

NURSING STUDENTS' PERCEPTION AND ATTITUDE TOWARD ONLINE LEARNING OF MEDICAL-SURGICAL NURSING COURSES DURING COVID-19 ERA.

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Abstract

Background: Teaching has been impacted by the COVID-19 epidemic in several universities, particularly nursing faculties. During the epidemic, electronic learning (e-learning) replaced traditional classroom instruction as the primary approach. After a semester of solely online instruction, a survey was carried out to ascertain nursing students' opinions of this kind of education. **Aim:** This study aimed to assess nursing students' perception and attitude toward online learning of medical-surgical nursing courses during COVID-19 era. **Subject and Methods:** A cross-sectional design was used. It was conducted on all students' faculty of nursing at Suez Canal University. As a convenient sample, 432 students participated. The data were collected via an electronic survey from February to May 2021. The survey assessed nursing students' demographic features, nursing students' perception and attitude on online learning of medical-surgical nursing courses during COVID-19 era. **Results:** The findings of this study revealed that 63.4% of the studied students were aged between 17-20 years. Moreover, 69.7% of the participated students had the correct level of perception with hearing about distance learning before you start studying through it. Also, about 52.1% of students disagreed with participation of students by E-learning is more effective than with the lecturer, compared with 17.8% in traditions learning. **Conclusions:** There was a statistically significant correlation between the studied students' point of view is distance education and traditional education with P value<0.05. Furthermore, there are multiple challenges to E-learning compared to traditional learning. **Recommendations:** This study supports the necessity for in-service training courses to be continuous for nursing students to promote their level of perception, attitude, and challenges of e-learning. Facilitating technical barriers with programs that can enhance practical learning abilities, e-learning can be a vital alternative teaching method and learning

methods in the nursing field.

Keywords: Attitude, COVID-19 era nursing students, online learning, and perception.

1. INTRODUCTION

The COVID-19 pandemic has disrupted teaching in a variety of institutions, especially medical schools. In many countries, including Poland, typical face-to-face classes had to be suspended to ensure the safety of students, lecturers, and patients. To minimize the impact of the lockdown, medical schools had to find another approach to teaching medical students. Fortunately, current technology enabled electronic learning (e-learning) to be the core method of teaching the curriculum during the COVID-19 pandemic. E-learning is defined as using information technology to improve the quality of education (Blissitt, 2016). Currently, online teaching is commonly used in the training of undergraduates—not as a sole method but combined with the traditional teacher-led approach (Terzi, Azizoğlu, & Özhan, 2021). The success of e-learning depends on many factors, including accessibility, usage of appropriate methods, course content, and assessment criteria.

E-learning, like any method of teaching, has its advantages and disadvantages for both students and teachers. Besides the epidemiological benefits of e-learning during the COVID-19 pandemic, other benefits worth mentioning include increased convenience, access to resources regardless of location and time, and reduction of costs and air pollution, e.g., carbon dioxide emissions because of the reduction in track (Abdull Mutalib, Md. Akim, & Jaafar, 2022). Therefore, it is important to investigate students' perceptions, feelings, and attitudes toward the nursing profession during major public health crises, as previous studies have shown that positive attitudes are frequently found to enhance students' interest in the subjects and their motivation for learning and play an important role in future career stability and the reduction of turnover rate (Thapa, Bhandari, & Pathak, 2021).

Professional identity evaluation in nursing students can significantly contribute to the identification of those students who are at risk of abandoning their studies and consequently taking immediate and appropriate action to support these students (Černelič-Bizjak, & Dolenc, 2022). Online classes also have limitations, including problems with internet access, poor internet connection quality, and insufficient digital skills of the respondents. Some benefits, such as time flexibility can also be limitation, especially for students who have difficulties with self-discipline (Oladele, Opele, Avwioro, Afolabi, & Awotorebo, 2022). After eight weeks of only online learning with no face-to-face learning, we decided to analyze medical students' perceptions of this teaching approach. Furthermore, there is unaccountable statistical data on nursing students' perceptions and attitudes toward online learning of medical-surgical nursing courses during the COVID-19 era. So that this research proposal will be submitted.

