

# The impact of COVID-19 on nursing students' lives and online learning: A cross-sectional survey

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## Abstract

**Aims:** To explore the impact of COVID-19 on students' lives and their online learning experience.

**Design:** A cross-sectional survey design was used in this study.

**Methods:** A total of 44 nursing students who were enrolled in an undergraduate programme at a Canadian University participated in the study. The students were asked to fill out a 35-item survey that was developed by the European Students' Union and that was circulated across Europe in April 2020.

**Results:** The COVID-19 pandemic and subsequent lockdown affected students mentally, and emotionally. Findings also revealed that whilst most students had the privilege to study from home, many students did not have a desk, or a quiet place to study in their home and some had problems with Internet connectivity. Online lectures were delivered according to students' preferences; however, students were dissatisfied with the way their practice was organized.

**Conclusion:** The similarities between this study and the European study provide common grounds for academics around the world to connect, collaborate and work on the challenges in providing nurse education in emergencies such as national disasters or pandemics to ensure preparedness for such future events.

**Patient or Public Contribution:** No Patient or Public Contribution.

**Impact:** The commonalities experienced in nursing education across the globe should act as an impetus for globalized nursing action. Educators need to prepare and reinvent a role for students in the clinical area in the event of future disasters/pandemics. Policy makers and administrators need to ensure when switching to online education no student is underprivileged or marginalized in the process.

## KEYWORDS

COVID-19 pandemic, nurse education, nursing students, survey designs

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## 1 | INTRODUCTION

The 2020 COVID-19 pandemic resulted in extraordinary changes in nursing education (Carolan et al., 2020; Singh & Haynes, 2020). The rapid and unexpected way by which the COVID-19 pandemic spread across the world caught everyone unprepared and grappling with emergency issues arising on a day-to-day basis. The fast spread of COVID-19 necessitated precautionary measures to contain the virus. These measures included the emergency lockdown of most schools and university campuses worldwide, obligating students to replace face-to-face lectures with online learning. In Canada alone, all educational institutions were closed by the end of March 2020, affecting 1,625,578 students who were enrolled in tertiary education programmes ('Impact of the COVID-19 pandemic on education', Wikipedia, 2023). This sudden transition created major interruptions in students' learning and additional stress for students. Besides dealing with the anxieties created by the COVID-19 pandemic, students had to juggle between learning remotely for the first time and navigating practical issues related to the need to follow their educational programmes within their home environment, which may not have been amenable to support their learning.

With time, it becomes natural, if not necessary to forget about the terrible 3 years of the pandemic and the impact it left on nursing education. Yet, understanding the effects of COVID-19 and the lessons learnt remain crucial for the advancement of nursing education. This extraordinary scenario can be viewed as a historical event in the education of nursing students, one which is important to document for upcoming generations who may have to face similar situations in the future. Exploring the impact of the pandemic on nursing students' learning can provide valuable lessons to nurse educators to be able to make more informed rapid decisions during possible future crises.

## 2 | THE STUDY

### 2.1 | Aims and objectives

The aim of this research study is to explore the impact of the COVID-19 pandemic on students' lives and the online learning experience.

The objectives were as follows:

1. To explore the impact of the COVID-19 pandemic on the students' mental capacity to learn
2. To identify the impact of transitioning to online learning
3. To identify the infrastructure available to students for studying from home
4. To identify the students' computer skills
5. To identify the student social support during the COVID-19 pandemic
6. To compare the students' actual and preferred learning experiences.

## 3 | METHODS

### 3.1 | Design

A cross-sectional survey design was used in this study.

### 3.2 | Study setting and sample

This study was a cross-sectional study conducted with a cohort of nursing students who were enrolled in an undergraduate programme at a Canadian University during the pandemic. The nursing programme at this university was a 3-year programme spread out over 8 terms of theory interspaced with practice sessions. Cluster sampling was used by selecting solely the 75 nursing students who were in the second year of their studies. The total number of nursing students in the 3-year programme at the time was 226.

The students participating in the study had face-to-face lectures in the first 4 terms of the programme and switched to online lectures midway through term 5 following the recommendations from the provincial health authority where the study took place. They were invited to participate in this study after they completed their term 5 courses and received their grades.

