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Research Article

The Effect of COVID-19 Pandemic on the Academic Performance of Nursing Students

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Abstract: The purpose of this study was to discover how the COVID-19 pandemic has influenced the academic performance of nursing students and the challenges faced while trying to adapt to the online learning era. A total of 144 respondents filled out the online questionnaire. Convenience sampling was considered the sampling method for the study. Online Google questionnaires were administered in accordance with the COVID-19 precautions being taken by the government to encourage social distancing thereby contributing to minimizing the spread of the virus. 105 of the study participants were female nursing students while very few of them were male (39). The outcome of the research showed that the challenges faced by nursing students were issues of limited time, network glitches and inability to cope when studying online. Those who have a high rating for online education want online education to continue while those that had low ratings for online learning were below average in the academic performance. Online learning for schools is not going away soon, so it should be made as convenient and easily accessible as possible. It is also recommended that students are allowed to give feedback as often as possible in the course of their online education.

***Keywords*:** academic performance, coronavirus, online learning, nursing students

1. Introduction

The coronavirus disease was announced to be a pandemic by World Health Organization (WHO) in March 2020 (Ali et al., 2020). The COVID-19 pandemic has affected the global population and each sector in every country's economy have had to adjust and make a shift from their normal ways of carrying out their daily activities (Aday & Aday, 2020; Donthu & Gustafsson, 2020; Bonal & González, 2020). COVID-19 forced the closure of colleges and universities across the world in early 2020 and as a result, a distinct increase in distance learning has occurred, in which teaching is done remotely and through digital platforms (Rapanta et al., 2020; Elfirdoussi et al., 2020). Well-planned online learning is not the same as going online amid a disaster, as the tempo at which this happens is vastly different for everyone including the learners and the educators. Universities and college campuses are educational institutions where students live and study close to one another and even entail centers where students from diverse countries can come together to display their cultures while also being impacted (Darling-Hammond et al., 2020; Jongbloed et al., 2008). Education entails the interactions between individual students and the purpose is to achieve access to the resource,

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information utilization capability and the capacity to produce new information (Darling-Hammond et al., 2020). The importance of education cannot be overemphasized as lifelong learning is important to individuals and countries (Laal & Laal, 2012). Instead of gathering students in schools, online learning has now taken effect to help students to still progress in the course of studying as a result of the impact of COVID-19. It is important to mention that online learning was already been done in schools before COVID-19. The difference between then and now is that the students were able to choose online learning; it was a choice. Now, it is not a matter of choice; it is a global situation and one of the protocols for preventing the spread of the virus. Students are required to be involved in online learning if they desire to further their education. For the students who thrive well in face-to-face education, this is a big change for them and coping or trying to adapt to the change might bring the result in negative academic performance. Academic staff and students are presently making use of online platforms for educational purposes (Aduba & Mayowa-Adebara, 2022). The online platforms that are being utilized in Cyprus International University and various schools include Zoom, Microsoft team and the school's online platforms such as Moodle platform as well as the Student Information System (SIS) among others. This switch has affected the teachers but also largely affected the students in ways that students experience costlier means of gaining education, medical services and also social implications (social distancing) and this has prompted the conduction of this study. In order to understand how deeply the impact of COVID-19 is rooted on students; nursing students have been considered for the purpose of this research.

Nursing education is currently confronted with issues such as students' failure to apply nursing expertise in clinical settings and their inability to apply nursing practices in clinical settings (Jamshidi et al., 2016; Baraz et al., 2015). The growth and development of nursing education is one of the vital reasons for conducting this research as it necessitates ongoing inspection for flaws, and students coping ability, as these are some of the ways to best spot the issues that need to be tackled (Gemuhay et al., 2019). Nursing education's mission is to prepare trained and qualified nurses to care for patients in a clinical setting (Fawaz et al., 2018). Face-to-face instruction is impossible to do with the current pandemic situation and nursing students are also the potential nurses that will help to uphold global health, especially in cases like this ongoing pandemic. Hence, this research focuses on nursing students and the effect that the coronavirus pandemic has had on their academic performances. The conduction of this study will pave the way for the eradication of career abandonment which is rampant among nursing students as mentioned by Ali et al. (2020) and will contribute to helping the student adjust well to the new educational and learning methods presently in play in the pandemic era.

