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A Survey of Professors' Online Teaching Performance during the COVID-19 Pandemic from the Perspective of Nursing Students of Islamic Azad University of Tehran Branch, Iran

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Abstract

Background: One of the popular methods of evaluation of an educational system is assessing the opinion of students as the main stakeholders in education. This study aimed to evaluate the professors' online teaching performance during COVID-19 pandemic from the perspective of nursing students.

Materials and Methods: The present cross-sectional study was performed at the Islamic Azad University of Tehran Branch, Iran, in 2021. Simple random sampling was used to select nursing students. Data collection was carried out using baseline characteristics and the valid 12-item questionnaire. Nursing students were asked to rate the items based on a five-point Likert scale. Data were analyzed using SPSS software version 16.0.

Results: A total of 900 undergraduate nursing students participated in the study. The highest level of students' satisfaction was related to the up-to-date knowledge and sufficient educational expertise of the professors (84.3%), the professors' sufficient familiarity with and ability to use the educational software effectively (83.3%), and their clear and organized presentation of the content in a clear and organized manner (81.5%), respectively. The t-test showed a statistically significant relationship between gender and the opinion about the professors' performance. The ANOVA test showed a significant relationship between students' opinion about the professors' performance and the year of study, so that students expressed a higher satisfaction level. The ANOVA test also showed a significant relationship between students' opinion about the professors' performance and the number of semesters in which students were present in person (face to face) or online ($P < 0.05$).

Conclusion: Nursing students were highly satisfied with their professors' online teaching performance during COVID-19 pandemic, and demanded timely feedback, utilization of various educational methods, and the availability of professors in the shortest possible time.

Key Words: Covid-19, Islamic Azad University, Professors, Online teaching, Nursing students.

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1- INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first known case was identified in Wuhan, China in December 2019. The disease has since spread worldwide, leading to an ongoing pandemic. Although the sudden outbreak of COVID-19 posed a number of challenges to the world's healthcare systems, it also affected other areas, including education (1-4). With the onset of the COVID-19 epidemic worldwide, health protocols have emphasized social distancing (2). Consequently, in many countries, including Iran, face-to-face training in schools and universities was closed to reduce the spread of the disease (4).

Various solutions were proposed so that the education would not be interrupted during the quarantine conditions and curricula could be continued according to a predetermined schedule. Therefore, although the COVID-19 pandemic imposed many problems on all indicators of society, including public health, it led to the flourishing of some capabilities in the country, including the nationwide prevalence and prosperity of online education (5-9). Instead of canceling their curricula, many universities encouraged professors to offer instructional content and assess learning through distance learning and online classes. Although the shift to online teaching occurred unexpectedly and rapidly, and despite the lack of appropriate infrastructure for e-learning and virtual education in medical universities (7), university administrators tried to meet the necessary standards in the implementation of online teaching as quickly as possible (7).

NAVID systems and Adobe Connect software were the main systems used in medical universities for online education. However, professors use other systems and software such as Skype and Skyroom for their educational purposes based on their needs (5-7). The World Health Organization (WHO) stated that distance education with tools such as radio, podcasts, television, and online education are the best solutions to continue education during the pandemic (10). In their research, Sharifi et al. concluded that online teaching can be a good alternative to face-to-face education (11). However, online teaching has also created problems, including unfamiliarity with new technology and unknown challenges for teachers, professors and educational institutes (12). In the Medical Sciences universities, professors are recognized as the main elements in education, research, and medical services. Therefore, the best solution to maintain high educational quality in the medical education system is to evaluate the performance of faculty members in order to improve educational methods and activities, help managers make better decisions, promote professors, and, ultimately, promote education as a profession (13). Methods of evaluating professors vary according to the purpose of evaluation and its criteria. One of the popular evaluation methods is the use of students' opinions (14-16). The aim of the present study was to investigate the professors' online teaching performance during COVID-19 pandemic from the perspective of nursing students of Islamic Azad University, Tehran Branch, Iran.