2. AIM OF THE STUDY: This study aimed to assess nursing students' perception and attitude toward online learning of medical-surgical nursing courses during COVID-19 era. The aim of this study was achieved through:

- Assess nursing students' perception toward online learning of medical surgical nursing courses during the COVID-19 era.
- Determine nursing students' attitudes toward online learning of medical surgical nursing courses during the COVID-19 era.

- Assess the relationship between the nursing students' perception and attitude toward online learning of medical-surgical nursing courses during the COVID-19 era.

3. SUBJECT AND METHODS

3.1 Research Design: A cross-sectional design was used to achieve the aim of this study.

3.2 Setting and Subject: This study was conducted on all students who are studying Medical-Surgical Nursing courses (first and second year), faculty of nursing at Suez Canal University. The total capacity of faculty's students at the 2020/2021 academic year was 750 students.

3.3 Sample: The studied students will be recruited as a convenient sample in the previously mentioned setting. The sample size at the setting estimated 432 students post added 10% dropout, with (95%) a confidence level, and (10%) the power of the study, which N = population size, e = Margin of error (percentage in decimal form), z = z-score (Rutterford, Copas, & Eldridge, 2015).

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N}\right)}$$

Tools for data collection

The data were collected from February to May 2021 via a valid electronic survey, which was adapted by the researchers to be compatible with the study's aim (Rana, Garbuja, & Rai, 2021; Bączek, et al. 2021). That was accessed by the participating students individually away from their study time using different social networking packages. There were no exclusion criteria. Each student was allowed to complete the questionnaire once. All respondents were fully informed about the objectives of the study and agreed to voluntarily participate (432 students). The link to the survey designed on one-drive apps to be compatible and valid with already recent established academic students' accounts on the handle university platform. It was distributed among all faculty students' what's app groups. It consisted of three parts:

- Demographic data of students, which they were requested to enter (age, gender, year of study, and previous experience to use computer (4 items).
- Students' perceptions self-administrated survey: it consisted of thirty items, its response in the form of multiple-choice questions and true or false questions. It was comprised of students' perceptions of capabilities of using the computer (5 items). The e-learning platform recognition (3 items). The advantages of platform e-learning (9 items). The disadvantages of platform e-learning (6 items), challenges to understanding learning objectives (knowledge, clinical practice, and social competencies) (7 items), and students' level of acceptance of e-learning (2 items). The scoring system: The score of the students' perception ranged from 0-30 grades, while the correct answer scored as one and the incorrect as zero. This score switched to the percentile score. The perception level was considered satisfactory if the percent score was $\geq 75\%$ and unsatisfactory if $< 75\%$ (Bączek, et al. 2021).
- Students' attitude scale: It is a valid and reliable questionnaire used to assess the studied students' attitudes toward e-learning compared with traditional learning. consists of eight questions. Scoring system: The level of agreement on a 5-point Likert scale; with strongly agree (5), agree (4), neutral (3), disagree (2),

and strongly disagree (1). The students' attitude level was considered satisfactory if the percent score was $\geq 75\%$ and unsatisfactory if $< 75\%$ (El-Sayad, G., Md Saad, N. H., & Thurasamy, 2021).

3.2 Measures

On 15th March 2020, the World Health Organization announced that COVID-19 is a global pandemic, and nationally the suspension of face-to-face learning in universities by the Egyptian government and convert to online learning resulted in the World Health Organization declaring a state of epidemic emergency. All Egyptian universities were obliged to conduct exclusively e-learning. Sampling started and is expected to be completed within three months. Data was collected by the researchers using simplified Arabic and English languages to be suitable for the studied students through electronic links individually through academic e-mail away from their study time and using different social networking packages such as WhatsApp groups.

