Awareness of Nursing Students Regarding Online Learning and Its Effects on Community Health at Beni-Suef University

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ABSTRACT

Background: Online education has the potential to transform traditional classroom practices for the better, but it also has real-world consequences for students' physical, psychological, and social health. **Aim of the study:** assess awareness of nursing students regarding online learning and its effects on community health. **Research Design:** the research strategy employed in the study was descriptive. **Sample:** A convenience sample of 192 students attending 4th year at the faculty of nursing at Beni-Suef University. **Setting:** Beni-Suef City, Egypt, Faculty of nursing. **Tools:** two tools were used to gather data: **I.** An Interviewing Questionnaire Sheet with four Sections: demographics, family data, internet use, and knowledge of online Learning and its effects on the health of the community. **Second Instrument**: nursing student's attitude scale toward online learning and its effects the health of the community. **Results:** the study showed that 53.7% of studied students had poor knowledge regarding online learning, and 40.6% of the studied students had uncertain attitudes regarding online learning. **Conclusion:** nursing students' total knowledge scores and attitude scores for online learning are positively correlated, with a statistically significant relationship. **Recommendation**: develop and implement an educational program to increase students' awareness about online learning and its effects on community health.

Keywords: Awareness of Nursing Students, Community Health, Online Learning

Introduction

Online learning has quickly become one of the most common ways for college students to get a degree in recent years, thanks to the proliferation of educational technology. With the advent of online learning, a paradigm shift in education has occurred, shifting traditional classroom practices into a digital space that for asynchronous interaction between teachers and students. The educational resources are available in a variety of formats, including video, audio, and others. There are other tools that may be used for offline and online classes, such as youtube, google classroom, and zoom **(Nafrees et al., 2020; Kamraju et al., 2024).**

A growing number of colleges and organizations are offering online courses to reach more people and provide an affordable option for those who cannot afford to travel or live abroad. This has led to online education becoming an integral part of global education. The rapid spread of the COVID-19 pandemic necessitated that universities create online learning spaces that could be quickly put into action while still promoting high-quality education. As a result, several online learning systems, both real-time and delayed, have been put into place **(Abou Hashish et al., 2022).**

In contrast to the disorganized nature of asynchronous learning environments, synchronous ones provide live lectures, real-time interactions between teachers and students, and the possibility of instant feedback. Instead of traditional classroom teaching, students in this model have access to course materials via online discussion boards and other learning tools. There is no way to get immediate feedback and answers in this scenario **(Dhawan, 2020).**

There are benefits and downsides to online education, just as there are to any other method of instruction. More than just helping with the COVID-19 pandemic's epidemiology, online education has many other advantages, such as being more convenient, having access to resources no matter where you are or what time of day it is, and reducing costs and air pollution **(Moustafa et al., 2021).**

The downsides of online learning include limited opportunities for student input during class and office hours and the fact that many online teachers place too much emphasis on theoretical concepts and not enough on practical application, leading to a lack of one-on-one time with each student. In addition, not all disciplines are well-suited to online learning; for example, courses covering complex ideas or practical applications might be better suited to a more traditional classroom environment. Some drawbacks of online learning include participants' lack of digital competence, poor connection quality, and insufficient internet access **(Elayan, 2021).**

The transition from traditional classroom instruction to online learning may have negative effects on students' physical and emotional health. Reports of eye discomfort and visual impairments have been made public by the American Optometric Association about those who use computers and cellphones for lengthy periods of time. Digital tests and projects, in addition to the seven hours of class time each day, can put students in danger of exceeding the recommended screen time on their phones or computers **(Lemana, 2022).**

Students enrolled in online courses have reported physical symptoms of increased screen time, such as headaches, fatigue, and feelings of loneliness due to a lack of face-to-face social connection. Anxiety disorders, mood swings, sadness, and increased stress levels were some of the mental health issues brought on by nursing students' increased screen time. In addition to increasing the risk of obesity, sleep difficulties, and musculoskeletal pain in the back and neck, spending too much time in front of a computer reduces physical activity and mobility, which in turn disrupts relationships and duties **(Begum et al. in 2022).**

Undergraduates in their fourth year of nursing school who want to work in public health nursing must have an in-depth familiarity with community concepts in addition to strong theoretical and practical nursing abilities. As a result of their discontent with traditional classroom training, nursing students have lately shown a strong interest in

personalized learning. Thus, traditional methods of instruction do not work in the modern field of nursing. As a result, it is crucial to acknowledge and use novel teaching approaches in order to improve nursing students' knowledge, competences, and patient care **(Ahmed et al., 2023).**

