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Research article

Student nurses' educational experiences during COVID-19: A qualitative study

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ABSTRACT

Background: Due to the COVID-19 pandemic, many unexpected changes occurred in healthcare. With the abrupt change to online education in 2020, nursing students experienced challenges with virtual learning which impacted their perception of preparedness to practice. There were few qualitative studies completed in the U.S. that investigated the nursing students' experiences. The aim of this study was to explore pre-licensure nursing students' experiences with the transition to virtual learning and their perception of nursing amidst a pandemic. **Objectives:** This study investigated nursing students' experiences and perceptions of the nursing profession amidst a pandemic and explored whether students would continue pursuing a career in nursing.

Design: A descriptive exploratory qualitative study utilizing focus group interviews and questions using the Theory of Planned Behavior as a framework.

Setting: A university in Northern Illinois educating baccalaureate degree pre-licensure nursing students.

Participants: Twenty-four pre-licensure nursing students first through fifth semesters. Ten focus groups were established and consisted of two to three students.

Methods: A descriptive qualitative study design using the Theory of Planned Behavior to construct 9 semi-structured questions. These questions were utilized in the focus groups ($n = 24$) and Framework Analysis was utilized to analyze data.

Results: Five themes and three sub-themes emerged from the study. Themes included: inspiration to become nurses with sub-themes-students' own inspiration and inspired by family; relationship strain with friend/family due to poor adherence to isolation guidelines; transition to online learning with sub-theme mental health strain; unprepared to begin nursing practice; and ambiguity regarding how to impact government health policy.

Conclusions: This study found that the students' perceptions of the nursing profession did not waiver, and their desire to pursue a nursing career was resolute. This study demonstrated the challenges students experienced with a transition to virtual learning. Students expressed having insufficient in-person experiences and felt unprepared to begin practice.

1. Introduction

The COVID-19 pandemic has elicited many unexpected changes in healthcare worldwide and continues to strain the nursing workforce. According to Alexander and Johnson (2021), the demand for nurses by 2026 is predicted to exceed the projected increase in the nursing workforce. Zhang et al. (2018) further surmised that by 2030, there would be a deficit of >500,000 nurses in the U.S. Hence, the nursing profession's focus begins to shift toward the future nurses and how they perceive nursing amidst the current climate.

In 2020, in-person nursing education abruptly halted due to the

pandemic, and schools needed to implement strategies to convert to a virtual learning environment (Michel et al., 2021). The sudden change significantly impacted students' ability to cope and learn effectively, and there was a concern this would affect their pursuit of a nursing career (Diaz et al., 2021; Michel et al., 2021). Consequently, the effects of the pandemic on nursing students' perception of the profession and desire to continue a nursing career have become an area of focus for educators. This qualitative research study aimed to explore pre-licensure nursing students' experiences and perceptions of nursing amidst a pandemic, how it impacted their desire to practice, their educational experience, and how these experiences affected their readiness for practice.

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2. Background

Numerous international quantitative studies have evaluated pre-licensure nursing students' perceptions during the pandemic. For example, studies evaluated students' anxiety levels (Cici and Yilmazel, 2021; Savitsky et al., 2020; Yilmaz and Yilmaz, 2021), psychological stress (Aslan and Pekince, 2021; Brouwer et al., 2021; Ersin and Kartal, 2021), quality of life/resilience (Drach-Zahavy et al., 2022; Keener et al., 2021), and satisfaction with the transition to online learning (Natarajan and Joseph, 2022; Penrod et al., 2022; Yavaş Çelik, 2021).

Similarly, international qualitative studies have explored the transition to virtual learning (Bdair, 2021; Jiménez-Rodríguez et al., 2020; Kim et al., 2021; Wallace et al., 2021) and stress and anxiety related to the transition to virtual learning (Cengiz et al., 2022; Türkleş et al., 2021). However, few qualitative studies completed explicitly in the U.S. have explored these same themes, and even fewer have explored nursing students' perceptions of the profession.

