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Nursing student volunteers and their level of involvement during the COVID-19 pandemic: a systematic review

Review

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Abstract: **Objective:** Many strategic efforts were made to address nurses' shortage in controlling Coronavirus disease 2019 (COVID-19), including recruiting student health volunteers. This review aimed to explore the contribution and involvement of nursing student volunteers during COVID-19.

Methods: A systematic review was registered in PROSPERO International CRD42021283069. Electronic databases for article search included: SCOPUS, EBSCO MEDLINE, PubMed, ProQuest, Springer, Sage Pub, and hand searching. The critical appraisal study quality using The Joanna Briggs Institutes. Data extraction and synthesis used Population, Intervention, Comparison, Outcome, and Design (PICO and D) framework with thematic analysis.

Results: Twelve studies were enrolled from 2545 retrieved, with 4 synthesized themes: (1) determinant of the involvement of nursing student volunteers during COVID-19, which includes 3 subthemes: motivations, perception, and barriers, (2) expectations and actual condition of nursing students as volunteers, (3) the need for nursing student volunteers, and (4) the impact and level of student volunteers' contribution. All student volunteers contribute to providing direct or indirect services to patients.

Conclusions: This review provides an overview of nursing student volunteers' needs useful in developing competency frameworks and the role of culturally sensitive volunteers in education and training. In the future, student volunteers could choose the appropriate volunteer program and location according to their competence.

Keywords: *COVID-19 • nursing • students • systematic review • volunteers*

1. Introduction

Health care leaders have warned for years that hospitals face a shortage of nurses globally. One prime example is America, with a total deficit estimated to be 918,232 nurses by 2030.[1] The spikes in the incidence of COVID-19 are exacerbating the shortage of nurses globally during the pandemic. It also affects the world health care system and health care providers, such as the shortage of nurses struggling on the front lines.[2,3] Many strategic steps are being taken worldwide to meet the nursing staff's need to control the spread of COVID-19, including recruiting student health volunteers by conducting coalitions of local health services and public health partners.[4]

Students volunteer in different ways and purposes because they can benefit society while fulfilling their own goals, assisting universities in achieving learning goals, and meeting the needs of their particular organization.[5] There is a global debate about health students' role and capacity as volunteers in the current COVID-19 pandemic.[6] Nevertheless, several studies revealed that recruiting nursing students as volunteers during the

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pandemic can help meet the shortage of nursing staff in various health facilities.[7–9] So far, volunteer nursing students' placement and policy procedures differ from country to country. For example, they are placed in health or social care organizations.[10,11]

Volunteer nursing students reported positive experiences and opportunities as an outcome of the community's tremendous support for nurses, which enhanced their pride in choosing a career as a nurse.[12,13] However, a study from Swift et al.[7] revealed that students as volunteers experience various difficulties in adapting and transitioning into 2 roles as a professional and a university student. They are also experiencing problems coping with exposure to conditions that increase their physical and mental health risks. The same issues were revealed when students experienced anxiety and stress due to a lack of practical courses, distance education, and increased workload. Students also revealed that no special preparation was made before becoming volunteers, which influenced them in providing services.[14,15]

Studies conducted regarding the involvement of nursing student volunteers indicated that most of the individual studies reviewed experiences, views related to the extent of their participation, benefits, and obstacles during volunteering for COVID-19.[7,14,15] The previous systematic review studies that have been conducted have only assessed preparedness and preparedness in dealing with disasters and discussed the pandemic with a medical student population, but not explicitly discussed nursing students.[6] This study explored the contribution and involvement of student nurse volunteers during COVID-19. This study resulted in a better introduction to student volunteering to provide recommendations for universities and health care providers when engaging students to become better volunteers.

2. Methods

2.1. Protocol and registration

This study is a systematic review guided by the following questions: What is known about nursing students' contributions, involvement, and experiences during the COVID-19 pandemic? The reporting process used the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guidelines.[16] The PROSPERO International Prospective Register of Systematic Reviews for this protocol was CRD42021283069.