The investigations into how tertiary institutions have been coping with the pandemic and how it has affected learning for students and the plans to tackle the strains caused by this COVID-19 pandemic towards the coming semesters have been conducted (El Said, 2021; Dutta & Smita, 2020; Jandrić et al., 2020). Information about how other universities have acted in the past, as well as a look at other countries and their universities, may be extremely beneficial in coping with change as a system. The impact of COVID-19 on students has been examined by a few research to determine the challenges faced when these students are learning online (Khan et al., 2020; Gonzalez et al., 2020; El Said, 2021). Little work is available comparing student performance in online distance learning during the lockdown to face-to-face learning in the previous semester before the onset of COVID-19 (El Said, 2021; Mishra et al., 2020; Rajhans et al., 2020). The purpose of this study was to discover how the COVID-19 pandemic has influenced the academic performance of nursing students and the challenges faced while trying to adapt to the online learning era. This information will contribute greatly to the proper implementation of educational practices that would be appropriate for the students in case of future crises. This study, therefore, focuses on answering questions about the extent to which nursing students perceive that online learning, as a result of the pandemic, has affected their academic performance.

2. Methods

This study is a descriptive study and the population for the study are the registered nursing students of Cyprus International University located in Haspolat, Nicosia, North Cyprus. Convenience sampling was considered the sampling method for the study. The online nursing groups of students at Cyprus International University were considered for the administration of the online forms. A Google form was constructed (see Appendix), and the link was sent to nursing students on various online platforms such as social media sites (Whatsapp). This study made use of an online Google questionnaire to collect data for the research and data analysis in order to comply with the COVID-19

precaution protocol by the government about any form of gatherings. The Google link was shared on the platforms and an adequate explanation was provided for the purpose of the research and to ensure that the students were participating willingly. In order to determine the sample size, the population of registered nursing students 420 at the confidence level of 90% with a 5% margin of error shows that at least 166 online survey forms need to be administered. A total of 144 responses were received in one month. The online Google form entailed two sections with the first section on demographics like gender and nationality. The second part contains 14 questions that are answered in order to measure the effect of COVID-19 on the academic performance of nursing students. The research answered questions on the challenges faced by nursing students with online education in this pandemic era. Another question asked is about the effect of COVID-19 on the academic performance of nursing students at Cyprus International University. The use of the online method for learning was also evaluated to determine the student's perception. The data collected from the study were then entered a spreadsheet which was analyzed with the use of SPSS software version 22.0. The independent t-tests, ANOVA tests and Chi-square analysis were done. The participants were informed that the data collected was solely for research purposes and confidentiality would be strictly observed. The procedures of this study are in accordance with the ethical standards of Cyprus International University. Ethical committee consent was also obtained from the ethical committee of the Health Science Faculty of Cyprus International University.

3. Results

The measure of academic performance considered for the study includes feedback from nursing students after the completion of mid-semester exams with a look at online and virtual tools; online learning devices; challenges; academic performance perception. The feedback from online courses and exams taken was considered to measure academic performance.

The figures below depict results of this research.

3.1 *Demographic characteristics of nursing students*

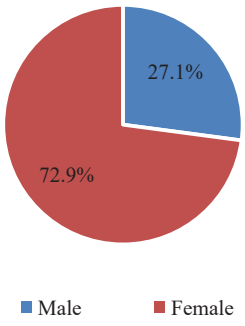

Figure 1. Gender demographics

Demographic characteristics and analysis results showing the effect of COVID-19 on the academic performance of nursing students revealed that 105 of the participants were female nursing students while very few of them were male with the frequency being 39 as shown in Figure 1.

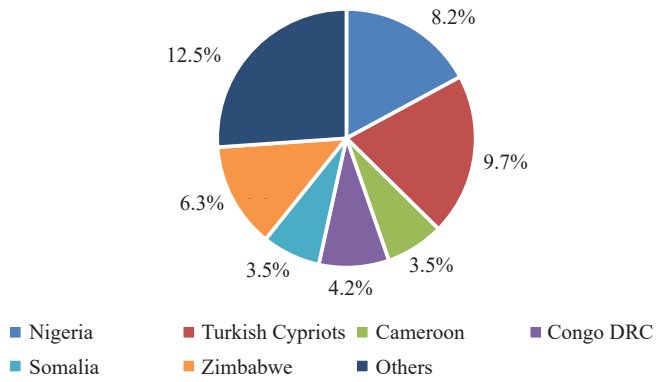

Figure 2. Nationality demographics

This Figure 2 above shows the demographics in terms of nationality also showed that most of the participants were from Nigeria (60.4%) while minorities of the participants were from Cameroon and Somalia.

