ORIGINAL RESEARCH

Nursing Students' Duty to Care Amidst the COVID-19 Pandemic: A Cross-Sectional Survey

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Abstract

Background: Research examining undergraduate nursing students' duty to care during the COVID-19 pandemic is lacking, thus presenting many challenges in nursing education. **Significance:** This research adds to the literature about nursing students' duty to care and willingness to respond in the clinical setting early in the COVID-19 pandemic. This research will inform nurse leaders and regulators on ways to safely mobilize a nursing workforce to fill critical nursing roles needed during a pandemic. **Methodology:** This research study utilized a descriptive, cross-sectional design. The Nash Duty to Care Scale© was used to examine nursing students' duty to care early in the COVID-19 pandemic at two nursing programs in New York. **Results:** Most of the nursing students (65.8%) reported a duty to care or a willingness to respond during the COVID-19 pandemic. Perceived obligation and perceived risk were the most predictive subscales between the low and high duty to care groups. **Conclusions and recommendations:** It is suggested that nursing schools maintain adequate emergency response resources (i.e. personal protective equipment and effective communication) for students in the clinical setting. Enhanced academic and practice partnerships with clear and specific nursing student policies and procedures are needed.

Keywords: nursing students, duty to care, COVID-19

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Nursing Students' Duty to Care Amidst the COVID-19 Pandemic: A Cross-Sectional Survey

The world is facing unprecedented challenges as the coronavirus disease 2019 (COVID-19) and its variants continue to spread rapidly. Before November 2019, COVID-19 did not pose a health threat to the global community. Within weeks, the United States (U.S.) among other countries, acknowledged this serious new infectious disease and the need for protective measures. As the number of cases, hospitalizations, and deaths increased, state mandates were issued for social distancing, quarantines, voluntary self-isolation, and stay-at-home orders to control the viral spread. Approximately 24 months after the start of the pandemic in the U.S., an estimated 903,038 deaths have been reported by the Centers for Disease Control and Prevention (CDC, 2022).

At the start of the pandemic, New York City quickly became the most prominent area in the U.S. to be affected. On March 11, 2020, then Governor of New York, Andrew M. Cuomo, announced that all State and City of New York campuses transition to online education, and students were strongly encouraged to return to their home residences to continue their education (Camera, 2020). Simultaneously, hospitals began reorganizing their operations to prepare for the predicted influx of patients, while recognizing that there was a shortage of personal protective equipment (PPE) and misalignment of the pandemic safety guidelines regarding droplet precautions (CDC, 2020; Oregon Public Health Division, 2020; World Health Organization, 2020). Many acute care hospitals decided they could no longer accommodate nursing students for clinical learning experiences. While some academic internships continued, most nursing students were not permitted in hospitals for clinical rotations. Many schools of nursing found themselves in a situation in which no real-world, hands-on clinical experiences were available for students (Dewart et al., 2020; Hechinger & Lorin, 2020). Among educators, there was rampant concern regarding the limited availability of in-person clinical learning early in the pandemic, and its lasting impact on student preparation to practice and respond to public health emergencies. Nursing students, upon graduation, are considered essential employees who will assume the role of frontline healthcare workers.

The spring 2020 COVID-19 lockdown, which limited nursing students in clinical learning settings, may have impacted their sense of duty to care. Studies have examined nursing students' duty to care and willingness to respond during pandemics. Yonge et al. (2010) reported that nursing students are willing to volunteer to work in clinical settings during pandemics. Manyisa et al. (2019) reported nursing students' fear of infection is inversely related to willingness to provide care. Natan et al. (2015) found students' perceptions of working conditions and perceived self-efficacy influenced their willingness to provide care. Volunteering during the COVID-19 pandemic was reported among nursing students (Aziz et al., 2021; Gómez-Ibáñez et al., 2020) and medical students (Buckland, 2020). Alshutwi (2021) examined nursing students' and interns' willingness to treat patients with COVID-19. Among a sample of 178 senior nursing students and interns, 38.2% felt neutral, or undecided about treating a patient with COVID-19. The percentage of nursing students and interns who were "likely" and "very likely" to care and attend clinical placements knowing there were suspected and infected patients with COVID-19 was 41% and 46%, respectively (Alshutwi, 2021). Furthermore, participants reported that if they were licensed nurses, they were unlikely to refuse attending work when caring for a patient with COVID-19.

