HEALTHCARE STUDENTS' READINESS FOR FRONTLINE RESPONSEDURING HEALTH EMERGENCIES: 1LESSONS FROM THE COVID-19 PANDEMIC IN VIETNAM

Huong Nguyen[1]; Anh Hoang[2]; Duc Tran[3]; Tran Tran[4]; Phuong Nguyen[4]; Hoa Truong[4]; Linh Nguyen[4]; Huyen Nguyen[4]*
[1]University of Canberra, 11 Kirinari St, Bruce ACT 2617
[2]School of Nursing, Queensland University of Technology, Kelvin Grove 4059, Australia
[3]Faculty of Nursing and Midwifery, Hanoi Medical University, Ton That Tung, 100000 Hanoi, Vietnam
[4]College of Health Sciences, VinUniversity, Vinhomes Ocean Park, Da Ton, Gia Lam, 100000 Hanoi, Vietnam
**Corresponding author: Anh Hoang*
Email: phuonganh97.hmu@gmail.com
ORCID : 0000-0002-9998-3523

ABSTRACT

Purpose: This study aims to guide nursing education programs on enhancing healthcare students' readiness for frontline support during future health emergencies, using Vietnam's COVID-19 response as a case study.

Methods: A qualitative study utilizing Krippendorff's technique was conducted in July 2021 across field hospitals in Southern Vietnam. Twenty healthcare students were randomly recruited and interviewed until data saturation was achieved.

Findings: Findings indicated that students with strong self-confidence, positive attitudes, and emotional support were more inclined to volunteer during the pandemic. Their confidence stemmed from prior simulation sessions, clinical experiences, and COVID-19-specific training. Emotional support from university administrators and the community played a crucial role in sustaining their motivation and resilience.

Conclusions: Nursing programs should prioritize building self-confidence, resilience, and professional identity to better prepare students for future health crises.

Keywords: health preparedness, COVID-19, volunteerism, clinical competence, simulation training.

1. INTRODUCTION

The COVID-19 pandemic placed unprecedented strain on healthcare systems worldwide and exposed critical gaps in emergency preparedness within the healthcare workforce [1,2]. In many countries such as Denmark [3], the United Kingdom [4], the US [5], and Vietnam [6,7], healthcare students were mobilized to support frontline services, including patient care, screening, contact tracing, and logistical coordination. These experiences highlighted both the potential contribution of healthcare students and the challenges associated with their readiness to

to respond effectively in crisis situations.

While many students demonstrated strong willingness to volunteer, their readiness was influenced by professional confidence, prior training, institutional support, and emotional resilience. One study found that about 27% of nursing students in a university in Singapore [8], or 30 % in another study in Saudi Arabia [9] showed their intention to participate on the frontlines. Although students might express enthusiastic, exceptional, and voluntary attitudes to this emerging assignment, their decision has been influenced by family members, university teachers, school policies, and friends [10]. Understanding these factors is essential, not only to reflect on the COVID-19 response, but also to inform the design of preparedness-oriented nursing and healthcare education.

Beyond the pandemic context, COVID-19 functioned as a stress test for healthcare education systems. Lessons learned from students' frontline experiences provide valuable empirical evidence to guide the development of structured training frameworks that prepare healthcare students for future public health emergencies.

This study aimed to explore factors influencing healthcare students' willingness and readiness to participate in frontline healthcare services during a public health emergency, using the COVID-19 pandemic in Vietnam as a case study.

2. METHOD

Study design

The study was a qualitative approach using Krippendorff's technique.

Settings and participants

Data were collected in July 2021 at COVID-19 field hospitals in Southern Vietnam. Participants were undergraduate healthcare students (nursing, medicine, public health, and preventive medicine) who had volunteered for frontline support. Convenience sampling was applied, and recruitment continued until data saturation was achieved [11].

Data Collection

Semi-structured, in-depth interviews were conducted in private settings, each lasting approximately 30 minutes. All interviews were audio-recorded with participants' consent and anonymized prior to analysis.