### 3.3 | Ethical considerations

Ethical approval for the study was approved by the university where the study took place. The students were contacted via email, and they were asked if they would like to participate in the survey. A link to the anonymous survey was provided in the email. The survey consisted of a 35-item electronic questionnaire using Survey Monkey®. The tool was an adaptation of a survey that was developed by the European Students' Union (E.S.U), and that was circulated to 40 countries across Europe in April 2020; however, the survey was not distributed in Canada. The ESU tool explored undergraduate students' capacity to learn during the lockdown and focused on six themes: academic environment, infrastructure and skills for studying from home, social networks, emotional life and studying from home. The students that participated in the ESU study were from various disciplines including health care; however, there was no specific reference to nursing students in the ESU study. Permission to use this tool in the current study was obtained from the authors (Doolan et al., 2020). Minor changes were made to the tool to adapt it to the Canadian scenario and the nursing programme. It is not known if the ESU tool was tested for reliability and validity.

### 3.4 | Data collection and analysis

Data were collected over 8 weeks from January 2021 until February 2021, when the students were still learning online and were still

suspended from practice. The Statistical Package for Social Science software (SPSS version 27) was used to analyse the data. Due to the extensiveness of this survey, only the findings related to this paper's objectives will be discussed. Results on the financial impact of the COVID-19 pandemic on students' lives, such as whether or not students suffered job loss when they were studying, the effect of the pandemic on tuition costs and whether or not students received scholarships during the COVID-19 pandemic will not be discussed.

## 4 | RESULTS

### 4.1 | Characteristics of the sample

To attain a margin of error lower than 10%, assuming a 95% confidence level, it was important to collect a sample of at least 42 nursing students. The initial response rate was 54.6% (41/75) which was not sufficient. In an attempt to reduce the margin of error, a reminder email was sent to all non-respondents and the response rate increased to 58.7% ( $n=44/75$ ). This sample, which guaranteed a maximum margin of error of 9.6%, consisted of 36 females and 8 males and their ages ranged from 20 to 35 years ( $M=26.4$  years,  $SD=4.19$ ) (Table 1). The average time it took the students to complete the survey was 18 min.

#### 4.1.1 | The impact of COVID-19 on the students' mental capacity to learn

When students were asked whether the COVID-19 pandemic had an impact on their mental capacity to learn 74% of the students indicated that the COVID-19 pandemic had a negative impact on their ability to learn, whilst 26% reported that it had no impact. Students were also asked to rate on a 5-point Likert scale, the impact of COVID-19 on their health, finances and balancing household responsibilities. The Friedman test was used to compare mean rating scores provided to COVID-19 concerns. Results showed that participants were significantly more worried about their health (3.08) than about finances (2.53 and 2.63) and balancing household responsibilities (2.79), indicating that this was their highest concern during the COVID 19 pandemic ( $X^2(3)=7.956, p=.047$ ) (Figure 1).

#### 4.1.2 | The impact of the transition to online learning

When students were asked to rate their overall online experience, the majority of the students (65.0%;  $n=26$ ) felt that overall their study workload experience was larger than on-site classes, other students (32.5%;  $n=13$ ) felt that there was no difference, whilst one student (2.5%;  $n=1$ ) felt that their workload was smaller when compared to on-site classes. Overall, most students strongly felt that it was more difficult to focus on online learning in comparison to on-site learning (71.8%;  $n=28$ ). Based on the Friedman test, the statement 'it is more difficult to focus during online teaching in comparison to on-site teaching' (4.46) rated significantly higher than the statement 'My performance as a student has changed for the better since on-site classes were cancelled' (2.87) and 'I need more time to adapt to online learning' (2.95 at  $X^2_6=66.673, p<.001$ ) (Figure 2).

