

# Negative Health Effects on Addiction of Internet among Primary Schools Students in Zagazig City

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## Abstract

**Background:** Internet is an important tool of modern society used frequently for communication and information sharing and become an integral part of the daily lives for every one even child. Internet addiction in children is a mental disorder that negatively affects their life and their health. **Aim:** to assess negative health effects on addiction of internet among primary schools students in Zagazig city. **Design:** A Cross-sectional descriptive design. **Setting:** at six primary schools, at Zagazig city. **Subjects:** 300 students were selected using a multistage random sample technique. **Tools:** Interview Questionnaire sheet, Internet Addictive Behavior Scale, Negative Health Effects of Internet Use and Knowledge related to internet. **Results:** the mean age of the students was  $17.2 \pm 0.824$ , 76.80% of them were highly internet addicted and the majority of related contributed risk factors for being addicted to internet were Online gaming internet, Entertainments, Build relationships with others, and Using social networks, with percentage (99%, 95.3%, 88.6%, and 84.6%) respectively, there were highly statistical significance relation between total internet addiction degree and contributed risk factors to internet addiction regarding difficulties to relate socially, availability/ accessibility to use internet, using social networks at ( $p$ -value = 0.02\*). Also, 75.7% of them had unsatisfactory total knowledge score related to internet addiction. Additionally there were highly statistically significant positive correlation among students total score of total internet addiction and total negative health effects of internet addiction ( $r = 0.0638^{**}$ ). **Conclusion:** most of the students had high degree of internet addiction, also they were highly negatively affected on their physical, social, cultural, economic, and psychological health related to excessive internet use. **Recommendations:** organize training programs involving parents, schools, social workers and psychologists of educational organization to raise public awareness on proper Internet use and increase awareness among primary students about Internet addiction and its negative health effects.

**Keywords:** Negative health effects, Internet addiction, Primary schools students, and Communication.

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## INTRODUCTION

More than three billion people usually use the internet daily with young people being the most common users, among the world (Zenebe *et al.*, 2021). Internet is considered to be the most widely used media in the world, nowadays, and it differs from the other types of media. The causes of this widespread accessibility are because the internet has many numbers of activities that attract its users, the Internet displays a chance to communicate with people all over the world without any restriction (Özceylan, *et al.*, 2021). The Internet has become such an important part of social, professional, and academic life, among others even children and young, that its excessive consumption has raised concerns about potential harmful health-related consequences (Martins *et al.*, 2020) in addition the advent of smart mobiles with cheap and instant internet

access has accelerated people's adoption of the internet (Mohamed and Bernouss, 2019).

Internet activities and other technologies that become increasing rapidly have attracted all people especially children, leading to much use of the Internet and maladaptive Internet attitude known as "Internet Addiction, (IA)"; The term "addiction," even traditionally utilized to describe a physical dependence of substances, has been applied to the expansive use of the Internet. Internet addiction disorder is expressed as too much internet use that contradicts daily activities and can harm daily function (Xu, *et al.*, 2020).

IA can also identified as a psychological dependence of internet, regardless of the activity once logged on, which is characterized by much or poorly

controlled preoccupations, urges, or behaviors regarding computer use and Internet access that lead to impairment or distress (Azmi *et al.*, 2020). In 2020, there were almost 4.8 billion active internet users worldwide, equivalent to 62% of the global population (Ying *et al.*, 2021). Worldwide, the prevalence of IA varies by population: the prevalence in Europe was reported to be 9%, Middle East between 1 and 12% and 2–18% in Asia. In Egypt, Internet addiction prevalence was 2.6% among adolescents in El-Minia, Upper Egypt, while the prevalence of potential Internet addiction was 18.2%. Another study conducted among adolescents recruited from private and governmental schools in Cairo, Egypt, revealed a prevalence of 0.8% (Abdel-Salam *et al.*, 2019).

Many types of online activities, such as online games, social networking, online gambling, online shopping and marketing, virtual sex, and information overload, are related to IA (Ying *et al.*, 2021).

IA has negative side effects on dietary behavior (i.e., frequent breakfast skipping, increased meal size, and snacking habit while using the internet) and lifestyle characteristics (i.e., decrease physical activity, irregular sleep, short sleep periods, mood modification, salience, withdrawal, tolerance, relapse, and conflict which eventually influence the health of the young population (Pengpid and Peltzer, 2019). Bad dietary habits like carbonated soft drinks and fast food consumptions have been revealed to be related to IA among children (Tabatabaee, *et al.*, 2018).

The three main categories of characteristics have been linked with an increased risk for internet addiction: personal problems such as low-efficacy, impulsive behaviors, and decrease communication skills; social problems such as droopy family and social support; and internet-related factors as longer internet usage time, easier internet access, and superior internet skills (Agbaria and Bdier, 2021).

Many studies have been done to identify the factors linked with IA. Of these, a number of researches have documented personal risk factors, typically psychological factors, interpersonal difficulties, and confirmed the role of family- and school-related variables in relation to IA among adolescents and young people. For instance, problems with parents, family functioning, and family resilience have been identified to influence Internet addiction, School-related variables like teacher's support and attitude toward school life are also associated with young people's Internet addiction, also many other seductive factors were known such as self-presentation, diversion, relationship building, and virtual community to name a few (Chung *et al.*, 2019).

In Egypt, primary schools are the first institution that a child has to attend after nursery and in which the child has to take up the role of a citizen in a

society. The child's role in school is to learn and to integrate into society. Besides the family, the classroom is the child's first social group that he or she has to interact with on a daily basis (Madapathi *et al.*, 2018). Internet addiction in children is a mental disorder that negatively affects the quality of life (Aksoy and Öztoprak, 2021). The rapid rise of the Internet age has popularized Internet use in Egypt. More and more children spend time on the Internet for studying, playing online games, shopping, watching movies, using social media applications, and chatting. These activities are usually used to reduce stress and anxiety or to alleviate depressed mood (Dong *et al.*, 2020).

