

Influences of Internet Addiction on Academic Achievement among Technical Health Institute Nursing Students

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Abstract

Background: The internet is become an integral part of nursing students' life and is the most useful technology. Internet addiction is defined as an impulse-control disorder of internet use that has an adverse impact on major life domains. **Aim:** This study aimed to assess the influences of internet addiction on academic achievement among technical health institute nursing students. **Design:** Descriptive exploratory research design was utilized in this study. **Setting:** Technical Health Institute of Nursing at Dar El Shefa hospital. **Subjects:** A convenient sample of all nursing students (160) in all five classes of the academic year 2021-2022, **Tools of data collection:** (1) Nursing students' assessment questionnaire, consists of three parts a. demographic characteristics of the technical health institute nursing students, b. the academic achievement assessment tool, c. factors related to internet addiction . (2) Internet Addiction Test. **Results:** The current study found that the most factors affect internet addiction among technical health institute nursing students was the others factors which represent 66.9% of students, then lack of knowledge which represent 64.4% of students, then 59.4% affected by personal factors, 58.1% by social factors and lastly 56.9% affected by psychological factors. There was a statistically significant and negative connection between total internet addiction and total factors scores at p-value of 0.05*, there was a statistically significant difference between total achievement with internet addiction and total factors. **Conclusion:** Less than two thirds of nursing students had severe level of internet addiction. The nursing students' academic achievement represented that the highest percentage of excellent achievement was in the third year, while the lowest percentage was in the second year at the end of the academic year. Most of the studied factors that affected on internet addiction were (others factors, knowledge factors, personal, social and finally psychological factors). There was significant association between students' total academic achievements and internet addiction. **Recommendations:** awareness programs for safe use of the internet should be provided for technical health institute nurse students in order to decrease the prevalence of internet addiction.

Key words: Internet addiction, academic achievement, nursing students.

Introduction

Today with more than 40 million internet users in Egypt and more than 80% of internet clients in Egypt were students. The internet has become an integral part of the society (Kuss et al., 2021).

The internet is a neutral device originally designed to facilitate research among academic and students. Internet delivers some practical tools like entertainment, shopping, social sharing applications which enable accessing knowledge easier and faster. However it may cause physical and psychological harms like tiredness, depression, hostility, loneliness, some educational harm like wasting of time, decrease in academic achievement, communication problems with peers (Lozano-Blasco et al., 2022).

The internet facilitates, enriches, and enhances human life by allowing access to all kinds of information and quick communication with other people. The number of internet users in the world is increasing daily because of the many possibilities that the internet provides. The healthy use of the internet brings many conveniences to human life, but problems related to its use negatively affect human health. "Healthy internet use" defined as when people use the internet to achieve desired results in a reasonable time, without any intellectual or behavioral discomfort (Altiner et al., 2022).

Addictive use of the internet is a rapidly growing phenomenon. Addiction is a medical condition characterized by compulsive engagement in rewarding stimuli, despite adverse consequences. It is considered a

disorder of the brain's reward system which arises through transcriptional and epigenetic mechanisms and occurs over time from chronically high levels of exposure to an addictive stimulus (Greenfield, 2022).

Internet addiction is generally defined as an uncontrollable desire to use the internet, and it is a compulsive spectrum disorder which includes five specific types of addiction: cyber-sexual addiction, cyber-relationship addiction, net compulsions, information overload and computer addiction (Salarvand et al., 2022).

Internet Addiction is considered one of the most serious public health issues. In contemporary society approximately 60% of the world population is online. Furthermore, global internet usage has grown nearly six-fold over the last decade. The percentage of internet users in Egypt was 30.6% in 2019, which became 57.82% in 2021 (around 35 million users) and more than 80% of internet users were students (Zhu et al., 2022).

Students are especially susceptible to developing internet addiction. This can be qualified to numerous factors including the following: availability of time; ease of use; the psychological and developmental characteristics of young adulthood; limited or no parental supervision (Zenebe et al., 2021).

Academic achievement is defined as "the competence of a person in relation to a domain of knowledge" or the proficiency of students' performance in a certain course. Academic achievement is essential for mastering several central developmental goals across the life span, especially during the school years (Salturk, 2021).

Academic achievement represents performance outcomes that indicate the extent to which a student has accomplished specific goals that are the focus of activities in instructional environments, specifically in school, college, and university. Academic achievement is measured through a student's (GPA) (Wu et al., 2021).