There were no exclusion criteria. Each student was allowed to complete the questionnaire individually. All participants were fully informed about the objectives of the study and their agreement to voluntarily participate or reject it. The questionnaire survey was collected within 5 to 10 minutes. The link to the survey was designed on one-drive apps to be compatible and valid with already recently established academic students' accounts to handle the university platform.

3.3 Questionnaire validation and reliability: content validity was assessed by a panel of five experts in the field of Medical-Surgical Nursing (three), and Nursing Education (two). There were no items that needed to be removed or modified. A pilot test of the questionnaire was carried out on ten students to promote comprehensive understanding, necessary changes were made. Content reliability, and coefficient of reliability was measured by Cronbach's alpha to check the internal consistency of the used questionnaire which showed good reliability was 0.892 for level of perception and 0.715 for attitude section)".

3.4 Data analysis: Using a basic statistics application; IBM Corp. Released 2015. IBM SPSS Statistics for Windows, (SPSS 2015; version 23.0. Armonk, NY: IBM Corp) all data were gathered, tabulated, and statistically examined. Quantitative data were expressed as the Mean \pm SD and qualitative data were expressed as frequencies (n) and percentages (%). The Chi-square test was used to assess the association between the demographic and expert characteristics on one side and the overall perception and attitude scores' on the other side. The marginal homogeneity test used two dependent variables more than two categories. p-value < 0.05 was considered statistically significant, p-value < 0.001 was considered statistically highly significant, and p-value ≥ 0.05 was considered statistically insignificant.

4. RESULTS

Table (1): shows that 63.4% of the studied students were aged 17-20 years, with a mean \pm SD (20.3 \pm 1.4). About 63.4% were female, and mostly 56% were in grade two. On their experience of using a computer, 39.8% of them had a good level. Furthermore, in **Figure (1)** on the studied students' abilities to use the computer; about 61.1% of them have a regular internet connection, and 96.1% have an Android phone or other type of phone but only 23.8% participated in online courses.

Figure (2): presents that 69.7% of the participated students had the correct level of perception with hearing about distance learning before you start studying through it. Furthermore, about 23.8% and 27.5% of them had correct level of perception on using the computer and had computer knowledge before starting the study using distance education sequentially.

Table (2): In concerns of the advantage level of e-Learning, about 29.4% of the studied students clarify

that there was the ability to stay at home, and 25.9% present access to online materials. On disadvantage of e-learning, approximately 39.4% of them mentioned a lack of feedback, and 45.6% presents no understand lesson. Furthermore, 94.7% of the studied students show internet problem and 38.2% clarify lack of technical know-how to use the devices or device's mal function as challenges of e-learning.

Table (3): shows that 26.2% of the studied students agreed with increasing the level of information for students in e-learning, compared with 59.5% in traditional learning. About 26.9% of the participants in e-learning had neutral response on increasing the level of practical skills of students, compared with 20.1% in the traditional learning. Moreover, 52.1% of students disagreed with participation of students in the e-learning is more effective than with the lecturer, compared with 17.8% in traditions learning. There was statistical significant correlation between the studied students' point of view is distance education and traditional education with P value<0.05.

Figure (3): demonstrates that 19% of the studied students had extremely unsatisfactory level, compared with 29.9% with neutral level and 6.9% with extremely satisfactory level about the use of e-learning. Moreover, illustrates that there was statistical significant relation between the students' satisfaction level about E-learning and their demographic characteristics as gender and experience with p value p<0.05 that clarified in **Table (4)**.

Table 1: Frequency and Percentage distribution of the studied students according to their personal characteristics (no. 432).