2- MATERIALS AND METHODS

2-1. Method

This cross-sectional study was carried out at the Islamic Azad University of Medical Sciences, Tehran Branch, Iran, in 2021. The study population was consisted of all nursing students of Islamic Azad University of Medical Sciences, Tehran Branch. A total of 900 students were selected based on purposive simple random sampling.

2-2. Statistical population

After consulting a statistical advisor, 900 nursing students were selected using the simple random sampling method considering a 5% error rate and 90% confidence interval. All nursing students who were studying at the Tehran Islamic Azad University Branch of Medical Sciences were eligible to enter the study. Exclusion criteria included unwillingness to participate in the study and incomplete questionnaires.

2-3. Data Collection

To obtain information on the evaluation of virtual teaching during the COVID-19, a valid 12-item questionnaire was used (16). The questionnaires were distributed among students by the researcher (through telephone interviews and web-based questionnaires) after providing the necessary explanations to them. The questionnaires were collected after completion.

2-4. Ethical consideration

Participants' personal information was extracted as a whole and providing names and surnames was not mandatory. Participation in the study was optional and the students were assured that the information would be extracted in general and their names would not be disclosed. Also, the study results were made available upon request.

2-5. Reliability and Validity

The validity of the questionnaire was confirmed by the content validity method through consultation with experts (two faculty members of medical education and three pediatric faculty members). Cronbach's alpha coefficient of 87% was calculated to determine reliability, which indicated appropriate internal consistency of the questionnaire items.

2-6. Data Analysis

Data analysis was performed using SPSS software version 16.0. Descriptive analysis (frequency and percentage indices) was performed to describe the study variables. The Chi-square test, independent t-test and AVOVA test were also used to compare the frequency of responses to different questions. P-value < 0.05 was considered as the significance level.

3- RESULTS

A total of 900 undergraduate nursing students participated in the study. The average attendance in face-to-face classes was 2.34$\pm$1.322 semesters and 2.91$\pm$ 0.334 semesters in online classes. A total of 91.8% of students were single, and 86% of them were female. The frequency of students' response to each item of the questionnaire regarding satisfaction with the professors' online teaching performance during COVID-19 pandemic is shown in **Table.1** and **Figure.1**.

Table.1 shows that the students had the highest satisfaction with items 6, 1, and 7 and the lowest satisfaction with items 8, 11, and 3. The t-test showed a statistically significant relationship between gender and comments on items 2, 6, and 11 ($P<0.05$), showing that the female students had a more positive opinion regarding those factors (**Table.2**). The t-test also showed no significant relationship between marital status and comments on the 12 items ($P>0.05$).

Table-1: Frequency distribution of students' responses to each item of the questionnaire in percentage (n=900).

Items		Totally agree	Agree	No comments	Opposed	Completely opposed
1	The professor had sufficient knowledge and ability to use educational software effectively.	55	28.3	9.4	4.7	2.5
2	The professor used virtual systems and communication software to increase communication and establish effective interaction during the course.	45.3	29.9	14.5	7.2	3
3	The professor was available for clarification and advice throughout the course.	42.1	29	16.6	7.9	4.5
4	The professor answered my educational questions and problems in class in a timely and useful manner.	49.2	29.4	12.5	5.4	3.5
5	The professor was concerned about my learning and felt responsible for it.	47.1	27	16	5.4	4.5
6	The professor had up-to-date knowledge and sufficient mastery of the educational content.	57.4	26.9	10.4	3.5	1.8
7	The professor explained and presented the material clearly and in an organized manner.	54	27.5	10.7	4.8	3.1
8	The professor used various teaching methods to make the teaching process more effective.	38.1	26.4	20.4	9.2	5.9
9	The speed and quality of the professor's teaching was appropriate.	47.1	27.3	15.3	7	3.3
10	My professor encouraged me and other classmates to participate in educational activities throughout the course.	47.5	28.5	14	5.4	4.6
11	The professor provided me with feedback on homework and class tests at regular intervals.	40.3	24.8	22.7	7.4	4.9
12	Overall, the professor's teaching in this course was satisfactory.	48.8	28.9	12.1	5.3	4.9

