Internet Addiction and Sleep Quality among Nursing Students at Matrouh University: Descriptive Correlational Study

Esraa Mohammed Abo Elfotuh [(1)], Wafaa Osman Abd EL-Fatah [(2)], Maha Arafat Mahmoud [(3)]

(1) *Master's degree Psychiatric Mental Health Nursing -Faculty of Nursing -Matrouh University*
(2) *Assistant Professor of Psychiatric Mental Health Nursing- Faculty of Nursing –Helwan University*
(3) *Lecture of Psychiatric Mental Health Nursing -Faculty of Nursing -Helwan University*

ABSTRACT

Background: Internet addiction is a psychological dependence on the internet that impairs one's ability to control one's usage and has an impact on nursing students' sleep quality. **Aim:** This study aimed to assess the relationship between internet addiction and sleep quality among nursing students at Matrouh University. **Design:** A descriptive correlational research design was utilized in this study. **Setting:** The study was conducted at Faculty of Nursing, Matrouh University, Egypt. **Subject:** A convenient sample of 502 nursing students at Matrouh University. **Tools**: Three tools were used as follows: socio demographic sheet, The Internet Addiction Test & Pittsburgh Sleep Quality Index (PSQI). **Results:** the study results revealed that more than one third of nursing students have moderate internet addiction. While majority of nursing students had poor sleep quality. **Conclusion:** there was a highly statistically significance correlation between internet addiction and sleep quality among the studied nursing students, a highly statistically significance negative correlation between internet addiction and good sleep quality among the studied nursing students and a highly statistically significance positive correlation between internet addiction and poor sleep quality among the studied nursing students. **Recommendation:** Educational programs for increasing awareness regarding internet addiction and its effect on sleep quality.

Key words: *Internet Addiction, Nursing Students and Sleep Quality.*

INTRODUCTION

Nursing students face unique challenges in today's digital world, where effective time management is crucial for academic and career success **(Ali et al., 2024)**. The pervasive use of the internet, while essential for modern medicine and education, poses a significant risk of internet addiction **(Buneviciene& Bunevicius, 2021)**. This addiction can lead to sleep disturbances, poor academic performance, and social withdrawal, as nursing students struggle to regulate their online time **(Büchi, 2024)**. University students exhibit a high detection rate of internet addiction, highlighting the need for interventions that promote healthy internet use and mitigate negative impacts **(Xie, Cheng & Chen, 2023)**.

Sleep is fundamental for physical and psychological well-being, influencing memory, focus, and decision-making **(Abubakar, Ibrahim, & Aliyu, 2024; Spytska, 2024)**. University students required high quality of sleep to improve academic performance and get ready for the working world **(Sağar & Eren, 2022)**. Internet addiction

disrupts sleep patterns, causing insomnia and daytime sleepiness due to circadian rhythm disturbances and the stimulating effects of electronic devices **(Hammad, Alyami, & Awed, 2024)**. Psychiatric mental health nurses play a vital role in addressing these issues by providing assessment, treatment, and preventive care for sleep problems and internet addiction. Their expertise in addiction management, combined with counseling techniques like motivational interviewing, helps students develop healthier habits and improve their overall quality of life **(Ghazy, Osman & Mohammed, 2022)**.

Significant of the study

Internet addiction (IA) affects (29%) people worldwide **(Salpynov et al.,2024)**. Globally, 75% of internet addiction scores are related to sleep quality issues, 21% of participants worldwide suffer from severe IA and 31% displayed moderate IA. Moreover, a positive correlation between sleep quality and severity of IA and poor sleep quality exhibits a higher severity of IA *(*Hammad et al,.2024)**.

In Egypt's entire population, 82.01 million (72.2%) used the internet, while 45.40 million (40.0%) used social media. (11.6%) of those between the ages of 18 and 24 **(Kemp, 2024).** Furthermore, (40%) of the nurses studied demonstrated severe IA, (44%) moderate IA, and (8%) mild and normal IA. (62%) of the nurses studied had severe sleep quality issues, and (28%) had moderate sleep quality issues **(El.ezazy, Abdelfatah & El.sayed, 2023).**

From the investigators' point of view, nursing students' lives now revolve on the internet. Both excessive internet usage and disturbed sleep habits are becoming more common among nursing university students due to their academic demands, rigorous study plans, and high-stakes tests. Nursing students are more likely to resort to unhealthy coping strategies, such as internet addiction, frequently at the expense of getting enough sleep. A critical view of modern student life is what inspired me as an investigator to assess the relationship between internet addiction and sleep quality among nursing students at Matrouh university.

AIM OF THE STUDY

The current study aimed to assess the relationship between internet addiction and sleep quality among nursing students at Matrouh University through the following objectives:

- Assess the levels of internet addiction among nursing students.
- Assess the sleep quality levels among nursing students.
- Assess the relationship between internet addiction and sleep quality among nursing students.

Research questions

- What are the levels of internet addiction among nursing students?
- What are the sleep quality levels among nursing students?
- Is there a relation between internet addiction and sleep quality among nursing students?

SUBJECT AND METHODS

Research design: A descriptive correlational research design was used in this study to assess the aim of the study.

Setting: The study was conducted at the Faculty of Nursing, Matrouh University, Egypt.