Personal Characteristics	Students	
	n	%
Age per years:		
▪ 17-20 years	274	63.4
▪ 21-23 years	158	36.6
Mean ±SD	20.3±1.4	
Range	17-23	
Sex:		
▪ Females	274	63.4
▪ Males	158	36.6
Education grade:		
▪ Grade1	190	44
▪ Grade2	242	56
Experience:		
▪ Excellent	39	9.0
▪ Very good	71	16.4
▪ Good	172	39.8
▪ Poor	150	34.7

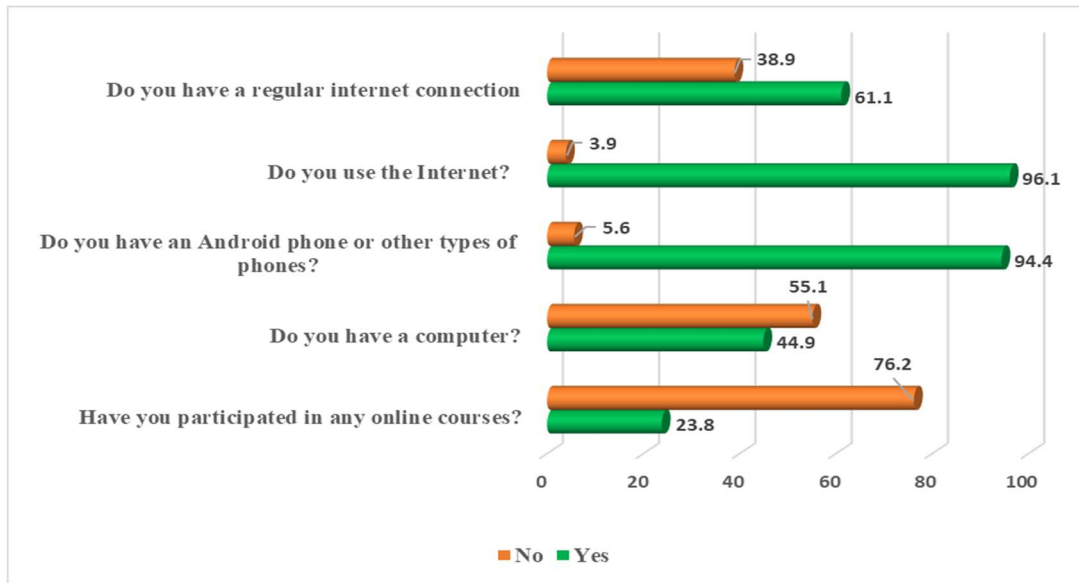


Figure 1: Frequency distribution of the studied students' abilities to use the computer (no. 432).