Data analysis

Transcripts were analyzed following Krippendorff's analytic steps: unitizing meaning units, condensing key content, forming subcategories, and synthesizing overarching themes (Table 1). Two researchers independently reviewed transcripts to ensure analytic rigor [12].

Table 1. An example of the data analysis process.

Step 1. Decontextualization Identify meaning units	"A call for volunteer of healthcare students during this time is in-time and critically necessary to support our future colleagues in Southern cities/provinces."	"Nursing students can provide invaluable assistance to registered nurses. Several nursing procedures, which I practiced numerous times in the simulation and in hospitals. I am capable of doing these processes perfectly, step by step, exactly like professional nurses do."	"After a long day of collecting samples, my mother shared a post on her Facebok about a project calling for donations to support the difficult situation of COVID-19 in the Southern provinces with a strong belief in me and a cheer. I was inspired a lot and got more motivation to complete my work."
Step 2. Recontextualization Condense the key context	It's time to call for support from healthcare students.	Nursing students have gained enough experience from simulated practice to perform nursing procedures flawlessly.	Nursing students are more motivated by small acts of support from loved ones in the face of the epidemic.
Step 3. Sub-categorization Identify homogeneous themes	Necessity of the healthcare students' response	The information and abilities acquired during students' time in medical school would aid them in their roles as frontline healthcare providers	The small things published on social media might serve as a powerful motivator for them to perform more
Step 4. Compilation Shape sub-categories to key categories.	Willingness attitude	Self-confidence	Perceived emotional support

Ethical implications

The research has undergone the ethical approval of Vinmec Ethics Research Committee (No.28/2021/CN-HĐĐĐ VMEC).

3. RESULTS

The results of this study are distilled into four main themes, highlighting key aspects of healthcare students' readiness to provide frontline support during the COVID-19 pandemic in Vietnam.

3.1. Willing attitudes

Healthcare students exhibited a strong sense of duty and pride in their professional roles during the pandemic. The urgency and necessity of their involvement were evident as they perceived their contributions as crucial to alleviating the burden on the overextended healthcare workforce, who had to be away from their family for weeks or even months serving in COVID-19 field hospitals. Media reports on the exhausting conditions faced by healthcare workers amplified the students' awareness of the significance of their support. Many students felt that their participation was not just a voluntary act but a professional obligation to their future colleagues and the community. One student remarked:

'A call for volunteers of healthcare students during this time is in-time and critically necessary to support our future colleagues in Southern provinces.' This sentiment was echoed across the student body, reflecting a collective recognition of their professional identity and the vital role they could play.

Healthcare students were proud of their professional titles and the education they received at medical schools. They believed that the pandemic made themselves, patients, and society in general aware of the importance of the profession. Healthcare students voluntarily provided COVID-19 frontline support as they considered themselves a part of the healthcare workforce. This was a valuable work that healthcare students from across the nation could support their home country, especially vulnerable people who suffered from COVID-19, to overcome the most challenging period of the pandemic. A group leader of healthcare students said that:

'We understand our participation is essential during this difficult time to support the medical workforces. Medical students should not say 'No'. Although our knowledge in holistic care, especially for COVID-19 patients, is inadequate, we have basic knowledge from our studies at school, and we will try our best.'

3.2. Self-Confidence and Influence of Prior Experience

The willingness to engage in frontline support was closely tied to the students' self-confidence, which was significantly bolstered by their previous experiences in clinical practice, simulation sessions, and supplementary training. These experiences provided a strong foundation for the students, enabling them to adapt quickly to the dynamic and often unpredictable environment of a COVID-19 field hospital.

The nature of clinical practice could vary from one clinical setting to another; however, the underlying principles of patient safety should be the foundation for health professionals to follow when delivering patient care. With the supervision of a senior nurse, a nursing student confidently shared that:

'Several nursing procedures, I practiced numerous times in the simulation and in hospitals. I am able to perform step by step and exactly as professional nurses do.'