2.2. Eligibility criteria

Articles were selected with the inclusion criteria of the PICO and D framework as follows[17]: P: population must include nursing students, but may include other health students; I: Intervention: the state of the COVID-19 pandemic; C: comparison: none, O: Outcome reported to the contribution, involvement, and experience as a volunteer during COVID-19, and study D: design: original qualitative or quantitative design or mixed-method articles published from 2019 to 2021 in English. Exclusion criteria were: (1) the article's full text cannot be accessed, (2) there are no implications for nursing, and (3) article type: review, letters to the editor, protocol, conference abstracts, case report, or case study.

2.3. Search strategy

We used 6 e-Journal databases and a hand search: SCOPUS, EBSCO MEDLINE, PubMed, ProQuest, Springer, and SagePUb, and hand searching for articles using the keyword and Boolean strategy: "Students, Nursing" [Mesh] OR "Nursing Student*" OR "Student, Nursing" OR "undergraduate nurse*" OR "nurse student*" OR "Pre-registered nurse "OR "Baccalaureate nurse" OR "Health care student*" AND "Volunteer*" OR "volunteering" OR "Voluntary" OR "Involve*" OR "participation*" OR "participation" OR "contribution" OR "collaborate*" AND "COVID-19" OR "COVID" OR "coronavirus" OR "2019-nCoV" OR " SARS-CoV-2" OR "CoV-19" OR "Pandemic."

2.4. Study selection

The search results were saved in Comma-Separated Values (CSV) format and exported into Microsoft Excel. There are 2 stages carried out independently by the 2 authors. The first stage of articles was filtered by title and abstract after duplicates were removed with the help of features in Excel. The second stage was based on the full text by searching and reading, then identifying relevant articles that meet the inclusion criteria. Discussion and consensus were carried out if there were differences between authors. We are reporting using online flowcharts for included studies from PRISMA 2020.

2.5. Quality appraisal

We used quality-included studies using the Joanna Briggs Institute's (JBI) Critical Appraisal Checklist.[18] A total score for each study was categorized into poor quality (<50%), fair (50%–75%), and good (>75%).[19,20]

2.6. Data extraction

The authors independently tested each article to determine which data items to extract and created an extraction table in Microsoft Excel. The content was developed according to the specific and relevant information to

the research question. Information extracted used the PICO framework: Research characteristics and context, including participants, interventions, outcomes, and study design.[21] Disagreements among authors were resolved through discussion to reach a consensus.

2.7. Data synthesis

We synthesized all data using the PICO synthesis.[22,23] We presented the findings without meta-analysis because of heterogeneity, i.e., the diversity of study characteristics involving nursing and other health students. The authors independently identified and grouped the data with PICO by thematic grouping. The authors reread the article to understand better and analyze specific meanings, word relationships, themes, or concepts. The first stage encoded each fragmented line of text one by one (YNF). Then, SA examined the second stage of coding results. The findings were then organized into categories/subthemes and themes in the third stage, and finally, the authors deliberated the data to reach a consensus.

3. Results

3.1. Study selection

In the first article selection stage, 2545 studies were filtered by title and abstract after removing duplicates. Then 2372 articles were excluded, leaving 25 relevant articles. The second stage identified relevant articles that met the inclusion criteria. Eleven studies and 1 additional hand-searched study from the published reference list. A total of 12 studies were enrolled (Figure 1).[24]