3.2 *Univariate distribution*

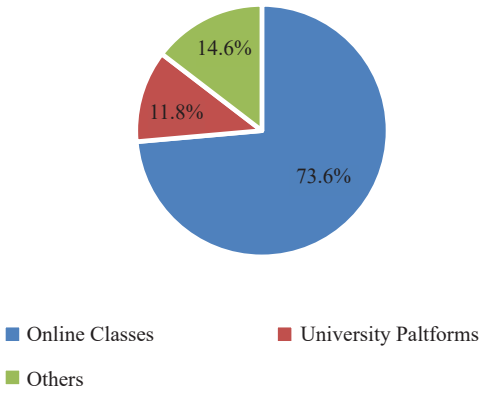

Figure 3. Virtual tools

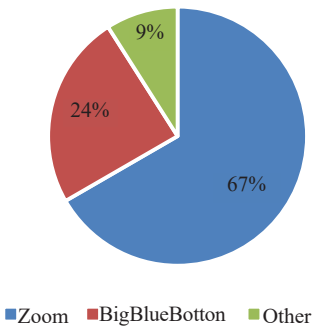

Figure 4. Online tools

The virtual tools utilized by students during the pandemic are illustrated above in Figure 3.

The online tools such as Bigbluebotton and Zoom have depicted above in Figure 4 as the online tools that students utilized during the pandemic with a majority of the nursing students using Zoom.

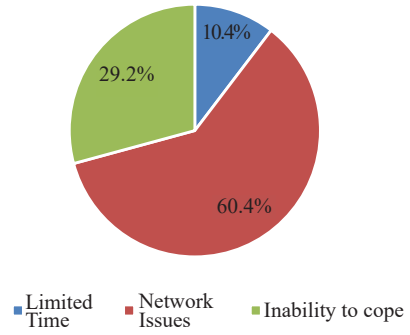

Figure 5. Online learning challenges

Figure 5 illustrates the online learning challenges faced by nursing students. These challenges include limited time; network issues; and inability to cope as these students also put in efforts to be well acquainted with the online platforms.

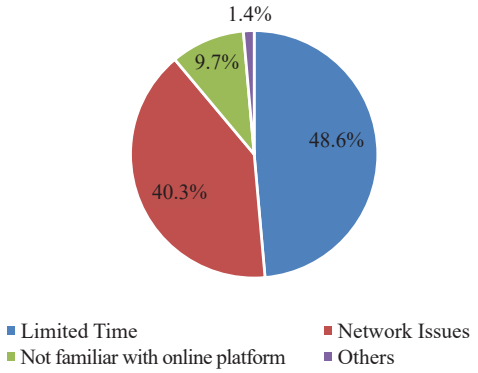

Figure 6. Challenges during online exams/quizzes

Figure 6 above is a chart depicting the challenges students faced during online exams, and they include limited time; network issues; and being unfamiliar with the online platforms. The students explained that network issues and limited time to complete the online exams were major challenges.

Table 1 shows that 93 students used laptops for online learning during the pandemic while 51 made use of cell phones/mobile phones.

Figure 7 depicts the response from the study participants when asked the extent to which COVID-19 pandemic has affected their academic performance. Majority mentioned that their academic performances were greatly and moderately affected (38.9%; 40.3%).