Furthermore, supplementary training courses specifically designed to prepare students for the COVID-19 response played a crucial role in enhancing their self-efficacy. These courses offered updated information on COVID-19, including personal protection, contact tracing, and patient care, and provided opportunities for students to engage with experts and discuss their concerns. A group leader reflected on this preparation:

'My university offered some courses about COVID-19 for medical students. These courses provided updated information about personal protection, contact tracing, and initial care for COVID-19 patients. In each class, we had chances to practice and discuss with lecturers, experts, and experienced health workers, which

our self-confidence a lot.'

For many students, it was not their first participation in the COVID-19 frontline support. Experience gained from their involvement during the first wave of COVID-19 in Vietnam also influenced students' decision to retake this voluntary task. The environment and pressure from the frontline were very new and strange for both staff and students; however, the prior experience gave students the confidence to contribute to the establishment of work collaboration in a newly set up COVID-19 field hospital. A student majoring in preventive medicine said:

'This is the third time I voluntarily register to be on the frontline. We do not know everything about COVID-19, but at least I can confidently say that I have experiences in different working positions to properly set up students' teamwork to support the healthcare workforce here.'

3.3. Perceived Necessity and Opportunity for Real-Life Experience

In addition to their willingness and confidence, healthcare students viewed their participation in the COVID-19 response as a valuable opportunity to gain real-life experience that would benefit their future careers. The chance to work alongside experienced healthcare professionals, observe patient care, the progression of COVID-19 patients, and directly contribute to patient recovery was highly motivating for the students.

Despite the inherent challenges and initial hesitation, students recognized the unique learning opportunities presented by the pandemic. They were eager to acquire new knowledge, particularly about a novel infectious disease, and to apply their theoretical learning in a real-world context. One nursing student expressed this motivation, saying:

'The involvement of healthcare students during this time to support health workers is obviously essential. With adequate personal protective equipment and a suitable working schedule, it will be a great chance for us to obtain more medical knowledge, especially about a novel infectious disease.'

For some students, the experience also served as a critical eye-opener, revealing the complexities of healthcare systems and the need for adaptability in crisis situations. A medical student shared:

"Working in a COVID-19 field hospital was an intense and challenging experience. It was a crash course in crisis management, and I learned more in those weeks than I ever could in a classroom. This experience taught me the importance of flexibility and quick decision-making in healthcare."

The opportunity to collaborate with seasoned professionals provided students with insights into interprofessional teamwork and the dynamics of patient care in high-pressure environments. One student, majoring in preventive medicine, highlighted the importance of this exposure:

"Being part of a healthcare team during the pandemic was invaluable. It gave me a firsthand look at how doctors, nurses, and other healthcare workers coordinate and support each other, especially under stressful conditions. This experience has definitely influenced how I see my future role in healthcare."

The students also acknowledged the emotional and psychological growth that came from facing the realities of a global health crisis. As one student put it:

"The pandemic pushed us beyond our comfort zones, but it also made us stronger and more resilient. We were not just learning technical skills; we were learning how to cope with stress, how to support our colleagues, and how to maintain our own well-being in the face of overwhelming challenges."

3.4. Perceived Emotional Support

The emotional and psychological well-being of healthcare students played a critical role in sustaining their motivation and resilience on the frontline. Emotional support from university administrators, faculty members, and the broad-

cope with the stress and demands of their roles.

Students frequently mentioned the importance of timely encouragement and empathetic attitudes from their faculty, which reinforced their sense of worth and capability. One nursing student recalled a particularly challenging moment:

'I still remember that upsetting and stressful day when I was classified as at high risk of exposure. Everything seemed to be falling. One of my favorite teachers knew that, and she called me to calm me down and encourage me a lot. My mood was boosted after that, and I was able to get back to work normally. I really appreciated that in-time emotional support.'

In addition to institutional support, the recognition and appreciation from the community also served as a significant source of emotional sustenance. Social media, virtual projects, and public acknowledgments of healthcare workers' efforts were powerful motivators for students, reinforcing their sense of belonging and commitment to the cause. One student reflected on how a small gesture from her mother lifted her spirits:

'After a long day, really tired, my mother shared a post on her Facebook about a project calling for donations to support the difficult situation of COVID-19 in the Southern provinces. She was proud of me, and it inspired me a lot.'

