

## Perception of Undergraduate Nursing Students Regarding Electronic learning during Covid-19 Pandemic

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### Abstract

**Background:** online learning shifts education from a conventional traditional classroom that is teacher-centered, to a student-centered one; where students are more responsible for their learning. **Aim of the study:** the current study aimed to assess the perception of undergraduate nursing students regarding electronic learning during covid-19 pandemic. **Research design:** a descriptive research design was used to achieve the aim of the current study. **Setting:** the study was conducted at The Faculty of Nursing, Minia University, Egypt. **Subjects:** A representative sample 30% of undergraduate nursing students was selected (840). **Tools of data collection:** Tool (I): Self-administered questionnaire: Part I: Personal data. Part II: Perception of Nursing Students about Electronic Learning. **Results:** there are (68%) of nursing students has fair perception level about electronic learning during Covid-19 pandemic. While there are (28.7%) of them have good perception level about electronic learning during Covid-19 pandemic. Also, there were statistically significant differences between personal data regarding (age, gender, and academic year) with nursing student's total electronic learning perception with p-value (0.001). **Conclusion:** The study findings concluded that nursing students had fair perception level about electronic learning during Covid-19 pandemic, and e-learning can foster students learning abilities. **Recommendations:** A combination of online and traditional learning should be merged by providing students and lecturers with specialized training on how to use online learning and gain confidence in their use.

**Key Words:** Covid-19, Pandemic, Undergraduate Nursing Students, Electronic learning, Perception.

### Introduction:

Higher education institutions have been impacted by the COVID-19 epidemic, as have communities, and economies worldwide. Because authorities around the world have closed campuses in an effort to stop the virus's spread, the pandemic has also forced certain changes on higher education institutions. Higher education institutions worldwide were therefore forced to launch online learning options for staff and students right once (Cucinotta, 2020).

Around the world, schools, educators, and educational institutions are all significantly impacted by this health epidemic. In order for students to adhere to social distancing policies, the epidemic forced schools, colleges, and universities to close their campuses. This has encouraged academic professionals to consider distance learning as a possible alternative to the conventional face-to-face learning methods (Adnan, 2020; Mailizar, 2020).

With online learning, the traditional teacher-centered classroom is replaced with a student-centered one where students take greater ownership of their education. Since most academic institutions focused on transferring the educational content to the digital realm rather than on online teaching and delivery methods, the abrupt shift to online learning has come to be seen as an indicator of organizational resilience (Mailizar, 2020; Toquero, 2020).

Electronic learning, or e-learning, is identify as a teaching approach that aids learning via the use of communication and information technology, giving students access to all the necessary instructional materials. The World Economic Forum said that within the past three months, there has been a sharp increase in the usage of online software for learning, virtual tutoring, language apps, and video

conferencing technologies (Joint Information Systems Committee, 2020).

Greater flexibility and convenience, the option to study at one's own pace, a variety of instructional resources to meet the diverse learning requirements of nursing students, and an easier time for nursing faculty to conduct lectures and tests were among the benefits of online education (Kunaviktikul et al., 2022).

Also, students from lower-income families cannot afford the expense of modern electronic devices, internet connectivity, and accessories. Furthermore, some pupils might not be aware of recent developments in technology. It may cause such pupils to become fearful of falling behind, which might eventually result in melancholy and mental illness (Suliman, 2021).

Although the benefits of e-learning are obvious, it could be argued that it still has some weaknesses. For example, since users are not bound by time, the course is available all the week and does not require physical attendance which could reduce the social and cultural interaction. The learners may also feel isolated and unsupported while learning since the instructors and instructions are not always available (Wallace, 2021).

### Significance of the study

In light of the conditions that pass through Egypt and with the world, and WHO declaring the COVID-19 pandemic; there are preventive measures in many Arab countries were done in which it included the closure of schools and universities entirely in some countries, and forced the Ministry of Higher Education in Egypt to use e-learning as a means to ensure the continuity of the educational process and not to lose an academic year for students. Educational institutions

are presented with surmounting challenges in its education system and this pandemic will have an impact on the educational and there will be a drop especially in national examinations(Sintema, 2020).