Community health nurses play a crucial role in minimizing the negative effects of online education and informing college students and their families about the pros and cons of this kind of learning environment. The community health nurse's role includes managing this issue and raising student awareness about the risks of excessive internet and device use through counseling, education, and community support **(Wacks & Weinstein, 2021).**

Significance of the Study

According to a United Nations (UN) report, the COVID-19 pandemic has caused the greatest disruption to educational systems ever seen, affecting over 1.6 billion students in more than 190 countries across every continent. As a result, online learning has become more integrated into the education system. Online education has been expanded and improved by educational institutions; throughout the globe; in response to the COVID-19 pandemic **(Eltahir et al., 2023).**

With 52,000 schools and 20 million students, Egypt has the largest education system in the Middle East and North Africa region. Additionally, 3 million students attend Egypt's 44 universities and 830 other higher education institutions. A number of critical preventative actions were taken by the Egyptian government in March 2020 in response to the emerging coronavirus; the most important of them was the closure of all educational institutions in the country. During the lockdown, the Egyptian government advocated for online education as a means for higher education institutions to continue their work **(Refaat, 2021).**

This study set out to assess awareness of nursing students regarding online learning and its effects on community health at Beni-suef University.

Aim of the study

This study was aimed to**:**

Assess awareness of nursing students regarding online learning and its effects on community health at Beni-suef university through the following objectives:

1. Assessing nursing student's knowledge regarding online learning and its effects on community health.
2. Assessing nursing student's attitude toward online learning and its effects on community health.

Research question

To fulfill the study purposes, the following research questions will be answered:

1. Are nursing students having enough knowledge about online learning and its effects on community health?
2. Are nursing students having enough attitude toward online learning and its effects on community health?

3. Is there a correlation between the studied nursing students' total knowledge score and their total attitude score?

Methodology of the study

Research design:
A descriptive research design was applied to achieve the aim of the current study.

Setting:
The research was carried out at the nursing faculty in Beni Suef City. This faculty, located at Beni Suef University and affiliated with the Egyptian Ministry of Higher Education, is situated in East Nile. It comprises a standalone three-story building equipped with instructional and practical rooms, a library, computer laboratories, seven nursing skills laboratories, and multiple administrative offices. The nursing faculty offers medical and nursing education and training for both genders, comprising seven departments: fundamental nursing, medical-surgical nursing, obstetric nursing, pediatric nursing, community health nursing, administrative nursing, and psychiatric nursing. The fourth-year nursing students study community health nursing.

Sampling:

Type of sample: A convenience sample of 192 fourth-year nursing students from Beni-Suef University. The research lasted six months, commencing in October 2023 and concluding at the end of March 2024, with an average frequency of two days per week.

The sample size was calculated utilizing the following formula **Yamane, (1967).**

$n = N / 1 + (Ne^{2})$ where N= 364, e =0.05, n= 192

Tools for Data Collection:

Two tool used to achieve the aim of this study.

Tool I: Interviewing Questionnaire Sheet:

It was developed by the investigator based on **Mohamed et al., (2022)** and **Rajeshwari, (2021)** It was written in Arabic language after reviewing the recent and related literature in the form of closed ended questions and multiple choices to collect the required data. It consisted of 4 parts:

Part I: demographic characteristics of nursing students

This part includes age, gender, rank among brothers, residence and marital status.

Part II: Family data of nursing students

This part includes numbers of family members, father's education, mother's education, father's job, mother's job, monthly family income.

Part III: personal internet use of nursing students

This part includes Previous experience of online learning, Technology (access to the internet), Stability of internet connection, and platform used to access online learning.

Part IV: nursing student's knowledge regarding online learning and its effects on community health.

It included 10 questions categorized as follows: Seven inquiries about nursing students' comprehension of online learning were covered Meaning, significance, categories, modalities, benefits, drawbacks, and obstacles of online learning, together with three inquiries about nursing students' understanding of the impact of online learning on community health. Adverse effects of online education on physical, mental, and social well-being.