4. DISCUSSION

Although grounded in the COVID-19 context, the findings reflect fundamental components of healthcare emergency preparedness. Willingness to serve, professional self-confidence, and emotional support are essential attributes for healthcare students responding to crisis situations. Evidence showed that 80% of healthcare students in an Indian medical school had a positive attitude[13], or more than three-four individuals in another study in New Delhi expressed their readiness to participate in frontline care in COVID-19 outbreaks [14]. Healthcare students were flexible and could perform effectively with different tasks such as assisting call-based information centers [13,15], screening COVID-19 patients, serving for database management of COVID-19 information, and caring for homeless and older patients [13]. As healthcare students, they were confident with the knowledge gained from their courses at medical schools. They also highlighted the importance of training courses, specifically about COVID-19, in preparing them confidence with new tasks at the frontline. Studies showed that 80% of Jordanian healthcare students and 91% of Ugandan healthcare students demonstrated proper or adequate knowledge about COVID-19 before participating in the frontline workforce [13]. Although the healthcare students will keep volunteering in social works, lessons learned from the COVID-19 pandemic revealed expanding opportunities for clinical practice, simulation-based education, and crisis-based learning experiences will better prepare students for the complexities of healthcare work.

To ensure that future healthcare students are equally prepared, nursing education programs must prioritize the development of specific attributes. Building self-confidence is crucial, and this can be achieved by providing students with ample opportunities for simulation and clinical experiences. Such experiences are essential for helping students develop the skills and confidence needed to manage the challenges of frontline support, as well as for building resilience and emotional fortitude, which are vital for coping with the stress and uncertainty inherent in emergency situations.

There is also a need to strengthen professional identity and ethical commitment among healthcare students. Programs should focus on integrating professional values and ethics into the curriculum, emphasizing the role of healthcare providers in times of crisis. An integrative systematic review of professional identity measures for student health professionals underscored the need for university programs to integrate professional values and ethics into the curriculum, promoting safe and effective clinical practice the importance of ethics education in fostering ethical competence, enabling healthcare professionals and students to appropriately navigate ethically challenging situations, especially

during crises [16]. A study on nursing and midwifery students further emphasized the critical role of professional identity in effective practice, advocating for transformative educational approaches that incorporate professional judgment, reasoning, critical self-evaluation, and accountability [17].

Societal norms and cultural values influenced students' desire to volunteer . According to studies, the value of healthcare providers was related not only to professionalism and expertise but also the capacity to build trust and connections with a diverse group of individuals, which healthcare students might acquire and practice through volunteer activities [18]. Volunteering enabled students to develop critical cultural competencies, social skills, communication abilities, and an understanding of the social context [19]. A study in the US provided evidence that students who used to join a voluntary work were more likely to possess leadership abilities, social self-confidence, critical thinking abilities, and conflict resolution skills than non-volunteers [20]. Also, they would become potential candidates for admission or employment who would command higher salaries [21,22]. Healthcare students, therefore, should be more open to social activities and more ready to respond to urgent calls for support not only to join hands to help others but also self-improve personal capacities for a successful career.

CONCLUSION

Healthcare students' willingness to join the COVID-19 frontline highlights the importance of preparing future professionals through enhanced education. Confidence in their roles was supported by their academic training and specific courses on COVID-19, underscoring the need for simulation-based education and crisis-based learning. To ensure readiness for emergencies, nursing programs should integrate clinical experiences and emphasize building resilience, professional identity, and ethical commitment. Additionally, engaging in volunteer activities fosters essential cultural competencies, social skills, and leadership abilities, preparing students for diverse challenges in their careers. Thus, a comprehensive approach that combines academic rigor, practical experiences, and social engagement is crucial for developing well-rounded healthcare providers capable of effectively responding to crises.

DECLARATION

Ethics approval: The research has undergone the ethical approval of VinMec Ethics Research Committee No.28/2021/CN-HĐĐĐ VMEC signed on June 28th, 2021.

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