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**Nursing Student Self-Efficacy in Clinical Skills, Levels of Anxiety, and Utilization of
Alternative Education Experiences During the COVID-19 Pandemic**

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Honors Thesis

Department of Nursing, University of New Hampshire

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Abstract

Background: Higher education students, especially those studying nursing, faced many challenges during the COVID-19 pandemic. Many higher education institutions decided to transition their clinical experiences into a virtual, e-learning format (Chandratre, 2020). As an area of study with high levels of stress and anxiety to begin with, these emotions may have been exacerbated during the pandemic for those studying nursing. Sudden changes in clinical format caused increased anxiety levels in senior nursing students (García-Gonzalez et al., 2021).

Graduating students are entering a workforce of healthcare workers who have battled the COVID-19 illness and exposed themselves and their families to this disease that has killed nearly one million people worldwide (COVID Data Tracker, 2022). The emotional burden of this disease has caused a tremendous impact on the mental health of current professionals within the healthcare sector. However, there is limited research focusing on nursing students of higher education and their experiences during the pandemic. This study seeks to understand nursing students' levels of anxiety before and during the pandemic, as well as how their self-efficacy to perform nursing skills was impacted by transitioning into alternative educational experiences (telenursing, modules, online simulations, etc.).

Methods: This descriptive, quantitative study administered a survey to students of junior and senior class standing in a higher education nursing department in New Hampshire. This resulted in a sample of 50 survey respondents who met inclusion criteria, with 35% junior class standing and 65% of seniors. Pearson correlation and t-tests were performed to compare variables, depending on data being analyzed.

Results: There was an increase between mean pre-COVID and mean during COVID anxiety levels ($t(49)=6.075$, $p<0.001$). Students mean pre-COVID anxiety scores were 5.7, whereas

mean during COVID anxiety scores were 9.4. There was no correlation between mean anxiety scores and number of hours substituted by alternative educational experiences. Students reported having the greatest number of clinical hours substituted by alternative educational experiences in semester of Spring 2020, with a mean hour substitution of 50.14. There was no correlation with mean self-efficacy scores and the number of hours substituted by alternative educational experiences. However, the self-efficacy in listening to lung sounds had a negative correlation with increasing number of hours substituted by alternative educational experiences ($r = -.30$, $p < 0.05$).

Conclusion: There was a drastic increase in anxiety from pre-COVID to during COVID for undergraduate nursing students. There was limited statistical correlation between the variables being analyzed, but students' self-reported scores for both anxiety and self-efficacy of skills is important to take note of. Data obtained from this study can be utilized by higher education institutions and healthcare organizations, as it provides information on students' self-efficacy in performing foundational nursing skills.

Keywords: self-efficacy; Clinical Skills Self Efficacy Scale (CSES); anxiety, General Anxiety Disorder-7 (GAD-7); alternative educational experiences

Nursing Student Self-Efficacy in Clinical Skills, Levels of Anxiety, and Utilization of Alternative Education Experiences During the COVID-19 Pandemic

Nursing students with high self-efficacy in their abilities to perform skills and assessments can translate to successful nursing care experiences (George et al., 2020). Students enrolled in an undergraduate nursing program spend countless hours developing knowledge of the nursing practice, including applying learning in hands-on direct patient care. Nursing students have been shown to have an increased level of stress and burden to maintain a high grade point average, balance a heavy course load, and care for patients who are ill in their clinical rotations (Savitsky et al., 2020). As COVID-19 cases rose in the United States in the early months of 2020, many higher education institutions decided to transition their clinical experiences into a virtual, e-learning format (Chandratre, 2020). There was an increase in nursing student anxiety levels related to the rapid switch in clinical format during the pandemic, especially in seniors who were then entering a workforce with high turnover and burnout rates (García-Gonzalez et al., 2021). Telenursing was widely used by many programs and nursing preceptors had to adapt to ensure students were gaining equivalent experiences to those in direct care facilities (Hargreaves et al., 2021). Fortunately, according to Ulenaers et al. (2021), many students were still able to complete their clinical rotations in-person; 54.74% of nursing students were able to continue with their clinical rotation as planned, and only 9.17% of students had several changes to their clinical placement. However, students who lived in rural areas, had limited electronic resources, and who had other work and family responsibilities had a greater difficulty with academic success and experienced more worry with e-learning (García-González et al., 2021). This may have hindered students from receiving the proper skill development and training that they normally would receive during in-person clinical rotations. Nursing students

have a large responsibility to provide adequate and proper care of patients when training to become a licensed nurse. As there was lots of information describing the nurses' and doctors' mental health throughout the COVID-19 pandemic, there was little information describing nursing students' anxiety during the COVID-19 pandemic. More specifically, there was little knowledge about students' self-efficacy in the fundamental skills after completing alternative educational formats (telenursing, modules, online simulations, etc.). This study looked to understand nursing student anxiety during the COVID-19 pandemic and determine whether alternative educational formats were associated with lower self-efficacy to perform essential nursing practice skills.