#### 4.1.3 | The infrastructure for studying remotely

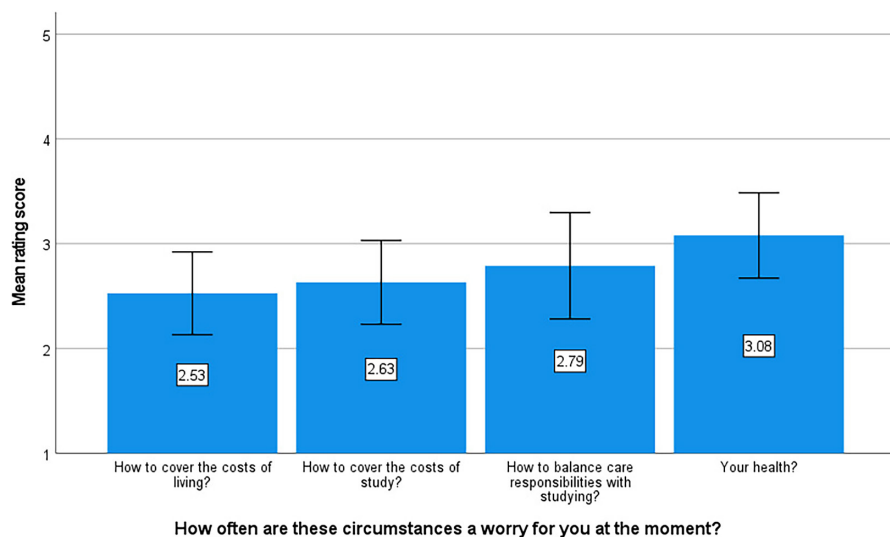
Most of the students were living at their homes (51.3%  $n=20$ ) or at their parents' home (46.2%,  $n=18$ ) at the time of this study, no student was living at the student residence and one student did not specify where they were staying (2.5%,  $n=1$ ). When asked what it was like studying from home, the majority of the students reported it was good (31.6%;  $n=12$ ), some were neutral about it (28.9%,  $n=11$ ) whilst an equal number mentioned it was neither very good (13.15%,  $n=5$ ) nor bad (13.15%,  $n=5$ ). Few students mentioned it was very bad (5.3%,  $n=2$ ). Three students (7.9%,  $n=3$ ) stated that learning online from home was challenging and found it difficult to stay motivated. Six students abstained from answering this question.

Students were also asked about the infrastructure at home to support their learning needs. The majority always had a computer (97.4%,  $n=38$ ) and course material (79.5%,  $n=31$ ). However, not all of the students had a good Internet connection (56.4%,  $n=22$ ), a great number did not have a desk where to study (61.5%,  $n=24$ ), and very few students always had a quiet place at home (25.6%,  $n=10$ ). Five students abstained from answering these questions. The Friedman test showed that the availability of computers (4.95), course study material (4.59) and good Internet connections (4.13) was significantly higher than the availability of a quiet place to

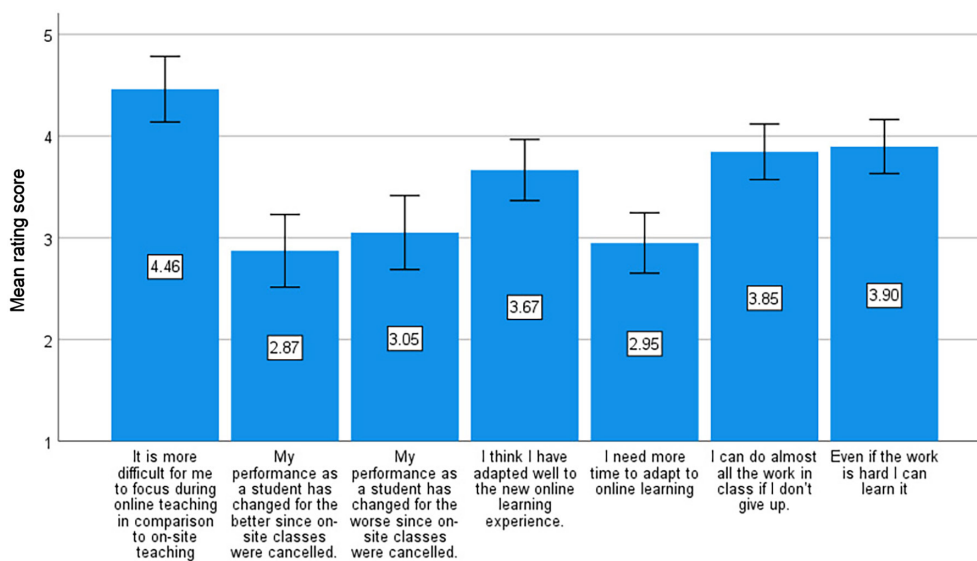
TABLE 1 Sample demographics.