Sampling: A convenient sample of 502 nursing students was conducted on undergraduate nursing students at Matrouh University.

Inclusion criteria: Aged from 18 years to less than or equal 24 years, both genders and having a history of using the internet for the past 1 year or more.

Sample size:

The actual sample size was 502 nursing students who had enrolled in the Faculty of Nursing at Matrouh university.

Tools of data collection:

Three tools of data collection were used as follows:

1st tool: Sociodemographic characteristics sheet:

This questionnaire was designed by the researcher and included data related to sociodemographic characteristics of the nursing students, such as (age, gender, place of residence, academic year, GPA, income source, internet source and the most common websites visit).

2nd tool: The Internet Addiction Test (IAT) (Young, 1998).

This scale was developed by Young (1998) to assess internet addiction. This scale included 20 items. The students were asked to assess the severity of addictive use of the internet. Each statement had 6 different responses (does not apply = 0, rarely = 1, occasionally = 2, frequently = 3, often = 4 and always = 5). The internet maximum score is 100 points.

Total scoring system of the internet addiction test:

Subscales	Range
Normal internet user	0-19
Mild internet addiction	20-49
Moderate internet addiction	50-79
Severe internet addiction	80-100

3rd tool: Pittsburgh Sleep Quality Index (PSQI) (Buysse et al ,1989):

This scale was developed by Buysse (1989). PSQI is a self-rated, valid, and reliable tool that measures sleep quality and disturbances that may affect sleep quality in adults during the previous month. The PSQI included 19 items that assessed seven aspects of sleep quality. The 7 components of the PSQI are: sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction. Each component, the score ranges from 0 to 3(Minimum score better = 0, maximum score worse = 3). A global score resulting from the sum of the component scores was used for sleep quality and ranges from 0-21

Total Scoring system of Pittsburgh Sleep Quality Index (PSQI):

Subscales	Range
Poor sleepers	>5
Good sleepers	≤5

Validity:

The developed tool was formulated and submitted to three experts in psychiatric mental health nursing experts to assess the content validity. Expert's opinions elicited regarding the format, layout, consistency, accuracy, and relevancy of the tools.

Reliability:

Cronbach's Alpha was used to determine the internal reliability of the tools, to achieve the criteria of trustworthiness of the tool reliability, a doctor in statistics checked faces and content of all items. The reliability of the tool was assessed through 10% of cases (pilot study) using developed questionnaire. Measuring their internal consistency by determining Cronbach's Alpha coefficient, proved to be high as indicated in the following table:

Scales	Reliability		Internal consistency
	Reliability Coefficient	Cronbach's Alpha coefficient	
Internet addiction test (IAT)	0.75	0.95	Good
Pittsburgh Sleep Quality Index (PSQI)	0.79	0.97	Good

Ethical consideration:

An official permission to conduct the proposed study was obtained from the Scientific Research Ethical Committee of the Faculty of Nursing at Helwan University. Participation in the study is voluntary and undergraduate nursing students were given complete, full information about the study and the role before obtaining an informed written consent from each nursing student. Ethical considerations included explaining the purpose and nature of the study, starting the possibility to withdraw from the study at any time, and confidentiality of the information.

Pilot study:

The pilot study was conducted on 10% (50) of the student sample size to examine the clarity and applicability of the study tools, identify obstacles and problems encountered during data collection and time needed to complete the study tools. Nursing students who were included in the pilot study were in the sample of the study.

Field work:

In the beginning the researcher interviewed the nursing students, introduced himself to the participants and explained the purpose of the study. An informed written consent was obtained from nursing students who agreed to participate in the study before any data collection. The nursing students were informed that this data was very confidential and used only for the scientific purpose of the research. The participants were told that they have the right to withdraw from the research at any time without mentioning reasons.

Data collection was started and completed within the second semester of the academic year 2023/2024. A purposive sample of 502 students were selected from 119 students in 1st year, 176 students in 2nd year, 121 students in 3rd year and 86 students in 4th year of nursing faculty at Matrouh university. The tools filled in about 30-45 minutes, and in collecting data.

Administrative design:

After an explanation of the study's aim, and objectives, official permission was obtained from the deans of the Faculties of Nursing at Helwan and Matrouh University, asking for cooperation and permission to conduct this study. An official permission to conduct the study was obtained from the dean of the faculty of nursing at Matrouh university after the researcher explained the method of data collection, a copy of protocol and tool was given to the dean of the faculty of nursing at Matrouh university.

Statistical analysis:

Recorded data were analyzed using the statistical package for social science, version 22.0 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics like frequency, percentage, mean, and standard deviation summarized study variables. The following tests were done: **Chi-Square test (X^2)** was used to evaluate the association between socio-demographic, independent and dependent variables. **Pearson correlation coefficient (r)** was used to examine the relationship and influence between the independent and dependent variables, the confidence interval was set to 95% and margin of error accepted was set to 5%. So, the p-value was considered significant as the following:

Probability (P-value)

P- value ≤0.05 was considered significant.

P- value ≤0.001 was considered highly significant.