Table 1. Devices used by students for online learning during COVID-19

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Laptop	93	64.6	64.6	64.6
	Cell phone	51	35.4	35.4	100.0
	Total	144	100.0	100.0	

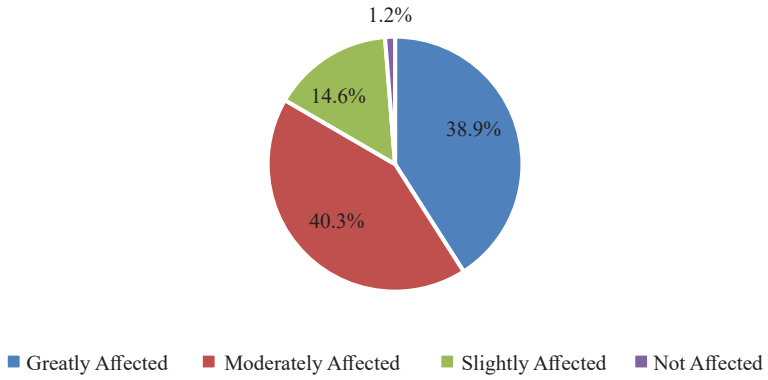

Figure 7. Effect of COVID-19 on academic performance

3.3 *Inferential section*

Table 2. Academic performance rating after experiencing online learning

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Below average	8	5.6	5.6	5.6
	Average	38	26.4	26.4	31.9
	Above average	15	10.4	10.4	42.4
	Satisfactory	63	43.8	43.8	86.1
	Excellent	20	13.9	13.9	100.0
	Total	144	100.0	100.0	

Table 2 shows the academic performance rating by nursing students after experiencing online learning. Majority of the students responded that their academic performance was satisfactory after online learning while only 20 of the 144 students responded mentioned that they perceived their academic performance to be excellent after experiencing online learning.

Table 3. Group statistics: Continuation of online education and online education rating

	Online Continuation	N	Mean	Std. deviation	Std. error mean
rating	Yes	54	4.0370	1.11530	0.15177
	No	90	2.8889	1.04338	0.10998

Table 4. Independent samples test

		Levene's test for equality of variances		t-test for equality of means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
									Lower	Upper
Rating	Equal variances assumed	1.453	0.230	6.229	142	0.000	1.14815	0.18432	0.78379	1.51251
	Equal variances not assumed			6.126	105.889	0.000	1.14815	0.18743	0.77654	1.51976

From Tables 3 and 4 above, it could be observed that the p-value is less than 0.05. It can then be concluded that online education rating statistically significantly varies relative to the continuation of online education. Thus, it could be posited that those who are willing to continue with online education have higher scores (4.04 ± 1.12) than those not willing to continue with online education (2.89 ± 1.04).

3.3.1 *One-way ANOVA analysis of academic performance and online education rating*

Table 5. Descriptive

Rating	N	Mean	Std. deviation	Std. error	95% confidence interval for mean		Minimum	Maximum
					Lower bound	Upper bound		
Below average	8	1.5000	0.53452	0.18898	1.0531	1.9469	1.00	2.00
Average	38	3.2105	1.06943	0.17348	2.8590	3.5620	1.00	5.00
Above average	98	3.5102	1.16871	0.11806	3.2759	3.7445	1.00	5.00
Total	144	3.3194	1.20403	0.10034	3.1211	3.5178	1.00	5.00

Table 6. ANOVA

Rating	Sum of squares	Df	Mean square	F	Sig.
Between groups	30.500	2	15.250	12.162	0.000
Within groups	176.806	141	1.254		
Total	207.306	143			

Some students who were discovered to have high ratings of online education were discovered to have better academic performance (3.51 ± 1.17) while those who have below-average performance academically were discovered to have the lowest rating (1.50 ± 0.53) as shown in Tables 5 and 6. The ANOVA analysis of academic performance and online education is also depicted in Figure 8.

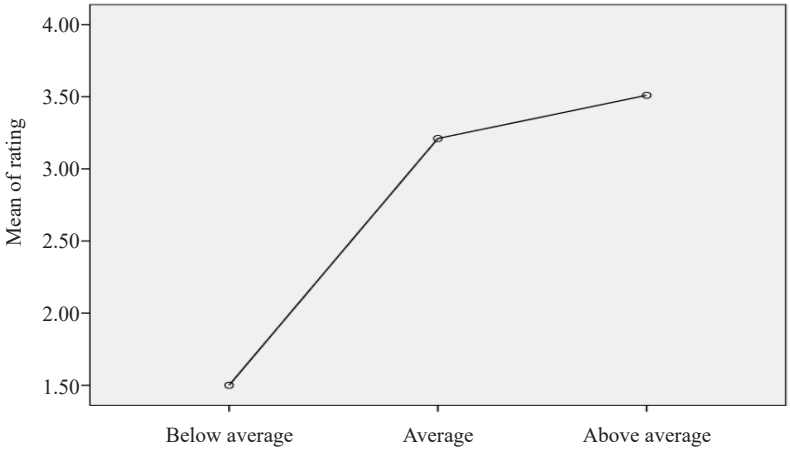

Figure 8. Performance

3.3.2 *One-way ANOVA analysis of virtual tools and online education on practical lessons rating*