Also, from the study of Thapa, et al., (2021) who studied nursing students' attitude on the practice of e-learning by using a cross-sectional survey amid COVID-19 in Nepal; and found that half of the nursing students showed a positive attitude regarding e-learning. Also, the study conducted by Elewa (2022) about "online teaching readiness, challenges and satisfaction as perceived by nursing faculty members during COVID -19 pandemics", revealed that the highest percentage of study participants had a moderate satisfaction level with online teaching.

Therefore, the Nursing faculties, sought to introduce and apply an e learning system to complete the teaching of courses for all students. So, the researcher introduced this study to assess the perception of nursing students about E-learning. Also, the results of this research might be leading to provide clear insights that could be contributing to the effective implementation of electronic learning in the Egypt education system.

**Aim of the study:**

The current study aimed to assess the perception of undergraduate nursing students regarding electronic learning during covid-19 pandemic.

**Research questions:**

1. What was the level of undergraduate nursing students' perception about electronic learning?
2. Was there a relation between the students' personal data, and their perception about electronic learning?

**Subjects and methods:**

**Research Design:** A descriptive research design was used to achieve the aim of the current study.

**Research Setting:** the study was conducted at The Faculty of Nursing at Minia University, Egypt. It included all Nursing Faculty academic departments.

**Subjects:** A representative sample of 30% (840) student of total number of undergraduate nursing students was selected by systematic random sample.

**Data collection tools:**

Data was collected by using one tool as following:

**Tool (I): Self-administered questionnaire:** It was classified into three parts:

**Part one:**

**Personal data:** It was used to collect data about nursing students and encompass items such as age, gender, residence, academic year, sources of the internet, and last academic achievement.

**Part two:** three questions related to students use of e-learning as:

1. Nursing student's sources of the internet (mobile net package or Wi-Fi)
2. Nursing students how many times use internet (more than 12hours per day, 12 hours per day, 6 hours per day, ....., every month)

3. Websites nursing students use (Electronic platform for college, Facebook, WatsApp, Telegram, ..... etc.)

**Part three: Perception of Nursing Students about Electronic Learning:**

This part was developed by researchers based on the literature as: Smart ( 2006); Mehra ( 2012); Ali, et al.; (2016) to assess perception of nursing students regarding e-learning, and it was translated into Arabic version. It consisted of 64 items; divided into seven dimensions as the following:

- This part items were measured by 5 likert scale ranged as: (strongly agree=5, agree= 4, neutral =3 disagree =2, strongly disagree =1). The reversed items score was (strongly agree=1, agree= 2, neutral =3 disagree =4, strongly disagree =5).
- **The scoring system** was ranged from (64 to 320), and the higher score the good nursing student's perception about E-learning. The scoring system was divided as follows:

Dimensions	No. of items	Poor	Fair	Good
1. Advantages and usefulness	15	15-34	35-54	55-75
2. Intention to adapt e-learning	11	11-25	26-40	41-55
3. Ease of use	13	13-30	31-48	49-65
4. Technical and administrative support	6	6-13	14-21	22-30
5. Learning stressor	4	4-9	10-15	16-20
6. Limitations of e-learning	9	9-20	21-32	33-45
7. Benefits for nursing profession	6	6-13	14-21	22-30
<b>Total score</b>	<b>64</b>	<b>64- 149</b>	<b>150- 234</b>	<b>235- 320</b>

**Validity and Reliability of Tools:**

**Validity:**

The tools were submitted to a jury committee of five experts in the field of Nursing Administration and Education (the jury was composed of one professor and four assistant professors from the faculty of nursing at Minia University); each of the expert panel was asked to examine the instruments for its content validity, coverage, clarity, wording, length, format, applicability, and overall appearance. Modification was done.

**Reliability:**

Reliability of the tool was performed to confirm the consistency of tools. The internal consistency was measured to identify the extent to which the items of the tool measured what it was intended to measure.

Part two: perception of nursing students about e-learning) was tested for its reliability by using the Cronbach alpha test which revealed good internal reliability for the tool and it was= 0.941.

**Pilot Study:**

A pilot study was conducted on (10%) of nursing students from the Faculty of Nursing (students = 84) (from the total study subjects), and excluded from the total number of the study subjects. Before starting the fieldwork to obtain information that may improve the research plan. The main purposes of the pilot study were to:

- ❖ Test the clarity, comprehensiveness, accessibility, and applicability of the tool.

