found that internet addiction has a negative effect on the academic achievement among students and leads to academic failure.

Similarly, **Khan, (2016)** reported that internet users have experienced poor academic achievement and that internet overuse is negatively affected the academic achievement of students. **Englander, (2017)**, who studied the use of the internet setting back for their personal and professional responsibilities that ultimately leads to poor academic achievement.

According to **Nalwa & Anand (2015)**, who studied "CyberPsychology Behavior" pointed out that internet users spent lesser time in their studies in comparison to non-users and subsequently had lower GPAs.

Other studies examined the result of the social networking usability among students and with their academic achievement. They reported a poor effect when the media is overused in such a way that does not academically improve learning **Rouis & Salehi, (2019)**, did a study about “Impact of Facebook Usage on Students' Academic Achievement: Role of Self-Regulation and Trust”.

On the other hand, **Ahmed & Qazi, (2017)** who studied "A lookout for academic impacts of social networking sites (SNSs): A student-based perspective”, and were disagreeing in their results with the results of the current study and reported either no significant relationship between using social networking and student academic achievement.

The finding of the present study indicated that twenty percent of children failed. From the researchers' point of view, a high

percentage of failed children in their academic achievement reflected the negative effects of using the internet.

The finding of the present study revealed that the most preventive intervention to reduce harm from IA reported by more than one-third of the children was to raise awareness about internet addiction and its effects through holding classes where less than one-half of them reported participating in group activities and having fun with a group of friends.

These results were similar to the results conducted by **Gorgich et al., (2016)** who studied “The Association of Internet Addiction with Academic Achievement, Emotional Intelligence, and Strategies to Prevention of Them from Student’s Perspectives” and reported the same results which reflected the desire to overcome this problem and its negative effects.

Conclusion

The current study indicated that children were categorized as mild, moderate, or severely addicted internet users based on the findings and study question. Excessive internet usage was found to be one of the most common hobbies among children, which can lead to mild, moderate, and severe addiction, as well as severely impact their academic performance.

Recommendation

In light of the findings obtained from the current study the following recommendations were suggested:

- Children should be aware of the negative effects of internet addiction
- It's important to provide controlled intranet services in schools and homes that may play an effective role in reducing the prevalence of IA among children.
- Future studies about the factors associated with internet addictions among children.
- Educational programs about the safe use of the internet and harm minimization should be provided for community members, such as development e n t

resources for people to recognize at-risk signs and how identify IA.

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