Scoring system:

The participants' responses were scored as (0) for don't know. (1) for incomplete correct answer, and (2) for complete correct answer. The total knowledge score was calculated as the following:

Good knowledge ----------------> 75.0% of total knowledge score. (16-20).
Fair knowledge -------------60.0%-75.0% of total knowledge score (12-15).
Poor knowledge------------<60.0% of total knowledge score (0-11)

Tool II:. nursing student's attitude scale toward online learning and its effects on community health., it was adapted from **Thurstone and Chave (1929)**. To assess nursing student's attitudes toward online learning and its effects on community health. It has twenty-five assertions and contains Though it has a lower memory rate, no practical application, saves time, and allows for deeper examination of topics, online learning improves information acquisition, expands possibilities for contact with teachers, creates a pleasant and relaxed learning atmosphere, and saves money. Disconnection from peers is a common consequence of online learning due to its monotony. It involves more labor with very little actual learning taking place during online sessions. Even when the quality of instruction is improved by online learning, students still struggle to focus. While online learning can make education easier, it also makes students less responsible and accountable, and there isn't enough time for brainstorming. The online format makes it harder to manage study time at home and reduces platform abilities. Because of its adaptability and technological sophistication, online education has many advantages over more traditional methods of education. Online education, on the other hand, is taxing on students' emotional, social, and physical well-being.

Scoring system:

The participants' responses were classified into three point likert scale and scored as (1) for disagree, (2) for uncertain, and (3) for agree. The total attitude score was calculated as follows:
Positive attitude ----------------> 75.0% of total attitude score. (58-75).

Uncertain attitude ------------60.0%-75.0% of total attitude score (45-57)

negative attitude -----------<60.0% of total attitude score(1-44)

Validity:

Study instruments were developed and presented to a panel of five reviewers and specialists in nursing from the Faculty of Nursing at Beni-Suef University. Each expert on the panel was requested to evaluate the instrument for clarity of subject covered, phrasing, length, structure, and overall presentation. Adjustments to the tools were made based on the panel's assessment.

Reliability:

The Cronbach Alpha Test was reliable. It was 0.876 for the knowledge questionnaire and 0.956 for the attitude Likert scale.

Ethical Considerations:

Initial written clearance was secured from the investigator ethics committee of the Faculty of Nursing, followed by consent from the Dean of the Faculty of Nursing and the faculty students when the investigator presented herself and elucidated the nature and aim of the research. The study's objectives and methodology were conveyed by direct human contact with staff and students, along with an assessment of their consent before initiating their involvement to guarantee collaboration, voluntary participation, and secrecy. Subsequently, data gathering began.

II. Operational design

The operational design includes the preparatory phase, pilot study, and fieldwork.

Preparatory phase:

This phase started with an examination of contemporary and historical national and international literature pertinent to the study topics, including textbooks, papers, journals, and websites. This evaluation assisted the investigator in evaluating and refining the data gathering instruments. The investigator assessed the tool's validity via a panel of experts to evaluate the substance, knowledge, correctness, and relevance of the questions associated with the instruments.

Pilot Study:

A pilot study was undertaken to evaluate the clarity of questions, applicability, and comprehension of the instrument. The study was done on 10% (20) of the pupils. The pilot research findings facilitated the refinement of the interview questions and the scheduling of the time framework. The pilot participants were included into the main research sample.

Fieldwork:

The data gathering for the project requires a duration of six months. The data collecting for the research started in early October 2023 and concluded at the end of March 2024. The researcher participated at the Faculty of Nursing at Beni-Suef University twice weekly from 9 am to 2 pm. The researcher first explained the study's goal to the students and promised them that the gathered data would remain absolutely secret and used only for research purposes. The participants completed and submitted the interview questionnaire sheet within 15 minutes and 20 seconds.

III. Administrative design:

Authorization to do this research was secured from the Dean of the Faculty of Nursing at Beni-Suef University in Beni-Suef City. Outline of the study procedures for the Dean of the Faculty of Nursing students, followed by the acquisition of their permission.

IV. Statistical design:

Use of SPSS version 26 and Microsoft Excel allowed for statistical analysis of the data. Descriptive analysis was used to the variables, with means and standard deviations being used to assess and report continuous variables. To determine the significance of qualitative variables, we utilized the chi-square test (X2), and to compare the means of two or more groups, we used the independent t-test. The degree of significance is indicated by the p-value. When the p-value was 0.05 or below, we said that the result was statistically significant. We used SPSS, version 20.0, developed by IBM Corp. of Armonk, New York, to enter the encoded data that we had collected.