- ❖ Test the data collection tools regarding the phrasing, the order, and the need for adding or omitting questions or items that were included in the tool.
- ❖ Determine what kinds of difficulties could arise and how to deal with them.
- ❖ Estimated time required for filling the tool and it was about 15 min.

The results of the pilot study indicated that; the tool was applicable, didn't need changes and excluded from the total number of the study subjects.

**Data Collection Procedure:**

**Preparatory Phase:**

It included reviewing of the current and relevant related literature and theoretical knowledge of the various related aspects using textbooks, articles, and periodical magazines in order to develop the data collection tool. An official letter was granted from the Dean of Faculty of Nursing. This letter included a brief explanation of the objectives of the study.

Permissions were obtained from the heads of all academic departments (Medical Surgical Nursing Department, Woman Health and Obstetrics Nursing Department, Pediatric Nursing Department, Psychiatric and Mental Health Nursing Department, Community Health Nursing Department, and Nursing Administration and Education Department).

**Implementation Phase:**

All needed sheets of the tool were printed, and data were collected from (1st, 2nd, 3rd, and 4th -year faculty students). The data were collected during the second semester of the academic year 2021- 2022 (from March to June).

The researcher scheduled visits to each department's classrooms for students. During each classroom visit, the researcher took permission from the head of the department,

the clinical coordinators, and the clinical instructors to work with students at the beginning or the end of the clinical section according to the appropriate time for students.

After obtaining the permission, the researcher began to introduce herself to the students and then, explained the purpose of the study and clarify any item or question to students. The sheets were given individually to all students and they were given a period of time to respond to it. After finishing data collection, the researcher distributed a questionnaire to know the students, perception of e-learning during the corona pandemic.

**Administrative Design:**

Permissions to conduct the study were obtained from the Dean of the Faculty of Nursing, Minia University, and the Vice-dean for teaching and student affairs of the Faculty of Nursing, Minia University.

Permissions to conduct the study were obtained from the head of departments at the Faculty of Nursing, Minia University.

**Ethical Consideration:**

An official letter was granted from the Research Ethics Committee of the Faculty of Nursing, Minia University.

Before the conduction of the pilot study as well as the actual study, oral consent was obtained from the participants that were willing to participate in the study, after explaining the nature and purpose of the study.

Study subject had the right to refuse to participate or withdraw from the study without any rational any time.

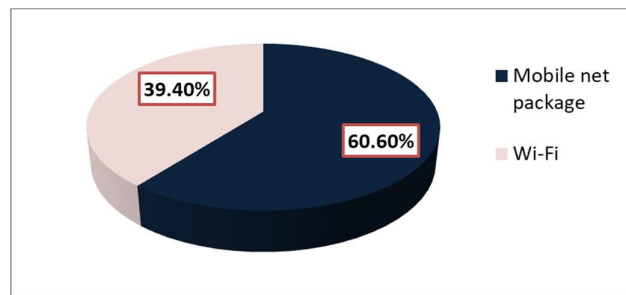
Anonymity; also they were assured through assigning a code number for each nursing student instead of names to protect their confidentiality.

**Results:**

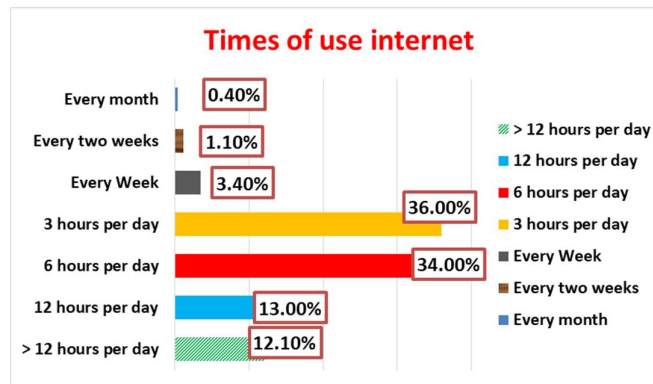
**Table (1): Percentage distribution of the nursing student's personal data (no.=840):**