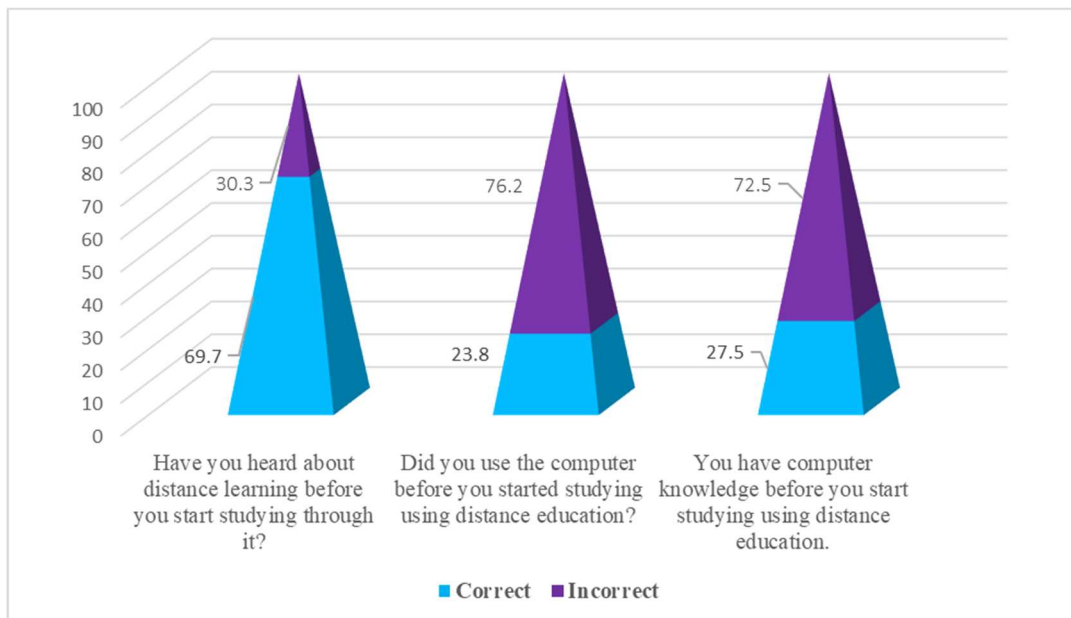


Figure 2: Frequency distribution of the studied students' level of perception about the E-learning platform (no. 432).

Table 2: Frequency distribution of the studied students' advantages, disadvantages, challenge of using E-learning (no. 432)

Items	Frequencies	
	n.	%
Advantage of E-learning		
▪ The ability to stay at home	127	29.4
▪ Comfortable surroundings	180	41.7
▪ Ability to record the meeting	174	40.3
▪ Access to online materials	112	25.9
▪ Let's you get the job done quickly	114	26.4
Disadvantage of E-learning		
▪ Lack. feedback.	170	39.4
▪ Inappropriate clinical practice	375	86.8
▪ no understand lesson	159	36.8
▪ Isolation beer	197	45.6
▪ Poor quality of the educational process at home	336	77.8
▪ Lack of self-discipline during the lecture	199	46.1
Challenge of E learning		
▪ Interne problem	409	94.7
▪ Unstable electricity	172	39.8
▪ Lack of technical know-how to use the devices or device's mal function	165	38.2

Table 3: A comparison of the studied students' point of view is distance education and traditional education (no. 432).

Variables	Response	E-learning		Traditional learning		Mp
		No.	%	No.	%	
▪ Increasing the level of information for students.	Disagree	193	44.7	70	16.2	0.0001*
	Neutral	126	29.2	105	24.3	
	Agree	113	26.2	257	59.5	
▪ Increasing the level of practical skills of students	Disagree	231	53.5	71	16.4	0.0001*
	Neutral	116	26.9	87	20.1	
	Agree	85	19.7	274	63.4	
▪ Increasing the level of social relations between students	Disagree	258	59.7	61	14.1	0.0001*
	Neutral	97	22.5	65	15.0	
	Agree	77	17.8	306	70.8	
▪ Participation of students	Disagree	225	52.1	77	17.8	0.0001*

during is more effective with the lecturer.	Neutral	114	26.4	114	26.4
	Agree	93	21.5	241	55.8

