



# Jordanian nursing students' attitudes towards e-learning during COVID-19

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## Abstract

### Aim

This research aimed to ascertain Jordanian nursing students' attitudes towards e-learning during COVID-19.

### Design

A cross-sectional design

### Methods

A cross-sectional design utilizing an online survey collected data, recruiting 200 students across four years from nursing faculties at four prominent public and private universities in Amman.

### Results

There are no statistically significant differences in nursing Jordanian students' attitudes towards e-learning during COVID-19 according to gender, university sector, and year level.

**Keywords:** trends, nursing, e-learning, Jordan, COVID-19

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## Introduction

The nursing profession holds a position that demands a high degree of competence and technical proficiency; hence this specialty has been taught very carefully in universities. However, since the World Health Organization's (WHO) declaration of COVID-19 to be a pandemic disease [1], unprecedented difficulties to health systems, particularly in the field of health sciences education, have been highlighted in light of the likelihood that

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medical and nursing students might develop COVID-19 while their training and develop into potential virus transmitters in health care facilities [2].

Given the current crisis, a shift in the paradigm of teaching and learning is an essential requirement [3]. E-learning is a necessary option for maintaining learning continuity while shielding students from the danger of COVID-19 infection in university [4]. Furthermore, e-learning is a means of



instruction that employs digital media and technologies for training, communication, and engagement opportunities between students and faculty [5]. It is an entirely new and hastily increasing strategy for teaching students in the medical field [6]. This educational approach ensures that students may make progress in a flexible learning environment at their speed with no regard for time or space limits while engaging in various instructional activities (text, image, audio, and video). In addition, students connect with faculties, educational material, and technology breakthroughs using e-learning platforms [7].

Nevertheless, the abrupt shift to distant learning during COVID-19 precluded efficient deployment of e-learning [6]. Additionally, several instructors lacked expertise in e-learning-based pedagogical practices [8]. Furthermore, faculty and students' lack of motivation and interaction were significant disadvantages [9].

During the pandemic, many nursing education establishments worldwide, including Jordan, depended primarily on e-learning. Hence, there is a need for additional research on e-learning among nursing students at universities and community institutions. Additionally, numerous studies have confirmed a disparity in nursing students' attitudes towards e-learning in various countries during COVID-19. Therefore, given the importance of e-learning in education, the researcher chose to focus on Jordanian nursing students' attitudes towards e-learning during COVID-19.

### **The Purpose and Significance of the Study**

This research aims to reveal the Jordanian nursing students' attitudes towards e-learning during COVID-19. In particular, the study provided answers to the following questions:

1. What are the attitudes of Jordanian nursing students towards e-learning during COVID-19?

2. Are there any variations in the research sample's attitudes towards e-learning in Jordanian universities during COVID-19 based on gender, university sector, and year level?

This study provides essential information to decision-makers in nursing at Jordanian universities regarding the usage of the e-learning approach from the perspective of students, especially since nursing has a significant clinical training aspect. Hence, proactive, instructing plans and corrective schemes can be developed to address the issues raised by students.

### **Methods**

#### ***Design, Setting, and Sampling***

A descriptive cross-sectional approach was performed utilizing an electronic survey in Google Forms (Google LLC, Mountain View, California). A convenience sampling technique was used, and 200 participants were recruited from Amman's four-year nursing program at four major public and private universities. The inclusion criteria were using the online platforms and having Internet access. The sample size was determined based on the general rule that each variable in our study required 20-30 participants. As the research has one primary variable, 20-30 participants were needed; thus, the 200 participants were more than satisfactory.

#### ***Data Collection and Ethical Consideration***

The needed approvals were obtained from the university where the current researcher is working. Data were collected from April 5 to 25, 2021. Participants were told about the study aims before collecting data and that their participation was voluntary. The research tools used do not contain a personal identification code. Confidentiality was secured and safeguarded. Invitation messages were sent, including a statement that answering this survey is the participant's consent. Data were collected using convenience snowball sampling utilizing Google Forms. Social media channels like WhatsApp groups, Twitter,



Instagram, and Facebook were used to disseminate the link of the study. Frequent reminders were sent while assuring the participant to discard the invitations if they had answered the questionnaire before. The electronic form was designed to allow one submission only by the participant.