Excessive Internet use has negative side effects on the physical, psychosocial, and cognitive health and lives of primary schools students. All healthcare professionals dealing with primary schools students should be aware of the increasing online and social media platforms emerging nowadays, as well as the risk of internet addiction IA. Community school nurses in the front line who can guide teachers and parents towards a healthier control of their children's Internet use. Using non-conflictual time and content restriction may help reduce internet addiction IA. In addition, stimulating social, extra-curricular and family activities may also balance a better use of the Internet. (Martins, *et al.*, 2020). In addition to that, community health nurses particularly school nurses can help maintain the physical, intellectual, emotional, and social development of primary schools students who are addicted to the Internet through education, counseling, support, and defending rights; those students and their families should be educated and supervised on healthy Internet use. Provide efficient strategies as preventive guidelines for maintaining healthy internet use must be developed with the primary schools students and their families (Uysal, 2018).

### Significance of the study

Internet addiction is becoming increasingly widespread in conjunction with the rapid development in information technology; however, Internet usage is a mandatory requirement in today's world and prevalence rates are particularly high in Arab countries especially in Egypt (Unsar *et al.*, 2020). Internet addiction can cause children and adolescent physical and psychological health problems, emotional and behaviour problems, such as depression and suicidal ideation, loneliness, interpersonal problems, time management problems, sleeplessness, destructive life styles and poor dietary behaviors (Kamate, *et al.*, 2019). In line with the 2030 Agenda, the Egyptian Government has launched a working plan called Egypt's Vision 2030, also known as Sustainable Development Strategy (SDS), which covered three dimensions; and in response to those dimensions; this is an important step to characterize and highlight such a vulnerable population focused on primary students and to raise their awareness on providing prevention actions to

decrease internet addiction IA and their negative health effects and decrease its related risks (Martins *et al.*, 2020). In addition Internet addictive disorder is considered one of the addictive behaviors that needs attention from the professional communities and health team members. Thus the aim of the current study was for assessing negative health effects on addiction of internet among primary schools students in Zagazig City.

#### Aim of the study

The study was conducted for assessing negative health effects on addiction of internet among primary schools students in Zagazig City.

#### This aim was achieved through

- I. Determine the contributed risk factors to internet addiction among primary schools students in Zagazig City.
- II. Identify the negative health effects of internet addiction among primary schools students in Zagazig City.
- III. Assess the knowledge of the primary schools students regarding internet addiction in Zagazig City.
- IV. Prepare preventive instructions and guidelines related to internet to prevent and protect from internet addiction, and its negative health effects among primary schools students in Zagazig City.

#### Research questions

- What are the contributed risk factors to internet addiction among primary schools students?
- What are the negative health effects and risks of internet addiction among primary schools students?
- Dose the primary schools students having any knowledge regarding internet addiction?
- How can help in protecting and preventing from internet addiction among primary schools students?

## SUBJECTS AND METHODS

#### Design

A Cross-sectional descriptive design was utilized.

#### Setting

The study was conducted at Zagzig City, in where the educational administrations are divided into two zones East and West zones. East zone consists of 123 governmental primary schools, which consists of 1530 primary classrooms, each classroom had average from 50 to 60 student/class, three of schools whom have been selected randomly in the current study those were: El Ahrar primary school, Al Sadat primary school, and El Safa primary school. West zone consists of 101 governmental primary schools which consist of 1320 primary classrooms, each classroom had average from 55 to 65 student/class, three of schools of whom have been selected randomly in the current study those were: El Horeya primary school, Al Nasr primary school, and

Al Hokamaa primary school. And the researcher was randomly selected those six primary schools from the tow Zones.

#### Sampling technique

A total sample of 300 students attending primary schools in Zagazig city in the two educational zones East and West zone during the time of the study in the academic year 2019/ 2020 and the researcher was selected the students using a multistage random sample technique.

The sample size was done by this equation:

$$N = (Z\alpha)^2 \times p \ q / d^2, \text{ (Sahai and Khurshid, 1996).}$$

The estimated sample sizes will be:

**n** = sample size.

**Z $\alpha$**  = the value of standard normal distribution for type I error probability for the sided test and equals 1.96.

**p** = 26%.

**q** = 1- p

**d<sup>2</sup>** = the accuracy of estimate = (0.05)<sup>2</sup>

Those subjects were chosen randomly.

#### Inclusion criteria

1. Read and write well.
2. Can use internet.
3. Verbal agreement taking part in the study.

#### Tools for data collection: four tools were used

**Tool (I) Interview Questionnaire sheet:** done by the researcher and contained four sections:-

**A) First section:** contained general socio-demographic characteristics of students; included closed questions like age, gender, place of living, birth order, father's and mother's level of education, ...etc.

**B) Second section:** Internet using history among students; that consist of some items like: who helped you use the internet, parents know of using internet.

**C) Third section: Contributed Risk factors to internet addiction:** This part was developed by the researcher in Arabic language to assess the students' contributed risk factors to internet addiction. It includes 14 items with responses by Yes or No such as gender factor being male, difficulties to relate socially, availability/ accessibility to use internet, drug/substance addiction problems, ....and others items.

**Scoring system:** For all 14 items, the response Yes was scored 1, and the response No was scored 0.

**D) Fourth section:** students achievement related to performance to detect their needs includes 7 items such as: prefer to sit online more than the usual lessons taught, prefer to spend more time online

than attending private lessons, prefer to be in computer lab more than attend the school.

**Scoring system for the third part** "students achievement related to performance": Responses were measured using three points Likert scale that was scored for all items of the scale as:

- **Never** = 1
- **Usually** = 2
- **Always** = 3

**Total score was calculated as**

- Slightly negative affected if score < 30 % of total score.
- Moderately negative affected if score 30 to < 60% of total score.
- Highly negative affected if score  $\geq$  60% of total score.

**Tool (II): Internet Addictive Behavior Scale:** This tool was developed by Wadie (2006); to detect the severity of the student's addiction. It includes 15 items such as: using the internet for longer than intended, Neglected of schoolwork to spend more time online. etc.

**Scoring system:** questions were answered with "Yes = 1" or "No = 0", Total scores were accounted according to the following:

- **Low addiction** is > 30% of total addiction score.
- **Moderate** is from 30 - 60% of total addiction score.
- **High** > 60% of total addiction score.