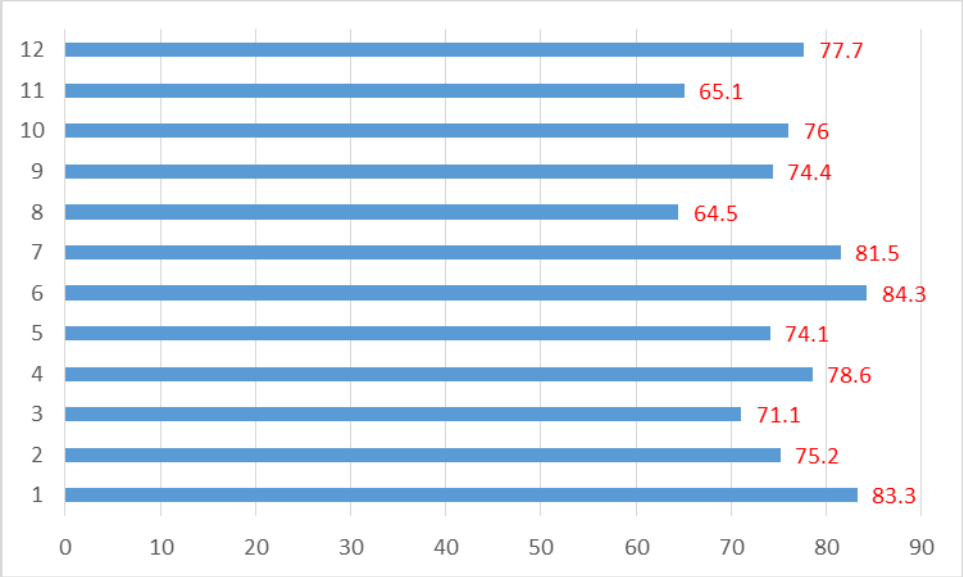

Fig.1: Frequency distribution of students' responses to each item of the questionnaire in percentage (n=900).

Table-2: The Students' response to the 12-item questionnaire based on gender (n=900).

Item	Gender	Number	Mean	Standard Deviation	t	*P-value
2	Male	123	4.07	.907	.011	0.018
	Female	764	4.07	1.101	.013	
6	Male	122	4.25	1.055	-1.295	0.047
	Female	766	4.36	.905	-1.159	
11	Male	122	3.86	1.015	-.222	0.013
	Female	762	3.89	1.184	-.248	

*Independent t-test. Items: **2**. The professor used virtual systems and communication software to increase communication and establish effective interaction during the course. **6**. The professor had up-to-date knowledge and sufficient mastery of the educational content. **11**. The professor provided me with feedback on homework and class tests at regular intervals.

The ANOVA test showed a statistically significant relationship between students' comments on items 1, 3-6, and 11 and the number of face-to-face courses (P<0.05), indicating that higher satisfaction was expressed by students who attended more face-to-face classes (**Table.3**). The ANOVA test also showed a statistically significant relationship between students' comments on items 1-6 and 11 and the number of online courses (P<0.05), indicating that higher satisfaction was expressed by students who attended more online classes than other students (**Table.4**). The ANOVA test further showed a statistically significant relationship between students' comments on items 10 and 11 and the undergraduate year (P<0.05), indicating that satisfaction was higher among junior students (**Table.5**).

Table-3: Students' response to the 12 items regarding the performance of professors and the number of face-to-face courses.