Results:

Table (1): Shows that 68.1% of nursing students are aged between 18-21 years, and the mean age of nursing students is 20±2.5 years. While 51.4% of nursing students are females.83.9% of nursing students are residing in urban areas. Whenever, 35.1% of nursing students are present in the second academic year. Moreover, 38.0% of nursing students' academic performance is very good. Family income accounts for 93.4% of nursing students' income, with 91.0% being sufficient. While,83.5% of nursing students access the internet via both Wi-Fi and mobile devices. The internet package for 58.0% of nursing students costs between 50 to 100 pounds. Social media is the most common website visited by 40.6% of nursing students.

Figure (1): Reveals that 53.9% of nursing students have mild internet addiction with Mean ±SD 37.39±7.31. Whenever, 35.1% of nursing students have moderate internet addiction with Mean ±SD 62.2 ±8.02. While 6.6% of nursing students have normal user of internet with Mean ±SD 13.30±5.19. Moreover, 4.4% of nursing students have severe internet addiction with Mean ±SD 84.75±3.69.
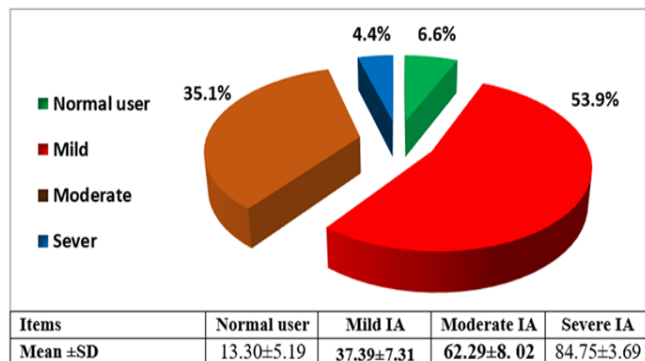
Figure (2): Illustrates that 4.8% of nursing students are good sleep with Mean ±SD 4.00±.56. While 95.2% of nursing students are poor sleep with Mean ±SD 9.11±2.06.

Table (2): Reflects that there is a highly statistically significant relationship between age, gender, academic year, and internet addiction among the studied nursing students at p value <0.001. While there is a statistically significant relationship between academic performance and internet addiction among the studied nursing students at p value <0.05.

Table (3): Represents that there is a highly statistical significance relation between age, academic year and sleep quality among the studied nursing students at p value <0.001. While there is a statistical significance relation between gender, academic performance, and sleep quality among the nursing students studied at p value <0.05.

Table (4): Illustrates that there is a highly statistically significance correlation between internet addiction and sleep quality among the studied nursing students.

Table (5): Denotes that there is a highly statistically significance negative correlation between internet addiction and good sleep quality among the studied nursing students at p value <0.001. while there is a highly statistically significance positive correlation between internet addiction and poor sleep quality among the studied nursing students at p value <0.001.

Items	Normal user	Mild IA	Moderate IA	Severe IA
Mean ±SD	13.30±5.19	37.39±7.31	62.29±8. 02	84.75±3.69

Figure (1): Percentage distribution of internet addiction levels among studied nursing students (n=502)

Items	Good sleeper	Poor sleeper
Mean ±SD	4.00±.56	9.11±2.06
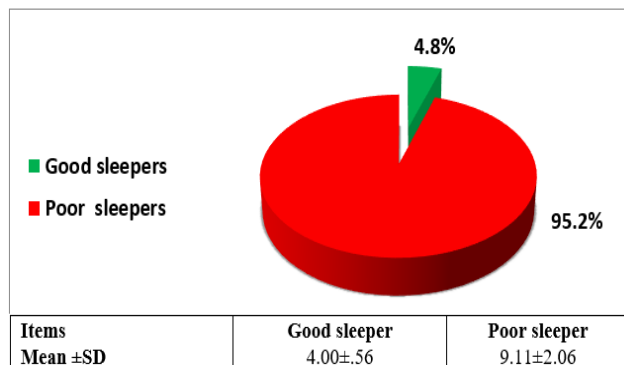
Figure (2): Percentage distribution of sleep quality level among studied nursing students (n=502)

Table (1): Number and percentage distribution of studied nursing students according to Socio-demographic characteristics (n=502)

Items	No.	%
Age		
18-21	342	**68.1**
< 21 - ≥ 24	160	31.9
Mean ±SD 20±2.5		
Gender		
Female	258	**51.4**
Male	244	48.6
Place of Residence		
Rural	81	16.1
Urban	421	**83.9**
Academic Year		
First	119	23.7
Second	176	**35.1**
Third	121	24.1
Fourth	86	17.1
Academic performance		
Fail	44	8.8
Pass	55	11.0
Good	170	33.8
Very good	191	**38.0**
Excellent	42	8.4
Student income		
Family	469	**93.4**
other	33	6.6
Family income / month		
Sufficient	457	**91.0**
Insufficient	45	9.0
Internet source		
Cellular (Mobile)	83	16.5
Wi-Fi / Mobile	419	**83.5**
Internet package		
20-50 pounds	59	11.7
>50-100 pounds	291	**58.0**
More than 100 pounds	152	30.3
Common website visit		
Google	129	25.7
YouTube	78	15.5
Online gaming	91	18.2
Social media	204	**40.6**

Table (2): The relationship between sociodemographic characteristics and internet addiction among studied nursing students (n=502)