**Tool (III): Negative Health Effects of Internet Use:** This tool was developed by Wadie (2006); in an Arabic tool including five parts; part 1: Assessing the physical effects of internet use on school students which includes 8 items, part 2: Assessing the social effects of internet use on school students which includes 8 items, part 3: Assessing the cultural effects of internet use on school students which includes 4 items, part 4: Assessing the economic effects of internet use on school students which includes 5 items, part 5: Assessing the psychological effects of internet use on school students which includes 14 items.

**Scoring system:** Responses were measured on three points Likert scale that were scored for all items of the scale as:

- Never was scored as (1).
- Usually was scored as (2).
- Always was scored as (3).

**Total score was calculated as**

- Slightly affected if score < 30 % of total score.
- Moderately affected if score 30 to < 60% of total score.
- Highly affected if score  $\geq$  60% of total score.

**Tool (IV): Knowledge related to internet:**

This tool was developed by the researcher in Arabic language to assess the students' knowledge related to internet. It includes 13 items.

**Scoring system:** For all items, correct answers= 1, and incorrect answers= 0

**Total score was calculated as**

- Satisfactory if score  $\geq$  60 %
- Unsatisfactory if score < 60%

**Validity:** done by 5 expertise professors of Community Health Nursing Specialties, from various Faculties of Nursing. The tools were modified based on their guidance and views.

**Reliability:** tools were tested for its reliability using test retest reliability and all tools were proved to be strongly reliable; using the assessment of their internal consistency. The reliability proved to be high based on the values of Cronbach alpha coefficients. The tools are proved to be strongly reliable ( $r=0.8222$ ).

**Pilot Study:**

It was carried out before collection of data on 10% of the sample to ensure the clarity, applicability and feasibility of the study tools, and necessary modifications were done, and those students who involved in the pilot study were excluded from the main study sample after that.

**Field Work**

1. The researcher did an intensive review of the past and present related literature covering many aspects of the "Internet addiction"; using available textbooks and articles in scientific periodicals and journals. According to this review, the tools were prepared in their preliminary forms, and reviewed by a three panel of experts of community health nursing and community medicine and one professor of psychology at the faculty of education specialists for face and content validation of those tools. The review also helped in doing a basic framework of the used educational guidelines.
2. An official permission taken using proper channels of communication. This was done through letters addressed from the Dean of the Faculty of Nursing, Zagazig University; explaining the aim and procedures of the study and asking for cooperation to the Directors of the 6<sup>th</sup> chosen primary schools, at Zagazig City.
3. Informed oral agreement was taken from the subjects.
4. The researcher met with the students subjects, introduced herself to them and explained the purpose and the nature of the study to obtain their agreement to participate in the study and gain their cooperation and confidence.
5. The students were interviewed in groups in their

classrooms before applying the planned guidelines to collect the baseline data for the study using all study tools.

6. The researcher filled-out the questionnaire. The researcher read and explained each item to the students and recorded their responses to each item. This interview took about 45 to 60 minutes.
7. The data collection time began at first of October 2019 to the end of December 2019. The researcher went to every school three days per week those were on Sunday, Tuesday and Thursday until the collection of data ended and the comprehensive preventive instructions and guidelines media given.
8. The researchers prepare an illustrative comprehensive preventive instructions and guidelines media in simple Arabic language to be distributed to students and their teachers.
9. The comprehensive preventive instructions and guidelines media were given to the all subjects in their classes to improve their knowledge, of the internet use and to prevent and protect them from the risks and the negative health effects of the internet addiction.

#### Ethical considerations

- Anonymity, confidentiality and privacy of the students were assured.
- Voluntary participation and right to refuse to participate in the study at any time during the study period was emphasized to the subjects.
- Verbal agreement was taken at the beginning of the study from students.

### STATISTICAL ANALYSIS

Data entry and statistical analysis were done using SPSS 20.0 statistical software package. All statistical analysis was done using tow tailed tests and alpha error of 0.05. Statistical significance was considered at p-value < .05.

### RESULTS

Table (1):- displayed the socio-demographic items of the studied students. The table reported that the mean age of the children was  $17.2 \pm 0.824$ , with about 69.6% of them aged between 10-12 years; also 60.3% of them were females, and 66% were from urban areas, also their father and mother had a university educational level (49.7% & 42.7 % respectively) and 53.3% of the studied subjects' family had enough income. Additionally, 34.1% of the students were in their sixth grade.

Table (2):- showed the distribution of internet using history among studied sample; the table clarified that 36.4 % of the students reported that they used internet alone, while 29.7% of them used it with their family help. Also, 85.3 % of them, their parents know of using them the internet. Additionally, 50.7% of them used internet since years and 84.6% used internet by mobile.

Figure (1): illustrated the distribution of total effect of internet addiction on school achievement among the studied students. The figure revealed that about 74.10% of the students were moderately negatively affected of internet addiction.

Figure (2): displays the total addiction degree of using internet among the studied sample. The figure revealed that more than three quarters (76.80%) of the studied sample had high degree of internet addiction.

Figure (3): portrays percentage of average of using internet among the studied sample. The figure illustrated that the majority (92.1%) of the students were used internet daily.

Table (3):- presented the distribution of the studied sample regarding contributed risk factors to internet addiction; the table revealed that students mentioned that the major related contributed risk factors for being addicted to internet were Online gaming internet, Entertainments (music, videos, ...etc), Build relationships with others (teachers, peers, online chatting rooms ...etc), Family members having internet addiction, Availability/ accessibility to use internet (home net, smart phones....etc), and Using social networks (Facebook, what's app, ...etc), with percentage (99%, 95.3%, 88.6%, 88%, 85.6%, and 84.6%) respectively.

Figure (4): portrays the percentage distribution of studied students regarding their total knowledge score of internet addiction; the figure clarified that about three quarters (75.7% ) of the students had unsatisfactory total knowledge score, while only 24.3% had satisfactory total knowledge scores.