Two U.S. qualitative studies explored students' perceptions and experiences transitioning to virtual learning during the pandemic (Smith et al., 2021; Wallace et al., 2021). Each concluded that technical difficulties with virtual learning caused students stress and anxiety (Smith et al., 2021; Wallace et al., 2021). Additionally, students lacked face-to-face interaction, which reduced their attention and motivation during online sessions (Smith et al., 2021). Students also experienced relationship changes and found it challenging to communicate with faculty and classmates while participating in online classes (Smith et al., 2021; Wallace et al., 2021).

Two other U.S. studies focused on nursing students' perceptions of the nursing field and psychosocial struggles during the pandemic. Diaz et al. (2021) utilized a survey to determine pre-licensure nursing students' experiences, stress levels and coping mechanisms, and views of the nursing profession. They found that the transition to online learning negatively affected students' lives. The study also found that nursing students experienced isolation, breakdown in normalcy, role identity issues, and ways to cope with these changes (Diaz et al., 2021). Similarly, Michel et al. (2021) investigated pre-licensure nursing students' perceptions of the nursing profession, psychosocial experiences during the COVID-19 pandemic, and challenges with online learning. They concluded that the pandemic strengthened students' desire to continue in the nursing profession; however, students had difficulty adjusting to online learning and experienced challenges refining the necessary skills to begin practice (Michel et al., 2021). This national study implemented a survey using one open-ended question to explore students' experiences. The authors suggested utilizing focus groups in future studies to explore nursing students' experiences further (Michel et al., 2021). Our study's design answered this recommendation. The aim was to explore the student's experiences with the transition to online learning, investigate their perceptions of the nursing profession amidst a global pandemic, and examine how their experiences impacted their desire and preparedness to practice.

3. Methods

This study used a descriptive exploratory design to examine the pre-licensure nursing students' experience during a pandemic. The Theory of Planned Behavior (TPB) is the conceptual model used to construct the semi-structured questions posed to the pre-licensure students in the focus group interviews (Ajzen, 1991). The TPB consists of three different domains: attitude toward the behavior (a person's experiences or beliefs), subjective norms (society's expectations regarding a specific behavior), and perceived behavioral control (resources that will facilitate performing the intended behavior). Nine semi-structured questions (Table 1) were composed using these three factors as a template. Two external expert qualitative researchers were consulted in the development of the questions. The experts concurred that the questions reflected the TBP.

Table 1

Focus group questions.

1. How has the COVID-19 pandemic affected your perception of being a nursing student/nurse? (Domain 1: TBP)
2. As a nursing student, do you feel obligated to care for any patient despite the risks to yourself and your family? How have the risks of being a nursing student changed since COVID-19? (Domain 2: TBP)
 - a. Why do you continue to practice nursing during the pandemic?
 - b. Do you see any benefits or disadvantages to caring for COVID-19 patients?
3. How do you feel about the emotional challenges of nursing since the pandemic? (Domain 1: TBP)
 - a. How has the pandemic affected your mental health?
4. Have your family or friends expressed concerns or support about you caring for COVID-19 patients? How has that affected your thinking regarding caring for patients? (Domain 1&2: TBP)
5. Have you knowingly cared for any COVID-19 patients? (Domain 1: TBP)
6. Have you had to quarantine for COVID? (Domain 1: TBP)
 - a. What was it like to be forced to quarantine after caring for a COVID patient?
 - b. How did that make you feel about going back to clinical care?
 - c. How did your family & friends react to your quarantine?
7. How do you think that governmental health policy should influence our response to the pandemic? (Domain 3: TBP)
8. What do you feel is nursing's role in governmental health care policy? (Domain 3: TBP)
 - a. Has your perception of nursing and health care policy changed since the COVID-19 pandemic?
9. Is there anything else you would like to add? (Domain 1: TBP)

3.1. Setting and sample

The study took place at a public university in Northern Illinois. Approximately 150 students graduate from the university's pre-licensure nursing program annually. Prior to March 2020, the pre-licensure program's didactic courses and clinical rotations were exclusively in-person. After March 2020, due to the pandemic, all classes were transitioned to a virtual platform, and virtual clinical simulations labs were substituted for in-person clinical rotations. The sample of participants was a purposive sample until saturation. All who volunteered participated. The student participants ($n = 24$) included first semester (track 1) through final semester (track 5). The focus group interviews were conducted from February 2021 through March 2021.