Results:

Table 1 indicates that more than two fifths

of the studied participants aged 22- < 23 years old, with a mean of 20.56±0.569, more than half of them were female, the vast majority were residents of a rural setting and the majority of them were single.

Table 2 indicates that three-quarters of the studied participants had 5-8 family members, less than two-fifths of the studied participants' fathers and mothers had a secondary education, more than half of their fathers were employed, and the vast majority of their mothers were not employed. Additionally, less than two-thirds of them have a family income that is enough just for essentials.

Table 3 indicates that more than half of them had previous online learning, more than two-thirds of them use Wi-fi as access to the internet, nearly two-thirds of them utilize smartphones, and nearly three quarters of them added that stability of internet connection was somewhat stable.

Figure (1): Percentage distribution of utilized

platform by the studied participants (n=192). Figure 1 illustrates that a total of the studied participants utilize the microsoft teams

platform, most of them utilize telegram, the vast majority of them utilize google meeting, and only less than two-thirds of them utilize zoom platform.

Figure (2): Percentage distribution of total knowledge score of the student participants (n=192).

Figure 2 illustrates that more than half of the student participants had poor knowledge regarding online learning, more than one-third of them had fair knowledge, and only a minority of them had a good level of knowledge.

Figure 3 illustrates that less than two-fifths of the student participants had positive attitudes regarding online learning, two-fifths of them had uncertain attitudes, and only more than one-fifth of them had a negative attitude.

Table 4 showes that there was a statistically significant positive correlation between the studied nursing students' total knowledge score and their total attitude score (p<0.05*).

Table 1: Distribution of demographic characteristics of the studied participants (n= 192).

Variable	Item	Frequency	%
Age in years			
	21- < 22	81	42.2
	22- < 23	84	43.8
	23	27	14.1
	Mean ±SD	**20.56±0.569**	
Gender	Male	85	44.3
	Female	107	55.7
Rank among brothers	First	67	34.9
	Second	53	27.6
	Third	72	37.5
Residence	Urban	21	10.9
	Rural	171	89.1
Marital status	Single	159	82.8
	Married	33	17.2

Table 2: Distribution of family data of the studied participants (n= 192).

Variable	Item	Frequency	%
Number of family members	2-4 individuals	40	20.8
	5-8 individuals	144	75.0
	>8 individuals	8	4.2
Father's education	Illiterate	15	7.8
	Primary education	14	7.3
	Reads and writes	15	7.8
	Preparatory education	21	10.9
	Secondary education	74	38.5
	University education	53	27.6
Mother's education	Illiterate	44	22.9
	Primary education	21	10.9
	Reads and writes	5	2.6
	Preparatory education	15	7.8
	Secondary education	74	38.5
	University education	33	17.2
Father's job	Employed	99	51.6
	Non employed	93	48.4
	Employed	21	10.9
Mother's job	Housewife	171	89.1
Monthly family income	Enough and safe	28	14.6
	Just the essentials are enough	121	63.0
	Not enough	43	22.4

Table 3: Distribution of personal internet use of the studied participants (n= 192).