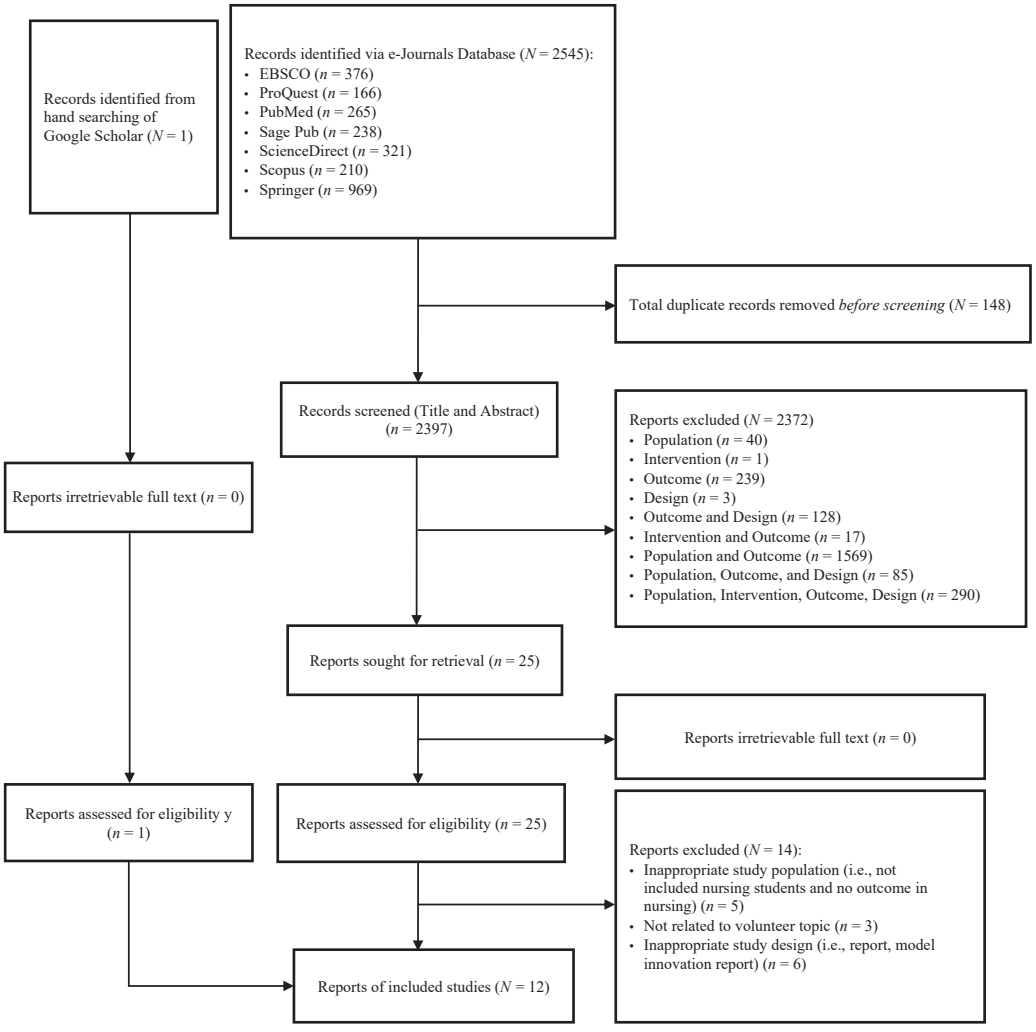

Figure 1. PRISMA flow diagram used in selecting studies.

Characteristics of studies	Number of studies	%
Publication Year		
2020	1	8.3
2021	11	91.7
Country		
Saudi Arabia	1	8.3
Spain	5	41.7
Poland	3	25.0
Malaysia	1	8.3
Singapore	1	8.3
Brunei Darussalam	1	8.3
Health care setting		
MOH services	1	8.3
Hospital/nursing home/ quarantine facility	3	25.0
Hospital and Medicalized hotel	1	8.3
Hospital and local call centers	2	16.7
Hospital	3	25.0
Not mentioned	2	16.7
Design Study		
Cross-sectional study	3	25.0
Qualitative study	6	50.0
Survey study	3	25.0
Participants and field of study		
Health students, including nursing students (*n* = 6591)	4	33.3
Medical students and nursing students (*n* = 304)	1	8.3
Nursing students (*n* = 224)	7	58.3
Sex		
Female (*n* = 4355)	12	61.2
Male (*n* = 2764)		38.8
Age (mean)		
18–22	3	25.0
23–25	7	58.3
N/A	2	16.7
Marital status		
Single (*n* = 5739)	3	25.0
Married (*n* = 367)		
N/A	9	75.0
Previous volunteering experience		
Yes (*n* = 2566)	9	75.0
No (*n* = 4186)		
N/A	3	25.0
Volunteers contribution		
Patient care or support	5	41.7
Phlebotomists	1	8.3
N/A	6	50.0

Note: MOH, Ministry of Health; N/A, not applicable or not available.

Table 1. Characteristics of included studies.