3.2. Data collection

The university Institutional Review Board approved the research study protocol (HS21-0193). All nursing students enrolled in the pre-licensure program during the spring of 2021 received a recruitment email. Interested students received information regarding the study's intention and the protocol, and all students consented to participate and were assigned study numbers to preserve anonymity. Ten focus groups, each with two to three students, were arranged based on student availability. Focus groups were intentionally small to allow for individualized responses to questions. The focus group interviews were executed virtually via Microsoft TEAMS, recorded, and transcribed. Once the students completed the focus group session and answered a demographic questionnaire, they received \$20.00 for their participation. The monetary compensation was disclosed prior to study participation.

Each interview consisted of nine semi-structured questions (Table 1). One investigator acted as the moderator and conducted all interviews to provide consistent delivery of the questions. Probes helped cultivate conversations within each group to explore all questions comprehensively. The moderator summarized the students' responses to each question verbally to ascertain clarity and act as a method of member checking to promote reliability of the response. The second investigator recorded responses and observed verbal and non-verbal cues. A debrief session was conducted after each focus group to discuss group dynamics and to summarize emerging themes. Both investigators taught exclusively at the graduate level, to encourage unbiased responses. Focus

group interviews lasted approximately 60 min. During the interviews, the investigators found that focus group 8 elicited different themes. The investigators proceed with the two additional focus group interviews to assure content saturation. After the interview, each student completed an online Qualtrics demographic survey (Table 2).

3.3. Data analysis

Data were analyzed using Framework Analysis, a three-stage process that promotes rigorous data evaluation through a smooth transition from original data to identified themes (Smith and Firth, 2011). During the first stage, data management, the investigators reviewed the data as the information was transcribed into an organized table format to identify themes (Smith and Firth, 2011). The second step entailed reviewing the initial themes and emerging global concepts (Smith and Firth, 2011). Lastly, the investigators reviewed the original data to validate the identified themes, promoting the data's trustworthiness (Gale et al., 2013; Smith and Firth, 2011; Ward et al., 2013). The data collected reflects the TPB as this was the conceptual framework used in the study design.

Using Framework Analysis, the primary investigators demonstrated investigator and data triangulation by independently evaluating, summarizing, and extracting initial themes from the 10 focus groups, reflecting the first two steps of data management and descriptive organization. The third author was not involved in the study investigation and acted as a peer reviewer. Finally, all authors collectively collaborated and compared the responses to determine the prominent themes and sub-themes. The ability to transition from the original data to the identified themes in Framework Analysis creates an audit trail to promote accuracy of data evaluation.

4. Results

All students (n = 24) in the study were enrolled in the pre-licensure nursing program. 87 % were female, 68 % were ages 18–22, 79 % were

Table 2
Student participant demographic characteristics.

Characteristics	n	%
Gender		
Female	21	87.5
Male	3	12.5
Age		
18–22	16	66.7
23–25	4	16.6
25–30	0	0
31–40	3	12.5
>40	1	4.2
Race		
African American	1	4.2
Hispanic	2	8.3
Caucasian	19	79.1
Asian	1	4.2
Prefer not to say	1	4.2
Track in program		
1st	4	16.7
2nd	1	4.2
3rd	8	33.3
4th	5	20.8
5th	6	25.0
Required to quarantine		
Yes	10	41.7
No	14	58.3
Any related healthcare work experience		
Yes	13	54.2
No	11	45.8
Other health related secondary education		
Yes	1	4.2
No	23	95.8

Note: N = 24.

Caucasian, and there was a relatively equal distribution of students among the 5 nursing semesters (Table 2).

Five themes and three sub-themes emerged from the data analysis:

Themes and sub-themes

1. Inspired to become nurses

- Own inspiration
- Inspiration by family

2. Relationship strain with friends/family due to poor adherence to isolation guidelines

3. Transition to online learning

- Mental health strain

4. Unprepared to begin nursing practice due to virtual clinical learning

5. Uncertain how to impact governmental health policy and perception of government response in the pandemic

4.1. Inspired to become nurses

The first of the five themes, and one of the most conclusive, is that students were deeply inspired to become nurses and to continue their education despite working and learning during a pandemic. One student described it this way:

My mindset transitioned to what are my grandkids going to ask me. Where was I at this time and what happened? I want to say that I was on the front line and took care of COVID patients. I have an S on my chest, and I feel like a superhero.