Methodology

This study utilized a descriptive, quantitative method by using the online survey platform Qualtrics. Data obtained regarding anxiety levels, clinical skill self-efficacy, and number of hours substituted by alternative educational experiences was analyzed using SPSS, a statistical software. The aims of this study was to 1. determine if there was a correlation between nursing students' self-efficacy and the number of hours substituted by alternative educational experiences and 2. examine whether nursing students' anxiety levels were correlated with the number of hours substituted by alternative educational experiences.

Participants

There were 63 individuals who began the survey. Of these 63, 50 had fully completed the survey. met the inclusion criteria, and were included as a study participant. Participants of this study were nursing students enrolled in a full-time, baccalaureate program at the University of New Hampshire (UNH). Inclusion criteria included being of junior and senior class standing, as these groups had their clinical formats altered by the pandemic. Students of sophomore or

freshman class standing would have not been participating in hands-on clinical practice, as their curriculum throughout the early stages of the pandemic was primarily prerequisites, so these groups were excluded from this study. Individuals who were unable to read English were also excluded from this study. Also, students who had not participated in any forms of alternative educational experiences were excluded from this study.

Measures

Two evidence-based scales were integrated into the survey design (Appendix A). The Clinical Skills Self-Efficacy Scale (CSES) was utilized to obtain self-efficacy scores on 14 nursing skills. The skills included in this scale are as follows: Administering Intramuscular Injections, Administering Subcutaneous Injections, Changing a Sterile Dressing, Inserting a Foley Catheter, Inserting a Nasogastric Tube, Starting an Intravenous Line, Listening to Heart Sounds, Listening to Lung Sounds, Calculating Dose Medication, Transferring Bedridden Patient to Chair, Performing Basic Cardiopulmonary Resuscitation, Hanging Intravenous Piggybacks, Administering Tube Feedings, and Documenting Correctly. Participants rated their self-efficacy on a scale of 0-10, 0 indicating "No Confidence," and 10 indicating "Total Confidence." Obtaining numeric scores from each skill allowed for calculation of mean, minimum, and maximum values for each participant and the sample.

The second scale used in this study was the General Anxiety Disorder-7 (GAD-7) scale. This seven-item scale included the following prompts: Feeling nervous, anxious, or on edge; Not being able to stop or control worrying; Worrying too much about different things; Trouble relaxing; Being so restless that it was hard to sit still; Becoming easily annoyed or irritable; Feeling afraid as if something awful was going to happen. Participants would answer the prompts with the following answers: "None at all" (0), "Several days" (1), "Most of the days"

(2), and “Nearly every day” (3). Participants completed this scale twice; the first GAD-7 scale used a retrospective method, asking for students to rate their answers during the time of “pre-COVID.” The second GAD-7 scale had students rate their current anxiety scores under the variable “during COVID.” For each participant, scores were added together for each prompt for a cumulative anxiety score. The lowest cumulative score participants could have scored was 0, meaning they would rate “None at all” for each of the 7 prompts. This highest cumulative score participants could score is 21, meaning they would rate “Nearly every day” for every prompt. Each cumulative anxiety score from all participants was compiled into a group mean anxiety score for “pre-COVID” and “during COVID.”

To determine the number of hours substituted by alternative educational experiences, participants answered a sliding scale question with four semesters included in the question. Participants were prompted to move the slider to identify the number of hours that were substituted during the following semesters: Spring 2020, Fall 2020, Spring 2021, Fall 2021. Participants could use the slider to label a minimum number of hours substituted as 0, and a maximum number of hours substituted as 180.

Finally, participants were asked to identify whether the skills included in the CSES were impacted by the COVID-19 pandemic. Participants were asked in a written response question to explain how their ability to perform the selected tasks were influenced by the COVID-19 pandemic. Including a written response question persuades participants to inquire about their experiences and give more insight into why their self-efficacy in certain nursing skills was impacted.

Results

Sample

Most students that participated in this study were senior class standing (n=32). Forty one of the 50 participants of this study were ages 21 and older, with a mean age of 20.8 years.

Clinical Skills Self-Efficacy Scale (CSES)

The cumulative mean self-efficacy of clinical skills reported by students was 7.24 (see Table 1). Students reported highest self-efficacy scores on more foundational skills such as “Administering Intramuscular Injections” and “Administering Subcutaneous Injections,” as well as “Calculating Dose Medication” (Figure 1). The lowest mean skill self-efficacy reported was for inserting intravenous lines with a rating of 1.88. The highest skill self-efficacy reported was for administering subcutaneous injections with a rating of 9.46. Junior class standing mean skill self-efficacy score was 6.94, whereas senior class standing mean skill self-efficacy score was 7.42.