McSherry et al. (2021) evaluated the rationale of 17 undergraduate, final-year student nurses to take paid clinical placements during COVID-19 in the United Kingdom. Thematic analysis identified sense of duty, opting-in or -out, and a valuable learning opportunity and experience. The findings were used to develop a "Student Nurses Placement Framework" as a guide for future nursing workforce recruitment and retention. McSherry et al. (2021) highlighted the importance of an integrated, collaborative relationship between the University, clinical settings, and student nurses during placement and the pivotal role of the relationship to ensure excellence in practice. Finally, in a study by Martin-Delgado et al. (2021), final-year nursing students in Spain augmented the health care workforce during the COVID-19 pandemic. The lived experience of 40 nursing students who joined the workforce revealed four themes: 1) their willingness to help; 2) the impact and challenges of using safety and protective measures; 3) the overwhelming experience of becoming aware of the pandemic's magnitude; and 4) their learning and growth. The authors concluded that implementation of adequate support and training strategies were crucial to building a nursing workforce that is able and willing to respond to a future health crisis (Martin-Delgado et al., 2021).

Although studies exist examining nursing student experiences during the COVID-19 pandemic, most are qualitative studies. To date, no quantitative studies examining nursing student's duty to care early in the COVID-19 pandemic have been published. In addition, factors that may influence nursing students' duty to care during the COVID-19 pandemic have not been explored. This research study focuses on the unique clinical needs and concerns of undergraduate nursing students early in the COVID-19 pandemic. The findings will provide data to inform schools of nursing as they embrace the challenges related to educating the next generation of nurses. The data can inform nurse educators, administrators, leaders, and regulatory bodies to develop policies and incorporate learning opportunities that promote a sense of duty to care and a willingness to respond during COVID-19. There are many lessons to be learned from the pandemic to help identify better ways of providing nursing education.

Methods

Purpose

The purpose of this study was to investigate nursing students' perceived duty to care, from two academic institutions, early in the COVID-19 pandemic. In addition, this study examined nursing students' perceived risk, confidence in clinical site, perceived obligation, and professional preparedness.

Design and Procedures

This quantitative, descriptive study was conducted at two accredited, baccalaureate degree nursing programs in New York. Using Qualtrics, an electronic survey was distributed through university e-mail systems to nursing students at the institutions. At institution A, a public university, the survey was sent to junior and senior nursing students. At institution B, a private college, the survey was sent to sophomore, junior, and senior nursing students. All the students at both institutions were scheduled to attend clinical at the time of the study. At both institutions, nursing students were recruited using email addresses provided by the nursing program administration. The principal investigator (PI) sent emails to all students at institution A and the nursing program director sent emails to all students at institution B. Data were collected at institution A the week of April 19, 2020 and collected at institution B the week of May 1, 2020. Each student received two emails inviting them to participate. Nursing students could decide to participate after reading the consent, purpose of the study, procedures and activities, and the risks and the benefits of the study. Participant responses were anonymous and not linked to email address or consent. As a token of appreciation, participants could provide an email address and enter themselves in a raffle to win one of three $25.00 Amazon.com gift cards. Participants were directed to a separate link for entry into the raffle. All study procedures and protocols were reviewed and approved by the Human Subjects Review Board at the PI's institution and participating sites. (Of note, this study is part of a larger parent study (in preparation) that examined post-licensure nursing students' [RN-BS, graduate masters, and PhD programs] duty to care; this study focuses only on pre-licensure baccalaureate nursing students.)

Participants

A convenience sample of nursing students were recruited through an email invitation. Individuals were eligible if they were ≥ 18 years of age, able to read English, and enrolled in a pre-licensure baccalaureate nursing program in the Spring of 2020. At institution A, email invitations were sent to 280 undergraduate nursing students, while at institution B, email invitations were sent to 151 nursing students.

Of the 280 invitations sent at institution A, 148 responses were received, and of the 151 invitations sent at institution B, 23 responses were received; resulting in a total response rate of 171 (40%) participants. Data were cleaned resulting in exclusion of 11 (3%) survey respondents due to missing data. The final sample included 160 (37%) undergraduate nursing students.

Measures

Participants completed a demographic questionnaire, which included age, race, ethnicity, gender, nursing school, work in healthcare, location, marital status, children, and whether they provide care to older adult(s)/parent(s). The NASH Duty to Care Scale (NDCS©) (Nash, 2017) was used to assess the degree to which nursing students were likely to report to clinical learning experiences during the COVID-19 pandemic. The NDCS© consists of 19 five-point Likert-type items, with potential responses that range from 1 (strongly disagree) to 5 (strongly agree) and possible scores ranging from 19 to 95. The Cronbach's alpha in a previous study was 0.92 (Nash, 2017). The measure includes four subscales: 1) perceived risk, seven items scale; 2) perceived obligation, five items scale; 3) professional preparedness, four items scale, and 4) confidence in clinical site, three items scale, with reported Cronbach's alpha of .91, .83, .85, and .81, respectively. (Nash, 2017). The PI received permission from the author to use and adapt the NDCS©.