Sociodemographic characteristics	Normal Internet user		Internet addiction						Total		X² test	p value
			Mild		Moderate		Severe					
	No.	%	No.	%	No.	%	No.	%	No.	%		
Age												
18-21	24	4.8	182	36.2	123	24.5	13	2.6	342	68.1	56.567	**.001***
< 21 - ≥ 24	9	1.8	89	17.7	54	10.8	8	1.6	160	31.9		
Gender												
Female	9	1.8	150	29.9	92	18.3	7	1.4	258	51.4	22.646	**.007***
Male	24	4.8	121	24.1	84	16.7	15	3.0	244	48.6		
Place of residence												
Rural	8	1.6	34	6.8	35	6.9	4	0.8	81	16.1	1.186	.276
Urban	25	5.0	237	47.2	141	28.1	18	3.6	421	83.9		
Academic year												
First	5	1.0	66	13.1	44	8.8	4	0.8	119	23.7	60.701	**.000***
Second	20	4.0	94	18.7	58	11.6	4	0.8	176	35.1		
Third	6	2.1	64	12.7	41	8.2	10	2.0	121	24.1		
Fourth	2	0.4	47	9.3	33	6.6	4	0.8	86	17.1		
Academic performance												
Fail	1	0.2	26	5.2	15	3.0	2	0.4	44	8.8	44.446	**.023***
Pass	4	0.8	25	5.0	25	5.0	1	0.2	55	11.0		
Good	11	2.2	90	18.0	57	11.4	12	2.4	170	33.8		
Very good	69	13.7	105	20.9	12	2.4	5	1.0	191	38.0		
Excellent	25	5.0	10	2.0	5	1.0	2	0.4	42	8.4		
Student income												
Family	33	6.5	164	32.7	252	50.2	20	4.0	469	93.4	2.644	.499
other	1	0.2	12	2.4	19	3.8	1	0.2	33	6.6		
Family income / month												
Sufficient	30	6.0	161	32.0	246	49.0	20	4.0	457	91.0	2.745	.337
Insufficient	3	0.6	15	3.0	25	5.0	2	0.4	45	9.0		
Internet source												
Cellular (Mobile)	6	1.2	27	5.3	44	8.8	6	1.2	83	16.5	5.435	.344
Wi-Fi / Mobile	27	5.4	149	29.7	227	45.2	16	3.2	419	83.5		
Internet package												
20-50 pounds	5	1.0	20	4.0	31	6.1	3	0.6	59	11.7	7.321	.259

	No.	%	No.	%	No.	%	No.	%	No.	%	X² test	p value
50-100 pounds	19	3.8	106	21.1	152	30.3	14	2.8	291	58.0		
More than 100 pounds	9	1.8	50	10	88	17.5	5	1.0	152	30.3		
Common website visit												
Google	8	1.5	40	8.0	75	15	6	1.2	129	25.7	31.308	.112
YouTube	9	1.8	24	4.8	41	8.2	4	0.8	78	15.5		
Online gaming	4	0.8	40	8.0	42	8.4	5	1.0	91	18.2		
Social media	12	2.4	73	14.5	113	22.5	6	1.2	204	40.6		

Table (3): The relationship between sociodemographic characteristics and sleep quality among studied nursing students (n=502)

Sociodemographic characteristics	Good sleeper		Poor sleeper		X² test	p value
	No.	%	No.	%		
Age						
18-21	13	2.6	329	65.6	9.585	**.002***
< 21 - ≥ 24	11	2.2	149	29.6		
Total	24	4.8	478	95.2		
Gender						
Female	13	2.6	245	48.8	6.201	**.013***
Male	11	2.2	233	46.4		
Total	24	4.8	478	95.2		
Place of residence						
Rural	2	0.4	79	15.7	.886	.346
Urban	22	4.4	399	79.5		
Total	24	4.8	478	95.2		
Academic year						
First	4	0.8	115	22.9	21.962	**.000***
Second	3	0.6	173	34.5		
Third	4	0.8	117	23.3		
Fourth	13	2.6	73	14.5		
Total	24	4.8	478	95.2		
Academic performance						
Fail	0	0	44	8.8	46.137	**.017***
Pass	1	0.2	54	10.8		
Good	3	0.6	167	33.2		
Very good	3	0.6	188	37.4		
Excellent	5	1.0	37	7.4		
Student income						
Family	11	2.2	458	91.2	1.770	.204
Other	1	0.2	32	6.4		
Family income / month						
Sufficient	11	2.2	446	88.8	.586	.291
Insufficient	1	0.2	44	8.8		

Internet source						
Cellular (Mobile)	2	0.4	81	16.1	.242	.392
Wi-Fi / Mobile	10	2.0	409	81.5		
Internet package						
20-50 pounds	2	0.4	57	11.3	1.534	.174
50-100 pounds	8	1.6	283	56.4		
More than 100 pounds	2	0.4	150	29.9		
Common website visit						
Google	2	0.4	127	25.3	3.881	.348
YouTube	3	0.6	75	14.9		
Online gaming	1	0.2	90	18.0		
Social media	6	1.2	198	39.4		

*p- value >0.05; *p-value <0.05 S; **p-value <0.001*

Table (4): Correlation between internet addiction levels and Sleep quality levels among studied nursing students (n=502).