Item	Term	Number	Mean (SD)	Degree of freedom	F	*P-value
1	1	270	4.24 (.981)	5	4.409	0.001
	2	356	4.36 (.967)			
	3	62	4.02 (1.287)			
	4	111	4.23 (.950)			
	5	82	4.57 (.789)			
	6	8	3.25 (.707)			
3	1	271	3.96 (1.133)	5	2.791	0.016
	2	353	4.08 (1.044)			
	3	61	3.69 (1.323)			
	4	112	3.98 (1.123)			
	5	82	3.70 (1.403)			
	6	8	3.38 (.916)			
4	1	269	4.13 (1.078)	5	2.789	0.017
	2	354	4.23 (.994)			
	3	61	3.74 (1.389)			
	4	112	4.12 (.956)			
	5	83	4.28 (1.108)			
	6	8	3.75 (.707)			

5	1	268	4.09 (1.128)	5	3.479	0.004
	2	355	4.07 (1.097)			
	3	62	3.58 (1.397)			
	4	113	4.16 (.987)			
	5	83	4.29 (1.042)			
	6	8	3.62 (.744)			
6	1	268	4.31 (.934)	5	3.123	0.008
	2	355	4.43 (.878)			
	3	62	4.00 (1.367)			
	4	113	4.33 (.829)			
	5	82	4.48 (.789)			
	6	8	3.88 (.641)			
11	1	265	3.72 (1.246)	5	3.479	0.04
	2	353	3.99 (1.080)			
	3	63	3.67 (1.380)			
	4	112	3.87 (1.143)			
	5	83	4.19 (.993)			
	6	8	3.50 (.756)			

*ANOVA test. SD: Standard deviation. Items: **1**. The professor had sufficient knowledge and ability to use educational software effectively. **3**. The professor was available for clarification and advice throughout the course. **4**. The professor answered my educational questions and problems in class in a timely and useful manner. **5**. The professor was concerned about my learning and felt responsible for it. **6**. The professor had up-to-date knowledge and sufficient mastery of the educational content. **11**. The professor provided me with feedback on homework and class tests at regular intervals.

Table-4: The students' response to the 12 items regarding the performance of professors and the number of online courses.

Item	Term	Number	Mean (SD)	Degree of Freedom	F	*P-value
1	1	4	5 (.000)	3	3.712	0.011
	2	84	4.44 (0.910)			
	3	793	4.28 .991)			
	4	8	3.38 (1.061)			
4	1	4	2.50 (1.915)	3	3.767	0.011
	2	81	4.11 (1.118)			
	3	794	4.17 (1.046)			
	4	8	3.75 (.886)			
10	1	4	3 (2.309)	3	3.692	0.012
	2	83	3.78 (1.230)			
	3	793	4.13 (1.082)			
	4	8	4.12 (1.642)			
11	1	4	2.50 (1.915)	3	4.049	0.007
	2	82	3.59 (1.237)			
	3	790	3.92 (1.144)			
	4	8	3.75 (1.035)			

ANOVA test. SD: Standard deviation. Items: **1**. The professor had sufficient knowledge and ability to use educational software effectively. **4**. The professor answered my educational questions and problems in class in a timely and useful manner. **10**. My professor encouraged me and other classmates to participate in educational activities throughout the course. **11**. The professor provided me with feedback on homework and class tests at regular intervals.

Table-5: The students' response to the 12 items regarding the performance of professors according to the undergraduate year.

Item	Year	Number	Mean (SD)	df	F	*P-value
10	2	390	3.98 (1.159)	1	7.088	0.008
	3	498	4.18 (1.069)			
11	2	386	3.70 (1.226)	1	16.795	0.000
	3	498	4.02 (1.090)			

*ANOVA test. SD: Standard deviation, df: Degree of freedom. Items: **10**. My professor encouraged me and other classmates to participate in educational activities throughout the course. **11**. The professor provided me with feedback on homework and class tests at regular intervals.