Table 1

Psychometric Properties for NASH Duty to Care© Subscales

Scale	*M*	*SD*	Range	Cronbach's *a*
Perceived risk	3.73	±0.51	16 - 35	0.57
Confidence in clinical site	2.68	±0.76	3 - 15	0.58
Perceived obligation	4.15	±0.68	5 - 25	0.76
Professional preparedness	2.49	±0.93	4 - 19	0.84

Note. The NASH Duty to Care Scale© developed has four subscales (Perceived risk, confidence in clinical site, perceived obligation, and professional preparedness). From "Development, testing, and psychometric qualities of the Nash Duty to Care Scale for disaster response," by T. Nash, 2017, *Journal of Nursing Measurement, 25*(2), p. 314. T. Nash shared the Scale as well as gave permission to use and adapt the Scale to the PI on April 6, 2020.

Table 1 summarizes the psychometric properties for the NDCS© subscales. After coding and reverse coding of items, the Cronbach's alpha was calculated to evaluate the internal consistency of each subscale. The Cronbach's alpha for the subscales were 0.84 for professional preparedness, 0.58 for confidence in clinical site, 0.76 for perceived obligation, and 0.57 for perceived risk. The Cronbach's alpha for the subscales of professional preparedness and perceived obligation suggested a strong internal consistency.

Data analysis

Before statistical analysis, data were entered into SPSS Version 25. A two-step cluster procedure was used to examine student responses to the NDCS© items. All of the items from the NDCS© were entered into the SPSS two-step cluster procedure and two groups of nurses were identified. The high scoring group was identified as the high perceived duty to care (HPDC) group, while the other group was identified as the low perceived duty to care (LPDC) group (Chiu et al., 2001; Zhang et al., 1996). Independent t-tests and ANOVA tests (Brown, 2008) were performed to compare the 19 items between the two groups. T-statistics with p-value and n^2 (et-squared effect size) were reported (Lakens, 2013) to compare scale item means between the two groups of nursing students on the duty to care scale. Independent samples t-tests and chi-square tests for independence were used to compare demographic variables between the two groups.

Results

The final sample for this analysis included 160 pre-licensure, baccalaureate nursing students from two nursing programs in New York. Nursing students who participated in the survey self-reported race and ethnicity based on the National Institutes of Health (NIH): U.S. Office of Management and Budget (OMB) Standards categories (NIH: OMB, n.d.). As shown in Table 2, demographic analyses indicated that most participants attended institution A (86%, *n* = 138), and were female (92%, *n* = 144). In this study, 22 participants (15%) self-reported as Asian, four (3%) as Black or African American, and 123 (83%) as White. In addition, 10 participants (7%) self-reported ethnicity as Hispanic or Latinx. The mean age among the participants was 22.35 ± 3.4 years. Participants most often reported living in a suburban location (64%, *n* = 103) followed by rural (23%, *n* = 36), while urban (13%, *n* = 21) was least reported. Furthermore, most participants (95%, *n* = 150) reported marital status as single, and a majority of participants (98%, *n* = 155) reported having no children. Most participants (90%, *n* = 139) reported not providing care to elder adult(s)/parents(s). Statistically significant differences between the LPDC and HPDC groups were found in the sociodemographic characteristics for age and gender. At the time of the data collection, almost one-third (32%; *n* = 51) of nursing students self-reported working in the healthcare setting.

Table 2

Sociodemographic Characteristics of Pre-licensure Baccalaureate Nursing Students (N = 160)

Characteristic	*n*	%	Significant *p*-value for HPDC or LPDC groups
Gender (N = *157*)			0.010
Male	13	8	
Female	144	92	
Race (N = *149*)			
American Indian or Alaska Native	0	0	
Asian	22	15	
Black or African American	4	3	
Native Hawaiian or Pacific Islander	0	0	
White	123	83	
Ethnicity (N = *148*)			
Hispanic or Latino/a	10	7	
Non-Hispanic or Latino/a	138	93	
Nursing School			
Institution A	138	86	
Institution B	22	14	
Working in Healthcare Settings			
No	109	68	
Yes	51	32	
Location			
Urban	21	13	
Suburban	103	64	
Rural	36	23	
Marital Status (N = *158*)			
Single	150	95	
Married/Relationship	5	3	
Separated/Divorced/ Widowed	3	2	
Children (N = *158*)			
Yes	3	2	
No	155	98	
Provide Care to Elder Adult/Parents (N = *155*)			
Yes	16	10	
No	139	90	

Note. *N* = 160. Participants were on average 22.35 years old (SD = 3.4), and participant age did differ between the HPDC and LPDC groups ($p = 0.036+$).

Chi-squared tests were used for comparison; HPDC group reflects high perceived duty to care group; LPDC group reflects low perceived duty to care group.