		Frequency	Percentage (%)
How old are you?	20–25 years	24	54.5
	26–30 years	9	20.5
	31–35 years	10	22.7
	Prefer not to say	1	2.3
How do you identify by gender?	Man	8	18.2
	Woman	36	81.8

FIGURE 1 Concerns about the impact of Covid-19.



How often are these circumstances a worry for you at the moment?



In view of the new teaching and learning environment, to what extent do you agree with the following statements:

FIGURE 2 Students' experience with online learning.

study (3.41) and a desk to study (3.82 at  $\chi^2_4=47.617, p<.001$ ) (Figure 3).

#### 4.1.4 | The student's computer skills

Students were asked to rate their abilities in browsing and searching for information on the Internet, how confident they were in using the online teaching platform, and if they were able to decipher reliable and valid information from the Internet. Comparison was also made to determine whether there was any difference in these computer skills by gender or age. The Kruskal-Wallis test was used to compare mean rating scores related to participants' computer skills clustered by gender and age. Tables 2 and 3 show that all mean rating scores indicate that the participants were confident in these three computer skills irrespective of gender and age.

#### 4.1.5 | The Students' social support during the COVID-19 pandemic

All students had some form of emotional or social support during the covid pandemic to help them cope with the angst of COVID 19. The chi-square test was used to investigate the association between the supporting persons that the students turned to during the COVID crisis, in relation to the specific situational crisis they were facing at the time.

Participants mentioned that spouses/partners and close friends were more likely to 'Be there for you if you felt a bit down or depressed and wanted to talk about it', to 'Be there for you if you would like to talk about the COVID-19 crisis' and to 'Help you around your home if you were sick and had to stay in bed for a few days'. On the contrary, students indicated that they were most likely to turn to close friends to 'Talk about problems related

FIGURE 3 Infrastructure from home.

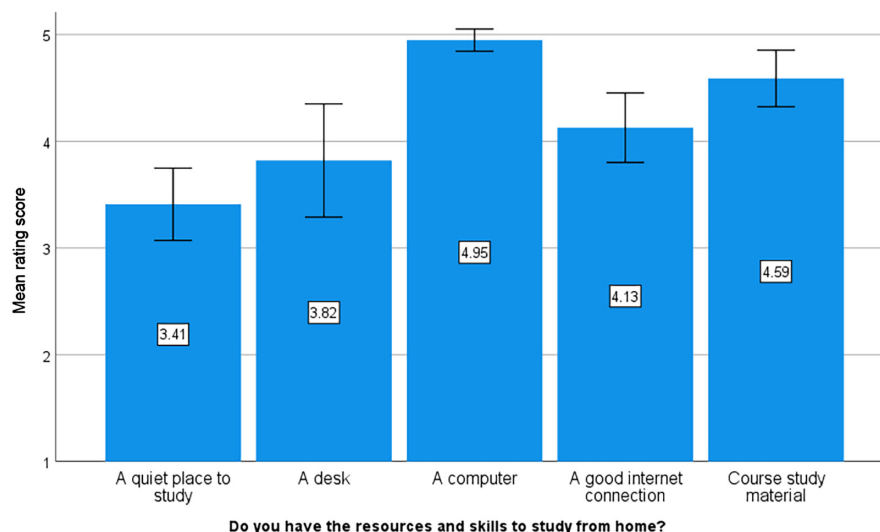


TABLE 2 Computer skills compared by gender.

Statements related to your computer skills		Sample size	Mean	SD	p-value
I am confident in browsing, searching and filtering data, information and digital content	Men	7	4.57	0.787	.256
	Women	32	4.22	0.832	
I am confident in using online teaching platforms such as MS Teams, Zoom and similar	Men	7	4.43	0.535	.787
	Women	32	4.34	0.602	
I am able to select reliable and valid information from the media that is related to my course	Men	7	4.43	0.535	.287
	Women	32	4.16	0.628	

TABLE 3 Computer skills compared by age.