(Focus group 8, student 2 [8–2])

Another student commented:

It [the pandemic] made me feel I was right where I wanted to be. Being on the front line is a scary concept, but I joined this field to be there for people in need. I knew that wanted to be in health care field, and I don't think that changes depending on the illness. The pandemic increased my drive to want to be a nurse.

(7–1)

A third student stated:

We [nurses] are front line workers and help the community stay healthy. I feel more responsibility to be a nurse due to the pandemic.

(9–3)

The students concluded that nursing continued to be their chosen career, and all were proud to become nurses. Being a nursing student during the pandemic did not change the students' perspectives of the nursing profession.

A sub-theme that emerged from this central theme was the students' own inspiration to become nurses. One student noted:

I lost my father when I was a senior in high school and was inspired by the nurses that provided his care. I wanted to help people through difficult times. Getting into nursing school was the greatest achievement in my life, and I strive hard to become a great nurse.

(3–2)

A second sub-theme was inspiration from family. One student stated:

My family is amazed by me. They want me to be a nurse, and I am getting to experience the pandemic and all the changes occurring in facilities. They really support me, and my friends just say, "I don't know how you do it!"

(10–2)

While the students' families were concerned about their students contracting COVID-19, all of them supported the students' career choices.

4.2. Relationship strain

A second theme that emerged from the study was the relationship strain students experienced within their friends and family groups. Many students witnessed a lack of compliance with isolation guidelines from their friends and family members, which elicited frustration. As one student commented:

Emotionally the pandemic has strained some of my relationships. They know that I'm a nurse, yet I see my friends going out to bars on social media. I have done my best to be responsible. To see them not care makes me very upset with people I consider close to me. It is hard to maintain these relationships because it feels like a middle finger right back at you.

(2-2)

4.3. Transition to online learning experiences

The third theme was an aversion to online learning in the pre-licensure program. Frequently, technology related to the virtual environment was confusing, and some students were less engaged and felt uncomfortable asking questions during synchronous online classes. One student noted:

I feel one of the main cons is our age. A lot of professors think we know a lot about technology when we don't. It is awkward to ask a question in the middle of class when all the attention is turned on you in Zoom meetings. I'm bad at paying attention online. Right now, I'm twirling around in my chair and can't stay focused on my computer.

(6-1)

An additional sub-theme was the mental health strain the students experienced with the transition to online learning. The abrupt change in the learning method experienced by the pre-licensure students created a feeling of isolation. They had minimal interaction with professors or other students and missed classmates' educational and emotional support. One student concluded:

We have these asynchronous classes, and we have extra lectures on top of our normal scheduled lectures. I feel we are getting more assignments in addition to our lectures. Also being isolated from my family is really hard, and it has taken a toll because basically my whole life is school and clinicals, and there isn't much beyond that.

(5-1)

The lack of social interaction created additional strain on students enrolled in an already demanding nursing program. Many of the students expressed having bouts of depression and anxiety during this change. One student said:

My mental health is terrible. My depression has gotten a lot worse, and I can't even read the news anymore. I'm just sad, and I just sit there and don't want to do anything.

(4-2)

4.4. Unprepared to begin nursing practice due to virtual clinical learning

The fourth theme was feeling unprepared to begin nursing practice. The students expressed apprehension about exclusively using a virtual simulated clinical environment. Some felt the virtual simulation environment was not an effective tool to provide them with the experience required to take care of patients. A student commented:

I just don't want us to be missing out on stuff. It's one thing to be in the lab and do procedures, but to actually be out in the world and practice different skills is essential.

(2-3)

Most of the students felt unprepared to provide patient care in a clinical setting. Those in their final clinical rotation felt unqualified to start their nursing practice. A final semester student stated:

Because we have missed out on that clinical time, we are now looking at nurse residencies programs because we don't necessarily feel prepared to go straight into working as nurses.