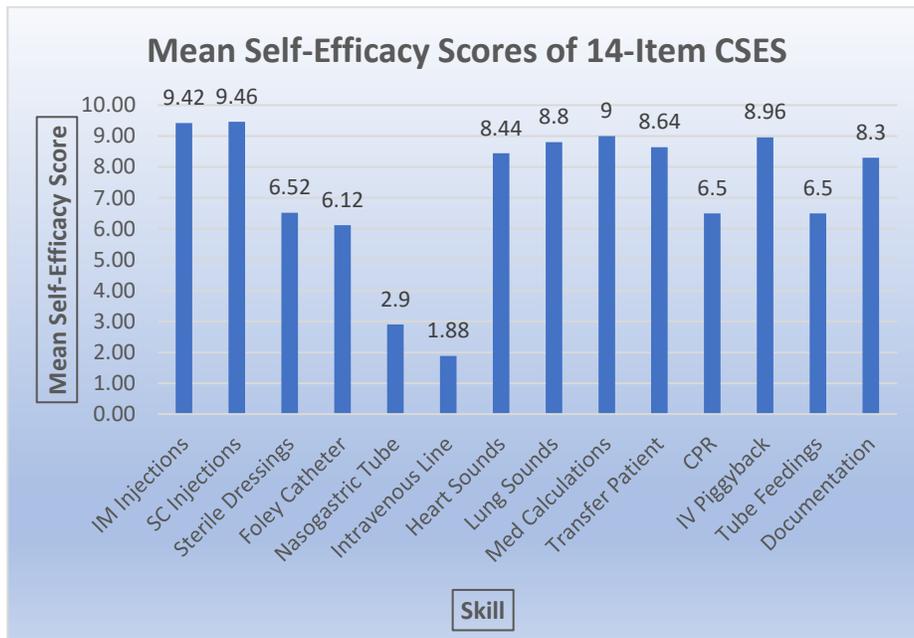


Figure 1: Mean Self-Efficacy Scores of 14-Item CSES.

There was no correlation between mean self-efficacy scores in nursing skills and the number of hours substituted by alternative educational experiences (p=0.276). After further

investigating each specific skill, a weak negative correlation between the skill of listening to lung sounds and the number of hours substituted by alternative educational experiences ($r = -0.30$, $p < 0.05$). As the number of hours substituted by alternative educational experiences increased, the students' reported mean self-efficacy scores decreased for listening to lung sounds. The other 13 skills included in the CSES had a no correlation with the number of hours substituted by alternative educational experiences.

General Anxiety Disorder-7 (GAD-7)

There was a significant increase in pre-COVID mean anxiety levels and during COVID mean anxiety levels ($t(49) = 6.075$, $p < 0.001$) (Figure 2). Pre-COVID mean anxiety score was 5.7, whereas the during COVID mean anxiety increased to 9.2. Pearson correlation analysis showed no relationship between mean anxiety scores and the number of hours substituted by alternative educational experiences ($r = 0.44$, $p = 0.133$). Pre-COVID and during COVID mean anxiety scores had no correlation with mean skill self-efficacy scores ($p = 0.19$; $p = 0.61$).

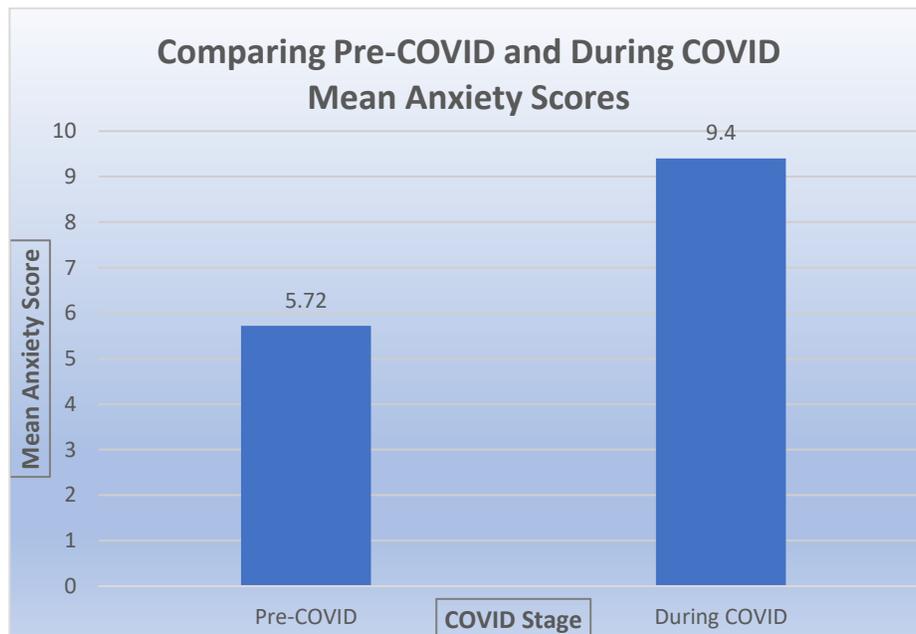


Figure 2: Comparing Pre-COVID and During COVID Mean Anxiety Scores

Skills Impacted by the COVID-19 Pandemic

Inserting a nasogastric tube had the greatest number of students reporting that the COVID-19 pandemic had an impact on their self-efficacy to perform this skill (n=32). Only 13.5% of participants reported that the COVID-19 pandemic had an impact on calculating dose medications (Figure 3). Many students reported that their skill self-efficacy was impacted due to “lack of opportunities,” “loss of clinical time,” and “inability to practice hands on experience.” A common response from students was that they were able to practice intramuscular injections often due to participation in COVID-19 vaccination. Nursing students from the UNH Nursing program were deployed to vaccine clinics at the university and around the state to administer Moderna, Pfizer, and Johnson and Johnson COVID-19 vaccines. Many students reported limited experience with hands-on skills from the CSES, including: “Inserting a Foley Catheter,” “Inserting a Nasogastric Tube,” “Performing Basic Cardiopulmonary Resuscitation,” “Transferring Bedridden Patient to Chair,” and “Administering Tube Feedings.” Participants reported that this was due to absences in clinical, missing specific rotations such as gerontologic and long-term care, COVID safety guidelines, and cancellation of skills lab and simulations. The skill of “Starting an Intravenous Line” was commonly addressed by students, as many reported that UNH does not train this skill or allow them to practice inserting intravenous lines in their clinical rotations.