**Measurement**

The questionnaire by Al-Anzi [10] in 2021 was adapted to assess Jordanian university nursing students' attitudes towards e-learning during COVID-19. The questionnaire consisted of two sections: three demographic characteristics were included in section A: gender, university sector, and year level. Section B had(32) paragraphs divided into three areas: nursing students' attitudes towardthe theoretical aspect of teaching, clinical training, and examination.On a 5-point Likert scale, each aspect item tested the respondent's attitudes towards e-learning during COVID-19, with the answers ranging from 1 to 5, with 1 being "strongly disagree," 2 being "disagree," 3 being "neutral," 4 being "agree," and 5 being "strongly agree." The averages of everyone's responses had been tallied up.

The research questionnaire was submitted to a panel of specialists to ascertain that it was culturally appropriate. Experts assessed the content validity index of the questionnaire, and they were asked to evaluate the items' relevance to the aims and deliver the

needed feedback. Each questionnaire item was given a relevance value of 1 to 4 (1 being irrelevant, 2 being slightly relevant, 3 being somewhat important, and 4 being extremely relevant). Before commencing the primary data collection phase, the researcher used data from the pilot study to enhance the feasibility, content applicability, and timeline.

To establish the validity of the research, 30 students from outside the study's sample took part in tests separated by two weeks. After data was gathered and student responses examined, the study's Pearson correlation coefficient was 0.95.

**Data Analyses**

Data were analyzed using Statistical Package for Social Sciences (SPSS) (version 25) at the significance level of 0.05. Different descriptive and inferential statistics were used according to variables' levels of measurement.

**Results**

**Demographic Data**

This research surveyed a total of 200 undergraduate nursing students. 118(59%) of the participants were female. 122 (61%) of the participants are enrolled in the public sector, while 78 (39%) are enrolled in the privet sector. In addition, 51 (25.5%) of participants are in the 1<sup>st</sup> year level, 42 (21%) study at the 2<sup>nd</sup> year level, 56 (28%) at the 3<sup>rd</sup> year level, and 51 (25.5%) at the 4<sup>th</sup> year level (Table 1).

1316

**Table 1:**Distribution of students by their demographic characteristics (N=200).

Characteristics	Variables	N	%
Gender	Male	82	41
	Female	118	59
University Sector	Privet	78	39
	Public	122	61
Year level	1 <sup>st</sup> Year	51	25.5
	2 <sup>nd</sup> Year	42	21
	3 <sup>rd</sup> Year	56	28
	4 <sup>th</sup> Year	51	25.5

The variables' ratings were converted into a triple rating scale to describe the values of the arithmetic averages (low/medium/high).

The previous classification categories were reached according to the equation of Class Width = Range (Maximum – Minimum) /



Number of classes; Class Width =  $(5-1)/3=1.33$ ; thus, 1-2.33 were considered low; 2.34-3.66 were medium, and 3.67-5 were high. The sections below will summarize the study's findings and their interpretation.

To answer the first question, the means and standard deviations of variables, in decreasing order, related to Jordanian nursing students' attitudes towards e-learning during COVID-19 were presented (Table 2).

**Table 2:** Means and standard deviations of nursing students' attitudes towards e-learning at Jordanian universities during COVID-19.