Table (4): displayed Percentage distribution of the studied sample regarding total negative health effects of internet addiction on their physical, social, cultural, economic, and psychological health. It demonstrated that 55.6% of the students had highly affected on their physical health. Also, 46.6% of the students had highly affected on their social health. Additionally, 41.3% of the students had highly affected on their cultural health. It also revealed that 67% of the students had highly affected on their economic status, in addition to also psychological health among 55% of the students was highly negatively affected

Table (5):- clarified the Relation between Contributed risk factors to internet addiction and total internet addiction degree among the studied sample, it reveals that there were highly statistical significance relation between total internet addiction degree and contributed risk factors to internet addiction regarding difficulties to relate socially, availability/ accessibility to use internet (home net, , smart phones...etc.), using social networks (Facebook, what's app, ...etc) at (p-

value = 0.02\*) and additionally there were highly statistical significance relation between total internet addiction degree and contributed risk factors to internet addiction regarding drug/substance addiction problems, poor academic activities achievements, Entertainments (music, videos, ...etc), social isolation problems (loneliness, boring,...etc) and family members having internet addiction at (p-value = 0.001\*).

Table (6):- displayed Correlation between the studied students' internet addiction scores and their total

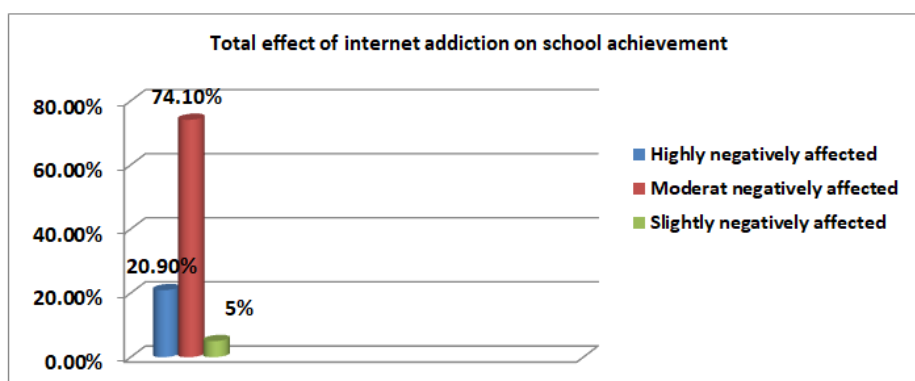
knowledge about internet addiction, total negative health effects, and school achievements. It clarifies that there were highly statistically significant positive correlation among students' total score of total internet addiction and total negative health effects of internet addiction ( $r = .0638^{**}$ ), and there were highly statistically significant negative correlation with their school achievements, knowledge about internet addiction and total internet addiction scores ( $r = -.793^{**}$ ,  $-.875^{**}$ ) respectively.

**Table-1: Distribution of socio-demographic characteristics of students in the studied sample (n=300)**

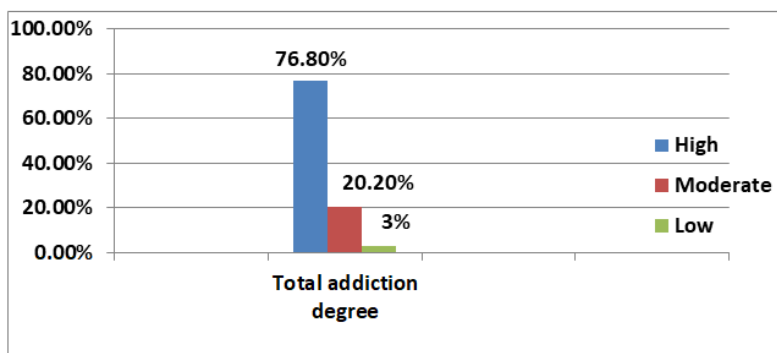
Items	No.	%
<b>Age:</b>		
6-9	78	26
10-12	209	69.6
>12	13	4.4
<b>Mean <math>\pm</math> SD</b> 17.2 $\pm$ 0.824		
<b>Gender:</b>		
Male	119	39.6
Female	181	60.3
<b>Residence:</b>		
Rural	102	34
Urban	198	66
<b>Family income:</b>		
Enough	160	53.3
Enough and saved	46	15.3
Not Enough	94	31.4
<b>Father's level of education:</b>		
Primary or preparatory	67	22.3
Secondary	84	28
University	149	49.7
<b>Mother's level of education:</b>		
Primary or preparatory	52	17.3
Secondary	120	40
University	128	42.7
<b>Father's working:</b>		
Yes	298	99.3
No	2	0.7
<b>Mother's working:</b>		
Yes	201	67
No	99	33
<b>Presence of continues problems between parents at home:</b>		
Yes	124	41.3
No	262	87.7
<b>School grades:</b>		
Grade one	17	5.6
Grade two	21	7.3
Grade three	27	9.4
Grade four	44	14.6
Grade five	89	29
Grade six	102	34.1

**Table-2: Distribution of internet using history among studied sample, (n=300)**

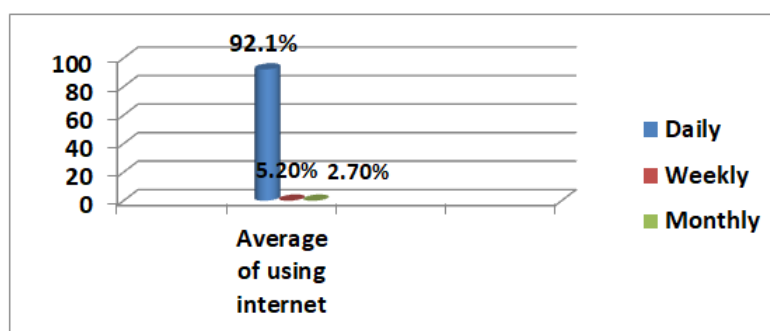
Items	No.	%
<b>Who helped you to use internet:</b>		
Friends	67	22.3
School teachers	12	4
Family	89	29.7
Relatives	23	7.6
Alone	109	36.4
<b>Do your parent know of using internet:</b>		
Yes	256	85.3
No	44	14.7
<b>Time start using internet:</b>		
Since days	3	1
Since weeks	42	14
Since months	103	34.3
Since years	152	50.7
<b>Methods to use internet:</b>		
By mobile	254	84.6
Through center	12	4
On a home computer	34	11.4