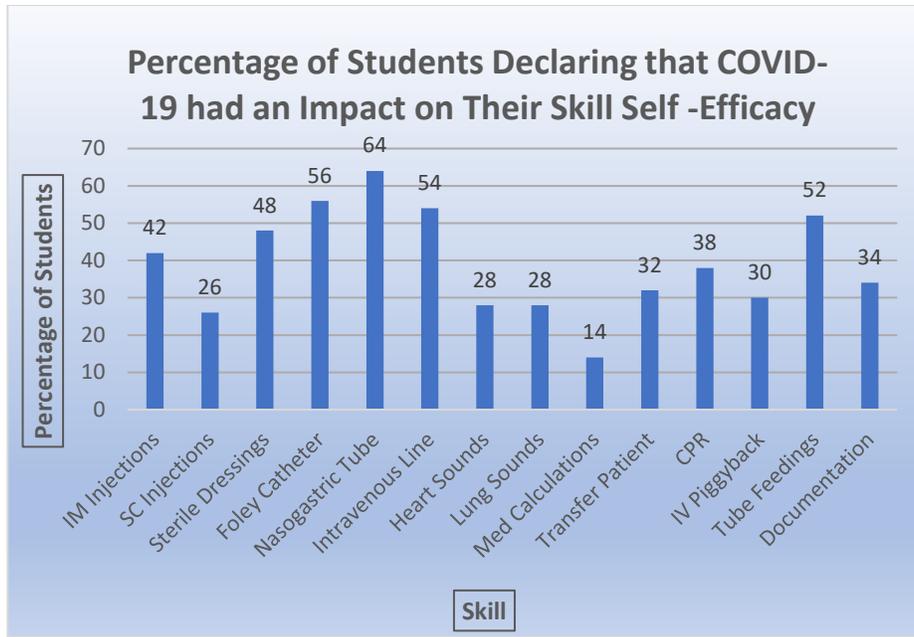


Figure 3: Percentage of Students Declaring that COVID-19 had an Impact on Their Skill Self-Efficacy

Substitution of Alternative Educational Experiences

The Spring 2020 semester had the greatest mean number of hours substituted by alternative educational experiences (50.14 hours). The Spring 2021 semester had the least number of hours substituted by alternative educational experiences (12.62 hours). The Fall 2020 semester had a mean number of hours substituted of 45.49. The Fall 2021 semester had a mean number of hours substituted of 14.46. There was no correlation between the number of hours substituted with alternative educational experiences and mean self-efficacy and anxiety scores.

Discussion

Results from this study show that nursing students’ anxiety levels have increased drastically from pre-COVID to during COVID. Changes in clinical format to an online learning method caused students to feel concerned about their inadequacy in skill development due to the missed hands-on clinical practice (Alsan & Pekince, 2020). Increased stress and anxiety levels

for students could have hindered their ability to succeed academically throughout the pandemic. Nursing students reported that changes from the conventional clinical format to a distance learning option was a stressor (Majrashi et al, 2021). Nursing students during the pandemic faced many difficult challenges and the combination of stressful work environments and impaired emotional support jeopardized students' learning abilities (Ulenaers et al., 2021). Improving psychological and social support for nursing students during pandemics can promote better adaptation to changes in learning structure. The implementation of coping strategies for nursing students can increase resiliency and allow for stronger responses to changes in learning structure as well. The adoption of coping strategies such as staying optimistic, seeking information and consultation, and transference has been a result of learning in high-risk environments (Majrashi et al, 2021). Nursing programs and associated administrative staff can assist in lowering students' anxiety levels by providing high quality distant teaching, encouraging and supporting students through challenging periods, and establish and maintain a stable educational framework (Savitsky et al, 2020). Nursing students who are consistently put in difficult scenarios within their clinical rotations must adjust to constant changes in unfamiliar environments. Consistency in clinical placements as well as counseling and peer mentoring has been shown to decrease anxiety levels in nursing students (Purfeerst, 2011). Although results from this study showed no correlation between mean anxiety scores and the number of clinical hours substituted by alternative educational experiences, the increase in mean anxiety levels from pre-COVID to during COVID are significant and identifying which factors caused this increase is important to determine. Further analysis of nursing students' anxiety during the pandemic should be conducted to allow for better preparedness and support in future pandemics.