Statements related to your computer skills		Sample size	Mean	SD	p-value
I am confident in browsing, searching and filtering data, information and digital content	20–25 years	22	4.23	0.922	.720
	26–30 years	7	4.29	0.756	
	31–35 years	9	4.56	0.527	
I am confident in using online teaching platforms such as MS Teams, Zoom and similar	20–25 years	22	4.27	0.631	.506
	26–30 years	7	4.43	0.535	
	31–35 years	9	4.56	0.527	
I am able to select reliable and valid information from the media that is related to my course	20–25 years	22	4.05	0.653	.158
	26–30 years	7	4.43	0.535	
	31–35 years	9	4.44	0.527	

to studying issues (lectures, seminars, practical work)' and to 'Help you with platforms for online studying (e.g. Zoom and MS teams). Students did not resort to course professors as their main preference (Table 4).

#### 4.1.6 | The students' actual and preferred learning experiences

Another objective of the study was to explore whether the online learning experiences matched the students' expectations. The

chi-squared test was used to investigate the association between each of two categorical variables: (a) Differences between preferred and actual online lecture delivery and (b) differences between preferred and actual practical classes.

When students were asked to indicate the ways, their theoretical lectures were organized, and if this was incongruent with their preferred way of lecture delivery. The chi-squared test revealed that there was no difference between the online methods used by the lecturers and those preferred by the students ( $\chi^2(9)=2.591$ ,  $p=.978$ ), thus indicating that teaching was delivered in line with the students' preferences (Table 5).

TABLE 4 Students' social support network.

		Situation				
Support network during the COVID-19 crisis		Be there for you if you felt a bit down or depressed and wanted to talk about it	Be there for you if you would like to talk about the COVID-19 crisis	Talk about problems related to studying issues (lectures, seminars, practical work)	Help you with platforms for online studying (e.g. Zoom and MS teams)	Help you around your home if you were sick and had to stay in bed for a few days
Close family member	Count	9	17	4	4	22
	Percentage	23.7%	44.7%	10.5%	10.5%	57.9%
More distant family member	Count	0	1	0	0	0
	Percentage	0.0%	2.6%	0.0%	0.0%	0.0%
Close friend	Count	12	6	20	17	2
	Percentage	31.6%	15.8%	52.6%	44.7%	5.3%
Course professor	Count	0	3	3	7	0
	Percentage	0.0%	7.9%	7.9%	18.4%	0.0%
Someone I live with	Count	0	0	1	0	1
	Percentage	0.0%	0.0%	2.6%	0.0%	2.6%
Spouse or partner	Count	16	10	8	5	11
	Percentage	42.1%	26.3%	21.1%	13.2%	28.9%
Voluntary organization	Count	1	1	1	4	2
	Percentage	2.6%	2.6%	2.6%	10.5%	5.3%
No one	Count	0	0	1	1	0
	Percentage	0.0%	0.0%	2.6%	2.6%	0.0%

Note:  $X^2(28) = 75.833, p < .001$ .

TABLE 5 Preferred against actual online learning.

Since on-site classes were cancelled, which of these were you able to consult your professor when you had questions about the course?	Which was your preferred way on online learning?				Lectures have been replaced by lecturers sending their presentations to students
	Online with the lecturer lecturing in real time	Online with a video recording of the lecturer lecturing	Online power point presentation with an audio recording of the lecturer	Online with a video recording of the lecturer lecturing	
Online with the lecturer lecturing in real time	Count 27 Percentage 22.9%	Count 4 Percentage 3.4%	Count 8 Percentage 6.8%	Count 1 Percentage 0.8%	Count 1 Percentage 0.8%
Online with a video recording of the lecturer lecturing	Count 21 Percentage 17.8%	Count 4 Percentage 3.4%	Count 8 Percentage 6.8%	Count 1 Percentage 0.8%	Count 1 Percentage 0.8%
Online power point presentation with an audio recording of the lecturer	Count 21 Percentage 17.8%	Count 3 Percentage 2.5%	Count 7 Percentage 5.9%	Count 1 Percentage 0.8%	Count 1 Percentage 0.8%
Lectures have been replaced by no online lectures have been organized, self-directed learning to students	Count 10 Percentage 8.5%	Count 0 Percentage 0.0%	Count 2 Percentage 1.7%	Count 0 Percentage 0.0%	Count 0 Percentage 0.0%

Note:  $X^2(9) = 2.591, p = .978$ .