Complete data were used to create and analyze the two groups (*n* = 149) and were identified as having different perceptions of duty to care. Group one, the LPDC group, had lower levels of perceived scores on the items and included 51 (34%) nursing students, and group two, the HPDC group, consisted of 98 (66%) nursing students. The item differences of the NDCS© between the LPDC and the HPDC groups are detailed in Table 3. Only six of the scale items were highly predictive in determining the separation of the nursing students into the high and low perceived duty to care groups with a cutoff of 0.3 (marked with "b" in Table 3). The six significant items examined in the logistic regression model resulted in a cross-validated prediction accuracy of 96.6%. The two items in the perceived risk subscale included: 1) "I will report to clinical if my faculty/clinical agency has sufficient communication equipment for me to maintain contact with my family" and 2) "I will report to clinical if my site has sufficient personal protective equipment to maintain my safety." The four items in the perceived obligation subscale included: 1) "I will report to clinical because of my obligation to my profession, colleagues, and program of nursing" 2) "I will report to clinical because the nursing code of ethics states it is my professional responsibility to do so" 3) "I will not report to my clinical site because my first obligation is to my family responsibilities" and 4) "I will report to clinical because it is morally the right thing to do."

Table 3

Item Differences of the Nash Duty to Care Scale© Between the LPDC and HPDC Groups

Subscale/Item	Low perceived duty (N = 51; 34%)			High perceived duty (N = 98; 66%)			t(149)	n^2
	M	SD	SA%	M	SD	SA%		
Perceived risk								
1. I will not report to clinical if conditions begin to deteriorate quickly. [R]	3.02	1.09	4	3.68	0.98	18	3.66***	0.10
2. I will report to clinical if my site has sufficient personal protective equipment to maintain my safety. [b]	4.53	0.64	61	4.95	0.22	95	4.52***	0.19
3. I will report to clinical if I am at high risk for exposure to pathogens and/or toxins.	3.02	1.14	4	3.82	1.02	27	4.19***	0.15
4. I will not report to clinical when my family/significant others are at high risk for exposure to pathogens and/or toxins. [R]	2.18	1.03	0	2.99	1.07	6	4.50***	0.15
5. I will not report to clinical if I think I will be abandoned by faculty/co-workers. [R]	2.59	1.12	6	2.95	1.22	9	1.81	0.04
6. I will report to clinical if my faculty/clinical agency has sufficient communication equipment for me to maintain contact with my family. [b]	4.04	0.89	33	4.73	0.49	76	5.17***	0.21
7. I will report to clinical if I maintain freedom to leave at the end of my shift.	4.00	0.85	33	4.52	0.76	65	3.67***	0.13
Confidence in clinical site								
1. My clinical environment will likely become chaotic during a disaster event. [R]	2.24	1.03	2	2.39	1.12	4	0.83	0.01
2. My clinical site has sufficient written procedures, policies, and plans in place to handle all types of disaster situations.	3.47	0.88	8	3.47	0.98	15	-0.01	0.04
3. There will not be adequate staffing in my clinical site during a disaster. [R]	2.14	1.00	2	2.38	1.02	4	1.38	0.02
Perceived Obligation								
1. I will report to clinical because of my obligation to my profession, colleagues, and program of nursing/employer. [b]	3.71	0.86	12	4.88	0.36	89	9.36***	0.58
2. I will report to clinical because I am legally obligated to respond.	3.37	1.08	8	4.34	0.99	60	5.32***	0.26
3. I will not report to my clinical site because my first obligation is to my family responsibilities. [R, b]	2.80	1.06	2	3.95	0.87	27	6.65***	0.28
4. I will report to clinical because the nursing code of ethics states it is my professional responsibility to do so. [b]	3.45	0.99	6	4.64	0.52	66	8.06***	0.42
5. I will report to clinical because it is morally the right thing to do. b	4.06	0.93	33	4.92	0.31	93	6.45***	0.40
Professional preparedness								
1. I have sufficient disaster nursing experience to practice nursing safely in a wide range of disaster settings.	2.39	1.20	0	2.11	1.15	2	-1.37	0.05
2. I have the ability to manage different types of disaster situations in a variety of disaster settings.	2.51	1.16	0	2.23	1.13	2	-1.39	0.04
3. I have sufficient disaster nursing education to practice nursing safely in response to a wide range of disaster events.	2.59	1.10	0	2.49	1.19	2	-0.50	0.02
4. I maintain knowledge at all times in preparation for disaster events.	3.06	1.21	8	3.08	1.05	5	0.11	0.03

Note. SA = Strongly agree

[b] Reflects items that were most important in forming the high and low perceived duty to care groups by the two-step cluster procedure (Zhang et al., 1996; Chiu et al., 2001)