Although there was no correlation between mean skill self-efficacy and the number of hours substituted by alternative educational experiences, reported skill self-efficacy scores from nursing students are beneficial for future research and understanding skill development throughout the undergraduate nursing curriculum. As students gain valuable clinical experience, their self-efficacy in performing skills improves as they have continuous practice in simulations and clinical rotations. A strong sense of self-efficacy can promote job satisfaction and a sense to stay within a profession, whereas those with low self-efficacy may have less clinical self-esteem and may leave the nursing profession (Alavi, 2014). Determining nursing students' self-efficacy in performing essential nursing skills is a strong identifier of how prepared students are to enter the workforce as licensed nurses. Participants of this study reported high self-efficacy in less complex skills including "Administering Intramuscular Injections," and "Administering Subcutaneous Injections," whereas performing complex, high technicality skills such as "Starting an Intravenous Line," "Performing Basic Cardiopulmonary Resuscitation," "Inserting a Foley Catheter," and "Inserting a Nasogastric Tube" had lower mean self-efficacy scores. These data can be very beneficial for nursing programs of higher institutions; students' low self-efficacy scores can help identify areas of improvement in terms of which skills need more education and focused learning. These complex skills in the CSES require repetition and hands-on practice, so nursing curricula should institute multiple learning activities and simulations to allow students to feel proficient in these more difficult tasks. Also, various healthcare facilities that hire new graduate students can review this data and determine which skills students have lower self-efficacy scores and include more practice and task development in their orientation to instill confidence in less experienced nursing professionals. As there was no correlation with number of hours substituted by alternative educational experiences, it is also important to look at to which

factors could be affecting students reported self-efficacy scores. Limited practice within the undergraduate curriculum, limited exposure in clinical rotations and simulations, and absences in clinicals are just a few factors that could impact skill self-efficacy scores. Improving nursing students' skill self-efficacy can improve their confidence when entering the profession. Those of senior class standing had higher mean skill self-efficacy rating than those of junior class standing. Prior research using the CSES and targeting junior and senior level students had the same result of seniors having a greater mean skill self-efficacy score than juniors (Wilson & Byers, 2017). With more clinical experiences and course material, senior level students are likely to have greater skill self-efficacy scores. "Listening to Lung Sounds" was the only skill out of the 14-item CSES that had a correlation with number of hours substituted by alternative educational experiences. As students reported greater number of hours substituted by alternative educational experiences, the less their self-efficacy scores were for listening to lung sounds. This is important to note, as none of the other 13 skills included in the CSES had a correlation with the number of hours substituted. Auscultating lung sounds are a foundational assessment skill in the nursing and requires constant repetition to be proficient and transferring to an online clinical format can limit nursing students' practice, therefore cause them to feel less confident in performing the skill.

The Spring 2020 semester had the greatest mean number of hours substituted by alternative educational experiences, with 50.14 hours. Students reported that Spring 2021 had the least number of clinical experiences substituted by alternative educational experiences, with a mean of 12.62 hours between students. Mean number of hours substituted by alternative educational experiences for junior class standing participants was 133.3 hours. Mean number of hours substituted by alternative educational experiences for seniors was 78.7 hours. Juniors

reported higher number of hours substituted by alternative educational experiences, as well as lower mean skill self-efficacy scores compared to that of senior students. Although there is no statistical correlation between these two variables, it is important to address the results from this study and look at the differences between junior and senior class standings.

Limitations

The study had a few limitations that need to be acknowledged. A small sample size of 50 participants is an important limitation of this study. Participants that completed this study received no incentive to acknowledge their time and could have hindered individuals from completing this survey. Only one higher education institution was included in this study. Having more institutions in this study could have produced different results in self-efficacy scores and number of hours substituted by alternative educational experiences as curricula changes between each nursing program.

Conclusion

The COVID-19 pandemic has had a dramatic impact on nursing students' anxiety levels and ability to perform skills. This study includes important findings for nursing student anxiety levels pre-COVID and during COVID. More research needs to be conducted to determine how students have been impacted by the COVID-19 pandemic and the utilization of alternative educational experiences. This was a foundational study to understand anxiety levels and clinical skill self-efficacy in students in nursing. Interventions need to be implemented within nursing curricula to support students and encourage those with high anxiety to find ways to cope with the challenges of this difficult program. Skill self-efficacy is an important concept for nursing students and healthcare professionals and can be a strong indicator of confidence and preparedness to provide effective care to patients.

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Table 1. Survey Participant CSES and GAD-7 Scores (n=50)