3.2. Study characteristics

The 12 studies were included, with the majority in 2021 (11/12, 91%)[25–34] and 2020 (1/12, 8.3%) (see Table 1). Most of the studies were conducted in Spain (5/12, 41.7%).[30,32–35] Three studies were conducted in hospitals (3/12, 25%),[31,32,34] and 2 studies not mentioned (16.7%).[26,36] There were 6 quantitative studies: a cross-sectional study (25%),[26,29,36] a survey study (25%),[25,27,28] and 6 qualitative studies (50%).[30–35] The majority of participants were health students, including nursing students (*n* = 6591) (4/12, 33.3%).[25,27–29] The sample size of the included studies varied widely from 18 to 6016 participants. In total, there were 7119 participants with 4355 females (61.8%) and 2764 males (38.2%). Two studies used the same participant.[27] In most studies, the mean age of the participants was 23–25 years old (7/12, 58.3%).[25,30–35] Marital status was reported in only 3 studies (25%),[27,28], and most participants were single (*n* = 5739).[29,35,36] Nine studies (75%) revealed that participants had previous volunteer experience,[27–31,33,36] while 3 studies did not mention it. Volunteer contributions included patient care or support (5/12, 41.7%).[25–28,32,34] A summary of the characteristics is presented in Table 2.

3.3. Quality of individual studies

Results from the JBI Checklist for qualitative research studies were categorized as good (6/6, 100%). Four studies (66.6%) were rated as fair in the JBI Checklist for analytical cross-sectional studies,[25–28] while 2 (33.3%) were rated as good.[29,36] The results are presented in Tables 3 and 4.

3.4. Themes identified

The results of this review's 12 included studies were grouped into 4 major themes: (1) determinants of the involvement of nursing student volunteers during COVID-19, which includes 3 subthemes: motivations, perception, and barriers, (2) expectations and actual condition of nursing students as volunteers, (3) the need for nursing student volunteers, which includes 2 subthemes of what nursing students demand and potential support that university and health care providers need to meet, (4) the impact and level of student volunteers' contribution.

3.4.1. Determinant of the involvement of nursing student volunteers during COVID-19

One of the main themes is what determines nursing students' decision to become volunteers during COVID-19 at various health care providers (*n* = 12, 100)

Authors year and country	Objective	Number of participants	Previous volunteering experience	Marital status	Age (mean) and sex (M/F)	Design	Volunteer in a health care setting	The contribution of volunteers	Outcome (s) and measure (s)	Key findings
Alomar et al.[29] Saudi Arabia	To assess motivational, barrier factors, and risk perceptions of volunteering for COVID-19	Volunteered (1824): 1628 health student, 196 nursing No volunteered (4192): 3888 health student, 304 nursing	One or more experience in sports, hospitals, schools, religious events, social and others	Volunteers: 1712 single, 100 married, 8 Divorced, 4 Widowed; Non-volunteers: 3978 Single, 204 Married, 10 Divorced	Volunteers: Mean 22.56 M: 936 F: 888 Non-volunteers: Mean 21.87 M: 1574 F: 2618	Cross-sectional study	MOH services	N/A	Questionnaire (demographics, volunteering, risk perception).	(1) 39.20% were nursing students. Men older ($P < 0.0001$) and in good health were more likely to volunteer. (2) Motivation: 21.05% patriotism, 20.85% gaining experience, 19.03% helping when able, and 16.19% religious awards. (3) Barriers: Lack of interest, protocol, knowledge, and personal issues: transportation health, especially in women than men (58.13% and 41.87%, respectively). 68.42% of participants were afraid.
Canet-Vélez et al.[30] Spain	To explore students' perception and professional development during the COVID-19	22 final-year nursing students	8 students in the health field	N/A	Mean 23 M: 3 F: 19	Qualitative study	Hospital (20/91%) and nursing homes (2/9%)	N/A	Semi-structured interview: (academic preparation, professional development, patient care)	Four themes: (a) Professional preparation, (b) Education received: effective learning and training, (c) Nurses in the face of COVID-19, d) Patients treated with COVID-19: emotional control, family isolation, and lack of communication. Final-year students positively assess competency, and professional values are significant for patient care.
Chawłowska et al.[25] Poland	To examine students' perceptions of their participation in a COVID-19 volunteer program.	158 health student volunteers: 112 Medicine, 10 Nursing, 10 Medical laboratory, 6 Dentistry, 5 Public health, 4 Midwifery, 11 Other fields	117 students	N/A	Mean 23.3 M: 43 F: 115	Survey	Hospital/ nursing home/ quarantine facility	Patient care or support: 51.27% temperature,46.84% medical history, 19.62% 36.07%, transport, 35.44% triage, 27.85% documentation, 16.45%educational, 10.13% Supporting, 8.86% laboratories,	1. Questionnaire (demographic, experience, safety, costs, benefits, and incentives). 2. Interviews: benefits, costs, safety and internship, curricular activity.	(1) Student perception: conditions and safety: 89.24% personal protective equipment, 88.61% technical support, 79.11% training, 38.61% psychological support, 65.82% received good learning engaging, soft skills development experience (social 86.08%; organization 78.48%, stress management 68.99%), 40.51% development of their medical skills. (2) Interviews: insight into treatment systems, psychological support, met opportunities for mentoring.