| Variable	Item	Frequency	%
Previous experience of online learning	Yes	102	53.1
	No	90	46.9
Technology (Access to the internet	Broadband internet	2	1.0
	Wi-fi	129	67.2
	Cellular (mobile) internet	61	31.8
Technology that students own	Laptop	7	3.6
	Smartphone	123	64.1
	Cellular phone	59	30.7
	Tablet pc	3	1.6
Stability of internet connection	Very stable	14	7.3
	Somewhat stable	139	72.4
	Not stable	39	20.3
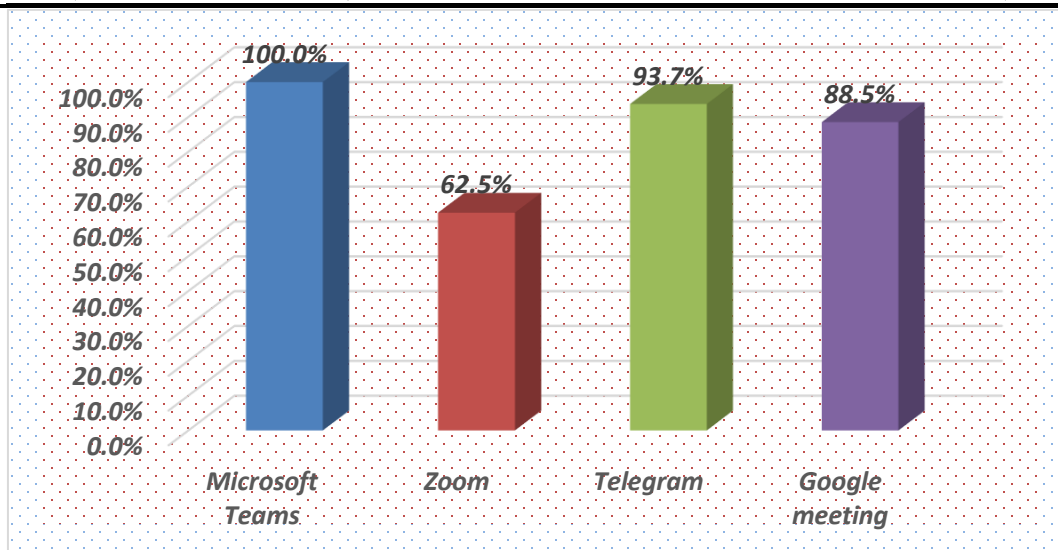
Figure (1): Percentage distribution of utilized platform by the studied participants (n=192).
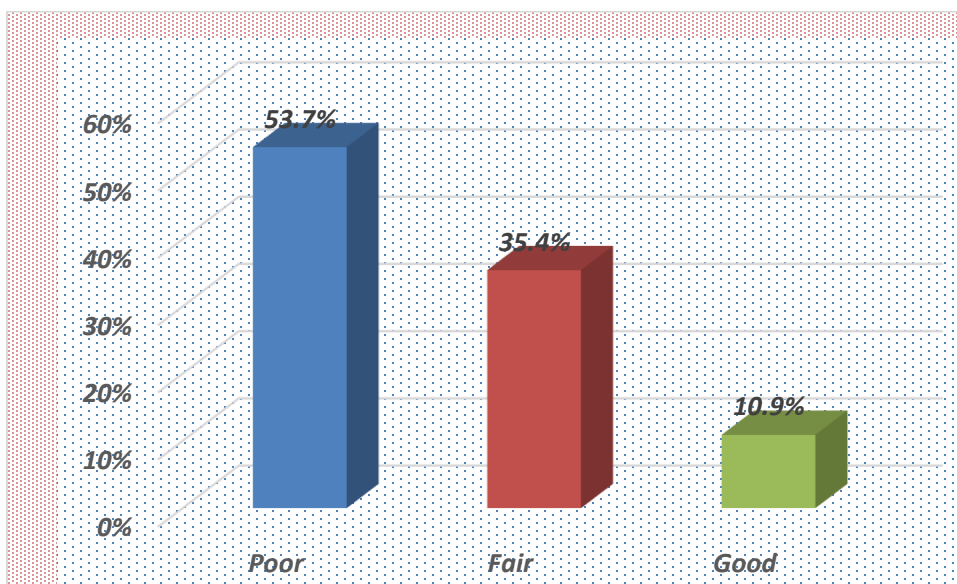

Figure (2): Percentage distribution of total knowledge score of the student participants (n=192).
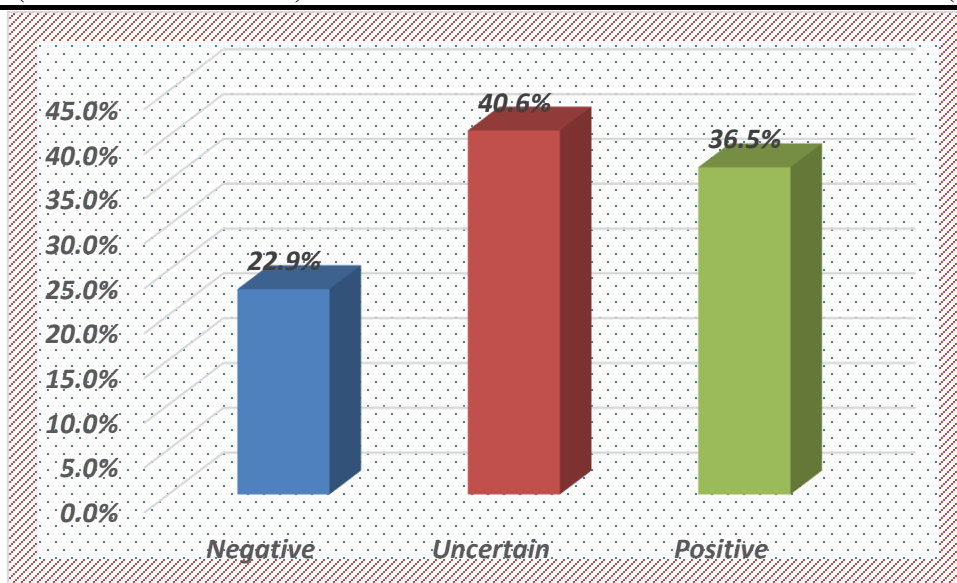
Figure (3): Percentage distribution of total attitude score of the student participants (n=192).