Characteristics	Range (<i>M</i>)	n (%)
Age	18-22 (20.8)	-
Reported Self-Efficacy in Nursing Skills		
Administering Intramuscular Injections	7-10 (9.42)	-
Administering Subcutaneous Injections	6-10 (9.46)	-
Changing a Sterile Dressing	3-10 (6.52)	-
Inserting a Foley Catheter	0-10 (6.12)	-
Inserting a Nasogastric Tube	0-8 (2.9)	-
Starting an Intravenous Line	0-10 (1.88)	-
Listening to Heart Sounds	0-10 (8.44)	-
Listening to Lung Sounds	5-10 (8.8)	-
Calculating Dose Medication	2-10 (9)	-
Transfer Bedridden Patient to Chair	3-10 (8.64)	-
Perform Basic CPR	0-10 (6.5)	-
Hang Intravenous Piggyback	6-10 (8.96)	-
Administer Feedings	2-10 (6.5)	-
Document Correctly	3-10 (8.3)	-
Cumulative Self-Efficacy	0-10 (7.24)	-
Reported Self-Efficacy Impacted by COVID-19		
Administering Intramuscular Injections	-	21 (40.4)
Administering Subcutaneous Injections	-	13 (25)
Changing a Sterile Dressing	-	24 (46.2)
Inserting a Foley Catheter	-	28 (53.8)
Inserting a Nasogastric Tube	-	32 (61.5)
Starting an Intravenous Line	-	27 (51.9)
Listening to Heart Sounds	-	14 (26.9)
Listening to Lung Sounds	-	14 (26.9)
Calculating Dose Medication	-	7 (13.5)
Transfer Bedridden Patient to Chair	-	16 (30.8)
Perform Basic CPR	-	19 (36.5)
Hang Intravenous Piggyback	-	15 (28.8)
Administer Feedings	-	26 (50)
Document Correctly	-	17 (32.7)
Cumulative GAD-7 Scores		
Pre-COVID	0-19 (5.7)	
During COVID	0-21 (9.4)	
Pre-COVID Vs. During COVID (Δ)	-5-15 (3.6)	

Appendices

Appendix A: Qualtrics Survey

Start of Block: Survey Introduction

Hello, my name is David Hart, and I am the student researcher in the study:
“Nursing Student Self-Efficacy in Clinical Skills, Levels of Anxiety, and Utilization of Alternative Education Experiences During the COVID-19 Pandemic.” IRB-FY2022-286

Please read the following information:

The first few questions on the next page will determine if you qualify to participate in the study. If you do, you will be invited to participate and move onto the next page, the consent form.

The purpose, survey details, risks, and benefits of this survey will be provided in the consent form. Please read the consent form in its entirety and electronically provide consent. If you do not provide consent, you may not complete the survey.

This survey should take you 10 to 15 minutes to complete.

Thank you for considering completing this survey.

End of Block: Survey Introduction

Start of Block: Inclusion/Exclusion Criteria

Q1a
Are you 18 years of age or older?

- Yes (1)
- No (2)

Skip To: End of Survey If Are you 18 years of age or older? = No

Q1b

Are you a current full-time student at the University of New Hampshire in the Department of Nursing?

- Yes (1)
- No (2)

Skip To: End of Survey If Are you a current full-time student at the University of New Hampshire in the Department of Nursing? = No

Q1c

Are you either Junior or Senior class standing?

- Yes (1)
- No (2)

Skip To: End of Survey If Are you either Junior or Senior class standing? = No

Q1d

Are you able to read English?

- Yes (1)
- No (2)

Skip To: End of Survey If Are you able to read English? = No

Q1e Have you performed in any clinical rotations via in-person or alternative approach (telenursing, modules, online simulations, etc.)?

- Yes (1)
- No (2)

Skip To: End of Survey If Have you performed in any clinical rotations via in-person or alternative approach (telenursing,... = No

End of Block: Inclusion/Exclusion Criteria

Start of Block: Consent Form**CONSENT FORM FOR PARTICIPATION IN A RESEARCH STUDY****RESEARCHER AND TITLE OF STUDY**

My name is David Hart, and I am a nursing student at the University of New Hampshire, working with Kerry Nolte as a nursing faculty advisor. The title of this study is **“Nursing Student Self-Efficacy in Clinical Skills, Levels of Anxiety, and Utilization of Alternative Education Experiences During the COVID-19 Pandemic.”** UNH IRB #_____.

WHAT IS THE PURPOSE OF THIS CONSENT

This consent form describes the research study and helps you to decide if you want to participate. It provides important information about what you will be asked to do in the study, about the risks and benefits of participating in the study, and about your rights as a research participant. You should

- Read the information in this document carefully, and ask me or the research personnel any questions, particularly if you do not understand something.
- Not agree to participate until all your questions have been answered, or until you are sure that you want to.
- Understand that your participation in this study involves completing an online survey through the app, Qualtrics.
- Understand that the potential risks of participating in this study are minimal. Some risks may include emotional stress when responding to questions about levels of anxiety during your nursing education. If you experience emotional distress when answering the survey questions, please reach out to university support resources that are provided at the end of the survey for support. Also, please contact David Hart or Kerry Nolte to further discuss the survey and which questions may have caused emotional distress. Contact information will be provided in the survey on the consent form and university resource pages.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this research is to better understand nursing student experiences during the COVID-19 pandemic. Questions will primarily focus on your self-efficacy and confidence in performing certain nursing skills, levels of anxiety, and perceived number of hours substituted by alternative experiences of education (telenursing, modules, online simulations, etc.).

WHAT DOES YOUR PARTICIPATION IN THIS STUDY INVOLVE?

This study involves you completing a 12 question Qualtrics survey. Completion of this survey has an estimated time of 10 to 15 minutes. You may stop at any time during the survey.

For inclusion in this study nursing students must:

- **Be 18 years of age or older.**
- **Current full-time student at the University of New Hampshire**
- **Junior and Senior class standing.**

Potential participants will be excluded if they:

- **Are unable to read English**
- **Have not performed any clinical rotations via in-person or alternative approach (telenursing, modules, online simulations, etc.).**

Students who complete the survey will not be financially compensated.