Continued

Table 2. Continued

Authors year and country	Objective	Number of participants	Previous volunteering experience	Marital status	Age (mean) and sex (M/F)	Design	Volunteer in a health care setting	The contribution of volunteers	Outcome (s) and measure (s)	Key findings
Cheah et al. [26] Malaysia	To determine the commitment, willingness, and factors related to students treating COVID-19 patients.	304 medical students and nursing students	N/A	N/A	Mean 21.5 M: 56 F: 248	Cross-sectional study	N/A	Patient care or support: 91.1% a medical history and physical examination 83.6% Throat swabbing, 82.2% Drawing blood, 76.6% IV drip insertion, 46.4% Performing surgery	Questionnaire (sociodemographic, willingness, and commitment)	Nursing students' overall willingness and commitment to COVID-19 is relatively high. Students' willingness to perform medical procedures was moderate to high. 92.4% are passionate about fighting COVID-19, 94.4% agree with a monthly salary increase, and 88.2% agree that their families receive compensation. Universities need clinical teaching for future preparation in the pandemic.
Domaradzki and Walkowiak[27] Poland	To learn more about health professional student volunteers during the COVID-19	417 Students: 256 Medicine, 42 Nursing, 23 Pharmacy, 20 Electroradiology, 19 Medical analytics, 14 Dentistry, 11 Midwifery, 10 Medical, Rescue, 22 Other	300 students	N/A	N/A M: 116 F: 301	Survey	Hospital and local call centers	Patient care or support: 39.8% Administrative, 33.3% emergency, 21.3%, patients' medical history, 18% hospital ward, 7% telephone advice.	Questionnaire: student volunteer's experiences.	(1) 59.2% of students consulted parents and 51.3% friends, 3.6% had a little regret as a volunteer, 85% volunteer is not as difficult as expected. (2) Reasons to volunteer: 58.8% help others, 46.5% benefit society, 4.1% professional resumes, 23.5% role of medical personnel, and 12.7% have experience. The primary role is to support the health care system, helping learn practically. Ethical dilemmas reinforce essentials. Student volunteers are integrated into education.
Domaradzki and Walkowiak[28] Poland	To determine the relationship between religion and motivation to volunteer for students during the COVID-19	417 Students, 256 Medicine, 42 Nursing, 23 Pharmacy, 20 Electroradiology, 19 Medical analytics, 14 Dentistry, 11 Midwifery, 10 Medical rescue, 22 Other	300 students	N/A	N/A M: 116 F: 301	Survey	Hospital and local call centers	N/A	The questionnaire: (demographic, reactions, and anxieties related to voluntary service, motivations)	(1) Volunteerism is high in second and final-year students (56.1% vs. 43.9%). (2) Religion played an essential role in students from the smallest cities ($P = 0.021$), while ambivalent/non-religious students lived in large cities ($P = 0.03$). It did not differ in gender, faculty, and year of study. (3) Non-religious students were more anxious about the possible collapse of health services ($P = 0.002$) and economic ($P = 0.014$). Religion is not the primary predictor of student volunteerism but determines motivation.