Significance of the study:

Internet addiction has been identified as a significant public health threat; one of the problems that the internet has created is a virtual addiction or addiction to the global

web world causing adverse psychological behavioral effects on the users. Nursing students become at risk group for internet addiction because their academic requirements make them unable to control the time that they spent online and this may reflect on their academic achievement. Internet addiction may have an adverse effect on nursing students in many aspects such as academic achievement, relationships, physical and mental health. So that, this study will be conducted to assess the influences of internet addiction on academic achievement among technical health institute nursing students.

Aim of the Study

This study aims to assess the influences of internet addiction on academic achievement among technical health institute nursing students through:

1. Assessment of academic achievement level among technical health institute nursing students.
2. Assessment of internet addiction level among technical health institute nursing students.
3. Assessment of internet addiction related factors among technical health institute nursing students.
4. Assessment of the relation between internet addiction and academic achievement among technical health institute nursing students.

Research question:

This study is based on answering the following research question:

What is the influence of internet addiction on academic achievement among technical health institute nursing students?

Method:

Research Design:

Descriptive exploratory research design was carried out in this study.

Settings:

The current study was conducted in the technical health institute of nursing at Dar

El shefaa hospital (in Abassia district at Cairo Governorate).

Subjects:

A convenient sample of all nursing students (160), whose ages ranged from 16 to 22 years. They are classified into five years the first year: (include 30 students, second year 30 students, third year 30 students, fourth year 36 students and fifth year 34 students) in the technical health institute of nursing.

Tools of data collection:

To achieve the aim of the current study, two tools were used to collect data.

1. Nursing students' assessment questionnaire:

This tool was developed by the researcher in an Arabic language based on recent and relevant literatures (**Kapus, 2021; Hamza, 2021; Houston, 2019**) to assess socio demographic characteristics of the technical health institute nursing students. It includes three parts:

Part I: this part is concerned with socio demographic characteristics of the technical health institute nursing students that include age, gender, academic class, and parents' occupation, monthly income of parents, daily times spent on the internet and the number of hours spent on the internet.

Part II: Assessment of the academic achievement, this part was used to assess the degrees and level of success achieved by the nursing students in the final exams of technical health institute of nursing at the end of academic year 2021-2022.

Scoring system

The total academic achievement at the end of academic year was calculated by the total numbers of subjects that evaluated in each academic year which about 12 subjects and the total score was 650 degree. The degree of students' achievement scores was calculated as follows based on institute's policy:

- (360- <425) is considered fair 55-65%,
- (425- <490) is considered good 65-75%,
- (490 - <550) is considered very good 75-85%
- (\geq 555-650) is considered excellent 85-100%.

Part III: This part was developed by the researcher based on recent and relevant literature (**Koo et al., 2021; Sayeed et al., 2020; San & Johnson, 2020; and Chung, 2019**) to assess the factors related to internet addiction among the technical health institute nursing students. The factors include (knowledge, social, psychological, personal, and other factors).

Scoring system

- Regarding to the total score of nurses knowledge related to internet addiction, it was 76 degree, the correct answer was given one grade and incorrect answer was given zero. A total score for the correct answers in the questionnaire were (53) grades, Score of less than 75% was considered unsatisfactory and the score equal or more than 75% was considered satisfactory.
- Regarding to scoring system of factors related to internet addiction, it was rated on a likert scale ranged from (1-5). The total numbers of items in part 2,3,4,5 was 23 point. The scores of this factors item were summed up and the total divided by the number of items, giving a mean score for the part.
- These scores were converted to percent score. Total score considered positively affect if total percent score was 60% or more and negatively affect if the total percent score was less than 60%.

II. Internet addiction test: This tool was adapted from **Young, (1998)**. It was used to assess the level of internet addiction (IA) among the technical health institute nursing students. It is a 20-item questionnaire which measures different levels of internet addiction. The questions ranged from personal daily life, social life, life performance, emotional feelings and so forth, and the test defines internet addiction predominantly by withdrawal; social problems; time management and performance; and reality substitute.

Scoring system:

Students were asked to indicate their answer for each item of the test on a likert scale ranging from 1 to 5, with 1 indicating "never", 2 indicated "rarely", 3 indicated "usually", 4 indicated "often" and 5

indicating “always”. The total scores ranged from 0 to 100. After all the questions have been answered, numerical score of the each response were added to obtain a final score. The higher score considered as greater level of addiction.