WHAT ARE THE POSSIBLE RISKS OF PARTICIPATING IN THIS STUDY?

The design of this study poses little to no risk to you and other participants. However, please read the following information on how researchers aimed to minimize risk of this study:

- Information on study aim, purpose, and methods will be provided.
- You may withdraw from completing the survey at any time.
- If you are to experience any emotional harm or stress during this survey, university resources will be provided at the end of the survey for support.
- You can take the survey at your own pace, and we will be able to answer questions as you please. If you do not want to answer a question, you may move on to the next question.
- You can voluntarily reach out to the researcher to obtain more information or ask questions.

WHAT ARE THE POSSIBLE BENEFITS OF PARTICIPATING IN THIS STUDY?

Although there are no direct benefits to participating in this study, students who decide to participate in this study will be providing great insight into nursing practice and how students are able to adjust to alternative methods of learning during a pandemic. Being able to further research on nursing students' self-efficacy to perform skills as well as anxiety levels during their educational experiences may develop understandings of students' self-perceptions of how they complete skills and their confidence in doing so. There is limited research on the effectiveness of telenursing, e-learning modules, and other forms of alternative education, so it will be beneficial to see how students who utilize these methods of alternative learning perceive their own clinical skills.

WILL YOU RECEIVE ANY COMPENSATION FOR PARTICIPATING IN THIS STUDY?

You will not be receiving any financial compensation for participating in this study.

DO YOU HAVE TO TAKE PART IN THIS STUDY?

Taking part in this study is completely voluntary. You may choose not to take part at all. If you agree to participate, you may refuse to answer any question. If you decide not to participate, you will not be penalized or lose any benefits for which you would otherwise get.

CAN YOU WITHDRAW FROM THIS STUDY?

If you agree to participate in this study and you then change your mind, you may stop participating at any time. Any data collected as part of your participation will remain part of the study records unless you would like that to be withdrawn as well. If you decide to stop participating at any time, you will not be penalized or lose any benefits for which you would otherwise qualify.

HOW WILL THE CONFIDENTIALITY OF YOUR RECORDS BE PROTECTED?

Survey responses within Qualtrics are securely stored. Your responses will be kept confidential. The survey does not require you to provide personally identifiable information. There are, however, rare instances when I may be required to share personally identifiable information with the following:

- Officials at the University of New Hampshire,
- Regulatory and oversight government agencies.

Further, any communication via the internet poses minimal risk of a breach of confidentiality.

WHOM TO CONTACT IF YOU HAVE QUESTIONS ABOUT THIS STUDY

If you have any questions pertaining to the research you can contact **David Hart** at **David.Hart@unh.edu** or **Dr. Kerry Nolte** at **Kerry.Nolte@unh.edu**.

- Yes, I consent/agree to participate in this research project at the beginning of the survey. (1)
- No, I do not consent/agree to participate in this research project at the beginning of the survey. (2)

Skip To: End of Survey If CONSENT FORM FOR PARTICIPATION IN A RESEARCH STUDY RESEARCHER AND TITLE OF STUDY My name is David... = No, I do not consent/agree to participate in this research project at the beginning of the survey.

End of Block: Consent Form

Start of Block: Participant Demographics

Please answer the following questions so that the researcher can gather more information about participant demographics.

Please identify which year of nursing school you are currently in.

- Junior class standing. (1)
- Senior class standing. (2)
-

Please identify your age.

- 18 (1)
- 19 (2)
- 20 (3)
- 21+ (4)
-

Please identify your gender.

- Male (1)
- Female (2)
- Non-binary (3)
- Transgender (5)
- I prefer not to identify my gender. (6)

End of Block: Participant Demographics

Start of Block: Clinical Skills Self-Efficacy Scale (CSES)

Q2a How would you rate your **confidence/self-efficacy** to perform the following tasks?

	0 - No Confidenc e (1)	1 (2)	2 (3)	3 (4)	4 (5)	5 (6)	6 (7)	7 (8)	8 (9)	9 (10)	10 - Total Confidenc e (11)	Not Applicabl e (12)
Administering Intramuscular Injections (1)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>
Administering Subcutaneous Injections (2)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>
Changing a Sterile Dressing (3)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>
Inserting a Foley Catheter (4)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>
Inserting a Nasogastric Tube (5)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>
Starting an Intravenous Line (6)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>
Listening to Heart Sounds (7)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>
Listening to Lung Sounds (8)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>
Calculate Dose Medication (9)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>
Transfer Bedridden Patient to Chair (11)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>
Perform Basic Cardiopulmona ry Resuscitation (CPR) (12)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>
Hang Intravenous Piggyback (13)	<input type="radio"/>									(<input type="radio"/>	<input type="radio"/>

Administer
Tube Feedings
(15)

(

Document
Correctly (16)

(



Q2b Did the COVID-19 pandemic influence your abilities to perform the following tasks?