#	Item	Mean	SD	Rank
1	Students' attitudes towards examination	4.02	0.54	High
2	Students' attitudes toward the theoretical aspect of teaching	3.18	0.67	Medium
3	Students' attitudes towards clinical training	2.23	0.73	Low
<b>Total</b>		<b>3.14</b>	<b>0.66</b>	<b>Medium</b>

Students' attitudes towards examination" ranked the highest mean (M= 4.21, SD= 0.66). In contrast, "Students' attitudes towards clinical training" ranked the lowest mean (M= 2.1, SD= 0.86); however, "Students' attitudes towards the theoretical aspect of teaching" achieved a medium rank (M= 3.28, SD= 0.82). Students' attitudes related to all three areas were medium (M= 3.19, SD=0.79).

To answer the second question, the means and standard deviations of Jordanian nursing students' attitudes towards e-learning during COVID-19 scores were compared to their demographics.

Table 3 shows a slight variance in the Jordanian nursing students' attitudes towards e-learning during COVID-19 according to gender, university sector, and year level variables.

1317

**Table 3:** Means and standard deviations of nursing students' attitudes according to the study variables.

Characteristics	Variables	N	Mean	SD
Gender	Male	82	53.14	12.81
	Female	118	61.12	16.63
University Sector	Privet	78	51.63	11.12
	Public	122	53.91	14.23
Year level	1 <sup>st</sup> Year	51	61.13	16.12
	2 <sup>nd</sup> Year	42	59.21	12.12
	3 <sup>rd</sup> Year	56	60.16	15.43
	4 <sup>th</sup> Year	51	60.69	14.89

To see any statistically significant differences in Jordanian nursing students' attitudes towards e-learning attributed to gender, university sector, and year level, the means, standard deviations, and Three-Way-Analysis of Variance (ANOVA) of the participants' responses were calculated at the significance level of 0.05.

There were no significant differences in the Jordanian nursing students' attitudes towards e-learning attributed to gender, university sector, and year level (demonstrating that attitudes presented by female and male students at their respective year levels in both university sectors are similar) (Table 4).

**Table 4:** Significant differences of ANOVA based on gender, year level, and university sector.



Source of Variation	Sum of Square	df	Mean Square	F	Sig
Gender	0.158	1	0.158	2.39	0.128
Year level	0.119	3	0.039	0.59	0.390
university sector	0.014	1	0.014	0.21	0.795
Error	12.830	194	0.066		
Total	3571.857	199			

\* Statistically significant at the level of statistical significance ( $\alpha=0.05$ )

### Discussion

The present research findings indicated that Jordanian nursing students' attitudes towards e-learning during COVID-19 were moderate. Attitudes toward clinical practice were the lowest due to the absence of technical infrastructure and a lack of security and privacy, which concerned students the most in this study. Similarly, a survey conducted in 2021 by Xhelili et al. [29] found that Albanian university students had good opinions of conventional learning during the Pandemic of COVID-19. However, according to those who participated in the survey, challenges were primarily due to a lack of internet access and technical devices. Additionally, one analysis performed in Jordanian universities found that the overall satisfaction rating for distance learning was just 26.8 %. Still, it was much higher for students who had prior experience with distance learning in their medical schools [11].

Other research undertaken during the pandemic revealed that students cited the most significant restraints and limitations in e-learning were lack of internet connectivity, technical challenges with educational platforms, and difficulty obtaining clinical skills [12-15]. In addition, prior research done by Ngampornchai and Adams [16] in 2016 found that students showed a cautious propensity to embrace e-learning based on a unified philosophy of technology adoption and application.

On the other hand, in multiple research projects also conducted during the COVID-19 pandemic, health professions students reported a highly favorable attitude toward e-learning

[17,18]. A systematic review done by Naciri et al. [2] in 2021 examined many elements of health science students' perspectives, acceptability, motivation, and engagement with e-learning during the COVID-19 pandemic. Many of the reviewed studies found favorable attitudes toward e-learning [2]. According to their review, the upward tendency in views of e-learning might be predominantly attributable to the abrupt and unanticipated move to e-learning, which created a feeling of security amongst students throughout the virus's propagation. This circumstance necessitated an enforced alteration to the online learning needs to maintain learning continuity during these atypical moments. Second, in recent years, positive opinions may be justified by extraordinary advancements in computer-based platforms for health sciences education. They have advanced to the point where they provide a learning environment comparable to face-to-face instruction for health science students who participated in this research.