Marginal Homogeneity Test, *P<0.05 significant

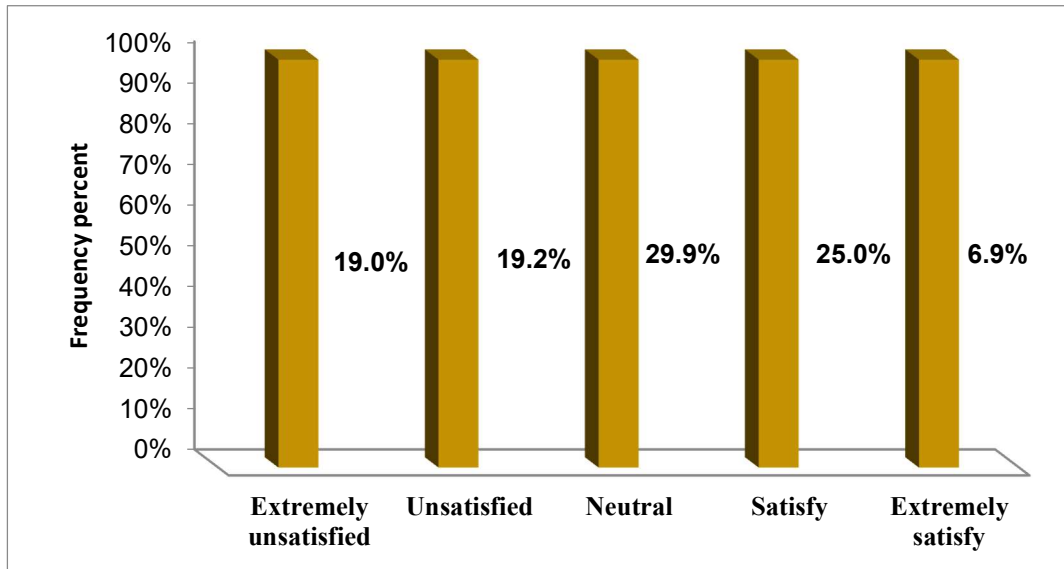


Figure 3: Percentage of satisfaction level of the studied students about the use of E-learning (no. 432).

Table (4): Relation between the students’ satisfaction level about E-learning and their demographic characteristics (no. 432).

Variables			Satisfaction level about E-learning					χ^2	p-value
			extremely unsatisfied n.82	Unsatisfied n.83	Neutral n.129	Satisfy n.108	extremely satisfy. n.30		
Age	17-20 years	N	55	45	82	74	18	4.9	0.301
		%	67.1%	54.2%	63.6%	68.5%	60.0%		
	21-23 years	N	27	38	47	34	12		
		%	32.9%	45.8%	36.4%	31.5%	40.0%		
Gender	females	N	54	65	85	63	7	30.5	0.0001*
		%	65.9%	78.3%	65.9%	58.3%	23.3%		
	Males	N	28	18	44	45	23		
		%	34.1%	21.7%	34.1%	41.7%	76.7%		
Grade	Grade1	N	36	34	64	44	12	19.8	0.07
		%	8.3%	8.0%	14.1%	10.1%	3%		
	Grade2	N	56	63	54	51	18		
		%	12.9%	14.7%	12.4%	12.1%	4.1%		

		%	13.0%	14.7%	12.7%	12.0%	4.1%		
Experience	Excellent	N	3	1	8	12	15	104.7	0.0001*
		%	3.7%	1.2%	6.2%	11.1%	50.0%		
	Very good	N	8	13	19	29	2		
		%	9.8%	15.7%	14.7%	26.9%	6.7%		
	Good	N	28	30	57	49	8		
		%	34.1%	36.1%	44.2%	45.4%	26.7%		
Poor	N	43	39	45	18	5			
	%	52.4%	47.0%	34.9%	16.7%	16.7%			

χ^2 Chi square test *p<0.05: significant p>0.05: non-significant

5. DISCUSSION

The COVID-19 pandemic has brought significant challenges to the field of education, including nursing education. During this time, online learning has become the primary mode of instruction for nursing students. So, this study aimed to assess nursing students' perceptions and attitudes toward online learning of medical-surgical nursing courses during the COVID-19 era.

The current study revealed that most of the participating students had heard about distance learning before they started studying it. About one-quarter of them had used the computer before starting studying through using distance education and also, they had computer knowledge before starting the study and using distance education sequentially. From the researcher's point of view, this might be due to that computers are essential to the continuing professional growth of nursing students. Through webinars, professional social networks, and online courses, students can stay up-to-date on developments in nursing practice. These results were supported by **Chavaglia et al., 2018** who stated that to obtain current research papers and information based on evidence, nursing students actively use computers to access digital libraries and databases. This improves their capacity to remain up-to-date on the most recent developments in healthcare. These results were in line with **Agbo et al., 2022** who highlighted that the stress induced by the sudden shift to online learning during the pandemic has also been a significant concern. It is essential to acknowledge and address the stress experienced by teachers and nursing students alike. Providing stress management interventions and support for both educators and students is vital in ensuring a conducive and supportive learning environment. Also, Nursing students leverage computers for effective communication and collaboration with peers and healthcare professionals. Email, messaging apps, and collaborative platforms facilitate information exchange and teamwork (**Karanikola et al., 2015**).