Continued

Table 2. Continued

Authors year and country	Objective	Number of participants	Previous volunteering experience	Marital status	Age (mean) and sex (M/F)	Design	Volunteer in a health care setting	The contribution of volunteers	Outcome (s) and measure (s)	Key findings
Seah et al.[31] Singapore	This study explores the factors that influence students' willingness to volunteer during the COVID-19	30 Final-year Nursing Students: Volunteers (15) Non-volunteers (15) Lecturers (3) provided supervision to the student volunteers	Volunteers: 14 students Non-Volunteers: 9 students	N/A	Volunteers: Mean 23.5 M: 9, F: 24 Non-Volunteers: Mean 22.6 M: 2, F: 13 Lecturers (n = 3) M: 1 F: 2	Qualitative study	Hospital	Phlebotomists	Interview: willingness, consideration factors, professional identity, areas of improvement to voluntary participation	Three themes: (1) indecisive thoughts about volunteerism, (2) bring up "nurses" in students through volunteerism, and (3) prepare to volunteer. Factors were affecting priority-protecting family safety, health care system, remuneration, professional functioning, and identity. The sense of profession is strengthened by gathering clinical experience. However, some participants expressed fear. Findings need a volunteer management team for preparedness.
Martin-Delgado et al.[32] Spain	Describe the direct experience of student volunteers during the first wave of COVID-19.	40 final-year nursing students (80%)	N/A	N/A	Mean 24.65 M: 5 F: 135	Qualitative study	Hospital: 25 different health care settings	Patient care or support: Perform patient care under the supervision of a registered nurse	Reflective journal: student experiences as frontline staff.	Four main themes: (a) Willingness to help and moral obligation, regardless of fear and risk of being infected, (b) Security and protection measures, (c) Amazing experience, (d) Learning and growth roles from students to professionals and learning opportunities. Reflective journaling strategies, online mentoring, and professional personal growth can significantly respond to future health crises.

Continued

Table 2. Continued

Authors year and country	Objective	Number of participants	Previous volunteering experience	Marital status	Age (mean) and sex (M/F)	Design	Volunteer in a health care setting	The contribution of volunteers	Outcome (s) and measure (s)	Key findings
Gómez-Ibáñez et al.[35] Spain	To clarify the experience of nursing student volunteers in providing nursing care during the COVID-19	20 final-year students	N/A	20 Single	Mean 23 M: 3 F: 17	Qualitative study	Hospital and Medicalized hotel: 20% COVID, 20% Emergency, 5% Intensive Care Unit (ICU), 10% Convalescence, 10% pavilion, 35% Medicalized	N/A	Semi-structured online interviews to explore the experiences of volunteers.	(1) Feelings of commitment: the individual to society, the profession. The feeling of responsibility is formed from the interaction of2 categories: (a) "facing the unknown" and "being and feeling like a nurse," and (b) 5 subcategories: emotional situation. (2) Anxiety because of uncertain situations, psychological difficulties but positive emotions. Fear is related to the effects of working during the study period. There needs to be a unique nursing education program for complex situations that includes coping strategies and skills development.
Roca et al.[33] Spain	To explore students' experiences and emotional responses in assistance tasks during the peak of the COVID-19	22 final-year students	8 Students	N/A	Mean 23 M: 3 F: 19	Qualitative study	91% Hospital and Nursing 9% homes	N/A	Semi-structured online interview via Skype: experiences, emotional responses, and coping strategies	(1) Emotional experience and response: Emotions that arise are related to helplessness, anxiety, uncertainty, distress, feelings of sadness about suffering and death, risk of self-contamination, and disease transmission. It requires an adaptive capacity to face reality. (2) Coping strategies: teamwork, psychological care from health institutions, information on COVID-19 care, family support, and peers, primarily through social networks, recreational activities, independence, humor, and religion.