Table 7. Descriptive online practical lessons

	N	Mean	Std. deviation	Std. error	95% confidence interval for mean		Minimum	Maximum
					Lower bound	Upper bound		
Online classes	106	1.9340	1.30398	0.12665	1.6828	2.1851	1.00	5.00
University platforms	17	1.5882	1.00367	0.24343	1.0722	2.1043	1.00	5.00
Others	21	2.7143	1.64751	0.35952	1.9643	3.4642	1.00	5.00
Total	144	2.0069	1.35614	0.11301	1.7836	2.2303	1.00	5.00

Table 8. ANOVA

	Online education in practical lesson				
	Sum of squares	Df	Mean square	F	Sig.
Between groups	14.052	2	7.026	3.980	0.021
Within groups	248.941	141	1.766		
Total	262.993	143			

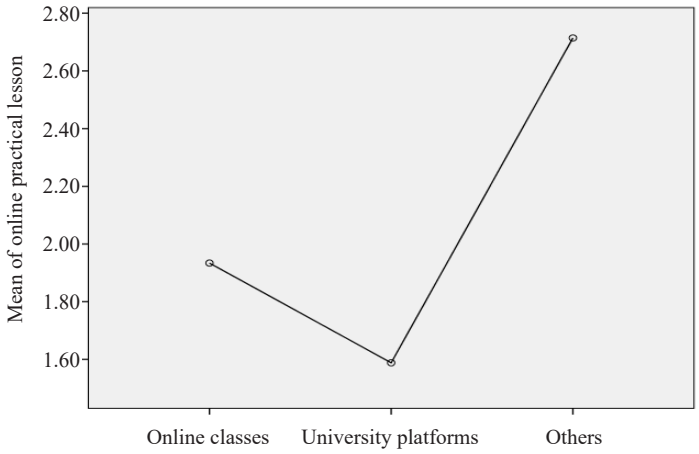

Figure 9. Virtual tools

Students have been discovered to make use of other platforms more than the university platforms which shows that student users of other platforms have the highest score (2.71 ± 1.65), followed by online classes (1.93 ± 1.30) and University platforms (1.59 ± 1.00) as depicted in Tables 7 and 8. The ANOVA analysis of virtual tools and online practical lessons in illustrated in Figure 9 above.

3.3.3 *Chi-Square analysis*

Table 9. Device usage and challenges

Device * challenges cross-tabulation						
			Challenges			Total
			Limited time	Network issues	Inability to cope	
Device	Laptop	Count	5	59	29	93
		% within device	5.4%	63.4%	31.2%	100.0%
	Cell phone	Count	10	28	13	51
		% within device	19.6%	54.9%	25.5%	100.0%
Total		Count	15	87	42	144
		% within device	10.4%	60.4%	29.2%	100.0%

Table 9 above illustrates the relation between the device used by the students and the problems faced thereby showing that laptop users experience more problems as compared to cell phone users.

The Pearson Chi-Square test statistic in Table 10 revealed that the p-value is less than 0.05, hence it can be concluded that the device used by the student impacts the types of challenges experienced by the students. It can be inferred that users of laptops experienced the problem of network issues more than users of cell phones while the problem of limited time is more experienced by users of cellphones in contrast to laptop users.

Table 10. Chi-Square tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.168[a]	2	0.028
Likelihood ratio	6.814	2	0.033
Linear-by-linear association	3.600	1	0.058
N of valid cases	144		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.31

4. Discussion

Online education is what educational institutions are embracing in this COVID-19 pandemic era to enable students to receive their education even when they are not able to undergo learning physically which is also called the face-to-face learning (Dhawan, 2020; Rapanta et al., 2020; Elfirdoussi et al., 2020). This study examined the effect of the COVID-19 pandemic on the academic performance of nursing students at Cyprus International University, North Cyprus.