[R] Reflects the reverse coded questions

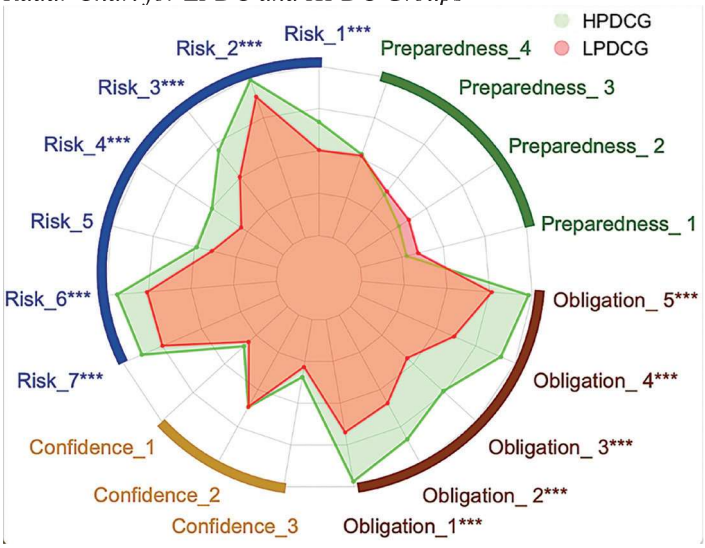
From "Development, testing, and psychometric qualities of the Nash Duty to Care Scale for disaster response," by T. Nash, 2017, *Journal of Nursing Measurement, 25*(2), p. 314. T. Nash shared the Scale as well as gave permission to use and adapt the Scale to the PI on April 6, 2020.

*$p < .05$; **$p < .01$; ***$p < .001$

As shown in Table 3, the strongest predictor items were found in the perceived obligation subscale. The item, "I will report to clinical because of my obligation to my profession, colleagues, and program of nursing," was reported strongly agree by 89% of nursing students in the HPDC group compared with 12% of nursing students in the LPDC group. The next item, "I will report to clinical because the nursing code of ethics states it is my professional responsibility to do so," was reported by 66% of nursing students in the HPDC group with strongly agree compared to 6% of nursing students in the LPDC group. The item, "I will not report to my clinical site because my first obligation is to my family responsibilities," was reported strongly agree by 27% of nursing students in the HPDC group compared with 2% nursing students in the LPDC group. The item, "I will report to clinical because it is morally the right thing to do," was reported as strongly agree by 93% of nursing students in the HPDC group compared with 33% of the nursing students in the LPDC group. The remaining two predictor items were in the perceived risk subscale. The item, "I will report to clinical if my faculty/clinical agency has sufficient communication equipment for me to maintain contact with my family," was reported as strongly agree by 76% of nursing students in the HPDC group compared with 33% of the nursing students in the LPDC group. The final item, "I will report to clinical if my site has sufficient personal protective equipment to maintain my safety," was reported as strongly agree by 95% of nursing students in the HPDC group compared with 61% of the nursing students in the LPDC group. It is worth noting that six out of the seven items in the perceived risk subscale and all five items in the perceived obligation subscale were statistically significant items and were used to determine nursing students' duty to care. None of the items in the confidence of clinical site subscale and the professional preparedness subscale were significantly different between the groups. Figure 1 shows a visual image of the findings utilizing a radar chart.

Figure 1

Radar Chart for LPDC and HPDC Groups



Note. The graph shows the comparison of the duty to care items between the LPDC group and the HPDC group in a single diagram, or 2D plane. Of the 19-items in the NASH Duty to Care Scale©, six items in the perceived risk subscale and five items in the perceived obligation subscale were statistically significant and used to determine nursing students' duty to care.

Discussion

While the sample for the study included prelicensure, baccalaureate nursing students, who were not considered essential healthcare workers in their role as nursing students, almost a third (32%; n = 51) were permitted in a healthcare setting as a healthcare employee and were vital in responding to the pandemic. A majority of the nursing students self-reported a HPDC early in the COVID-19 pandemic. Of the two groups, more nursing students (66%) were in the HPDC group as compared with the LPDC (34%) group. Alshutwi (2021) noted similar results reporting 41% of nursing students were "likely" and "very likely" to provide care in the clinical setting knowing there were suspected and infected patients with COVID-19. In this study, we found the subscales for perceived obligation and perceived risk to be most predictive in creating the low and high duty to care groups. This finding is similar to a recent study done by McNeill et al. (2020) whereby 289 registered nurses reported that perceived risk and perceived obligation were the most important factors to predict response during a disaster.