Sleep quality		Normal Internet user		Internet Addiction						Total		X² test	p value
				Mild		Moderate		Sever					
		No	%	No.	%	No.	%	No.	%	No.	%		
Levels	**Good sleepers**	3	0.6	15	3.0	6	1.2	0	0.0	24	4.8	16.004	**0.000***
	Poor sleepers	30	5.9	256	51.0	170	33.9	22	4.4	478	95.2		

*r-Pearson Correlation Coefficient; *p-value <0.05 significant correlation; **p-value <0.001 highly significant*

Table (5): Correlation between internet addiction and Sleep quality among studied nursing student(n=502).

Sleep quality	Internet addiction	
	r	*P-value*
Good sleeper	**-.296***	.000
Poor sleeper	**.311****	.000

r-Pearson Correlation Coefficient;

*p-value <0.05 significant correlation.

**p-value <0.001 highly significant correlation

Discussion

Internet addiction (IA) is prevalent among Egyptian university students, often linked to "fresh studying" and online gaming. Excessive internet use can lead to constant arousal, preventing relaxation and preparing the body for sound sleep. However, sleep disturbances are mutually reinforcing, as can contribute to the overall health of nursing students **(Amin et al.,2024).** So that, this study aimed to assess the relationship between internet addiction and sleep quality among nursing students at Matrouh University.

Part I: Socio demographic characteristics of the studied nursing students

The current study illustrated that more than two thirds of the studied nursing students were aged 18 -21 years, with a mean SD of 20 ± 2.5. This result may be due to nursing students transition from adolescence to adulthood and exploring their professional identity. This study was supported by **Saied Rabeaa et al., 2023),** who studied "Influences of Internet Addiction on Academic Achievement among Technical Health Institute Nursing Students" in Egypt and reported that more than half of the students their age ranged between 18- < 20years.

Regarding gender distribution, the study revealed a near-equal representation of females and males. This result may be due to challenging traditional norms that view nursing as a predominantly female profession, promoting gender equity in the profession and males were increasingly recognizing the value and rewards of nursing career. This result was inconsistent with the study performed by **Yalcinkaya & Yucel, (2023)** who studied "Determination of Nursing Students' Attitudes Toward and Readiness for Mobile Learning: A Cross-Sectional Study" in seven countries, the Dominican Republic, Egypt, Guyana, India, Mexico, Pakistan, and Sudan and revealed that slightly less than two third of the participants were female and one third were male.

Regarding place of residence, the current study indicated that the majority of studied nursing students resided in urban areas. This result may be due to the availability of nursing faculty which provide both educational and employment opportunities. This result finding was agreed with the study done by **Meng et al., (2022)** who studied "The Factors and Outcomes of Stigma Toward Mental Disorders among Medical and Nursing Students: A Cross-Sectional Study" in China and indicated that less than two third of participants were from urban areas.

According to academic year, the current study found that more than one third of studied nursing students were in their second academic year. This result may be due to the nursing faculty accepting students from nursing institutions who enter the second year. The number in the second year increases according to the number of students applying for nursing faculty from the nursing institution. The previous result was incongruent with the study performed by **Altiner et al., (2022)**, in their study entitled "Relationship between Level of Internet Addiction and Time Management Skills among Nursing Students." in Turkey and reported that more than one third of the students were in their third academic year.

Regarding academic performance among nursing students nearly two fifths were notable achieving "very good" grades. This result may be due to nursing students often having a strong academic foundation, excelled in high school sciences, and having clear career goals. The previous result was congruent with the study performed by **Kamal et al., (2024)**, who studied "The Effect of Internet Addiction on Health-Related Quality of Life among Medical Students" in Egypt found that more than three quarters of students achieving excellent and very good grades.

According to student income most students in this study depend on family income, with most reporting sufficient income to meet their needs. This result may be due to university education can be expensive and many students rely on their family to cover tuition fees, study materials, and living expenses, which can influence their academic performance. The previous result was incongruent with the study performed by **Alotaibi et al., (2022)**, who studied "Smartphone Addiction Prevalence and its Association on Academic Performance, Physical Health, and Mental Well-Being among University Students in Umm Al-Qura University (UQU), Saudi Arabia and revealed that more than half of students reporting insufficient family income

Regarding internet sources, a majority of students in this study accessed the internet through both Wi-Fi and mobile data with more than half of students using internet packages between 50 to 100 pounds. These results may be due to WiFi and mobile data providing ubiquitous access to the

internet and allowing students to switch between connections seamlessly, ensuring uninterrupted access to online resources. The previous result consistent with the study performed by **Asio et al., (2021)**, who studied "Internet Connection and Learning Device Availability of College Students: Basis for Institutionalizing Flexible Learning in the New Normal" in Philippines and found that more than half of the students using WiFi while more than two thirds of the students use mobile data. Also, a majority of the students have internet access at all.

According to common websites visit, two fifths of students in this study use social media as a common website. This result may be due to providing students with access to news, current events, trending topics, keeping students informed and updating and allowing students to share content with others. This result finding was aligned with **kolhar et al., (2021),** who studied "Effect of Social Media Use on Learning, Social Interactions, and Sleep Duration among University Students" in Saudi Arabia and clarified that a majority of students using social media.