4.1 *Demographics of the participants*

The gender demographics of the students showed that 39 of them were male while 105 of the participants were female nursing students. The demographics in terms of nationality also showed that most of the participants (60.4%) were from Nigeria while minorities of the participants were from Cameroon and Somalia. However, a study by Mahdy (2020) on the impact of the COVID-19 pandemic on the academic performance of Veterinary students showed that more male students participated in the study with 50.1% male and 49.9% female.

It was discovered that with a p-value less than 0.05, online education rating statistically significantly varies relative to the continuation of online education. This is interpreted as those willing to continue with online education have higher scores (4.04 ± 1.12). The nursing students majorly want online education to continue while a few of them who are having issues with coping and adapting to the new approach of learning want the learning system to quickly go back to the way it was; the time of face-to-face learning. This tallies with the research by Ramos-Morcillo et al. (2020) on the experiences of nursing students during the pandemic era.

4.2 *Academic performance of nursing students through online learning during COVID-19*

The One-way Analysis of Variance (ANOVA) done to determine the effect of COVID-19 on the academic performance of nursing students was found to be significant with a p-value lesser than 0.05. Therefore, it can then be concluded that online education rating statistically significantly varies relative to student academic performance. Likewise, a statistically significant pairwise comparison was established with students with the above-average score and below-average score. Students with an above-average performance (3.51 ± 1.17) were discovered to have the highest score on the rating of online education, closely followed by those with an average performance (3.21 ± 1.07) while the below-average performance has the lowest rating (1.50 ± 0.53).

Some of the proffered solutions by this study to overcome the adverse effect of COVID-19 on nursing students include: seeking academic help/advice from peers, instructors and counsellors when needed; time management is another important factor as students can invest in a day planner and use it to keep track of everything, from school homework and tests/exams to family outings.

4.3 *Challenges faced by nursing students with online education*

According to the study's univariate analysis, the two most popular platforms for online nursing education during

the pandemic were Zoom and Bigbluebutton (BBB). Examining the types of devices and the challenges experienced by the participants showed that 93 of them made use of laptops for online learning and out of the 93, the problem of limited time especially in times of tests and exams is experienced by 5 (5.4%) of them. 59 (63.4%) experienced network challenges while making use of their laptops while 29 (31.2%) expressed an inability to cope as they are still trying to get understand how online education works with their laptop. For students who have not been interested in the frequent use of technological devices such as the laptop, continuous use of the laptop for learning might be a problem. Alkhazaleh and Mahasneh (2016) discovered that veterinary students also had challenges of the limited time available to solve the online test, which causes these students to panic out of fear of failing. The minority of the 144 participants (51) made use of cell phones for online learning. 10 of 51 participants that made use of cell phones mentioned that they likewise experienced limited time problems when it comes to online learning. It is quite different when the time is automatic, and the students are unable to ask for more time as they would have done if learning were face-to-face/in-person. Some cell phone users 28 (54.9%) explained that network issues were more common when classes were being attended which is more terrible for cases when they were writing tests and quizzes. A post hoc test using the Tukey method was conducted, and it was found that there is a pairwise statistical difference between students with average-score and below-average scores ($p < 0.05$). The Pearson Chi-Square test statistic revealed that the p-value is less than 0.05, hence it can be concluded that the device used by the student impacts the types of challenges experienced by the student shown in Table 5. It can be inferred that users of laptops experienced the problem of network issues more than users of cell phones while the problem of limited time is more experienced by users of cellphones in contrast to laptop users. Adnan & Anwar's (2020) findings on students' experiences with online education during the COVID-19 epidemic are consistent with these findings. The survey found that most pupils had connectivity difficulties and were unable to use the internet. Alternatively, Simamora (2020) investigated the difficulties presented by online education in the midst of the COVID-19 epidemic. The findings of the research, however, revealed that students encountered many obstacles, including poor economic situations and an inefficient online learning medium.

Another major challenge regarding online learning is a practicum. Due to the COVID-19 pandemic, nursing students were unable to complete their required clinical placement, as reported by Martin-Delgado et al. (2022). Feelings ranging from disappointment to anger at having to abandon their peers who were able to get employment as auxiliary staff in the healthcare industry were experienced by these pupils. The students' lack of confidence in their ability to carry out the duties of such an office was voiced by a few. The results are in line with those of recent research by Cervera-Gasch et al. (2020), who found that 74.2 percent of nursing students polled would be willing to care for patients with COVID-19. Students who were unable to enter the workforce felt that they had failed society (Swift et al., 2020). These students, like their volunteer-doing counterparts, were motivated by a sense of responsibility and compassion (Collado-Boira et al., 2020; Martin-Delgado et al., 2021).