Table 4: correlation between the studied nursing students' total knowledge score and total attitude score (n=192).

Variables		Total knowledge score	Total attitude score
Total knowledge score	**r**	1	.286
	P- value	-	0.05*
Total attitude score	**r**	.286	1
	P- value	.05*	-

Statistically significant p < 0.05

Discussion:

With the advent of online learning, a paradigm shift in education has occurred, shifting traditional classroom practices into a digital space that for asynchronous interaction between teachers and students. The educational resources are available in a variety of formats, including video, audio, and others. microsoft teams, zoom, google classroom, and youtube are just a few examples of the resources that may facilitate online and offline instruction. When it comes to internet connectivity, device compatibility, and the ability to adjust to technological instruments, there are negative attitudes about these new technologies **(Nafrees et al., 2020).**

The broad use of online classrooms makes course materials more accessible, but too much screen time may have negative effects on mental health, leading to issues with stress, sadness, and sleep. In addition to having an adverse effect on social well-being via reduced engagement and social isolation, it may have a detrimental effect on physical health by causing headaches, blurred vision, poor hand function, and musculoskeletal problems. Online education and technology have a negative impact on students' psychological, emotional, social, and bodily health, which in turn causes them to feel inadequate and overwhelmed **(Sharma & Sharma, 2021).**

The current study aimed to measure the level of knowledge and understanding among nursing students at Beni-Suef University about online learning and its effects on community health. Analyzing the effects of online education on community health and nursing students' perspectives on the matter.

According to the demographic characteristics of the nursing students, the average age was 20.56 ± 0.569 years, and more than 40% of the participants were between the ages of 21 and 22. This confirms the results of a study by **Chunkhare and Jadhav (2023)** that looked at "Online Learning" solutions to the COVID-19 pandemic from the perspective of medical technology and allied healthcare students in India. In that study, 42.1% of the participants were between the ages of 21 and 22, which is quite a large percentage.

On the other hand, these results don't add up with what **Abou Hashish et al. (2022)** found in their study on the "online learning experience" in Saudi Arabia. They found that headaches caused by staring at screens for too long were common among students majoring in health sciences during the COVID-19 pandemic, and the fact that most of the participants were young adults (78.75%) cast their doubt on these findings.

When looking at the participants by gender and marital status, more than half were women, according to the present study. Unmarried people made up the bulk of the sample. This confirms the results of a study in Egypt by **Mousa et al. (2023)** on "University Nursing Students' Perception and Challenges towards E-Learning and Recommended Overcoming Ways," which found that 73% of the participants were female and 95% were single. While **Olum et al. (2020)** found that 57.7% of the participants were male in their study titled "Medical Education and E-Learning During COVID-19 Pandemic: Awareness, Attitudes, Preferences, and Barriers Among Undergraduate Medicine and Nursing Students at Makerere University, Uganda," this study finds the opposite to be true. **Černelič & Dolenc (2022)** found that 62.4% of the nursing students at the University of Primorska in Koper, Slovenia, were married, which goes against the findings of this study. They were

investigating the correlation between students' attitudes toward the nursing profession and their satisfaction with online learning during the COVID-19 lockdown.

According to the investigator, this result might be because women in that age group are more likely to be interested in nursing than men, who are more likely to spend their time playing sports and going out with friends.

The vast majority of participants in this study were from rural areas, according to the results. The results were in line with those of a study conducted by **Abdelrazek et al. (2021)** at the Faculty of Nursing at Benha University in Egypt. The study was titled "Effect of Obstacles Faced by Nursing Students in Applying E-learning during the COVID-19 Pandemic on their Attitudes," and it found that 69% of the students lived in rural areas. This study runs counter to the findings of **Basar et al. (2021),** who looked at the "effectiveness and challenges of online learning for secondary school students: A case study" and found that 60.2% of the students didn't live in the metropolitan areas.