Perceived obligation to the profession was the most predictive domain among nursing students and the most significant in the formation of the HPDC and LPDC groups. The perceived obligation item, "I will report to clinical because of my obligation to my profession, colleagues, and program of nursing" was the most predictive item in the subscale, followed by "I will report to clinical because the nursing code of ethics states it is my professional responsibility to do so." This suggests that nursing students understand the obligation to respond and the concept of duty to care. However, it is concerning that 34% (n = 51) of the nursing students were in the LPDC group. If nursing students have a low perceived duty to care, they may leave the profession shortly after graduation due to concerns pertaining to health and safety issues, stress, and burnout. These factors may exacerbate the ongoing crisis for the nursing workforce (American Nurses Association, 2021).

The perceived risk item "I will report to clinical if my faculty/clinical agency has sufficient communication equipment for me to maintain contact with my family" was the most relevant item in this subscale. This finding highlights the need for nursing students to have a system for communication with their families during clinical rotations. Additionally, findings from the perceived risk subscale indicate that nursing students need a supply of PPE in the clinical setting. Students may also need additional preparation and training to use the PPE safely. Coordination and identification of a supply chain for PPE are essential for nursing students' duty to care. If nursing students perceive that they are at risk and not protected from COVID-19, they may be less willing to respond to clinical learning during the pandemic. Consideration for the nursing students' fears about returning to their families and significant others after clinical learning should also be considered. Nurse educators should utilize strategies and resources to prevent emotional, psychological, physical, and spiritual harm among nursing students and future graduate nurses. It is critical to safeguard the wellness of the healthcare workforce (Liu et al.,

2020) and ensure they are adequately protected and safe during a pandemic. Nursing students need a robust education whereby they are prepared to respond to disasters while supporting their health and well-being (National Academy of Medicine, 2021). Future research should explore nursing students' coping skills, and their needs to successfully and competently deliver care under extreme conditions, such as a disaster or pandemic, upon graduation.

No items in the confidence and the professional preparedness subscales were predictive of membership in the HPDC and LPDC groups. Our findings were similar to findings from a study focused on the avian influenza pandemic, whereby 49% of the respondents were willing to report to duty, yet 91% of students reported "having no training to respond" to the pandemic (Natan et al., 2015). Because nursing students are at the start of their careers and lack the knowledge, training, and experience, this may be an expected finding.

Limitations

Despite the strengths of the current study, three limitations were noted. The first involved a convenience sample of nursing students in a similar geographic region in the U.S. This sample may not be representative of all nursing students in the U.S. Second, most nursing students were not permitted in the clinical setting due to COVID-19 and were provided alternative virtual experiences. It is possible that the students for whom clinical was suspended may not have the same perception of threat to their personal safety as someone who is actively working in the clinical setting. Third, social desirability bias might be present in self-reported surveys. Participants were also aware of the study's purpose during a state of emergency period in New York.

Future Recommendations

Education

Based on the findings, most nursing students indicated a duty to care during the COVID-19 pandemic at the time of data collection. Yet, nursing students indicated that they may be hesitant to respond if they did not have adequate PPE and sufficient communication to remain in contact with their families. To address this, nursing schools should consider maintaining adequate emergency response resources, which include PPE, training, and a robust communication system.

Additionally, the American Association of Colleges of Nursing (AACN, 2020) recommends: 1) expanding the amount of content specific to the pandemic response, disaster nursing, and infection control and prevention covered in nursing education programs; 2) utilizing nursing students as workforce extenders; and 3) developing plans and protective actions regarding how nursing students might be allowed to attend clinical settings should the pandemic intensify. If these recommendations were implemented prior to the pandemic, the events that resulted in limited clinical learning experiences in nursing education may have had different results.

Research

Upon reflection of the lessons learned when confronted with the pandemic, additional questions arise that warrant attention. Some of these questions are centered around reduction of clinical practicum hours, moving student learning to a web-based format, and to a simulation-based environment. Prior to COVID-19, most states allowed programs to substitute up to 50% of clinical experience with simulation (Smiley, 2019). During the pandemic, many State Boards of Nursing approved nursing programs to use more than 50% simulation, so that students could fulfill clinical requirements (National Council of State Boards of Nursing [NCSBN], 2020). Hayden et al. (2014) reported that up to 50% of clinical experiences can be substituted with simulation without negatively impacting student outcomes. However, there is no evidence regarding student outcomes beyond the 50% of simulation time. More research is needed with a careful analysis of clinical changes made in nursing education during the pandemic, as well as their implications to nursing students' safety, competence, and impact on patient outcomes.