Continued

Table 2. Continued

Authors year and country	Objective	Number of participants	Previous volunteering experience	Marital status	Age (mean) and sex (M/F)	Design	Volunteer in a health care setting	The contribution of volunteers	Outcome (s) and measure (s)	Key findings
Velarde-García et al.[34] Spain	To explore student experiences, and perspectives as students and novices during the COVID-19	18 final-year nursing students	a mean as nurse assistant of 1.95 years (SD 2.82).	N/A	Mean 23.7 M: 1 F: 17	Qualitative study	Hospital: 38% Emergency services, 27% ICU, 33% hospitalization: internal medicine	Patient care	Semi-structured interview: experience, roles, interdisciplinary team, learning process, and combining study with work.	Four themes emerged: (a) The role of the student during the aid contract; (b) The learning process during the pandemic; (c) Learning barriers; and (d) Unique learning opportunities. Students do not have assigned roles with little support and supervision and learn quickly under pressure. Important to optimize the curriculum and training needs of students.
Aziz et al.[36] Brunei Darussalam	To investigate the willingness of university nursing students to volunteer during the COVID-19	72 nursing students	N/A	Willingness to volunteer: 40 Single 6 Married Willingness to volunteer: 23 Single 1 Married	Willingness to volunteer: M: 7, F: 39 Willingness to volunteer: M: 9, F: 15	Cross-sectional study	N/A	N/A	The questionnaire measures the willingness to volunteer during disasters or public health emergencies.	(1) 85.7% of married and 72.4% of participants in the first year were more willing to volunteer ($P < 0.001$). There is no difference in age and gender. (2) There is a significant relationship between motivation and willingness to volunteer ($P < 0.001$). Motivational: 75.0% safety, 74.1% helping others, and 73.% was getting a salary. (3) Inhibiting factors: 53.6% have children, 57.5% are afraid of safety, 60.0% types of disasters, 65.6% lack training, and 67.7% are still students, a significant obstacle to volunteering ($P < 0.001$). (4) Empowerment Factors: 76.3% have access to child care, 71.7% vaccines, 70.5% salary, 70.5% disaster response, 69.8% family safety, and 47.2% of respondents agree to encourage nursing students to volunteer.

Note: MOH, Ministry of Health; N/A, not applicable or not available.

Table 2. A summary of the characteristics of the studies.

Studies	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Score	Overall
Alomar et al.[29]	Y	Y	Y	Y	N	N	Y	Y	6/8	+
Chawłowska et al.[25]	Y	Y	Y	U	N	N	Y	Y	5/8	-
Cheah et al.[26]	Y	Y	Y	Y	N	N	Y	N	5/8	-
Domaradzki and Walkowiak[27]	Y	Y	Y	U	N	N	Y	N	4/8	-
Domaradzki and Walkowiak[28]	Y	Y	Y	U	N	N	Y	Y	5/8	-
Aziz et al.[36]	Y	Y	Y	Y	N	N	Y	Y	6/8	+

Note: 1 = Y; 0 = N.
N, No; NA, not applicable; U, Unclear; Y, Yes.

Table 3. The quality appraisal for analytical cross-sectional studies.

Studies	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Score	Overall
Canet-Vélez et al.[30]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10/10	+
Seah et al.[31]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10/10	+
Martin-Delgado et al.[32]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10/10	+
Gómez-Ibáñez et al.[35]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10/10	+
Roca et al.[33]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10/10	+
Velarde-García[34]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10/10	+

Note: 1 = Y; 0 = N.
N, No; NA, not applicable; U, unclear; Y, Yes.

Table 4. The quality appraisal for qualitative studies.

(see Table 2). This theme includes 3 subthemes: motivation, perspectives, and barriers. They are presented in the following text:

Motivation

One study highlighted a direct, significant relationship between motivation and willingness to volunteer ($P < 0.001$).[36] All studies identified ($n = 12$, 100%) from 7119 participants that student motivation comes from intrinsic and extrinsic motivation. Most studies (7/12, 58%) revealed that students' intrinsic motivation is the desire to help. Strong motivation is related to personality, patriotism, altruism, interest, passion for being involved, and gaining experience. In addition, developing a professional nursing identity and values is closely identified with the call for commitment to society, and the profession in the fight against COVID-19, despite difficulties and lack of information.

Nursing students reported extrinsic motivation related to attractive incentives because of risky and uncertain situations.[26,29,31,36] In addition, there is a guarantee of safety and the provision of vaccines for themselves and their families.[27,31,32,36] Regarding academics, 2 studies reveal that getting internship credit encourages more students to get involved. Two studies showed the significance of the desire to get a professional resume in non-religious students more often ($P = 0.041$).[27,28]

Perceptions

The authors found a relationship with students' perceptions of becoming volunteers. Three studies (25%) expressed that personal health conditions influenced the perception of the risk of COVID-19 and the likelihood of being treated, recovering, or dying.25,26,29 They believe that professionals and academics have structured the handling of the pandemic as frontline nurses.27,30,31,34 They have dual roles as students and nurses and are unclear about their roles and responsibilities. On the other hand, their authority is still limited, so they adapt as needed.27,31,34 Besides that, religion strengthens professional attitude perception.[27,31]