**Fig-1: Distribution of total effect of internet addiction on school achievement among studied students, (n=300)**



**Fig-2: Total addiction degree of using internet among the study sample (n=300)**



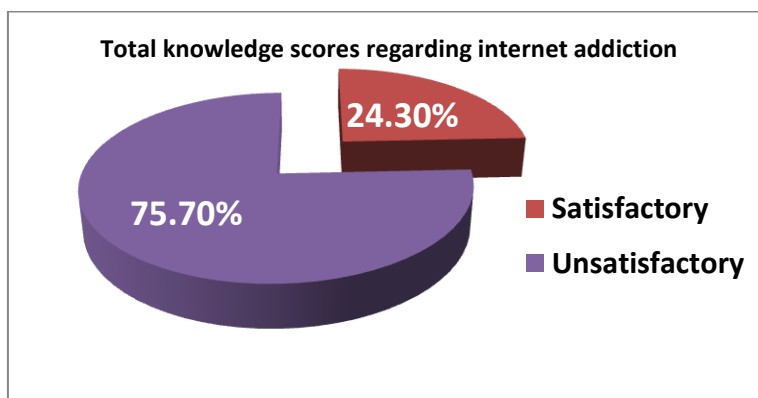
**Fig-3: Percentage of average of using internet among the studied sample, (n= 300)**

**Table-3: Percentage distribution of the studied sample regarding contributed risk factors to internet addiction (n=300)**

Contributed risk factors to internet addiction.	Yes		No	
	No.	%	No.	%
Gender factor (being males)	89	29.6	211	70.4
Difficulties to relate socially	169	56.4	131	43.6
Drug/substance addiction problems	102	34	198	66
Availability/ accessibility to use internet (home net, , smart phones....etc)	257	85.6	43	14.4
Family cohesion factors (stressors)	224	74.6	76	25.4
Psychological factors (anxiety, depression, ...etc)	204	68	96	32
Poor academic activities achievements	130	42.3	170	56.7
Entertainments (music, videos, ...etc)	286	95.3	14	4.7
Online gaming internet	297	99	3	1
Build relationships with others (teachers, peers, online chatting rooms ...etc)	266	88.6	34	11.4
Social isolation problems (loneliness, boring,...etc)	165	55	135	45
Using social networks (Facebook, what's app, ...etc)	254	84.6	46	15.4
Negative self-perception	187	62.3	113	37.7
Family members having internet addiction	264	88	36	12

**Table-4: Percentage distribution of the studied sample regarding total negative health effects of internet addiction on their physical, social, cultural, economic, and psychological health. (n=300)**

Total negative health effects of internet addiction on:	Highly affected		Moderately affected		Slightly affected	
	No	%	No	%	No	%
Physical health	167	55.6	98	32.3	35	11.1
Social health	140	46.6	100	33.3	60	20.1
Cultural status	124	41.3	106	35.3	70	23.4
Economic status	201	67	62	20.6	37	12.4
Psychological health	165	55	97	32.3	38	12.7



**Fig-4: Percentage distribution of studied students regarding total knowledge scores of internet addiction, (N=300)**

**Table-5: Relation between Contributed risk factors to internet addiction and total internet addiction degree among the studied sample (n=300)**

Contributed risk factors to internet addiction	Total internet addiction degree						X <sup>2</sup> test	p-value
	Total addition degree		Moderate	High				
	Low	High		No.	%			
	No.	%	No.	%	No.	%		
<b>Gender factor (being males)</b>								
Yes	20	22.4	11	12.3	58	65.3	0.95	0.32
No	85	40.2	53	25.2	73	34.6		
<b>Difficulties to relate socially</b>								
Yes	24	14.2	79	46.7	66	39.1	5.84	0.02*
No	31	23.6	41	31.3	59	45.1		



<b>Drug/substance addiction problems</b>									
Yes	74	72.6	4	3.9	24	23.5	6.82	0.01*	
No	98	49.4	52	26.2	48	24.4			
<b>Availability/ accessibility to use internet (home net, , smart phones....etc)</b>							5.82	0.02*	
Yes	75	29.1	36	14.1	146	56.8			
No	12	27.9	10	23	21	48.1			
<b>Family cohesion factors (stressors)</b>									
Yes	25	11.1	75	33.4	124	55.5	0.92	0.14	
No	2	2.6	26	34.2	48	63.2			
<b>Psychological factors (anxiety, depression, ...)</b>									
Yes	61	29.9	54	26.5	89	43.6	2.21	0.13	
No	13	13.7	21	21.8	62	64.5			
<b>Poor Academic activities achievements</b>									
Yes	14	10.7	78	60	38	29.3	11.46	0.001*	
No	75	44.1	32	18.8	63	37.1			
<b>Entertainments (music, videos, ...etc)</b>									
Yes	21	7.4	65	22.7	200	69.9	10.93	0.001*	
No	2	14.2	3	21.6	9	64.2			
<b>Online gaming internet</b>									
Yes	45	15.1	89	29.9	163	55	0.82	0.42	
No	1	33.3	0	0	2	66.7			
<b>Build relationships with others (teachers, peers, online chatting rooms ...etc)</b>									0.43
Yes	89	33.5	97	36.5	80	30	0.92		
No	14	41.2	10	29.4	10	29.4			
<b>Social isolation problems (loneliness, boring,...etc)</b>									
Yes	67	40.6	10	6.1	88	53.3	53.43	<0.001*	
No	4	3	74	54.8	57	42.2			
<b>Using social networks (Facebook, what's app, ...etc)</b>									
Yes	41	16.1	32	12.6	181	71.3	5.84	0.02*	
No	2	4.3	8	17.4	36	78.3			
<b>Negative self-perception</b>									
Yes	32	17.1	54	28.9	101	54	0.96	0.33	
No	11	9.7	54	47.8	48	42.5			
<b>Family members having internet addiction</b>									
Yes	17	6.4	32	12.2	215	81.4	11.93	0.001*	
No	2	5.6	7	19.4	27	75			

(\*) Statistically significant at p<0.05

**Table-6: Correlation between the studied students' internet addiction scores and their total knowledge, negative health effects and school achievements, (n= 300).**

Variables	Total knowledge about internet addiction		Total school achievement		Total negative effects of internet addiction on health	
	r	P-value	r	P-value	r	P-value
<b>Total internet addiction scores</b>	<b>-.875**</b>	<b>0.00</b>	<b>-.793**</b>	<b>0.000</b>	<b>.0638**</b>	<b>&lt;0.001**</b>

\*\*Correlation is significant at the 0.01 level (2-tailed).