(5-1)

4.5. Uncertain how to impact governmental health policy

The fifth and final theme was students' views on how to influence government health policy during the pandemic and their opinions on how the government responded to the COVID-19 pandemic. All the students believed nurses should be more visible in the media and should provide education to the public. One student concluded:

I think it is important to educate the public, but unfortunately, I think our ability as nurses to do so is limited. There are nurses in some positions that can be influential, but I think much of it will come from the government. I think unless things get bad again, there isn't too much that we [nurses] can do or say that can make a big change.

(7-1)

Although all the students felt nurses should have a role in health care policy and be politically engaged, none understood how nurses could influence policy on a national, state, or even local level. Additional quotes supporting these themes are noted on [Table 3](#).

5. Discussion

This study aimed to explore pre-licensure students' experiences with the transition to online learning, their perceptions of the nursing profession amidst a pandemic, and how these experiences impacted their desire and preparedness to practice. As a framework, the TPB provided insight into students' personal experiences, their desire to continue in the nursing profession, and their lack of control when faced with the transition to virtual learning. This merges the TPB with the study results. This resulted in five themes and three sub-themes.

Continuing to pursue a career in nursing was the first theme identified in this study. As supported in previous studies ([Diaz et al., 2021](#); [Goni-Fuste et al., 2021](#); [Türkleş et al., 2021](#); [Yilmaz and Yilmaz, 2021](#); [Wallace et al., 2021](#)), students continued their education despite the pandemic, and they were inspired to be part of a profession that would make a difference in the lives of others. Family and friends provided emotional support and reinforced their student's career choices, and this was supported by [Michel et al. \(2021\)](#) and [Yilmaz and Yilmaz \(2021\)](#). During this global crisis, the pandemic highlighted the essential role of the nursing profession. In the future, emphasizing the nursing profession may encourage nursing student enrollment and have a positive impact on the nursing shortage.

The second theme that emerged was relationship conflicts between friends and family, specifically related to inconsistencies with adherence to isolation guidelines. Students in the study were diligent with following mandatory isolation guidelines because they feared missing clinical learning experiences if they contracted COVID. Rarely did they express concerns for their wellbeing but were much more concerned about transmitting the virus to others. However, some students found friends and family members had limited knowledge of the virus and its effects, or they held no regard for governmental social distancing and mask guidelines. The students expressed frustration with the *laissez-faire* attitude exhibited by friends and family who failed to follow guidelines. This experience of conflicting opinions created tensions between the students and their friends and family ([Prosser et al., 2020](#)). As the pandemic continues, inconsistencies with guideline practices will continue to create discord among those with opposing views.

Table 3
Additional quotes for themes and subthemes.

T1: Inspired to become nurses (Domain 1&2: TBP)

- During the pandemic It changed for me personally. It made me feel prouder to go into nursing. This pandemic makes me feel like I am having more of an impact. I'm here to care for people (Focus group 1- student 1)
- Want to help people when they are at their worst; I'm aware that there is some risk to my family but sees this can't be avoided and I am kind of serving the greater good (4-1)
- Pandemic firmed up my decision to be nurse; I saw how important and in demand nurses were (2-3)
- COVID inspired me to continue because nurses we're needed even more; I was inspired because great grandma wasn't taken care of properly and I don't want to see others go through that (10-1)

ST1: Own inspiration (Domain 1: TBP)

- o Appreciate the love you receive from patients and knowing you helped someone in need (2-2)
- o Job stability and enjoy helping people (1-2)
- o I am Mexican and in Mexico the health care is really bad. I want to be a nurse and get my experience and then take my knowledge there to help people (6-2)

ST2: Inspired by family (Domain 1&2: TBP)

- o At first, I did question continuing to be a nurse and mom supported me but initially wanted me to stop due to my anxiety. But it's [nursing] a sacrifice and someone has to do it and as nursing students, we want help people as much as we can (4-3)
- o Encouraged by my family to consider nursing. I am interested in working in mental health because of the health care disparities me and my family have experienced, and I want to be part of changing this (8-2)