4- DISCUSSION

The aim of the current study was to investigate the professors' online teaching performance during the COVID-19 pandemic from the perspective of nursing students of Islamic Azad University, Tehran Branch. The results showed above average satisfaction among the majority of students with the professors' online teaching performance. The findings of the study also showed a significant relationship between gender, undergraduate year, history of attending face-to-face classes, and the number of online semesters ($P<0.05$). The sensitivity of education and attention to educational processes in universities emphasize the need for evaluation to improve the quality of education and, ultimately, improve the efficiency and effectiveness of a country's education system (18). To improve the teaching/learning process, both the continuous individual development of the faculty members and the evaluation of their duties are necessary for a successful university (19). In recent years, the use of student opinions has become common in various academic settings. In a study on 600 faculties, Seldin found that the use of students' evaluation of professors increased from 29% to 86% during the period from 1973 and 1993 (20). A correct and continuous evaluation of the professors' performance, which is partly done by students, can indicate its quality. It not only helps identify professors' strengths and weaknesses but also acts as a helpful and effective factor in improving the quality of their educational activities. Previous studies have shown that regular evaluations of faculties by students and timely feedback on their results lead to better performance and, ultimately, improve the quality of education (21). The findings of the present study showed that the highest student satisfaction was related to professors' sufficient familiarity with and ability to use the educational software, up-to-date knowledge, sufficient expertise in educational content, and clear and organized content presentation. The lowest satisfaction level was related to the items of not using different teaching methods, not providing timely feedback on homework and class tests, and the unavailability of professors when needed. With the increasing use of information technology in the education field, it is now possible to create learning environments on the Internet without time and place constraints. These environments enable learners to access lesson content, share ideas, and discuss with other participants online (22). In a study titled "Challenges of Online Education", Parhizi et al. (2014) categorized the problems with e-learning into two groups. The first category involves technical problems, including inadequate infrastructure, lack of face-to-face communication between instructors and learners, and reduced information security. The second category involves low Internet skills and mismatch in online teaching, lack of familiarity with the online environment and its structure, difficulty in assessing the quality of learning, resistance to accept the

innovative technology and changes in traditional assessment methods, and, finally, increasing workload by professors (23). Najafi et al. (2019) referred to the insufficient understanding of online teaching, delay in educational feedback, delays in asynchronous learning, lack of motivation to read online electronic content, lack of human, emotional, and face-to-face interactions in the classroom, and lack of social communication skills as well as the impossibility of practical activities in the classroom as the shortcomings of e-learning (24). In their study, Eisenberg and Escobar investigated the importance of educators' success in e-learning, noting that the COVID-19 pandemic has caused a sudden shift in education from face-to-face to e-teaching. They referred to the importance of peer-to-peer education, providing content at regular intervals, setting specific interaction rules (e.g., when and how the learner is allowed to ask questions or solve problems), and paying close attention to the objectives during the assessment of the learned material as effective factors in e-learning (25). The COVID-19 pandemic has caused many changes in the world. These changes have also affected universities and other educational systems as well as various aspects of society. This pandemic has shifted educational systems towards using online teaching. Utilizing online learning along with face-to-face teaching can guarantee learning. Combining the strengths of both face-to-face and online teaching methods is a further step to improve the quality of learning.

5- CONCLUSION

The findings of the study showed that nursing students of Islamic Azad University, Tehran Branch were very satisfied with their professors' online teaching performance during the COVID-19 pandemic. They also demanded timely feedback, using various teaching methods, and availability of professors in the shortest possible time. To improve the quality of online teaching systems, it is necessary to promote the student-professor relationship, student-student collaboration, provide timely feedback, and emphasize the availability of professors in various ways to explain the objectives of courses and pay attention to different learning styles and abilities. Active learning and participation as the main concepts recommended by administrators involved in planning, management, and teaching in e-learning systems are issues that should always be considered while making decisions and be used as guiding principles.

6- CONFLICT OF INTEREST: None.

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