Items	Nursing students (no.= 840 )	
	no.	%
<b>Age</b>		
• 18-19yrs	228	27.1
• 20-21yrs	430	51.2
• >22yrs	182	21.7
<b>Mean ± SD</b>	20.4±1.35	
<b>Gender</b>		
• Female	407	51.5
•Male	433	48.5
<b>Residence</b>		
•Rural	616	73.3
•Urban	224	26.7
<b>Academic year</b>		
•First	255	30.4
•Second	285	33.9
•Third	180	21.4
•Fourth	120	14.3
<b>Last academic achievement</b>		
• Acceptable	11	1.3
• Good	144	17.1
• Very good	373	44.4
• Excellent	312	37.2

**Table (1)** illustrated that 51% of nursing students are in the age group that ranged from (21-23) years with mean score (20.4±1.35), 51.5% of them are females while 48.5% are males. Moreover, there are 73.3% of them living in rural area. Regarding Academic year 33.9% of them are at the second year followed by 30.4% are at the first year, 44.4% of nursing students got very good level and 37.2% of them got excellent at the last academic achievement.



**Figure (1): Percentage distribution of the nursing student’s sources of the internet (no.=840).**  
 Figure (1): shows that 60.6% of nursing students use mobile net package, while 39.4% of them use Wi-Fi.



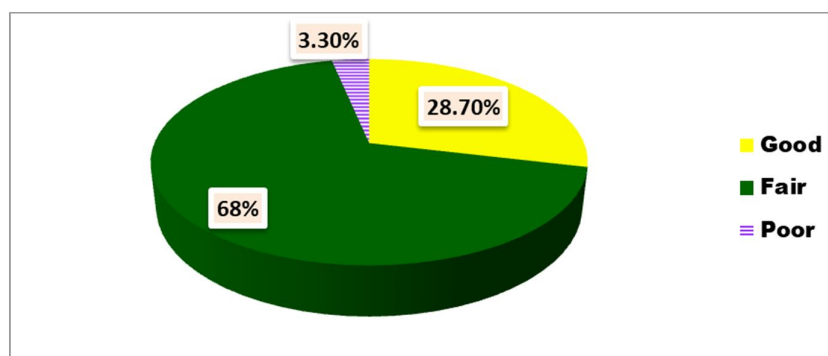
**Figure (2): Percentage distribution of the nursing student’s many times of using internet (no.=840).**

Figure (2): shows that 36% of nursing students use internet three hours per day, while there are 12.1% use internet more than 12 hours per day.

**Table (2): Percentage distribution of websites use among faculty nursing students (no.=840)**

websites	Yes		No	
	no.	%	no.	%
1. Electronic platform for college	344	41	496	59
2. Faculty site	382	45.5	458	54.5
3. Facebook	745	88.7	95	11.3
4. WatsApp	700	83.3	140	16.7
5. Telegram	698	83.1	142	16.9
6. Instagram	444	52.9	396	47.1
7. Twitter	338	40.2	502	59.8
8. Google	737	87.7	103	12.3
9. Egyptian bank	249	29.6	591	70.4
10. Library	162	19.3	678	80.7

Table (2): shows that there are (88.7%, 87.7%, 83.3%, 83.1%, and 52.9%) of nursing students use (Facebook, Google, WatsApp, telegram and instagram respectively). While there are (80.7%, 70.4%, 59.8%, 59%, and 54.5%) of nursing students don't use these sites (library, Egyptian bank, twitter, electronic platform for college, and Faculty site).



**Figure (3): Nursing students’ total perception for electronic learning during Covid-19 pandemic (no. =840)**

Figure (3) shows that there are 68% of nursing students have fair total level of perception about electronic learning during Covid-19 pandemic, also there are 28.7% of them have good level. While, there are 3.3% of them have poor total level of perception about electronic learning during Covid-19 pandemic.