However, when students were asked to rate the actual and preferred way of practice delivery, there was a significant difference between the methods used by the academics and the methods preferred by the students for practice learning (Table 6) ( $X^2(12) = 27.869, p = .006$ ). Whilst most of the clinical teaching was organized using VSims, the majority of students preferred direct practice in the laboratories/clinical area, or a combination of both, and showed no predilection towards simulated learning (VSims).

## 5 | DISCUSSION

Results from this study confirm earlier findings that the COVID-19 pandemic and subsequent lockdown left an impact on the student nurses' daily life, and affected them mentally and emotionally. This finding is similar to findings from the study that was conducted by the European Students Union from which this survey tool was adopted (Doolan et al., 2020), as well as other studies from different countries across the globe. All of these studies reported how the pandemic affected undergraduate students' mental health (Barrett & Twycross, 2022; Lathabhavan, 2021; Villani et al., 2021; Yang et al., 2021) how it resulted in frustration, anxiety and boredom (Doolan et al., 2020), high levels of anxiety and stress (Ross, 2022) and depression (Ghazawy et al., 2021; Hasan & Bao, 2020) changes in lifestyles (Imaz-Aramburu et al., 2021) and how it left a negative impact on the students' academic achievements (Abdollahi et al., 2022; Kim & Park, 2021; Son et al., 2020). This finding highlights the need for educators to consider the mental health of students besides their teaching approaches, if learning is to be effective.

Kim and Park (2021) commented how anxiety related to COVID-19 and distance e-learning had a negative effect on nursing students' learning flow, that is, the ability of students to focus and concentrate exclusively on a particular activity and ignore everything else. Many students in our study stated that one of the main difficulties they faced during online learning was the ability to concentrate. These results were not surprising, given the unprecedented impact of COVID-19 at the time of this study. The initial days of the pandemic were also particularly unique and problematic since millions around the world were rapidly dying daily and vaccines against the disease were not readily available to the general public. The vaccination efforts in Canada had just started on 14 December 2020 and the roll-out to the general public was still in its early days (Health Canada Statement, 2020) at the time of the study. Consequently, students at the time had to deal with the uncertainty of the pandemic progression and if it would affect them and their loved ones, besides their academic activities.

The mental and emotional distress created by the unpredictable and uncertain nature of the pandemic was further aggravated by the closure of universities and the abrupt and obligatory way virtual simulations were introduced and mandated, leaving students and academics unprepared for this sudden change. Luckily, almost all of the students in this study were able to attend remote learning from the comfort of their homes or their parents' house. Similarly, in the ESU

TABLE 6 Preferred against actual practice.

Since on-site classes were cancelled, my practical classes have been organized	Which is your preferred way of learning practical classes during this COVID 19 pandemic?			
	Seminars with the lecturer involved in real time	Direct practice in labs	Direct practice in the clinical area	Combination of online seminars and direct practice
Seminars with the lecturer involved in real time	Count 1	Count 0	Count 1	Count 0
	Percentage 2.6%	Percentage 0.0%	Percentage 2.6%	Percentage 0.0%
Direct practice in labs	Count 0	Count 1	Count 0	Count 0
	Percentage 0.0%	Percentage 2.6%	Percentage 0.0%	Percentage 0.0%
Direct practice in the clinical area	Count 1	Count 0	Count 7	Count 0
	Percentage 2.6%	Percentage 0.0%	Percentage 17.9%	Percentage 0.0%
VSIMS	Count 0	Count 5	Count 7	Count 0
	Percentage 0.0%	Percentage 12.8%	Percentage 17.9%	Percentage 0.0%
Combination of online seminars and direct practice	Count 0	Count 0	Count 15	Count 1
	Percentage 0.0%	Percentage 0.0%	Percentage 38.5%	Percentage 2.6%

Note:  $X^2(12) = 27.869, p = .006$ .

study, the majority of the students were living in their family homes when the quarantine measures were implemented. This may explain why the results from both the ESU and this study showed that the participants faced no issues in terms of having support from family and friends. The results may have been different if the participants were international students who were far away from their homeland, whose travelling was possibly curtailed and therefore unable to be with their families, who may have lost their part-time jobs on campus and were still having to pay full tuition fees (Couton, 2022). The American College Health Association (ACHA, 2020) did declare that international students were considered one of the 'vulnerable populations' during the COVID-19 pandemic due to the challenges they faced, whether or not they were able to return to their home countries.