T2: Relationship strain with friends/family due to poor adherence to isolation guidelines (Domain 1&2: TBP)

- There are two different sides in my family - one side is cautious and the other side that doesn't pay any attention to precautions [pandemic guidelines]. I wish they would be more cautious (9-2)
- I saw various ways of handling the pandemic. One side of my family was as strict with pandemic guidelines and others were not. It was frustrating to see it [the pandemic] not being taken as seriously because I was seeing it in clinicals and just how many deaths were happening (5-2)
- It was really hard for me to watch people not follow protocols. Knowing friends were going out to parties when I am quarantined to make sure I'm not spreading the virus around to anybody else (7-2)

T3: Transition to online learning (Domain 1&2: TBP)

- There was a negative impact on my study habits. I am staring at computer and not engaged and I missed connection with peers and teachers (2-1)
- It feels like curriculum changed and became all about getting assignments done. I am missing the in-person lectures; just not the same online (4-3)
- I miss meeting up with fellow students and not being able to ask the teacher questions. I feel very uncomfortable asking questions on Zoom because feels like I am dominating the class time. I miss in-person class and felt a lack of communication especially early in the semester (6-3)
- Being a student learner in this environment raised stress levels. Going to class kept me more accountable and I have less critical thinking in the online environment. My learning has been impacted (7-2)

ST3: Mental health strain (Domain 1: TBP)

- o It has taken a toll on mental health. I am constantly re-evaluating what is working or next working for me. I realize I need to be connected with others for my mental health (2-3)
- o Not being able to socialize had negative impact on my mental health (3-1)
- o Anxiety really manifested and when it [COVID] started out it was unbearable (4-3)
- o Very social person, so isolation had the most effect on mental health. I missed going to library and studying with friends (9-3)

T4: Unprepared to begin nursing practice (Domain 1&3: TBP)

- I feel nervous and a bit scared and maybe unprepared for the future. I feel I won't be a good nurse because I am not getting the hands-on experience right now (6-2)
- I am concerned about the lack of in person clinicals and how it will impact my experience (10-2)
- It has been difficult not getting clinical time. I am so close to graduation, and we have <50 % of the [in-person] clinical time (5-1)

T5: Uncertain how to impact governmental health policy and government's response in the pandemic (Domain 3: TBP)

- Nurses are on the frontlines, so they have a lot of firsthand experience/input, but I'm not sure how that impacts governmental policy (6-2)
- Feel policy is influenced by who has money. I feel nurses don't act on anything they find is an issue. Nurses could have a huge impact on policy, but they lack the voice (6-3)
- Honestly, I feel as nurses, the government probably won't listen to us (10-2)
- I feel they [government] can't make people get the vaccine but it is appropriate for them to mandate mask/social distancing in public places (7-2)

The third theme that developed was the students' adverse responses to the transition to online learning. The rapid transition to online learning in March of 2020 left both educators and students unprepared. Keener et al. (2021) found that approximately 56 % of students were not ready or did not have the ability to navigate this new learning format, and many expressed dissatisfaction. In this study, students expressed concerns regarding the curricula changes because of the transition. Often, these changes focused on alternative assignments like increased discussion board posts and supplementary assignments to engage students in the virtual environment. Students felt these activities did not promote effective learning and provided little opportunity to interact with professors and other students to cultivate their critical thinking. Additionally, they felt less motivated and uncomfortable communicating or asking questions. Numerous studies reported similar findings (Diaz et al., 2021; Michel et al., 2021; Smith et al., 2021; Wallace et al., 2021), including a breakdown in the student/educator relationship, discomfort asking questions in a virtual environment, and an increased workload.

However, students were able to identify some positive benefits of the online learning environment, such as the flexibility of asynchronous lectures, which allowed students to review the content at their convenience. Students no longer commuted to school, which gave them additional free time to spend with family and friends and allowed for a better school-life balance and this was supported by Diaz et al. (2021). Despite their struggles many students showed resilience and adaptability in adjusting to online learning. Nurse educators may use the insight gained to implement teaching pedagogy strategies to enhance online course content development by identifying the negative and positive student responses to online learning.