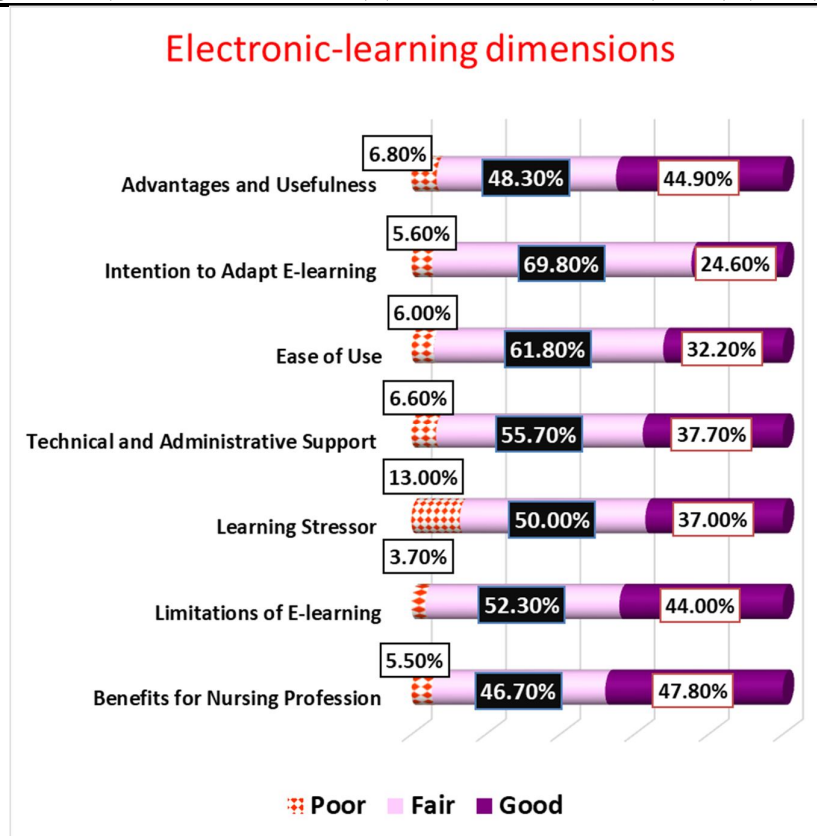


Figure (4): Nursing students’ total perception for electronic learning dimensions during Covid-19 pandemic (no. =840)

Figure (4) shows that nursing students have good perception for dimensions: benefits for nursing profession, advantages and usefulness, limitation of e-learning, technical and administrative support, learning stressor, ease of use, and intention to adapt e-learning with (47.8%, 44.9%, 44%, 37.7%, 37%, 32.2%, and 24.6% respectively).

Table (3): Variances analysis between nursing students years regarding electronic learning and their dimensions during Covid-19 Pandemic (no.=840)

Items	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	F- Anova (P)
	Mean + SD	Mean + SD	Mean + SD	Mean + SD	
Advantages & usefulness	54.5608±8.83	50.1123±13.25	51.9722±10.10	52.2583±10.69	10.320 (.001**)
Intention to adapt e-learning	37.372±6.85	34.133±8.16	34.838±6.80	36.275±7.39	9.592 (.001**)
Ease of use	46.8392±7.46	42.6351±10.31	43.8167±8.45	45.2167±8.21	8.276 (.001**)
Technical & administrative support	21.858±3.57	18.621±5.70	19.144±4.72	20.250±4.71	25.729 (.001**)
Learning stressor	14.337±3.31	13.589±4.41	13.955±3.69	13.300±3.57	2.683 (.046*)
Limitations of e-learning	33.247±5.42	30.898±7.93	32.644±6.36	32.641±5.65	6.274 (.001**)
Benefits for Nursing professional	21.5098±3.72	19.7544±3.10	21.2389±4.35	21.0667±4.46	7.564 (.001**)
<b>Total</b>	<b>229.50± 29.1</b>	<b>209.74 ± 44.1</b>	<b>217.61± 31.6</b>	<b>221.10± 32.5</b>	<b>13.8 (.001**)</b>

Table (3) illustrates that there are statistical significance variance between different academic years of nursing students regarding their perception about electronic learning dimensions during Covid-19 Pandemic in favor to first academic year students for all dimensions (P=0.001). Also, nursing students of first academic year have high total mean score (229.50±29.1) with statistical significance variance between different academic years (P=0.001).

Table (4): The relation between nursing student’s total electronic learning and their personal data (no.= 840).