The total score of the scale ranged from (0-100):

- 0-30 points: normal internet users.
- 31-49 points: indicates mild degree of internet addiction or an average on-line user.
- 50-79 points: means moderate degree of internet addiction or the user is experiencing occasional or frequent problems.
- 80-100 points: indicated severe degree of internet addiction or the internet usage is causing significant problems in the user's life.

The Preparatory Phase:

It included reviewing of the past, current, local and international related literatures covering the various aspects of the study using books, articles, internet periodicals and magazines to develop tools for data collection.

Pilot Study:

A pilot study was carried out on 10% (16) of students to test the applicability of the study and to test clarity of the designed tool, as well as to estimate the time needed for each tool. The non-modifications were done for the used tools then the final form was developed. Students of the pilot study were included from the study subjects.

Validity:

The developed tools were tested using face and content validity. Validity was tested through a jury of five experts from medical surgical nursing department of nursing Ain Shams University. The experts reviewed the tools for clarity, relevance, comprehensiveness, simplicity, understanding and applicability. Minor modifications were done.

Reliability:

Reliability of the tools of data collection was examined through assessing their internal consistency by Alpha Cronbach test. It was (0.82) for factors related to internet addiction assessment tool.

- Reliability of second tool internet addiction test (IAT) was examined through assessing their internal consistency by cronbach alpha and it was (0.923).

Field work

- Data collection of the study was started at the beginning of October, 2021, and completed by the end of May, 2022. Before starting this study, formal administrative approval was taken from the director of technical health nursing institute.
- This study was conducted during the second semester of the academic year 2021/2022.
- The data was collected in accordance with institute's policy. The actual work began with meeting of the researcher with the nursing students during the morning hours and introduce herself to give them a complete background about the study and the questionnaire format that the researcher had predesigned in an Arabic language in order to collect the required data.
- The researcher explain the purpose of study and the research goals, and obtaining their verbal permission for data collection, then the researcher distributed questionnaires to students.
- The students take about 20- 30 minutes to fill in the questionnaire.

Ethical considerations:

The research approval was obtained from the Scientific Ethical Research Committee in the Faculty of Nursing before starting the study, the researcher clarified the aim of the study to the students included in the study, the researcher assured anonymity and confidentiality of students' data and the students informed that they were allowed to choose to participate or not in the study and that they have the right to withdraw from the study at any time.

Statistical Analysis:

Data collected from the studied subjects was revised, coded and entered using Personal Computer (PC). Computerized data entry and

statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 22. Data were presented using descriptive statistics in the form of frequencies, percentages, Mean and SD. A chi-square (χ^2) test was used to measure the difference between the observed and expected frequencies of the outcomes of a set of events or variables, and to assess the relation between total score and subjects' characteristics. A correlation coefficient is a numerical measure

of some type of correlation, meaning a statistical relationship between two variables. The observed differences and association were considered as follows:

Significant level:

- >0.05 Non significant
- < 0.05 significant
- <0.001 highly significant.

Results

Table (1): Frequency and percentage distribution of the studied nursing students as regard to socio demographic characteristics of studied nurses student (n=160).

Item	N	%
Age		
16 -<18	68	42.5
18- <20	82	51.25
≥ 20-22	10	6.25
Mean±SD	19.6±2.34	
Academic class		
First year	30	18.7
Second year	30	18.7
Third year	30	18.7
Fourth year	36	22.5
Fifth year	34	21.4
Father Job		
Work	154	96.3
Don't work	2	1.2
Died	4	2.5
Mother Job		
Work	37	23.1
Housewife	121	75.6
Died	2	1.3
Parents 'income		
1000-2000	43	26.9
2000-3000	54	33.8
3000-4000	41	25.5
More than 4000	22	13.8
The time you spend on the internet		
During day	16	10.0
During night	138	86.3
All the time	6	3.7
Numbers of hours you spend on the internet		
1-< 2 hours	25	15.5
2- <4 hours.	30	18.8
4-< 5 hours.	30	18.8
≥ 5 hours.	75	46.9

Table (1) illustrated that 51.2% of the students their age ranged between 18- < 20years and 22.5% of students were in the fourth year. As regard to father job the table showed that 96.2% of students 'fathers were working and 75.6% of students 'mothers were house wife. In relation to Parents' income the table showed that 33.8% of parents' income ranged from 2000-3000 Egyptian pounds. Regarding time spent on the internet, it was revealed that 86.25% of students spend their time on the internet during the night, 46.9% of students spend more than 5 hours on the internet.