Due to the flexibility and capacity to accommodate nurses' schedules, e-learning has grown in popularity in the nursing education field. Furthermore, e-learning provides a workable answer for nursing professionals' ongoing educational requirements. E-learning can be a means of enhancing clinical competencies and staying current with industry trends by updating knowledge. In the current study, nearly half of the studied nursing students in medical-surgical nursing reported comfortable surroundings and the ability to record meetings as advantages of e-learning, one-third reported the ability to stay at home, while one-quarter of studied nursing students reported access to online materials and getting jobs done quickly. This result agreed with **Oliveira et al., 2018** stated that from the perspective of the student, the primary benefit of distance learning is the flexibility

it offers, as there is no requirement to attend sessions in person at a classroom location. This allows the student to take classes whether they are in their home city or a different one. Additionally, the student is free to design exercises at his own pace, whenever he is able or wants.

Meanwhile, E-learning has several drawbacks in addition to its benefits. The current study revealed the disadvantages of e-learning, approximately more than one-third of them mentioned a lack of feedback, and about half of them reported no understanding lesson. Furthermore, the majority of the studied students show internet problems and more than one-third clarified lack of technical training to use the devices or device's malfunction as challenges of e-learning. In the same line, the bulk of participants in the study by **Nabolsi and colleagues (2021)** were novices of e-learning, and they lacked the technical know-how to administer it successfully. They proposed that continued training and assistance could help teachers become more at ease with teaching online and enhance the caliber of their lessons. Also, **Mojarad et al., 2023** concluded that during the COVID-19 epidemic, e-learning was used to replace traditional classroom instruction; nevertheless, there are obstacles and enablers in its adoption. Through the resolution of issues and enhancement of e-learning's enablers, nursing schools can effectively transition to this new form of instruction in the post-pandemic period and offer their students a top-notch education. On the other hand, one of the main barriers to the development of e-learning in higher education is the lack of financial and material resources to purchase the required computer systems and equipment **Tang et al., 2020& Schroeder et al., 2010**.

The result underscored the need for educational institutions to address these challenges while capitalizing on the recognized benefits to optimize the e-learning experience for nursing students in such unprecedented times. Based on this result, it is evident that e-learning has both advantages and disadvantages. Therefore, it is essential to strike a balance between the two to ensure that students receive quality education. The findings of this study can be used to inform the development of effective online learning strategies that cater to the needs of nursing students.

The current study revealed intriguing insights into students' perceptions across various dimensions. The study found that more than half of students concurred that traditional learning significantly enhances their informational acumen, traditional learning again took precedence with most students affirming its superiority. This indicates a perception that hands-on, practical skills are better honed in a traditional learning setting. Also, the study delved into the social aspect of learning. An overwhelming majority of students agreed that traditional learning fosters stronger social relations among peers, compared to relatively minor students who felt the same about e-learning. This underscores the importance of face-to-face interactions in building robust social networks. Also, the effectiveness of student participation with lecturers was examined. More than half of the students agreed that traditional learning facilitates more effective participation with lecturers. This highlights the value of direct, in-person interactions in enhancing the learning experience.