Items	Nursing students (no.= 840 )		Test of significance p- value
	Mean ± SD		
<b>Age</b>			<b>Anova (p-value)</b> 13.318 (0.001**)
•18-19 years	228.9211±28.641		
•20-21 years	213.6698±40.499		
•22-23 years	219.3352±33.223		
<b>Gender</b>			<b>T- test (p-value)</b>
• Female	219.9803±31.073		

Items	Nursing students (no.= 840 )	Test of significance p- value
	Mean ± SD	
•Male	218.1501±41.152	11.073 (0.001*)
<b>Residence</b>		
•Rural	219.2500±35.847	T- test (p-value) 0.022 (0.882NS)
•Urban	218.4509±38.697	
<b>Academic's year</b>		
•First	229.5020±29.073	Anova (p-value) 13.888 (0.001*)
•Second	209.7439±44.049	
•Third	217.6111±31.613	
•Fourth	221.0083±32.577	
<b>Last academic achievement</b>		
•Acceptable	231.9091±44.992	Anova (p-value) 1.371(0.250NS)
•Good	223.4167±37.719	
•Very good	217.6676±36.615	
•Excellent	218.1987±35.701	

**Table (4)** reveals that there are statistical significance relation between nursing student’s total perception about electronic learning and their (age, gender as well as academic year) with (**p-value= 0.001\***).

**Discussion**

Education and its role in the development of individuals and society is one of the key factors to the economic prosperity of any nation. Education is primarily delivered using the traditional approach, i.e. face to face learning, however, learning is increasingly delivered via use of technology devices i.e. e-learning or blended learning. Understanding the role of e-learning, as a tool for rapid and broad development of higher education, is a basic requirement; especially for developing countries(Ali, 2017).

As regard to personal data among the studied sample, the current study findings showed that, that more than half of nursing students were in age group ranged between 20-21 years. According to gender, the present study showed that more than half of the nursing students were female. Regarding to residence, findings of the present study showed that about two thirds of nursing students belonged to rural areas.

Regarding Academic year, the current study findings showed that more than half of nursing students were at the second and first year respectively. According to last academic achievement, the results displayed that more than one third of the study participants got very good level.

**Regarding nursing students’ source of internet, times of use internet, and most websites used:**

Concerning Percentage distribution of the nursing student’s sources of the internet, this study showed that above half of nursing students used mobile net package as a source of the internet; while more than one third of them used WIFI. This may be explained by the availability of mobile phones with advanced services among the majority of academic nursing students, as well as the ability to use these services sooner, may be related to the use of personal mobile phones in online learning.

This current study finding is compatible with the study conducted by Ayed, et al., (2022) they concluded that around two thirds of nursing students were using mobile cell phone network as a source of electronic learning. Also, Sharma and Prasad (2022) concluded in their study that the vast majority of nursing students were using smart phone network as a source of electronic learning.

On the other hand, this result in not matched to the study performed in Nepal between students of BDS (Bachelor of Dental Surgery) by Gupta, et al., (2020) who mentioned that students use Wi-Fi net more than mobile net package.

Also, this finding is contradicted with Thapa et al., (2021) who found that the majority of respondents in the current study chose Wi-Fi as a source of web rather than cellular and telephone data..

As regard Percentage distribution of the nursing student’s how many times use of internet, this study findings showed that the greatest percentage of nursing students used internet three hours /day. This finding is compatible with the research conducted by Sharma and Prasad (2022) who stated that above half of nursing students took two to four online lessons every day. Besides, this finding is disagreed with the research done by Oducado and Soriano, (2021) they explained that almost half of the participants utilize the internet from five to eight hours daily.

Regarding Percentage distribution of websites use among faculty nursing students, these findings showed that the majority of nursing students were using (Facebook, Google, WhatsApp and Telegram respectively) instead of learning websites as electronic platform for college or Egyptian bank. This is due to the addiction of social media and its bad effect on the educational process, as it takes a lot of time at the expense of the educational process. The more flexibility and ease of use of these sites for using this application provide all personnel to share files of different types.

This actual study finding is in line with the research conducted by Ayed, et al., (2022) who reported that one quarter that considered the greatest percentage of the participants utilize the Microsoft platform came next by a WhatsApp group. On the other hand, the current finding is contradict with Olum et al., (2020) they concluded that almost half of study participants used online learning platform and zoom classrooms for e-learning.

**Results related to total perception level about electronic learning**

Regarding percentage distribution of nursing students regarding total level about electronic learning perception during Covid-19 pandemic, the current study findings displayed that above two thirds of nursing students have fair level about electronic learning perception during Covid-19 pandemic and less than one third had good perception. This might be because internet learning is so simple to use and since media and resources for distant learning are always available. Additionally, the students' anxiety about being contacted by one another during the



pandemic and their prior success with e-learning from earlier research could account for this outcome.