The present study's participants' moderate attitudes toward e-learning courses might be ascribed, in part, to the e-learning systems' usability. In contrast, the alignment of educational material in health sciences training with the curriculum and didactic course ideas (video learning, serious games) may be a factor. Taat and Francis [17] found that the ease with which platforms may be maintained and used, lecturer characteristics, the system's quality, the information supplied, and the availability of technical assistance were the primary variables impacting e-learning acceptability in 2020.

1318



Numerous research has examined the association between demographic characteristics such as age, race, and gender and the attitude of e-learning students [19]. In contrast, there was no correlation between respondents' attitudes towards e-learning and the sociodemographic variables examined in this research (gender, year level, and university sector). This is consistent with the research findings done in West Bengal [20]. However, this conclusion contradicted research that discovered a link between e-learning and residency and family income [21]. Furthermore, in Jordan, an investigation found a correlation between overall satisfaction with e-learning and prior experience with e-learning [22].

#### **Limitations**

The primary limitation is the nature of the study since the results cannot be generalized. This research covers Jordanian nursing students' attitudes towards e-learning at four universities during COVID-19 and may not represent the whole nation. Additionally, the study findings may be skewed since students without access to the internet may have missed the survey, possibly those the pandemic has badly impacted. As a result, the claimed technical resource shortage is underreported. Students' self-reported biases may perhaps have affected their replies. Additionally, since participation was voluntary, there may be selection bias. Therefore, students who have had good or negative experiences would be more likely to join the bandwagon, eclipsing more impartial viewpoints.

#### **Implications**

The findings of this study urge policymakers in health professions education to include e-learning into training programs by guaranteeing fair access to technical equipment and internet connections on the one hand and increasing students' computer abilities on the other.

Additionally, digital teaching-based educational practices may be advantageous as a substitute for or supplement to conventional instruction. Suppose this strategy had been employed before in health professions education. In that case, institutions could have been able to address the significant problems posed by the advent of the COVID-19 issue with more ease.

Thus, investing in the implementation of e-learning is an essential need, as the return on investment may be critical to the quality of training received by health science students and, subsequently, to the quality of health services supplied to the public.

Furthermore, the information analyzed in this research revealed an absence of evidence, particularly on students' desire and involvement with e-learning during the COVID-19 pandemic. Additional methodologically rigorous research, particularly in the Middle East, is required to help close this gap. Moreover, it is critical to evaluate failure and dropout rates in health professions education related to e-learning amid this pandemic.

#### **Conclusion**

E-learning has become more sophisticated with significant technological education and training advancements. As a result, nursing education and training advance quickly and require close attention to various assessment techniques, including problem-solving and critical thinking. Based on available research, e-learning courses with appropriate strategies should be designed to strengthen nursing students' clinical abilities, knowledge, and attitudes in preparation for an emergency like COVID-19. The nursing fraternity's integrated approach to teaching and learning may pave the way for new prospects in the nursing field in the future years.

The e-learning approach offers more opportunities for the education and training of nursing students. The findings of this research indicate that Jordanian nursing students have a



moderate attitude toward the use of e-learning in their teaching and training.

### Recommendations

Nursing students should be acquainted with the e-learning technique, its advantages, and how to drive themselves to master it. Additional experimental research is required to establish the efficacy of e-learning on student attitudes. Moreover, the effectiveness of synchronous virtual classrooms on student accomplishment and the effectiveness of other courses should be explored.

Education faculties at Jordanian universities should contain courses specifically geared to prepare students to use current technologies, particularly the internet, in their learning process.

Finally, it is advised that more research be conducted to identify the degree to which e-learning centers at Jordanian universities train faculty members to use current technology in the teaching process and to improve their abilities to the point where they can construct courses online.

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1320



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