According to the investigator, this is because a large majority of the Beni-Suef people live in rural areas.

Over a third of the participants' parents had completed secondary school, and seventy-five percent of the participants had between five and eight family members. According to **Bagdady et al. (2021),** who looked at the "Physical and Psychological Effects of Internet Addiction Among Faculty of Nursing Students at Port Said University," the results showed that 36.8% of the mothers and 37.4% of the fathers had a secondary education.

The results of this study contradict those of **Gaur et al. (2020),** an Indian research group that looked at "Barriers encountered during online classes among undergraduate nursing students during the COVID-19 pandemic in India." They found that 60% of the participants' parents had a bachelor's degree or above.

According to the investigator, this is due to a shift in cultural norms wherein completion of secondary school is now considered the bare

minimum for social acceptance. Higher rates of secondary school achievement have resulted from this cultural shift.

More over half of the participants' fathers had jobs, according to the present study. In addition, the percentage of people whose family income was just enough to cover basic essentials was lower than two-thirds of those who were surveyed. **Abolfathi et al. (2022)** looked at "Identification of the Opportunities and Threats of Using Social Media Among Iranian Adolescent Girls" in Kermanshah, western Iran, and they discovered that 55.5% of the participants had a medium income level. This research backed up their results.

The investigator attributes this to the fact that almost one-third of fathers have completed secondary school. This may make them eligible for lower-paying jobs with limited opportunities for advancement compared to those that need a higher level of education. Jobs for those with just a secondary education may pay less since they don't need as many specialized skills.

According to the current study, more than half of the nursing students had used online learning platforms before. **Coman et al. (2020)** found that 59.9% of the students who participated in their study had previous experience with online learning. This finding is in accordance with their findings from their research on "Online Teaching and Learning in Higher Education during the Coronavirus Pandemic: Students' Perspective" in Baghdad. To the contrary, **Baber's (2022)** research in Tunisia on "Social Interaction and Effectiveness of Online Learning - A Moderating Role of Maintaining Social Distance During the COVID-19 Pandemic" found the opposite. Baber discovered that 50.7% of the students polled had never participated in an online course before.

From the point of view of the investigator, this phenomena stems from the convenience of online learning, which allows students to study whenever and wherever they choose, helping them to juggle their education with other commitments like work or family.

According to this survey, more than two-

thirds of students use Wi-Fi to access the internet. **Thapa et al. (2021)** found the same thing when they surveyed nursing students in Nepal about their attitudes towards e-learning practices during COVID-19. Nearly three quarters of the students surveyed said they relied on Wi-Fi to access the internet. **Kumar et al. (2021)** investigated "Online learning in nursing students: Satisfaction and barriers" in Western Rajasthan, India, and discovered that 94.1% of the participants had access to the Internet using mobile phones.

This study goes against that conclusion. Many students may not be able to afford to take online classes over mobile internet due to the higher expenses compared to Wi-Fi, according to the investigator.

Nearly two-thirds of students use cellphones, according to the results of this poll. Supporting these results, **Abdelrahman et al. (2022)** conducted study at the Faculty of Medicine, Suez Canal University, which showed that 59.5% of students utilized their smartphones to participate in online learning. This study runs counter to the findings of **Subedi et al. (2020),** who looked at how online education affected Nepalese nursing students and teachers during the COVID-19 epidemic. In that study, the authors found that around 73.1% of students utilized computers or laptops to participate in online classes.

The investigator speculates that this result might be due to the fact that most academic nursing students have access to smartphones with advanced services and are able to use these services sooner than their peers, which could be related to the usage of personal smartphones in online education.

Nearly three-quarters of those who took part in the current study reported a reasonably constant internet connection. These results are in accordance with those of **Oducado** and **Estoque (2021),** who looked at "Online Learning in Nursing Education during the COVID-19 Pandemic: Stress, Satisfaction, and Academic Performance in the Philippines," and found that 75% of the participants had a reasonably dependable internet connection. It is worth noting that **Mazumder (2022)** looked at "Undergraduate nursing students' perceptions

of e-learning during the COVID-19 pandemic in Bangladesh." In that research, 70% of participants rated the internet connection as intermediate quality, which goes against this finding.

Several schools provide webinars and live online classes from the investigator's point of view. Students might miss parts of the presentation due to an inconsistent connection, leading to a fragmented understanding of the material.