## DISCUSSION

Internet is have an important role in daily lives regardless of time and location as a means of contact, knowledge exchange, entertainment, and social interaction, It is easy to use, available, and affordable to people of all ages and socioeconomic backgrounds, even the children. Internet Addiction (IA) which result from excessive use of internet, which has been defined as internet use that interferes with daily life, become a huge problem among all users of it even among the primary school students who considered children (Al-hillaly and Hussein, 2021). Because internet addiction becomes a public health problem, carrying out public awareness campaigns on its severity and negative effects of excruciating agonies may be a fruitful strategy to decrease its prevalence and negative health side effects. (Zenebe *et al.*, 2021) .

Regarding to the socio-demographic characteristics of the studied students; the present results showed that the mean age of the students was  $17.2 \pm 0.824$ , with about most (69.6%) of them aged between 10-12 years old. This result disagreed with Tong *et al.*, (2019) in their study which done in Malaysia; as they concluded that mean age of their respondents was  $20.73 \pm 1.49$  years old. Also, this result wasn't in the same way with Gholamian *et al.*, (2017) in their study in Iran as they said that the mean age of the students was  $13.8 \pm 1$  years old in their results.

As related to the gender of the students; the current results showed that about two thirds (60.3%) of them were females. This could be due to the natural of the Egyptian cultural that reflect more worry on their females particularly at young age as primary students form going outside, so a lot of families prefer to make their girls stay at home even they play games on mobiles, watching TV or using internet for communication.

This result was in agreement with Unsar *et al.*, (2020), in their study which done in Turkey, and agreed with Abdul Aziz *et al.*, (2018), in their study among children and adolescents in Malaysia, as they reported that the number of females was more than males in their study.

On other hand, this result disagreed with Lo *et al.*, (2020) in their Chinese study in which the males were more than females as they reported that there were 120 males (52.9%) and 107 females (47.1%) in their study. Also, disagreed with Gezgin *et al.*, (2018) in their Turkish study who reported more numbers of males than females with percentage of 60.00% from the total sample.

As related to the students residence; the present study revealed that more than two thirds of them (66%) were from Urban areas. This could be

explained by the natural of the sitting of the primary schools, as they were located in Zagazig city which considered an urban area despite the agricultural natural of Al Sharqia governorate.

This result was in the same way with Acharya, *et al.*, (2017), in their study which done in India, as they found that about (63.8%) of their subjects were belonged to an urban background as compared to only 36.2% from rural areas.

Regarding the distribution of internet using history among the studied sample; the current study revealed that more than third (36.4 %) of the students used internet *alone*, and slightly one third (29.7%) of the studied sample used the internet with their family help. This could be explained by the age of these students as they were in primary school stage , so some of them still younger to use the internet with their family help especially those who were in the first and second grades of school, but the other students in the high grades such as the fifth and sixth grades can use the internet *alone* for many reasons such as the availability of internet on the smart mobile phones which become in their hands and also the easy ways to use the internet nowadays and the easy access to a computer.

These results disagreed with Enagandula *et al.*, (2018) on their cross-sectional study which carried out in the psychiatry and pediatric outpatient department (OPD) of a tertiary care teaching municipal hospital, in which they found that most of their sample used Intern *et al* one without any supervision.

Additionally, the present study revealed that about half (50.7%) of the students used internet since years and the majority of them (84.6%) used internet by mobile. This can be attributed to the huge widespread of using mobile phones in the Egyptian society, as they had a lot of types that many of them become cheap and can be bought for any one even poor people.

This result was like Unsar *et al.*, (2020), in their study which done in Turkey, as they reported the majority 85% ( $n = 368$ ) of their participants accessed the Internet via telephone, Also, in agreement with Hassan *et al.*, (2020), in their study among young adults in Bangladesh; reported that the majority of participants (86.8%) were using the internet for more than a year, and 66.5% of users used the internet on their mobile phones. Similarly, in the same line with Sert *et al.*, (2019), found in their study among Turkish university students that 83.6% of students mentioned that they reached the internet via their smart phones; Additionally in agreement with Gezgin *et al.*, (2018) in their Turkish study as they reported about half (48.2%) of their subjects used internet since between 1-4 years.

Concerning the average of using internet among the studied sample; the present study revealed that the majority (92.1%) of the students were used internet daily. That might be due to the availability of smart phones and internet almost everywhere, additionally, many families prefer to give their children the phones to play or use internet options such as watching carton films, videos, online games instead of going out of making noise at home.

This result in agreement with Unsar *et al.*, (2020), in their study which done on students from the Nursing, Physical Therapy and Rehabilitation Departments of the Faculty of Health Sciences and Business and Labor Economics of the Faculty of Economics and Administrative Sciences in Turkey; they found that the majority of their participants used the Internet for  $200.9 \pm 163.7$ /minutes within a day. Additionally, supported by Sert *et al.*, (2019), and found in their study among Turkish university students that almost half of the students reported daily smart phone use (45.1%) and daily internet use (43.3%) that ranged from 4 to 7 hrs. Similarly, in the same line with Güzel *et al.*, (2018), in his study in Turkey said that the average time spent on the internet was found as 3 to 9 hours per day among their participants.