Despite the students' ability to adapt to the online environment, mental health strain still emerged as a sub-theme of the study. Before the pandemic, students could interact with professors and classmates as well as support each other by engaging in study groups and communicating in the classroom environment, which facilitates more accessible communication. The abrupt transition to online learning created a lack of personal contact, which further caused a sense of loneliness and isolation that resulted in mental strain. Students confirmed experiencing heightened symptoms of depression and anxiety. As in other studies (Diaz et al., 2021; Michel et al., 2021; Türkleş et al., 2021; Wallace et al., 2021), students missed pre-pandemic in-person activities and lacked socialization with classmates, family, and friends, which negatively impacted their mental health. Students may need additional individualized attention to mitigate the feelings of isolation that may lead to mental health issues. Going forward, educators need to have an increased awareness and recognize the mental health strain caused by online learning.

The fourth theme was the students' perception of being unprepared to begin practice due to virtual clinical learning. Due to the reduction of in-person clinicals, students expressed apprehension about graduating and starting their first position as a nurse. As a result, some students considered exploring post-graduation nursing residency programs to enhance their clinical preparedness. Various studies similarly found students were concerned about their lack of hands-on experience and how it would impact their ability to be prepared for their first nursing position (Diaz et al., 2021; Michel et al., 2021; Wallace et al., 2021). Nursing programs have historically required patient contact experiences as an essential component of pre-licensure nursing training. In the future, if virtual learning continues, finding creative ways to provide patient contact, such as working with community public health centers, may be used in place of other traditional clinical settings.

The last theme identified was that students expressed having limited knowledge of how to influence health policy related to pandemic protocols. COVID-19 revealed the intersection of a global health crisis and the government's role in health policy. In this study, while the students appreciated the nurse's role in health care, their knowledge regarding the nurses' ability to impact health care policy was limited. In addition,

students felt they had a limited voice in policy change. Jaurigue and Schmidt (2020) discussed innovative ways to introduce nursing students to their local and state representatives and stressed the importance of being politically active to promote change. As educators in pre-licensure programs, it is essential to emphasize ways to promote the nursing voice and communicate the necessity of having a role in health policy as this directly impacts the ability of these future practitioners to provide nursing care.

6. Limitations

This study was isolated to one Midwest university and may reflect the experiences within this geographic area. A sample consisting of a more diverse demographic background (Table 2) could have expanded upon the views revealed in this study. Most students were not in a high-risk group for adverse COVID-19 events, which may have influenced their attitude toward caring for infectious patients. Additionally, vaccines became available in 2021 and may have also influenced the views of the student participants.

7. Conclusion

There was concern that the pandemic climate may discourage students from continuing to pursue a nursing career. This study found that the students' desire to continue nursing was steadfast. However, the students felt they did not have sufficient in-person experiences and felt unprepared to begin clinical practice. Additionally, this study demonstrated the significant challenges nursing students experienced with a rapid transition to online learning and the isolation that ensued.

Nursing education in the U.S. faces a paradigm shift in learning environments, and as educators, we must explore ways to optimize the student learning experience. By identifying the barriers that students experienced during the COVID-19 pandemic, this study provides insight for educators to understand the current challenges that have ensued from the abrupt shift to online learning. In the future, additional studies exploring innovative teaching techniques to promote critical thinking and creative ways to provide student experiences are essential.

CRedit authorship contribution statement

Linda Rood DNP, APRN, FNP-BC, BS

Contribution to the manuscript includes but is not limited to:

- Writing the manuscript
- Data collection
- Data analysis and interpretation of manuscript
- Critical revision of manuscript
- Supervision

Tanya Tanzillo DNP, APRN, FNP-BC, MS

Contribution to the manuscript includes but is not limited to:

- Writing the manuscript
- Data collection
- Data analysis and interpretation of manuscript
- Critical revision of manuscript
- Supervision & statistical expertise

Nancy Madsen PhD, RN

Contribution to the manuscript includes but is not limited to:

- Conception of the study
- Peer Reviewer
- Administrative and materials support

Declaration of competing interest

We confirm that this manuscript has not been published or submitted elsewhere for consideration. We confirm that this manuscript has been read and approved for submission by all named authors.

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