This study confirmed that everyone involved uses the microsoft teams platform. Following in the footsteps of **Mohamed et al. (2024),** who investigated "Factors Affecting the Use of Electronic Learning Platforms as Perceived by Nursing Students and its Relation to their Engagement" at Benha University's Faculty of Nursing, it was revealed that eighty percent of the participants used the microsoft teams platform. **Achmad et al. (2021)** evaluated "Perceived barriers in online learning among nursing students during the COVID-19 pandemic in Indonesia" and found that 91.5% of students used the Zoom platform for online education, which contradicts these results.

An investigator's needs for chat, video conferencing, and announcements may be met by using microsoft teams, which provides a unified platform. This ensures that vital information is easily accessible and promotes consistency among participants.

Over half of the participants in this research had insufficient understanding regarding online learning, over a third had moderate knowledge, and just a tiny percentage had high knowledge, according to the current study. In a descriptive study of undergraduate nursing students in certain nursing colleges in Guwahati, Assam, **Kumari (2023)** found that 65% of participants had a negative impression of online learning, 32% had a moderate impression, and 3.6% had a positive one. Hence, our results are in line with theirs.

In contrast, the results did not line up with those of **Tarek et al. (2023),** an Egyptian study titled "Nursing Students' Perception regarding Online Learning and its Relation to their Academic Satisfaction at the Faculty of Nursing—Ain Shams University." In that study, 5% of the students polled had a poor perception of online learning, 69.4% had a moderate perception, and 25.6% had a high perception.

The investigator may have arrived at this conclusion as a result of rushing into the use of new technology-based learning evaluation approaches without giving them enough time to be   ready.

In this research, we found that students' attitudes towards online learning were mixed: less than half were favorable, half were ambivalent, and more than half were negative. **Doley and Das (2021)** found similar results in their study on undergraduate students' attitudes towards online learning. 45% of the students had a positive outlook on online education, while 37% were unsure and 18% had a negative view. The study was conducted at Raha College, Gauhati University, Assam, India.

On the other hand, **Diab and Elgahsh (2020)** found the opposite when they studied E-learning during the COVID-19 epidemic at the Faculty of Nursing, Menoufia University in Egypt. 61.6% of the participants had a negative attitude towards e-learning, and they found that attitudes towards its adoption were influenced by the barriers faced by nursing students.

According to the investigator, this result can be due to the fact that the students had experience with online learning before. Issues with the platform's functionality or internet access might lead to unhappiness and hinder the educational experience.

A positive association between the overall attitude score and the total knowledge score of the nursing students studied in this research was found to be statistically significant. In a study titled "Nursing students' attitude on the practice of e-learning: A cross-sectional survey amid COVID-19 in Nepal," which was carried out in Nepal by **Thapa et al. (2021),** it was found that there was a statistically significant positive correlation between the total knowledge score and total attitude score of the nursing students researched.

Statistically significant positive correlation between the total knowledge scores and total attitude scores of the nursing students examined was revealed in an investigation into "The role of technology in English language learning in online classes at the tertiary level" in Mauritania conducted by **Shahid et al. (2023),** which was consistent with our results.

According to the investigator, when educational interventions are effective, pupils not only have a deeper comprehension of the subject, but they also develop more positive attitudes about it. This could come about as a consequence of more engaging and effective interactive methods of teaching. Knowledge acquisition and attitude modification may both be aided by an educational environment that is supportive and encouraging. When students feel encouraged and supported, they are more likely to fully immerse themselves in the subject matter and develop positive attitudes.

Conclusion

The current study concluded that over one-third (35.4%) of the participants possessed a moderate understanding of online learning and its impact on community health. Additionally, 40.6% of the participants exhibited ambivalent attitudes about online learning and its impact on community health; furthermore, a statistically significant positive association was seen between the overall knowledge score and the total attitude score of the nursing students analyzed.

Recommendations:

Based on the previous results of the present study and conclusion, the following recommendations are suggested:

➤ Develop and implement an educational program to increase students' awareness about online learning and its negative effects on health.

➤ Conducted regular workshops at convenient times for nursing students to improve knowledge about online learning and Clarify the harmful effects of prolonged use of online learning.

➤ Disseminate booklets and posters about online learning and its negative effects on health.

➤ Further research: Replication of study using large study sample in different settings to generalize the results.

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