Another positive finding that emerged from our study was that almost all students were confident in browsing, searching and filtering data from digital content, knowledgeable in using online platforms like MS Teams and Zoom, and were able to select reliable and valid information from online media that was related to the course. There was also no gender or age difference in technology ability, and only one student in this study appeared to have problems with the use of technology. These findings concur with the findings from the E.U study by Doolan et al. (2020) who also reported that almost all students were familiar and confident with the use of technology and online platforms. This is an important finding, considering that platforms play an important role in online learning. It also holds promise for the future, as nursing education moves more towards hybrid or online learning in its curricula. Notwithstanding, these findings should not be taken reassuringly. These findings caution educators to be vigilant for there is still a minority of students who are not knowledgeable and proficient with technology. Hence, the needs of these individuals must be attended to, so that they are not underserved and marginalized.

Whilst studying from home and being technologically confident was a privilege for the students in this study, the environment and infrastructure at home from where they were learning were not always optimal. Although almost everyone in this study had a computer and course material, some had problems with Internet connectivity and several students commented that they did not have a desk or a quiet place to study in their home. This may explain why, when asked what it was like studying from home, the majority of the students rated it as good or neutral with few students rating it as very good. Similar findings were reported in the earlier study done in the EU by Doolan et al. (2020) who reported that although EU students had family support during the pandemic, it was a challenge for students to study in home settings. Doolan et al. (2020) also reported that poor Internet connections were one of the main issues of studying remotely. Similarly, Fogg et al. (2020) described how unfavourable home environment and poor Internet connection were problems that many students faced during remote learning, whilst Aucejo et al., 2020 and Kapasia et al., 2020 noted how students from underrepresented, disadvantaged and vulnerable populations were more likely to be highly impacted with these difficulties



as a direct consequence of their disability or socio-economic status. Again, these findings raise a red flag and reinforce the importance for educators, administrators and policymakers to be alert against the marginalization of certain populations and to ensure that the rights of underprivileged persons are observed and protected during catastrophic situations.

Rashid et al. (2021) point out that during such challenging times of the pandemic, students need emotional and academic support to buffer the detrimental effects precipitated by the pandemic and to facilitate distant e-learning. In their study, Rashid et al. (2021) reported how social interactions, in particular, emotional and informational support, were crucial in creating a positive educational environment that helped students reach their academic goals, and how social isolation during the pandemic affected these dynamics.

Findings from the current study indicate that the majority of students appeared to have a strong support system in place from an emotional and informational aspect. Spouses/partners and close friends were likely to be there for students if they felt down or depressed or if they wanted to talk about the COVID-19 crisis. Meanwhile, students in this study found friends to be the best support to help them navigate online platforms or to help with studying. An interesting finding was that nursing students hardly consulted course professors for both emotional support and to help to navigate online learning during the COVID crisis. The majority of students did say they consulted the person they felt was most resourceful, and it seems that family and friends were the people who best fulfilled this need. Similar findings were also supported in other studies by Doolan et al. (2020) and Nodine et al. (2022) who reported that students are more likely to identify with family and to consult peers who are experiencing the same problems, rather than their educators, whom they prefer to consult for content material.

On a positive note, results from this study indicated that educators used a variety of online teaching methods and lectures that were (at least for the theoretical section) in congruence with the students' preferences. Similar to Doolan et al. (2020) study, the most popular and preferred way of learning was online learning with the lecturer present in real time. This finding suggests that the traditional face-to-face approach with human contact was still coveted, no matter how popular or advantageous virtual learning is touted to be. The importance of face-to-face connection was highlighted in other studies. For instance, Wut and Xu (2021) reported how the lack of person-to-person interaction and effective communication between instructors and students, hampered learning. Wut and Xu (2021) described how this lack of direct contact between students and their instructors during the COVID-19 pandemic created restrictions that made it harder for students to ask questions or seek clarification. As a result, students were reluctant to directly and openly share their views during class time. Similarly, in a qualitative study, conducted by Nodine et al. (2022) nursing students lamented how they felt the need to maintain human connection and to communicate with faculty when lectures were moved online. Students addressed this need by contacting their educators often by phone,

email or video conferences. They appreciated this personal touch and that their concerns were acknowledged.