Practice

Furthermore, there is a need for enhanced partnerships with clear and specific policy and procedures between regulatory bodies, health care facilities, and nursing education programs. For example, in the 2020 policy brief issued by the NCSBN (2020), guidance was provided to encourage health care facilities and nursing education programs to partner during the COVID-19 crisis to balance academic and workforce needs. The partnership between healthcare facilities and nursing schools could have the potential to address surge capacity experienced during a pandemic. While students may not be able to assist in high-risk critical areas, they may be able to assist with various tasks, such as patient screening, patient assessment, and data collection. With nursing students performing these tasks, the licensed nurse will be able to care for the more critically ill patients. It is worth noting that while educational accreditation bodies have issued guidance, response to the COVID-19 pandemic has been left to individual schools, programs, and hospitals. As a result, depending upon the school, program, hospital resources and access to creative learning, student training and experiences have varied, furthering disparities.

Conclusions

Nursing schools/programs aim to prepare well-educated, competent nurses who provide quality and safe patient care after graduation. The results indicate that duty to care affects nursing students' willingness to respond and was most influenced by their perceived obligation and their perceived risk. To be most responsive to nursing students' needs in the clinical learning setting during the pandemic, the authors suggest that nursing schools have emergency response resources, which include a supply of PPE, training, and a robust communication strategy. It is crucial that nursing schools and clinical sites communicate and collaborate about guidance to pandemic response and share institutional guidelines with students. Healthcare facilities and regulating bodies are encouraged to view nursing students not only as learners, but as essential workers, who understand their obligation and can serve during a pandemic. Nursing students' willingness to report and their perceived duty to care should not be overlooked or ignored.

References

Alshutwi, S. S. (2021). Senior nursing students and interns concerns and willingness to treat patients with COVID - 19: A strategy to expand national nursing workforce during the COVID - 19 pandemic. *Risk Management and Healthcare Policy, 14*, 39 - 48. http://doi.org/10.2147/RMPH.S279569

American Association of Colleges of Nursing. (2020, July 29). *Considerations for reopening U.S. schools of nursing during the COVID-19*. American Association of Colleges of Nursing. https://www.aacnnursing.org/News-Information/News/View/ArticleId/24666/Considerations-for-Reopening-U-S-Schools-of-Nursing-During-COVID-19

American Nurses Association. (2021, Sept 1). *ANA urges U.S. Department of Health and Human Services to declare nurse staffing shortage a national crisis.* https://www.nursingworld.org/news/news-releases/2021/ana-urges-us-department-of-health-and-human-services-to-declare-nurse-staffing-shortage-a-national-crisis/

Aziz, A. A. H. H. A., Abdul-Mumin, K. H., & Rahman, H. A. (2021). Willingness of university nursing students to volunteer during the COVID-19 pandemic in Brunei Darussalem. *Belitung Nursing Journal, 7*(4), 285-293. https://doi.org/10.33546/bnj.1518

Brown, J. D. (2008). Effect size and eta squared. *JALT Testing & Evaluation SIG Newsletter, 12*(2), 38 – 42. https://stardock.cs.virginia.edu/empirical/resources/Brown28.pdf

Buckland, R. (2020). Medical students volunteering during COVID-19: Lessons for future interprofessional practice. *Journal of Interprofessional Care, 34*(5), 679-681. https://doi.org/10.1080/13561820.2020.1822790

Camera, L. (2020, March 11). SUNY, CUNY move to online courses amid coronavirus. *U.S. News and World Report.* https://www.usnews.com/news/education-news/articles/2020-03-11/suny-cuny-move-to-online-courses-amid-coronavirus

Centers for Disease Control and Prevention. (2022, February 8). *COVID data tracker.* https://covid.cdc.gov/covid-data-tracker/#datatracker-home

Centers for Disease Control and Prevention. (2020, July 16). *Optimizing supply of PPE and other equipment during shortages.* https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html

Chiu, T., Fang, D., Chen, J., Wang, Y., & Jeris, C. (2001). A robust and scalable clustering algorithm for mixed type attributes in large database environment. *Proceedings of the Seventh ACM SIGKDD International Conference on Knowledge Discovery and Data Mining* (pp. 263-268). https://doi.org/10.1145/502512.502549

Dewart, G., Corcoran, L., Thirsk, L., & Petrovic, K. (2020). Nursing education in a pandemic: Academic challenges in response to COVID-19. *Nurse Education Today, 92*. https://doi.org/10.1016/j.nedt.2020.104471

Gómez-Ibáñez, R., Watson, C., Leyva-Moral, J. M., Aguayo-González, M., & Granel, N. (2020) Final-year nursing students called to work: Experiences of a rushed labour insertion during the COVID-19 pandemic. *Nursing Education in Practice, 49*, 1-7. https://doi.org/10.1016/j.nepr.2020.102920

Hayden, J. K., Smiley, R. A., Alexander, M., Kardong-Edgren, S., & Jeffries, P. R. (2014). The NCSBN national simulation study: A longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation, 2*(5), S1-S40. https://doi.org/10.1016/S2155-8256(15)30062-4