Table (2): Frequency and percentage distribution of level of knowledge of the studied nursing student as regard to internet addiction (n=160).

Items	Correct		Incorrect	
	N	%	N	%
1. The meaning of internet addiction.	25	15.6	135	84.4
2. Definition of internet addiction.	28	17.5	132	82.5
3. Types of internet addiction.	26	16.3	134	83.7
4. Stages of internet addiction.	34	21.3	126	78.7
5. Main reasons of internet addiction.	30	18.8	130	81.2
6. The benefits of the internet.	34	21.3	126	78.7
7. Negative effects of internet addiction.	42	26.3	118	73.7
8. The psychological problems of internet addiction.	40	25.0	120	75.0
9. Ethical problems related to internet addiction.	29	18.1	131	81.9
10. Methods of prevention of internet addiction.	37	23.1	123	76.9
11. Nutritional therapy for internet addiction.	33	20.6	127	79.4
12. Ways to manage internet addiction.	41	25.6	119	74.4
13. Effects of internet addiction on academic achievement.	37	23.1	123	76.9
14. Physical effects of internet addiction.	28	17.5	132	82.5
15. Social effects of internet addiction.	35	21.9	125	78.1

Table (2): It reveals that the majority of the nurses students had unsatisfactory level of knowledge regarding meaning of internet addiction, the types of internet addiction, definition of internet addiction, physical effects of internet addiction and ethical problems related to internet addiction (84.4, 83.7, 82.5, 82.5, 81.9 respectively).

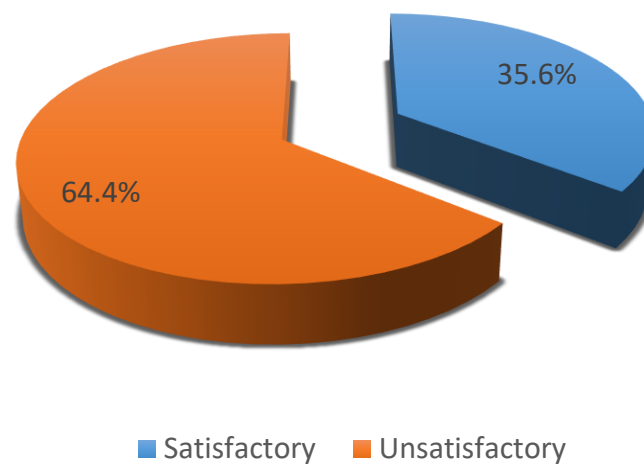


Figure (1): percentage distribution of students 'total knowledge regarding internet addiction. (n=160)

Figure (1) revealed that 64.4% of students had unsatisfactory level of knowledge related to internet addiction and 35.6% of them had satisfactory knowledge level related to internet addiction.