The dissatisfaction with the lack of human contact was certainly felt when students in this study were asked to compare their preferred mode of practice delivery with the way the practice was organized. Students in the current study predominantly chose direct patient care and any form of direct practice, as their preference for clinical learning. Interestingly, none of the students chose virtual simulation. Many agree that hands-on experience is hard to replace, and finding ways to make up for the lost time in the practice area remains a contentious issue. Wut and Xu (2021) commented on how this abrupt change was seen as a hindrance to optimal virtual learning, and how nurse educators and students needed time to learn and familiarize themselves with the effective use of virtual simulation and technology. Similarly, Agu et al. (2021) describe how integrating clinical skills into a virtual environment and preparing students to develop the required entry-level competence was one of the greatest challenges that nurse educators faced during the COVID-19 pandemic. Smith and Farra (2022) commented on how the substitution of clinical hours with virtual simulations has an impact on the regulation of nursing practice and education when it comes to evaluating students' readiness for entry into practice and for meeting the necessary criteria to qualify for their licensure examinations. All of these concerns point out dilemmas about replacing clinical practice with virtual simulation. Concerns about lack of hands-on practice in real-life situations and questions about the clinical competency of these nurses when they graduate from university have been concerns for nurse educators during the COVID pandemic. It is acknowledged that during the pandemic, nurse educators had precious little time to be creative. However, now that the pandemic is fading out, the time is ripe for nurse educators to get together, reflect and think of alternative ways to make up for lost clinical time in preparation for future disasters. Rather than pulling students out of the clinical area, educators may want to consider how to prepare and reinvent a role for students in the clinical area, in the event of such calamities.

## 5.1 | Strengths and limitations of the study

The findings from this study are limited by the small sample size and the fact that students who chose to reply to the survey were self-selected. Generalization from this study is not possible; however, the similarities between this study, the European study and various studies across the globe are noteworthy.

## 5.2 | Recommendations for further research

Further research should focus on the development of evidence-based protocols about the strategies to be taken to the theoretical, practical learning and educational and mental health support of nursing students in the event of unexpected natural disasters or pandemics.

### 5.3 | Implications for education

Emergency response procedures, which consider what has been learned during the COVID-19 pandemic, need to be in place within educational institutions to allow a proactive approach in the event of natural disasters which would allow the ongoing education of nursing students as well as mitigate the negative effects of the events taking place on the students.

In the context of unexpected emergent situations such as pandemics which create challenges to the academic and practical education of nursing students, nurse educators must be aware of and provide supportive measures to students who may face practical challenges such as lack of adequate resources at home for online learning as well as providing mental health services to support students emotionally. Special attention should be paid to practical learning which is central to nurse education but poses more challenges than the organization of online learning.

## 6 | CONCLUSION

The commonalities across countries consolidate the findings of this study and provide an opportunity for globalized nursing action. Identifying nursing students' concerns during the pandemic can serve as an impetus for academics around the world to connect, collaborate and work on these issues to prevent the same mistakes from happening again.

Understanding the effects COVID-19 had on undergraduate education is crucial for academic progress. Based on these findings, we hope that this study provides an opportunity to understand and explore ways to resolve problematic situations should similar pandemics or global disasters arise in the future. It also offers insight into the challenges that students may confront as nursing education advances and adopts more virtual and high-fidelity technology in the curriculum. In addition, we hope that the results of this study provide some food for thought for educators to re-think and re-design nursing curricula effectively to ensure that students' needs are met, and no student is underprivileged or marginalized in the process.

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### CONFLICT OF INTEREST STATEMENT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### PEER REVIEW

The peer review history for this article is available at <https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/jan.15979>.

### DATA AVAILABILITY STATEMENT

Data available on request due to privacy/ethical restrictions.

### ETHICAL PERMISSIONS

Ethical approval for the study was approved by Cape Breton University Research Ethics Board, File # 1920-112. All students gave their written consent to participate in the study.

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One of the authors, Dr. Liberato CAMILLERI Ph.D. (Lanc.) is a statistician.

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