Part II: Internet addiction among studied nursing students

The current study revealed that more than half of nursing students have mild internet addiction. Whenever, more than one third of nursing students have moderate internet addiction. While the minority of nursing students have normal users of internet. Also, the minority of nursing students reported severe internet addiction. This result may be due to established a balanced lifestyle, prioritizing academic responsibilities, social interactions, aware of their internet use habits and made conscious efforts to regulate their online activities, avoiding excessive use and, recognizing the importance of their nursing education, the potential impact on their future patients and enabling them to navigate challenging situations and maintain a healthy balance between online and offline activities.

This study supported by **Miskulin et al., (2022),** who studied "Personality Traits of Croatian University Students with Internet Addiction" in Croatia and illustrated that less than half of university students had mild IA, less than quarter of university students had moderate IA and more than quarter had normal internet use. Similarly, **Ali et al. (2024)** who studied "Exploring the Association

between Internet Addiction and Time Management among Undergraduate Nursing Students" at Alexandria University in Egypt and revealed that more than half of nursing students have mild IA, more than one third of nursing students have moderate IA and the minority of nursing students have normal and severe IA. Whenever, the previous result was incongruent with the study performed by **Ashraf et al., (2022)**, who studied "Relationship between Internet Addiction and Self-Esteem among University Nursing Students" in Egypt and reported that the majority of nursing students have moderate internet addiction.

Part III: Sleep quality among studied nursing students

According to sleep quality levels, the current study found that the minority of nursing students are good sleep quality. While most nursing students are poor sleep quality. These results may be due to a variety of factors, including academic stressors such as heavy course loads and exam deadlines, as well as lifestyle habits such as irregular sleep schedules, caffeine and nicotine use, and screen time before bed. Environmental issues such as uncomfortable sleeping conditions can also have an impact on sleep quality. Furthermore, students may lack awareness regarding sleep hygiene routines and prioritize other areas of their lives oversleep.

This finding was supported by **Naderi et al., (2021),** who studied "Academic Burnout among Undergraduate Nursing Students: Predicting the Role of Sleep Quality and Healthy Lifestyle" in Iran and showed that majority of students had poor sleep quality. These results align with findings by **Carpi, Cianfarani & Vestri., (2022),** who studied "Sleep Quality and its Associations with Physical and Mental Health-Related Quality of Life among University Students: A Cross-Sectional Study" in Italy and reflected that more than two thirds of students had poor sleep quality.

Part IV: The relationship between sociodemographic characteristics and internet addiction among studied nursing students

Considering the relationship between sociodemographic characteristics and internet addiction among studied nursing students, the current study showed there was a highly statistically significant relationship between age, gender, academic year, and internet addiction among the studied nursing students at p value less than 0.001. While there was a statistically significant

relationship between academic performance and internet addiction among the studied nursing students at p value less than 0.05. This study may be due to university students are more susceptible due to their developmental stage and less developed self-regulation skills. Access and usage patterns also vary, with males more prone to gaming addiction and females more susceptible to social media addiction. Academic pressure, social integration, and heavy study loads can also influence internet usage.

The current study finding supported by **Agbaria & Bdier., (2021)**, who studied "Internet Addiction among Israeli Palestinian College Students in Israel: Its Prevalence and Relationship to Selected Demographic Variables" and revealed significant relationships between internet addiction and several sociodemographic variables, including age, gender, academic performance, and academic year. Similarly, this study aligned by **Gao et al. (2022)**, who studied "Internet Addiction among Teenagers in A Chinese Population: Prevalence, Risk Factors, and its Relationship with Obsessive-Compulsive Symptoms" in China and reported that there were statistically significant differences between internet addiction and gender.

Part VI: The relationship between sociodemographic characteristics and sleep quality among studied nursing students

Regarding the relationship between sociodemographic characteristics and sleep quality among studied nursing students, the current study represents that there was a highly statistically significance relation between age, academic year and sleep quality among the studied nursing students at p value less than 0.001. While there was a statistical significance relation between gender, academic performance, and sleep quality among the studied nursing students at p value less than 0.05. These results may be due to their responsibilities including exam anxiety, assignment deadlines and clinical rotations can also disrupt sleep. Sleep patterns and susceptibility to disruptions may also differ between genders. Stress and academic years differ; senior students deal with graduation, while first year students struggle to adapt to new surroundings. Academic achievement depends on cognitive function, which can be hampered by poor sleep quality. A vicious cycle of poor sleep might result from academic stress.

This study findings consistent with **Abdulla et al., (2023)**, who studied "Relationship between Hedonic Hunger and Subjectively Assessed Sleep Quality and Perceived Stress among University Students: A Cross-Sectional Study" in the United Arab Emirates and the Kingdom of Bahrain and showed that there was significant relationship between sleep quality and academic performance. This study was inconsistent with **Zhang et al., (2024)**, who studied "Patterns of Sleep Quality and its Influence Factors: A Latent Class Model among Students of Medical University in Hubei Province, China" and reflected that there was no significant difference between sleep quality and gender.

Part VII: Correlation between internet addiction and Sleep quality among studied nursing students

Concerning Correlation between internet addiction levels and Sleep quality levels among studied nursing students, the current study illustrated that there was a highly statistically significance correlation between internet addiction and sleep quality among the studied nursing students. Moreover, there is a highly statistically significance negative correlation between internet addiction and good sleep quality among the studied nursing students at p value less than 0.001. while there is a highly statistically significance positive correlation between internet addiction and poor sleep quality among the studied nursing students at p value less than 0.001. These results may be due to excessive internet use, especially before bedtime, can increase cognitive and emotional arousal. Engaging with stimulating content (such as videos, social media interactions, or gaming) can make this harder to wind down, leading to difficulties falling asleep and a reduced quality of sleep.