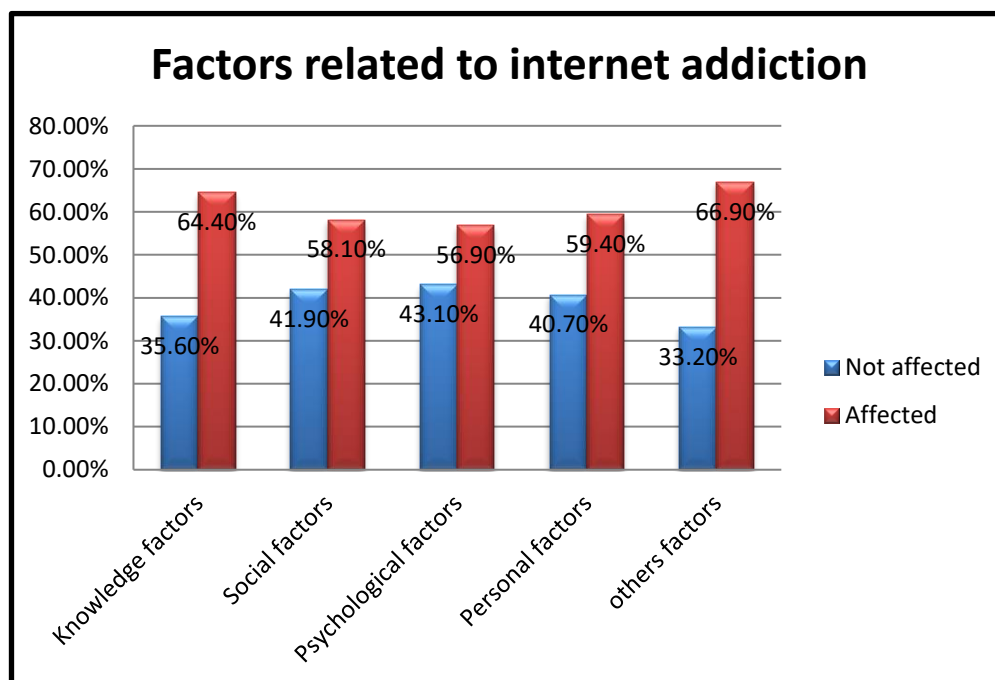


Figure (2): Percentage distribution of factors related to internet addiction (n=160).

Figure (2) showed that the highest factors influencing internet addiction were 66.9% of the other factors, then the knowledge factors with 64.4%, personal factors stated by students 59.4%, followed by the students with 58.1% of social factors and finally the psychological factors with 56.9%.

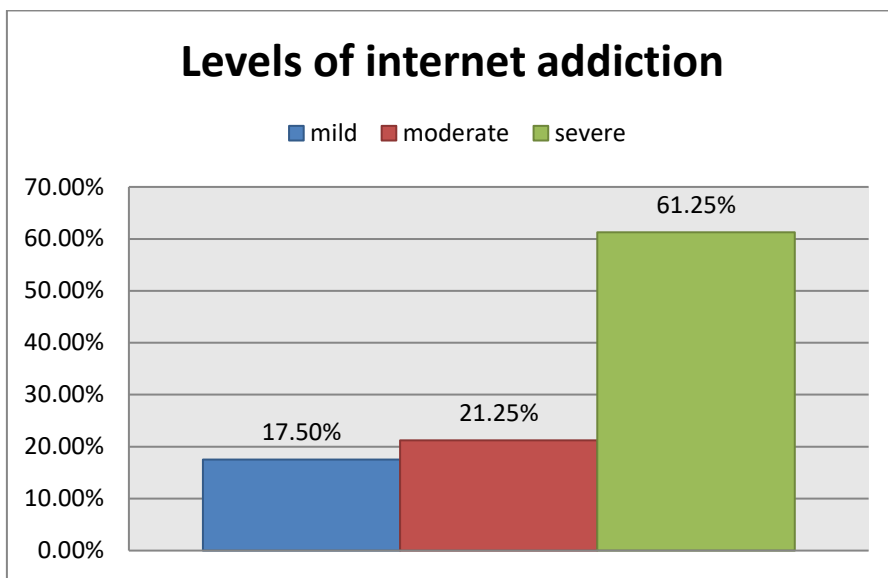


Figure (3): Percentage distribution of the studied nursing students as regard to internet addiction (n=160).

Figure (3) revealed the distribution of nursing students according on their level of internet addiction. It was that 61.2% of nursing students had severe internet addiction, 21.5% of nursing students had moderate internet addiction, and 17.5% of nursing students had mild internet addiction.