As related to total addiction degree of using internet among the studied sample. The current results revealed that most (76.80%) of the studied sample had high degree of internet addiction. That can be attributed to the easy access to internet either through computer or mobile phones, in addition to the highly widespread of using internet for the all regardless of their age or level of education as having smart phones and using internet become a phenomenon in the Egyptian society. This explanation is supported by the point of view of Shen *et al.*, (2020) as they reviewed in their Chinese study that the internet is becoming more and more accessible and has become an integral part of people's daily life. Additionally, students at fifth and sixth grade who considered older than the other primary grades; can see the Internet as a way of escape to overcome the problems they face in their schools, families, or social lives among their friends and colleagues; this leads to an increase in the duration of their Internet use.

This result was in opposite with Shao, *et al.*, (2018) in China and with Hassan *et al.*, (2020) in Bangladesh as they reported the prevalence of internet addiction was 7.7% among their participants, and also of the total 454 respondents, 123 (27.1%) were addicted to the internet, respectively. Additionally, the current result disagreed with Xin *et al.*, (2018); as they reported in their study which done in China that there were only (0.96%) respondents who were classified as severe Internet addicts. Also, this result disagreed with Irani *et al.*, (2017), as they said that severe Internet addiction was not observed in their study which done on all medical universities of throughout Iran. However, a

high proportion of the participants (61.83%) had mild and moderate Internet addiction. Additionally, Gholamian, *et al.*, (2017) in their study which done among High-School Students in Iran, revealed that 69.5% of the students were normal users, 27.6% had a mild addiction to the Internet, and 2.9% were severely addicted to the Internet.

The Internet has become an indispensable part of our lives, providing us more convenience. We rely heavily on the Internet, which also brings serious negative effects, such as game addiction. The influence of Internet addiction on primary schools students as a special vulnerable group has become a hot issue in public health (Shao *et al.*, 2018).

Regarding total effect of internet addiction on school achievement among studied students; the present findings revealed that most (74.10%) of the students were moderately negatively affected of internet addiction. That result could be explained by the other results in this present study, as we mentioned before that there were highly percentage (76.80%) of internet addiction among the studied students which surly lead to more loss of time and lack of teacher's observation for students that influenced the school study negatively. This explanation was supported by view the point of for Buzzai *et al.*, (2021), and Tong *et al.*, (2019) and Li *et al.*, (2019); in their reviews about the effect of internet addiction as they reviewed that long hours spent on the internet distracts students from their studies, resulting in them neglecting their responsibilities.

This result disagreed with Baş and Karatay, (2020) in their descriptive research which was conducted among 840 students in Eastern Turkey; as they revealed that the majority (82.4%) of their students had high negative effects on their academic performances because of their internet addiction.

Regarding the contributed risk factors to internet addiction; the recent results revealed that the majority (99%, 95.3%) respectively, of the students reported that the major related contributed risk factors for being addicted to internet were the availability of Online gaming internet, Entertainments (music, videos, ...etc). That could be related to their young age which associated with playing and searching for entertainments and videogames, also it might be due to the audio-visual effects with these games and other entertainment things that could attract the students at this young age strongly.

These results goes in similar with Tsumura *et al.*, (2018) in their study to assess prevalence and risk factors of internet addiction among employed adults in Japan; as they revealed that game playing was shown to be the Internet activity most closely associated with at-risk to internet addiction IA among the majority (96.4%) of their participants. In addition these results agreed

with Kitazawa, *et al.*, (2018) in study done in Japan and found that the students who had playing online games were 2.4 times higher to have Internet Addiction than their counterparts.

Additionally, the present results showed that the majority (88.6%, 88%, 85.6%, and 84.6% respectively) of the studied sample mentioned that the contributed risk factors for being addicted to internet were build relationships with others (teachers, peers, online chatting rooms ...etc), family members having internet addiction, Availability/ accessibility to use internet (home net, smart phones...etc.), and using social networks (Facebook, what's app, ...etc). That could be attributed to the huge technology in internet device which make the person in an integral world in where they can found friends and other attractive things, also the availability to use internet might be explained by the huge availability of smart phones and internet devices in every house nowadays, and as mentioned before in the current study that the studied subjects' family had enough income ,additionally the presence of family member who is addicted to internet could be a contributed risk factors for those students to addict internet as a type of imitation for this person.

These results were in agreement with Malak *et al.*, (2017) in their study in Jordanian school students; as they reported that the majority( 84.3%) of their subjects said that the availability of internet in home and other paces was the most risk factors that affected their internet addiction, also Chatting was the highest reason (87.1%)for Internet Addiction among them. Additionally Zenebe *et al.*, (2021) supported these findings in their study in Ethiopia and reported that The furthestmost associated risk factors for internet use among Wollo University undergraduate students were using the internet for courses / assignments (93.6%), for social net-works (Facebook, etc.) (85.6%), for reading / posting news (76.6%), for getting into relationships.

As related to total knowledge scores of internet addiction of the studied students; unfortunately, the current study figure showed that most (75.7%) of the students had unsatisfactory total knowledge score, while only less than third (24.3%) had satisfactory scores. This result can be explained by that the younger age of the studied students as they were on primary schools which considered their first level of education after nursery.

These results were not supported with Mohan *et al.*, (2018), which their study done in Kollam; as they found that their participants had good knowledge regarding the factors influencing internet addiction.

Undoubtedly, the Internet has different benefits for people's daily lives. For example, the Internet is a tool for people to obtain information and knowledge; also, online social interactions might help

to build social relationships. However, Internet addiction could pose serious social and health problems, including related negative effects on one's physical health, mental health, and social development (Lo *et al.*, 2020).

Regarding total negative effects of internet addiction on the students' physical, social, cultural, economic, and psychological health; the present study demonstrated that more than half (55.6%) of the students had highly negative affected on their physical health. This result agreed with Sert *et al.*, (2019); as they found in their study among Turkish university students that mostly of their participants experiencing negative physical effects on their health in the form of sensory fatigue due to their much internet use. similarly, Güzel *et al.*, (2018), as they reported in their study in Turkey that their participants had physical complaints such as dizziness, dry-eyes, wrist pain and stomachache because of internet use.