In the same line, Lahti, et al, 2014 stated that certain students might be more comfortable with more conventional teaching methods, including in-person training, or they might find technology or the lack of face-to-face engagement challenging. To ensure that students can fully participate in the learning process, it is crucial that educators and institutions thoroughly evaluate the usage of e-learning and offer help and resources. Concerning satisfaction about one-third of students had neutral satisfaction toward the use of eLearning, this result disagrees with **Khagi, et al., 2021** stated that during the COVID-19 pandemic, nursing students' general opinions of online learning were unsatisfactory. From the researcher's point of view, neutral satisfaction may

be caused by technical problems or issues with the eLearning platform. Technical issues could detract from the entire experience and influence students' perceptions. Also, personal circumstances, internet connectivity issues, or the availability of resources can play a role in shaping students' opinions. One-quarter of studied students had satisfaction on e-learning which may be related to the convenience and flexibility that eLearning provides may be valued by students. For students who have hectic schedules, having the flexibility to access course materials at their speed and from any location can be an important perk. On the other hand, A study found that when compared to traditional classroom settings, medical students were less satisfied with the use of e-learning technologies, expressing feelings of loneliness and alienation from their teachers and peers **Jacobsen, 2006**. In addition, **Diab & Elgahsh 2020**, conducted a study of nursing students and revealed that 61.6% of them had unfavourable opinions on online learning.

Finally, the current study revealed that a highly statistically significant difference was found between e-learning and gender. Also, a highly statistically significant difference was found between e-learning and experience. Based on recent studies **Alyahya, 2022**, female students experience online learning more positively than their male counterparts. They must construct an engaging and distinct virtual learning environment for every student, irrespective of gender. These findings corroborate the findings of **Anwar et al., 2021**, who discovered that female medical students use e-learning more favorably than their male counterparts. The results counter the findings of **Thapa et al., 2021**, who discovered no discernible gender disparities in the e-learning experiences of students during COVID-19. Also, the connection between experience and success in online learning environments has been studied. According to a **2012 study by Sun and Rueda**, learners' performance and satisfaction in online courses are significantly impacted by their past technological experience. Nevertheless, prior studies by **Anwar et al., 2021**, and **Thapa et al., 2021** produced inconsistent findings about the variations in e-learning experiences among students according to their gender. These variations and the findings they discovered overall were not supported by any of these investigations. The influence of gender-segregated culture is the explanation for these notable variations, as the current research demonstrates. Before COVID-19, female students in these cultures frequently lack access to traditional education that involves face-to-face interaction in every subject. The study had some limitations as basically, recall bias and social desirability effects may be present in self-reported questionnaires, which may prejudice their usage.

5. CONCLUSION: In conclusion, while e-learning has its merits, this study suggests that in the areas of information acquisition, practical skill development, social relations, and student-lecturer interaction, traditional learning is perceived to have an edge. However, it's important to note that these findings are based on students' perceptions, and further research is needed to explore the underlying reasons for these perceptions. Since students and teachers are the focal points of education and training activities, their perspectives were sought out when evaluating the process' educational activities. There was a statistically significant correlation between the studied students' point of view is distance education and traditional education with a p value<0.05. Furthermore, there are multiple challenges of e-learning than traditional learning.

6. RECOMMENDATION

Based on the results of the present study, this study recommended that in-service training courses be continued for nursing students to promote their level of perception, attitude, and challenges of e-learning. Generalizing the findings, more research should be conducted on a wider scale, with a large probability sample and different geographical areas. Moreover; by facilitating technical barriers with programs that can enhance practical learning abilities, e-learning can be a vital alternative teaching method and learning in the nursing field.

Declarations

Funding: This was a self-supporting study by the authors.

Consent for publication: In this study, there was no applicable material.

Conflicts of interest: There were no conflicts of interest associated with the current study.

Availability of data: Upon appropriate request, the author will make the data sets assembled and interpreted during this study available.

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Ethical considerations: It was obtained from the Research Ethics Committee (REC), Faculty of Nursing, Port Said University, Egypt that coded NUR 1/10/2023 (30). Informed consent was sought from the participating students. All administrative approvals were also obtained. The purpose of the study, potential benefits, and risks were clarified to the studied students pre-starting. They were assured of maintaining confidentiality and informed that they had the option to decline or withdraw from a participation without giving any explanation and/or any negative consequences that their participation was voluntary.

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