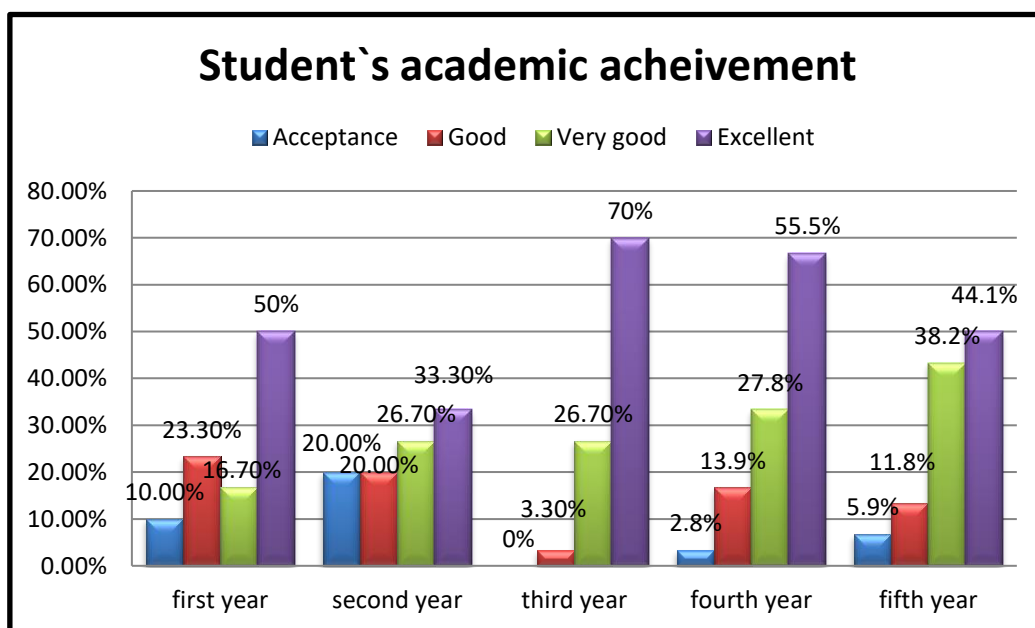


Figure (4): Percentage distribution of total academic achievement among technical health institute nursing students at the end of academic year (n=160).

Figure (4): showed that 50% of technical health institute of nursing students had achieved excellent degree in the first year, 33.3% of students in the second year, 70% of students in the third year,

55.5% of students in the fourth year and 44.1% of students in the fifth year were had achieved excellent degree at the end of the academic year (2021/2022).

Table (4): Relation between studied nursing students' total academic achievement, total knowledge, total internet addiction and overall factors (n=160).

	Total achievement									
	Fair		Good		Very good		Excellent		Chi-square	
	N	%	N	%	N	%	N	%	X ²	P-value
Total knowledge										
Satisfactory	0	0.0	0	0.0	19	11.9	38	23.8	24.965	<0.001*
Unsatisfactory	12	7.5	23	14.4	25	15.6	43	26.9		
Total internet addiction										
Mild	0	0.0	0	0.0	7	4.4	21	13.2	14.036	0.029*
Moderate	2	1.3	4	2.5	12	7.5	16	10.0		
Severe	10	6.3	19	11.9	25	15.6	44	27.5		
Total factors										
Affected	10	6.4	19	11.9	23	14.4	42	26.3	19.209	0.004*
Not affected	2	1.3	4	2.5	21	13.2	39	24.0		

*P-value \leq 0.05 significant

Table (4): demonstrate that there was highly statistically significant between total academic achievement of technical health institute nursing students and their total knowledge about internet addiction where p-value <0.001.

There was statistically significant between total academic achievement of technical health institute nursing students and internet addiction and total factors where p-value was <0.05*.

Table (5): Correlation between students' total knowledge about internet addiction and total internet addiction level and total factors that affected on internet addiction (n=160).

	Total student knowledge	
	R	P-value
Total internet addiction	-0.375	0.005*
Total factors	-0.482	<0.001*
	Total internet addiction level	
	R	P-value
Total factors	-0.519	<0.001*

*P-value \leq 0.05 significant

Table (5): showed that there was highly statistically significant and negative correlation between their total students' knowledge about internet addiction and total internet addiction level where P-value <0.05*.

There was statistically significant relation between total student knowledge about internet addiction and total factors that affected on internet addiction where p-value was <0.001.

There was statistically significant relation between total internet addiction level and total factors that affected on internet addiction where p-value was <0.001.

Discussion

With the recent diversification and universalization of the internet, the internet use rate has increased rapidly. A growing body of research suggests that internet addiction, defined as pathologically preoccupied internet use, which result in physical, psychological, social, and /or financial distress, has become a serious health and social problem worldwide (**Kumari et al., 2022**).

Students have received much attention from internet addiction researchers because the majority of these populations are internet users. Because students need to utilize the internet for educational or research purposes,

they are exposed to an environment that provides easy access to the internet (**Mrayyan et al., 2022**).

Students are at a developmental stage in which they are consolidating their identities and forming new relationships as well as transitioning from being adolescents under their parents' protection to being independent adults. Although students may enjoy freedom from their parents, they may be challenged by the responsibilities related to their newly acquired independence. Therefore, they may be more vulnerable to internet addiction (**Salarvand et al., 2022**).

The current study revealed that the study subjects' age ranged between 18- <20 years old. Most of the nurses students in the study

were spending their time on the internet during night and were spend more than 5hours on the internet. That could be due to the students are in the process of psychological development, thus less self-regulative, more susceptible to the effect of media influence and vulnerable to developing addictive behaviors.