These results may be related to e-learning's accessibility. Many students were unable to attend lectures because of illness, COVID-19, or fear of infection. However, overall benefits and cooperation were high in online learning, which may be because students wanted to be more involved in the learning process, which gave them greater chances to gain a higher level of usefulness from the studied courses.

This result is in line with **Sasmal et al., (2021)** they found that highest percentage of the respondents had fair level of perception related to e-learning. Also, **Baczek, et al., (2021)** they conducted that above two thirds of the respondents had fair level of perception regard to e-learning. The same is reported by **Gorain and Pal (2022)** they carried out a study and found that participants had a modest level of satisfaction with online learning.

Also **Elewa, (2022)** reported that the greatest percentage had a fair satisfaction degree about online learning. Also, **Elsayed, et al., (2023)** found that a large percentage of respondents were only moderately satisfied with the e-learning platform they were using. According to the researcher, this outcome was related to the educators' helpful criticism, motivating students to actively participate in lectures, promptly answering students' inquiries, and the caliber of the audio content available on the platform.

On the other hand, this result is not in the same line with a study conducted by **Koirala et al., (2020)** They found that over half of the participants had a bad opinion of online education. Nonetheless, the majority said that during this pandemic, online education should continue.

### **Results related to total perception for electronic learning dimensions**

Regarding nursing students' total perception for electronic learning dimensions during Covid-19 pandemic; it was noted that highest percentage of nursing students had fair perception for intention to adapt e-learning dimension, followed by ease-of-use dimension, technical and administrative support dimension, then limitation of e-learning dimension, followed by learning stressor dimension, then advantages and usefulness. While, the highest percentage of them had good perception regarding the benefits for nursing profession dimension.

These results indicated that nursing students had fair to good levels for all dimensions, with low score for poor perception about electronic learning, they know very well the electronic learning advantages, usefulness, limitations, how to adapt, technical and administrative support and benefits for nursing profession.

These findings are consistent with **Thapa, et al., (2021)** they revealed that students have positive attitudes regard e-learning dimensions as intention to adapt e-learning dimension, ease of use dimension, technical and administrative support dimension, limitation of e-learning, learning stressor dimension, and advantages and perceived usefulness

In addition, these results are matched with **Ayed et al., (2022)** who reported that little half of the student's nursing had a fair perception level regard online learning for technological skills, interaction and academic performance for success. Also, these results are in same line with **Mahmoud, et al., (2023)** they revealed that nursing students have

moderate to high level regarding total score of all online learning dimensions.

For **total score of advantages and usefulness dimension**, the actual study findings showed that student's nursing had fair to good perception regarding advantages and usefulness dimension, in which nearly half of them had fair perception level and forty five percent had good perception level. This current study result is in agreement with **Mahmoud and Abdel-Mordy (2021)** they determined that the E-learning usefulness domain had the highest mean scores. Furthermore, their research revealed that students received the highest mean evaluations in the e-learning usefulness sector.

In addition, this finding is line with **Maqbool et al., (2022)** who discovered that the most widely recognized benefit of E-learning by almost two-thirds of students was the option of remaining at home. Also, **Carmi, (2024)** who mentioned in their study that student had moderate level perception and mentioned that benefits of e-Learning enhance the student's learning process and his feelings as a learner. However, these findings contradicted with **Aristovnik et al., (2020)** they found that little than half of students had a low perceived usefulness score.

For **total score of intention to adapt e-learning dimension**, the current study findings showed that nearly two thirds of nursing students had fair perception level related to intention for e-learning adaptation dimension and about one quarter of them had good perception level. This is similar to the study conducted by **Sasmal et al., (2021)** they found that above two third of the sample had positive attitude towards intention for e-learning adaptation. Also, the same as reported by **Pramana et al., (2022)** they showed that the majority of nursing students get intermediate level regarding adaptation of e-learning.

For **total score of ease of use dimension** the finding of current study revealed that above half of nursing students had fair perception level regarding ease of learning and about one third had good perception level. This is matched with **Subedi et al., (2020)** who found that almost half of study participants get positive response regarding ease of learning. Also, this current study result is in an agreement with, **Thapa et al., (2021)** who revealed that half of the respondents had satisfactory responses for total score of ease of use dimension.