Also, the current study showed that slightly less than half (46.6%, 41.3%) of the students had highly negative affected on their social and cultural health, respectively. Similar to this results supported by Stankovića *et al.*, (2021) reported in their study which done in Serbia, that about half (49.3%) of their subjects had negative effects on their social life and their culture due to excessive use of internet.

Also, the current study revealed that psychological health among more than half (55%) of the students was highly negatively affected. This finding in the same way with Taha *et al.*, (2019), found in their study in Saudi Arabia that more than half of the participants (58.9%) at least frequently expressed feeling depressed, moody or nervous when they were offline. This result was similar to the results of Sharma and Sharma (2018), in their study in India; as they revealed that internet addiction had significantly negative effects on psychological well-being (PWB) of more than half (58.1 %) of their participants.

Additionally, more than two thirds (67%) of the students had highly negative affected on their economic status. Similar to this result Stankovića *et al.*, (2021) reported in their study which done in Serbia, that most (69.4%) of their subjects had negative effects on their economic status due to excessive use of internet, as they cost more money for this use.

As related to the relations between contributed risk factors to internet addiction and total addiction degree among the studied sample; the current results clarified that there were highly statistical significance relation between total addiction degree and contributed risk factors to internet addiction regarding difficulties to relate socially, availability/ accessibility to use internet (home net, smart phones....etc), using social networks (Facebook, what's app, ...etc) at (p-value = 0.02\*) and

additionally there were highly statistical significance relation between total addiction degree and contributed risk factors to internet addiction regarding drug/substance addiction problems, poor academic activities achievements, Entertainments (music, videos, ...etc), social isolation problems (loneliness, boring,...etc) and family members having internet addiction at (p-value = 0.001.\*).

Those results were in agreement with Simcharoena *et al.*, (2018) in their study in Chiang Mai medical students; as they revealed that there were highly statistical significance relation between internet addiction and poor academic activities achievements at  $p < 0.001$  and  $\beta = 0.203$ . Additionally in the same way with Gupta, *et al.*, (2018) in their study done in North India and reported that students who had mental distress were 2.7 times more likely to develop Internet Addiction as compared to their counterparts. Also, showed that students who had mental distress were related to higher levels of Internet Addiction than students who hadn't mental distress.

On the other hand those results disagreed with Kamate *et al.*, (2019) in their study which done in Belagavi city; as they concluded that risk factors such as age, sex, working status of parents and father's education were found to be statistically significant among their participants. Additionally, the current results disagreed with Najafi *et al.*, (2018) in their study in Iran; as they reported that there was no significant relationship was observed between Internet addiction and loneliness ( $P < 0.001$ ).

Regarding Correlation between the studied students internet addiction scores and their total knowledge about internet addiction, negative health effects, and school achievement; the present results demonstrated that there were highly statistically significant positive correlation among students total score of total internet addiction and total health effects of internet addiction ( $r = .0638^{**}$ ), and also there were highly statistically significant negative correlation with their school achievements, knowledge about internet addiction and total internet addiction scores ( $-.793^{**}$ ,  $-.875^{**}$ ) respectively; which means when total internet addiction increased, the negative effects on health and school achievements also increase, and when the total score of students' knowledge about internet addiction increased, the students' total internet addiction decreased.

This result was in the same way with Tan (2019), as they revealed that academic achievements ( $r = -.38$ ,  $p < .01$ , Cohen's  $d = 0.82$ ) were significantly negatively correlated to Internet addiction. Additionally, Li *et al.*, (2019) agreed with these current results on their study among university students; as they Correlation analysis indicated that social networking site (SNS) addiction, learning engagement, and

academic achievement were significantly negatively correlated with each other. Also, this result goes in the same line with Zhang *et al.*, (2018), as they reported that internet addiction symptoms had negative effect on academic achievement ( $r = -.17$ ,  $p < .001$ ). Similarly, also Sharma and Sharma, (2018) supported the current study result and reported in their Indian study that internet addiction was significantly negatively correlated to their participants' health ( $r = -0.572$ ,  $P < 0.01$ ).

## CONCLUSION

Most of the students in the studied sample had high degree of internet addiction, and the majority of them used internet daily by mobiles. Also, Online gaming internet, Entertainments, Build relationships with others, Family members having internet addiction, Availability/ accessibility to use internet and Using social networks, were the major contributed risk factors to internet addiction. There were highly statistical significance relation between total internet addiction degree and contributed risk factors to internet addiction regarding difficulties to relate socially, availability/ accessibility to use internet, using social networks at ( $p$ -value = 0.02\*), while drug/substance addiction problems, poor academic activities achievements, Entertainments, social isolation problems and family members having internet addiction at ( $p$ -value = 0.001\*). Also the most of the students in the study had unsatisfactory level of knowledge about internet addiction, and also. Additionally there were highly statistically significant positive correlation among students total scores of total internet addiction and total negative health effects of internet addiction ( $r = .0638^{**}$ ), and also there were highly statistically significant negative correlation with their school achievements, knowledge about internet addiction and total internet addiction scores ( $-.793^{**}$ ,  $-.875^{**}$ ) respectively.

## RECOMMENDATIONS

In the light of the current study findings it is highly recommended:

- It is necessary to organize educational training programs to raise public awareness on proper internet use and increase awareness particularly among primary students for their risk of young age for internet addiction and its negative health effects on their life.
- Developed educational training program should be implemented in the study settings for improvements and involved both of teachers, and parents to control internet addiction among students who examined for internet addiction.
- Provide a comprehensive preventive instructions and guidelines media to promote healthy and safe internet use by raising awareness and knowledge among primary students, their parents and teachers about healthy and safe internet use to protect from internet addiction, control of contributed risk

factors that increase its addiction and decrease its negative health effects.

- A multi-system approaches, involving parents, schools, social workers and psychologists of educational organizations and the community and other relevant stakeholders in guiding prevention efforts should be done for reducing the incidence of disease and disability related to internet addiction.
- Further future studies needed to be conducted for those specifically area targeted primary students schools about their risk for internet addiction, its negative hazards on their health and its prevention and safe use for technology.

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