The current study was congruent with the study performed by **Ahmed. (2024)**, who studied "Association between Sleep Quality, Internet Addiction and its Associated Factors among Bangladeshi University Students: A Cross-sectional Study" and reflected that a significant association between internet addiction and poor sleep quality among Bangladeshi university students. Moreover, a significant positive correlation was observed between internet addiction and poor sleep quality. Moreover, the current study was aligned with **Arayici et al., (2025)**, who studied "Assessment of the Relationship between Internet Addiction, Psychological Well-Being, and Sleep Quality: A Cross-Sectional Study Involving Adult Population"

in Turkey and revealed that there was a highly statistically significant relationship between sleep quality and internet addiction. Moreover, there was a significant positive correlation between internet addiction and poor sleep quality.

Conclusion:

In the light of the current study results, it can be concluded that more than half of nursing students have mild IA, more than one third of nursing students have moderate IA, the minority of nursing students have normal users of internet, and the minority of nursing students reported severe IA. About the minority of nursing students are good sleep quality and most nursing students are poor sleep quality. In addition, there was a highly statistically significance correlation between IA and sleep quality among the studied nursing students, a highly statistically significance negative correlation between IA and good sleep quality among the studied nursing students and a highly statistically significance positive correlation between IA and poor sleep quality among the studied nursing students.

Recommendations

Based on the previous findings, the following recommendations were suggested:

- Educational programs for increasing awareness regarding Internet addiction and its effect on sleep quality.
- Providing psychological counseling unit in a university for helping students in proper use of internet and sleep hygiene.
- Evaluating student's internet addiction and sleep quality continuously.
- Further research should be done with a larger sample size of students in a broader and several universities.

References

Abubakar, M. S., Ibrahim, H. U., & Aliyu, I. (2024): Assessment of Sleep Quality among Nursing Students on Clinical Posting in a Tertiary Health Facility in North-Western Nigeria. Nigerian Journal of Basic and Clinical Sciences, Vol.21, No.1, pp. 79-83.

Agbaria, Q., & Bdier, D. (2021): Internet Addiction among Israeli Palestinian College Students in Israel: Its Prevalence and Relationship to Selected Demographic Variables. *Journal of Concurrent Disorders*, Vol. 3, No. 2, pp. 32-44.

Ahmed. (2024): Association between Sleep Quality, Internet Addiction and its Associated Factors among Bangladeshi University Students: A Cross-sectional Study. *NPRC Journal of Multidisciplinary Research*, Vol.1, No.6, pp.23-38.

Ali, H. F. M., Mousa, M. A. E. G., Atta, M. H. R., & Morsy, S. R. (2024): Exploring the Association Between Internet Addiction and Time Management among Undergraduate Nursing Students. *BMC Nursing*, Vol.23, No.1, pp. 632.

Alotaibi, M. S., Fox, M., Coman, R., Ratan, Z. A., & Hosseinzadeh, H. (2022): Smartphone Addiction Prevalence and its Association on Academic Performance, Physical Health, and Mental Well-Being among University Students in Umm Al-Qura University (UQU), Saudi Arabia. *International Journal of Environmental Research and Public Health*, Vol.19, No.6, pp.3710.

Altiner Yas, M., Isci, N., Alacam, B., Caliskan, R., & Kulekci, E. (2022): Relationship Internet between Level of Addiction and Time Management Skills among Nursing Students. *Perspectives in Psychiatric Care*, Vol.58, No.2, pp. 758-766.

Amin, S. I., Khashaba, A., Ismail, R. S. A., & Seleem, D. A. (2024): Association of Internet Addiction with Personality Traits, Family Violence, and Sleep Quality. *Zagazig University Medical Journal*, Vol.30, No.9, pp.4553-4558.

Arayici, M. E., Gultekin Arayici, S., Erkin Geyiktepe, O., & Simsek, H. (2025): Assessment of the Relationship between Internet Addiction, Psychological Well-Being, and Sleep Quality: A Cross-Sectional Study Involving Adult Population. *Behavioral Sciences*, Vol.15, No.3, pp.344.

Ashraf Hammad Ahmed, O., Abdelhamed Zaki, R., & Ata Abd El-Salihen, F. (2022): Relationship between Internet Addiction and Self-Esteem among University Nursing Students'. *Egyptian Journal of Health Care*, Vol.13, No.2, pp.573-584.

Asio, J. M. R., Gadia, E., Abarintos, E., Paguio, D., & Balce, M. (2021): Internet Connection and Learning Device Availability of College Students: Basis for Institutionalizing Flexible Learning in the New Normal. *Studies in Humanities and Education*, Vol. 2, No. 1, pp.56–69.

Büchi, M. (2024): Digital Well-Being Theory and Research. New Media & Society, Vol.26, No.1, pp. 172-189.

Buneviciene, I., Bunevicius, A. (2021): Prevalence of Internet Addiction in Healthcare Professionals: Systematic Review and Meta-Analysis *International Journal of Social Psychiatry*, Vol.67, No.5, pp.483– 491.