For **total score of technical and administrative support dimension**, the finding of actual study showed that above half of nursing students has fair perception level of technical and administrative support dimension and more than one third had good perception level. This outcome is supported by **Mahmoud, et al., (2020)** who reported that half of study participants had moderate level of satisfaction related technical and administrative support.

For **total score of learning stressor dimension** the finding of actual study showed that fifty percent of nursing students had fair perception level regarding learning stressor dimension and more than one third had good perception level. This result is matched with **Khagi et al., (2021)** who summarized that almost half of study participants had medium level regarding learning stressor about electronic learning.

For **total perceived benefits for nursing profession dimension**, the actual study findings displayed that around fifty percent of nursing students had fair level of perceived benefits for nursing profession dimension. This result come in line with **Selvaraj (2021)** they found that the majority of nursing students had fair perception level regarding the use of

e-learning for nursing profession and mentioned that e-learning enhance and benefit nursing profession.

Regarding the statistical significance **variance between different academic years of nursing students about their perception about total score of electronic learning and its dimensions** during Covid-19 Pandemic; it was found that the first academic year students had highest mean score and good level for all dimensions with statistical significance differences between four academic years ( $P=0.001$ ). Also, nursing students of first academic year have high total mean score ( $229.50 \pm 29.1$ ) with statistical significance variance between different academic years ( $P=0.001$ ).

These results may be due to the first-year students were the small aged group who may use electronic devices more than others and like the mobile and computer applications. This result is also due to the fact that the first-year students are high school students who studied and took exams using tablets and modern technology.

These results are compatible with **Sanni (2019)** who make a study about "First year University Students in Online Learning Environment" and mentioned that the students find the e-learning platform to be very useful, as they enjoy engaging with tutors and collaborating with colleagues through the platform. Also, **Ullah, et al., (2023)** revealed that first year students perceived e-learning with high level of advantages and usefulness than others academic years

On the other hand, these results are contraindicated with **Mahmoud, et al., (2020)** who mentioned that majority of the three years' nursing students had agree and neutral agreement with e-learning effectiveness and motivation, while the highest percentage of the first year disagreed with e-learning effectiveness and motivation.

**Regarding relation between nursing student's total electronic learning and their personal data**, the current study findings explained that there were no statistically significant differences between student's total perception level about electronic learning and their personal data except "age" in favor to students with age group (18-19 years old) had high mean score than other age groups; "gender" in favor to females students had high mean score than males students; and "academic year" in favor to first academic year students had high mean score than other students.

The results of the current study are consistent with those of a study by **Ayed et al. (2022)**, which found a positive and significant correlation between the students' demographic characteristics regarding their sex and their overall perception of online learning.

On the other hand, this result doesn't match with **Oducado and Soriano (2021)** demonstrated that there was no discernible correlation between nursing students' perceptions of online courses and their gender, age, place of residence, study class, and religion. The same was said by **Mekawy et al. (2020)**, who discovered no statistically significant differences in the sum of the students' digital health literacy, perceptions of AI, and personal traits.

The same as reported by **Sasmal et al., (2021)** who discovered that the overall ratings of students' perceptions of e-learning and their individual traits did not differ statistically significantly. Additionally, according to **Michel et al. (2021)**, there were no statistically significant variations between the sociodemographic features of the students and the total scores of their perceptions of e-learning.

## Conclusion

It can be concluded that less than half of nursing students had good perception for dimensions: benefits for nursing profession, advantages and usefulness, and limitation of e-learning; and more than one third had good perception for technical and administrative support and learning stressor; while the highest percentage of nursing students perceived the ease of use, and intention to adapt e-learning with fair level of perception. Finally, more than two thirds of nursing students perceived the e-learning with fair level of perception.

## Recommendations:

The following recommendations are offered based on the findings of the current study:

### For the students:

- Provide training programs about how to use online learning platforms through various media for their better future
- Encourage students to participate and communicate with different manners with their peers in e-learning session and classrooms.

### For faculty members

- Attend training programs regarding the best techniques of applying e-learning
- Provide frequent and interactive feedback for student about their work and activities on online
- Foster interaction and communication with students and create a learning community that encourages critical and reflective discussion.

### Administrative faculty members

- Provide Wi-Fi points for faculty staff members to communicate effectively with students and apply e-learning methods
- Perform regular maintenance for faculty computers and Internet points

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