5. Conclusion

The investigation of the impact of this pandemic on nursing students showed that these students had challenges faced while trying to continue their education online in this pandemic era. The issues discovered in this study were limited time, network issues and inability to cope when studying online. Those who had a high rating for online education want online education to continue and perform well academically while those who had low ratings for online learning were below average in the academic performance. The end of the COVID-19 pandemic is what everyone looks up to and just as things might not completely go back to the way it was, it is hoped that the global systems will be greater than it was before and will be able to prepare better in case of future crisis. Online learning should be made as convenient and easily accessible as possible. It is also recommended that students are given the opportunity to give feedback as often as possible in the course of their online education. The feedback can be gotten through student portals. This will help to determine how well students in fairing in their respective courses.

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Data Availability: Not Available

Code Availability: Not applicable.

Consent for publication: Not applicable.

Ethical approval

The participants were informed that the data collected was solely for research purposes and confidentiality would be strictly observed. The procedures of this study are in accordance with the ethical standards of Cyprus International University. Ethical Committee consent was also obtained from the ethical committee of the Health Science Faculty of Cyprus International University.

Conflicts of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

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Appendix

The Effect of COVID-19 pandemic on the academic performance of nursing students in Cyprus International University, North Cyprus.

This questionnaire aims to look into the effect of the Coronavirus pandemic on the academic performance of nursing students in Cyprus International University, North Cyprus during online teaching and examination. The data collated from this questionnaire will be used for a research study and will also be published in a research journal.

Section A

1. Gender

Male ☐

Female ☐

2. Country

_____

3. Academic Year

Year 1 ☐

Year 2 ☐

Year 3 ☐

Year 4 ☐

Masters ☐

PhD ☐

Section B

This section measures the impact of COVID-19 on the academic performance of nursing student in Cyprus International University. Kindly tick and answer the questions as appropriate.

4. To what extent has COVID-19 affected your academic performance?

Greatly Affected ☐ Moderately Affected ☐

Slightly Affected ☐ Not Affected ☐

5. Which virtual tools did you use during this lockdown?

University Platforms ☐ Online Classes ☐ YouTube Videos ☐

Whatsapp Groups ☐ E-books ☐ Educational Websites ☐

PDF Lectures ☐ Others ☐

6. Which online learning tool did you use?

Zoom ☐
Microsoft teams ☐
Skype ☐
Web whiteboard ☐
Edmondo ☐
Google search ☐
Social networks ☐
Google classrooms ☐
BigBlueButton (BBB) ☐
Other ☐

7. How many hours did you spend in online learning?

1 hours/day ☐
2 hours/day ☐
3 hours/day ☐
4 hours/day ☐
5 hours/day ☐
More than 5 hours ☐

8. How do you rate online education out of a total rate of 10?

1 ☐
2 ☐
3 ☐
4 ☐
5 ☐
More than 5 ☐

9. How do you rate online education in practical lessons?

1 ☐
2 ☐
3 ☐
4 ☐
5 ☐
More than 5 ☐

10. What challenge did you face during online learning?

Limited time ☐
Network Issues ☐
Inability to cope with learning virtually ☐
Others ☐

11. What major challenge did you face during the online quiz/exam?

Limited time ☐
Network Issues ☐
Not familiar with the online platform ☐
Others ☐

12. How do you rate your academic performance after experiencing online learning?

Below Average ☐
Average ☐
Above Average ☐
Satisfactory ☐
Excellent ☐

13. Did your university provide effective online tools to enhance online learning?

Yes ☐ No ☐

14. After your first experience of online learning, what would you rate your instructors with the total rate of 10?

1 ☐
2 ☐
3 ☐
4 ☐
5 ☐
More than 5 ☐

15. Would you want to continue with online learning?

Yes ☐ No ☐

16. How can we improve online learning?

_____

17. Which device do you use to study online?

Laptop ☐ PC ☐ Cell Phone ☐ Tablet ☐
Others ☐