Buysse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989): The Pittsburgh Sleep Quality Index: A New Instrument for Psychiatric Practice and Research. Psychiatry Research, Vol.28, No.2, pp.193-213.

Carpi, M., Cianfarani, C., & Vestri, A. (2022): Sleep Quality and its Associations with Physical and Mental Health-Related Quality of Life among University Students: A Cross-Sectional Study. *International journal of environmental research and public health*, Vol.19, No.5, pp.2874.

Cochran, W.G. (1963): Sampling Techniques. (2nd ed.). New York: John Wiley & Sons.Vol.7, No.3, pp.203-203.

El.ezazy, A., Abdelfatah, A., El.sayed, S. (2023): Exploring Internet Addiction among Psychiatric Nurses and its Effects on Sleep Quality and Psychological Distress. *Assiut Scientific Nursing Journal*, Vol.11, No.40, pp. 54-68.

Gao, M., Teng, Z., Wei, Z., Jin, K., Xiao, J., Tang, H., ... & Huang, J. (2022): Internet Addiction among Teenagers in A Chinese Population: Prevalence, Risk Factors, and its Relationship with Obsessive-Compulsive Symptoms. *Journal of Psychiatric Research*, Vol.153, pp.134-140.

Ghazy, S. S. E. L., Osman, O. A. B., Mohammed, N. F (2022): Psycho-Educational Intervention Program on Psycho-Social Problems of Internet Addiction among Nursing Students. *Journal of Nursing Science - Benha University*, Vol.3, No.1, pp 569-581.

Hammad, M. A., Alyami, M. H. F., & Awed, H. S. (2024): The Association Between Internet Addiction and Sleep Quality among Medical Students in Saudi Arabia. *Annals of Medicine*, Vol.56, No.1, Pp. 2307502.

Kamal, N. R. A., Elmor, A. A., Dimetry, S. R., & Mahmoud, N. A. (2024): The Effect of Internet Addiction on Health-Related Quality of Life among Medical Students. *Zagazig University Medical Journal*, Vol.30, No.5, pp.1581-1592.

Kemp, S. (2024, February 23). Digital 2024: Egypt. Data Reportal – Global Digital Insights.

Kolhar, M., Kazi, R. N. A., & Alameen, A. (2021): Effect of Social Media Use on Learning, Social Interactions, and Sleep Duration among University Students. *Saudi Journal of Biological Sciences*, Vol.28, No. 4, pp.2216-2222.

Meng, N., Huang, X., Wang, J., Wang, M., & Wang, Y. (2022): The Factors and Outcomes of Stigma Toward Mental Disorders among Medical and Nursing Students: A Cross-Sectional Study. *BMC Psychiatry*, Vol.22, No.1, pp.357.

Miskulin, I., Simic, I., Pavlovic, N., Kovacevic, J., Fotez, I., Kondza, G., ... & Miskulin, M. (2022): Personality Traits of Croatian University Students with Internet Addiction. *Behavioral Sciences*, Vol.12, No. 6, pp.173.

Naderi, H., Dehghan, H., Dehrouyeh, S., & Tajik, E. (2021): Academic Burnout among Undergraduate Nursing Students: Predicting the Role of Sleep Quality and Healthy Lifestyle. *Research and Development in Medical Education*, Vol.10, No.1, pp.16-16.

Rabeaa, E.S., Safwat, A.M., Abd Elrahman, A. A. E. (2023): Influences of Internet Addiction on Academic Achievement among Technical Health Institute Nursing Students. *Egyptian Journal of Health Care* Vol.14, No.2, pp.98-111.

Sağar, M. E., Eren, H. K (2022): Relationship Between Internet Addiction and Sleep Quality in University Students. *Bağımlılık Dergisi 2022*; Vol.23, No.3, pp.362-368.

Salpynov, Z., Kosherova, Z., Sarría-Santamera, A., Nurkatov, Y., Gusmanov, A., & Semenova, Y. (2024): The Worldwide Prevalence of Internet Addiction among Medical Students: A Systematic Review and Meta-Analysis. *International Journal of Environmental Research and Public Health*, Vol.21, No.9, pp. 1146.

Spytska, L. (2024): The Importance of Quality Sleep and Its Relationship with Physical and Mental Health: A Systematic Review. *Sleep Medicine Research*, Vol.15, No.3, pp.162-172.

Xie, X., Cheng, H., & Chen, Z. (2023): Anxiety Predicts Internet Addiction, Which Predicts Depression among Male College Students: A Cross-Lagged Comparison by Sex. *Frontiers in Psychology*, Vol.13, No.1102066.

Yalcinkaya, T., & Yucel, S. C. (2023): Determination of Nursing Students' Attitudes Toward and Readiness for Mobile Learning: A Cross-Sectional Study. *Nurse Education Today*, Vol.120, No.105652, pp.2749.

Young, Kimberly, S. (1998): Caught in The Net: How to Recognize the Signs of Internet Addiction and a Winning Strategy for Recovery. New York: John Wiley & Sons.

Zhang, S., Liu, X., Chen, J., Yang, H., Chen, J., Li, D., ... & Wu, W. (2024): Patterns of Sleep Quality and its Influence Factors: A Latent Class Model among Students of Medical University in Hubei Province, China. *Journal of Affective Disorders*, Vol.347, pp.320-326.