This finding was agreed with **Chung (2019)** in South Korea who has found that the mean age of students was 20 years ranging from 18 to 22 and the highest percentage of students' time were spend on the internet during the night.

Similar study to the current study findings done by **Tóth et al., (2021)** who has also found that internet addicts reported night time as the preferred time of internet use underlying the addictive nature of the phenomena among students.

This finding also agreed with **Koçak et al., (2021)** who also found that students who use the internet for 5 hours or more per day had higher addiction levels.

Also in the same line, **Kapus et al., (2021)** reported that young adults (16-20) years were more likely to become internet addicts as compared to other age groups.

The current study revealed that there were many factors leading to internet addiction. It showed that the highest percentage of students had unsatisfactory knowledge related to internet addiction. This finding was agreed with **Kuss et al., (2021)** who found that the students had unsatisfactory knowledge related to internet addiction.

Regarding factors related to internet addiction. It revealed that the highest factors lead to internet addiction were knowledge factors, personal factors, social factors and finally psychological factors. This could be due to that the students' had't enough awareness with internet addiction effects or problems that the internet can causes , and during covid19 students were enforced to

spend most of their time at home, which increase the duration of internet use, not only for academic reasons but also for playing.

The same pattern of relation was addressed by **Jiang et al., (2018)** who found that there was highly significant relation between knowledge factors, personal factors and social factors and internet addiction.

On the other hand, **Zenebe et al., (2021)** showed that the highest percentage of factors related to internet addiction were taking courses and assignments represent (93.60%) and then for social networks represent (85.60%) for example: (Facebook, WhatsApp, etc...).

This finding was opposite with **Kuss et al., (2021)** who has found that the highest range of risk factors for internet addiction was the psychological distress and mood disorders.

Regarding the student`s internet addiction level. The present study revealed that more than half of students had severe internet addiction. This finding agreed with **Omoyemiju & Popoola (2021)** who found that sixty percent of the students exhibited severe levels of internet addiction. Also, this result come in agree with **Aksoy & Oztoprak (2021)** who found that the highest percentage of students with severe internet addiction there was characterized by limitation in social interaction and global direction toward online learning makes students seek other like social media alternatives to share their feelings and ideas.

This finding contraindicated with **Turan et al., (2020)** who revealed that student`s level of internet addiction were observed to be generally that of a moderate internet user.

In relation to academic achievement of nursing students in the current study; it revealed that more than two thirds of students' achievements were excellent in the third academic class and then more than half of students in the fourth academic class their

achievements were excellent. While one third of students' achievements in the second academic class had excellent level. This could be due to that second year students have more leisure time to use internet and difficulty of their second year curriculum.

This finding was in the same line with **Houston (2019)** who found that the first and second year students showed lower scores on their academic year as compared to third, fourth or more year students.

The current study revealed a significant statistical correlation between students' total internet addiction and total factors scores. In accordance to **Chung et al., (2019)** in Korea they're found that nearly three quarters (72%) of Korean students in the study were categorized as moderate and severe addiction group in a positive relation with several factors related to internet addiction. Also, **Peris (2020)** in Spain found that there was significant relation between internet addiction and total factors related to be internet addicted.

Significantly, the current study indicated a relation between students' total academic achievement and total internet addiction. The same pattern of relation was addressed by **Hamza (2021)** who found that there was a significant relation between internet addiction and academic achievement. Also, **Tras & Goken (2020)** found that there was a positive correlation between internet addiction scores and academic achievement and total factors.

At the same line, **Hayat (2020)** in Iran reported that the majority of the study sample had higher levels of internet addiction and were more liable to lack in academic achievement and **Javaeed et al., (2020)** in Pakistan also stated that internet addiction was associated with lower academic achievement.

Conclusion

The current study concluded that:

- Less than two thirds of nursing students had severe level of internet addiction. The nursing students' academic achievement represented that the highest percentage of excellent achievement was in the third year, while the lowest percentage was in the second year at the end of the academic year. Most of the studied factors that affected on internet addiction were (others factors, knowledge factors, personal, social and finally psychological factors). There was significant association between students' total academic achievements and internet addiction.

Recommendations

The result of this study projected the following recommendations:

- Awareness programs for safe use of the internet should be provided for technical health institute nurse students in order to decrease the prevalence of internet addiction.
- It is critical to provide restricted intranet services in the Technical Health Institute, which may help to reduce the prevalence of internet addiction among students.
- Future studies about the relation between internet addictions among large group of nursing students.

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