	Yes (1)	No (13)
Administering Intramuscular Injections (1)	<input type="radio"/>	<input type="radio"/>
Administering Subcutaneous Injections (2)	<input type="radio"/>	<input type="radio"/>
Changing a Sterile Dressing (3)	<input type="radio"/>	<input type="radio"/>
Inserting a Foley Catheter (4)	<input type="radio"/>	<input type="radio"/>
Inserting a Nasogastric Tube (5)	<input type="radio"/>	<input type="radio"/>
Starting an Intravenous Line (6)	<input type="radio"/>	<input type="radio"/>
Listening to Heart Sounds (7)	<input type="radio"/>	<input type="radio"/>
Listening to Lung Sounds (8)	<input type="radio"/>	<input type="radio"/>
Calculate Dose Medication (9)	<input type="radio"/>	<input type="radio"/>
Transfer Bedridden Patient to Chair (11)	<input type="radio"/>	<input type="radio"/>
Perform Basic Cardiopulmonary Resuscitation (CPR) (12)	<input type="radio"/>	<input type="radio"/>
Hang Intravenous Piggyback (13)	<input type="radio"/>	<input type="radio"/>
Administer Tube Feedings (15)	<input type="radio"/>	<input type="radio"/>
Document Correctly (16)	<input type="radio"/>	<input type="radio"/>

End of Block: Clinical Skills Self-Efficacy Scale (CSES)

Start of Block: Qualitative CSES

Q3 On the prior question, you answered that the following skills were impacted by the COVID-19 pandemic:

#{Q2b/ChoiceGroup/SelectedChoicesForAnswer/1}

Please explain how your ability to perform the tasks listed above were influenced by the COVID-19 pandemic.

End of Block: Qualitative CSES

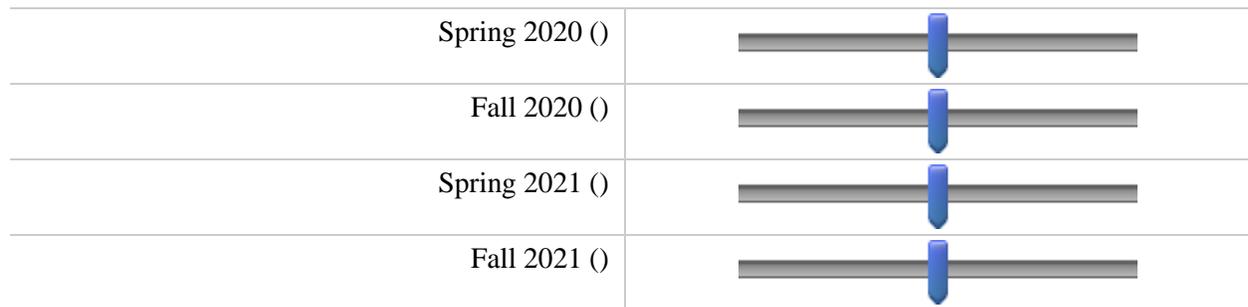
Start of Block: Clinical Hours

Q3 Approximately how many of your in person clinical hours were substituted with alternative experiences (telehealth, modules, etc) in the following semester...

Please use the slider to determine the number of hours substituted by alternative experience in each semester listed on the left.

Please move each slider for it to register your answer.

0 20 40 60 80 100 120 140 160 180



End of Block: Clinical Hours

Start of Block: Pre- GAD-7 Slide

Q51 The next portion of this survey will be the 7-Item Generalized Anxiety Disorder Scale (GAD-7). If you do not wish to continue, please exit the tab now.

If you wish to continue, please advance to the next slide.

If answering any of the following questions causes emotional or psychological harm or stress, **please utilize the university resources on the last slide.** Thank you.

Questions asked about levels of anxiety will be asked in two different periods:

- **Prior to the COVID-19 pandemic**
- **During the COVID-19 pandemic**

End of Block: Pre- GAD-7 Slide

Start of Block: GAD-7

Q4a Prior to the COVID-19 pandemic, how often were you bothered by the following problems?

	Not at all. (1)	Several days. (2)	More than half the days. (3)	Nearly every day. (4)
Feeling nervous, anxious, or on edge (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not being able to stop or control worrying (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worrying too much about different things (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trouble relaxing (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being so restless that it was hard to sit still (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Becoming easily annoyed or irritable (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling afraid as if something awful was going to happen (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Q4b During to the COVID-19 pandemic, how often are you bothered by the following problems?

	Not at all. (1)	Several days. (2)	More than half the days. (3)	Nearly every day. (4)
Feeling nervous, anxious, or on edge (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not being able to stop or control worrying (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worrying too much about different things (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trouble relaxing (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being so restless that it's hard to sit still (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Becoming easily annoyed or irritable (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling afraid as if something awful is going to happen (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: GAD-7

Start of Block: University Resources

If you are experience distress contact UNH Psychological and Counseling Services (PACS)

For urgent help, please call the 24/7 hotline:
(603) 862-2090

Please go the PACS website learn more information on emotional or psychological support or to schedule an appointment with a psychological counselor:

<https://www.unh.edu/pacs/>

Other community and university resources can be located on the PACS website.

IF IT IS A MEDICAL EMERGENCY, PLEASE DIAL 911.

If you have any questions, you can contact David Hart at David.Hart@unh.edu or Dr. Kerry Nolte at Kerry.Nolte@unh.edu.

End of Block: University Resources