Hechinger, J., & Lorin, J. (2020). Coronavirus forces $600 billion higher education industry online. *Bloomberg Businessweek.* https://www.bloomberg.com/news/articles/2020-03-19/colleges-are-going-online-because-of-the-coronavirus

Lakens, D. (2013, November). Calculating and reporting effect sizes to facilitate cumulative science: A practical primer for t-tests and ANOVAs. *Frontiers in Psychology,* 4, 863. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3840331/

Liu, Q., Luo, D., Haase, J., Guo, Q., Wang, X., Liu, S., Xia, L., Liu, Z. & Yang, J. (2020). The experiences of health-care providers during the COVID-19 crisis in China: A qualitative study. *The Lancet Global Health, 8*(6), e790-e798. https://doi.org/10.1016/S2214-109X(20)30204-7

Manyisa, Z. M., Akinsola, H. A., & Osuafor, G. N. (2019). Nursing students' perceptions and attitudes regarding Ebola patients in South Africa. Africa Journal of Nursing and Midwifery, 21(2), 1–17. https://doi.org/10.25159/2520-5293/6014

Martin-Delgado, L., Goni-Fuste, B., Alfonso-Arias, C., De. Juan, M. A., Wennberg, L., Rodriguez, E., Fuster, P., Monforte-Royo, C., & Martin-Ferreres, M. L. (2021). Nursing students on the frontline: Impact and personal and professional gains of joining the health care workforce during the COVID-19 pandemic in Spain. *Journal of Professional Nursing, 37*(3), 588-597. https://doi.org/10.1016/j.profnurs.2021.02.008

McNeill, C., Alfred, D., Nash, T., Chilton, J., & Swanson, M. S. (2020). Characterization of nurses' duty to care and willingness to report. *Nursing Ethics, 27*(2), 348-359. https://doi.org/10.1177/0969733019846645

McSherry, R., Eost-Telling, C., Stevens, D., Bailey, J., Crompton, R., Taylor, L., Kingston, P., & Simpson, A. (2021). Student nurses undertaking acute hospital paid placements during COVID-19: Rationale for opting-in? A qualitative inquiry. *Healthcare, 9*, 1001. https://doi.org/10.3390/healthcare9081001

Nash, T. (2017). Development, testing, and psychometric qualities of the Nash Duty to Care Scale for disaster response. *Journal of Nursing Measurement, 25*(2), 314-331. http://dx.doiorg/10.1891/1061-3749.25.2.314

Natan, M. B., Zilberstein, S., & Alaev, D. (2015). Willingness of future nursing workforce to report for duty during an avian influenza pandemic. *Research and Theory for Nursing Practice, 29*(4), 266–75. https://doi.org/10.1891/1541-6577.29.4.266

National Academy of Medicine. (2021). *The Future of Nursing 2020-2030: Consensus Study Report.* https://nam.edu/wp-content/uploads/2021/05/Report-Highlights_Future-of-Nursing.pdf

National Council of State Boards of Nursing. (2020). *Policy brief: U.S. nursing leadership supports practice/academic partnerships to assist the nursing workforce during the COVID-19 crisis.* https://www.ncsbn.org/Policy_Brief_US_Nursing_Leadership_COVID19.pdf

National Institutes of Health. (n.d.). *NIH inclusion outreach toolkit: How to engage, recruit, and retain women in clinical research.* https://orwh.od.nih.gov/toolkit/other-relevant-federal-policies/OMB-standards

Oregon Public Health Division. (2020). *Provisional guidance: Clinical care and healthcare infection prevention and control for COVID-19.* Oregon Health Authority. https://sharedsystems.dhsoha.state.or.us/DHSForms/served/le2288J.pdf

Smiley, R. (2019). Survey of simulation use in prelicensure nursing program: Changes and advancements, 2010-2017. *Journal of Nursing Regulation, 9*(4), 48-61. https://doi.org/10.1016/S2155-8256(19)30016-X

Yonge, O., Rosychuk, R. J., Bailey, T. M., Lake, R., & Marrie, T. J. (2010). Willingness of university nursing students to volunteer during a pandemic. *Public Health Nursing, 27*(2), 174-180. https://doi.org/10.1111/j.1525-1446.2010.00839.x

World Health Organization. (2020, August 3). *WHO COVID-19 preparedness and response report 1 February to 30 June 2020.* https://www.who.int/publications/m/item/who-covid-19-preparedness-and-response-progress-report---1-february-to-30-june-2020

Zhang, T., Ramakrishnan, R., & Livny, M. (1996). BIRCH: An efficient data clustering method for very large databases. *ACM Sigmod Record, 25*(2), 103-14. https://doi.org/10.1145/235968.233324