Barriers

Most of the studies in this review (n = 7/12, 58%) considered emotional feelings: anxiety, fear for self, and family safety, as high barriers when deciding to get involved as a volunteer. They realized that the lack of information, knowledge, training, personal protective equipment, disease transmission, and management protocols affected emotional feelings such as fear.[29,31,32,34,36] Students also said it was initially challenging to become a volunteer because only a few signed up. It depended on encouragement and appreciation from their universities, health care provider

systems, and families. In addition, depending on the patient's characteristics and type of disaster, personal issues, lack of adequate protection (56.9%), pregnancy (48.7%), parents (18.4%), and marriage (12.5%), this was an obstacle for nursing students to volunteer during the period of COVID-19 ($P < 0.001$).[27–29,33,36]

3.4.2. Expectations and actual conditions of nursing student volunteers

The majority of expectations expressed in 8 studies (66%) are the desire to develop skills and experience: teamwork, interprofessional collaboration, and new connections. These gains could be their future career opportunities.[25–28,30,31,33,34] Several studies (n = 5/12, 41.6%) provided data that nursing students had confidence in getting support from family and learning or tutorials from the team, senior nurses, and lecturers as part of learning skills valuable to the community.

A description of the actual conditions experienced by nursing students during their COVID-19 that volunteerism is primarily related to a lack of information, education, training, and competence. They also mentioned the uncertainty of the situation, risk, legal issues, and volunteer management. They feel unprepared for safety and security risks and hastily decide on active involvement during the COVID-19 pandemic.[25–36] Even though conditions did not meet their expectations, several studies revealed that students acquired knowledge and skills through experience. They showed various challenging emotions experienced and types of management.

3.4.3. The need for nursing student volunteers

Most studies noted student demand for educational programs, nursing training, and related facilities in adaptation, leadership, teamwork, commitment, ethical dilemmas, public service, and managing complex situations.[25–36] Students felt they needed psychological and supporting facilities: child care, vaccination, and job safety met while volunteering.[25,33,35]

Most studies encourage universities to provide training and clinical practice psychological or emotional skills integrated with holistic care in critical situations because they are limited. Two studies specifically describe professional adaptability to resolve ethical dilemmas and conflicts.[33,35] It is also essential to provide competency and safety protocols above all else,[25,34] and the need to ensure collaboration, coordination, and communication between universities and partners to develop a culturally sensitive framework of student volunteers.[25,29,31] Additionally, it is crucial to offer volunteer programs as internship options according to student interests to enable students to determine the type and location of the practice to encourage volunteerism among students to help prepare for future disasters.[25,31]

3.4.4. The impact and level of student volunteers' contribution

Seven studies (7/12, 58%) describe the perceived impact of student involvement as volunteers following the main objective to meet the staffing load and the shortage of nurses. Student volunteers have also contributed significantly to controlling the spread of COVID-19 in various service settings.[26–30] This volunteer activity facilitates direct student learning experiences as a professional in responding to health crises, sharing knowledge, health care, building interprofessional relationships, gaining new perspectives, mental health, and reducing costs for health services and the government.[27,28,31,32,35]

In general, all student volunteers actively contribute to providing support or care services to patients, either directly or indirectly. In this review, only 5 studies (41.6%) detail the types of nursing student contributions: physical assessment and history taking, triage, documentation-related reports, analyses, contact tracing,[25–28] throat swabbing, Drawing blood, intravenous (IV) drip insertion, performing surgery,[26] administrative work, helping in emergency rooms, supporting with medical procedures in a hospital ward (18%), providing supplies and giving telephone advice in a sanitary-epidemiological station,[27,31] acting as frontline phlebotomists,[32] and performing duties under the supervision of a registered nurse according to the level of training.

Although none of the studies directly measured or reported volunteer students' effectiveness and level of involvement during COVID-19. But, this review showed that students' participation helps maximize their educational potential in their field.[27,28]

4. Discussion

This review found that nursing students were willing to volunteer during COVID-19 pandemic based on motivations, perceptions, and barriers. We highlight the existence of nursing student motivation, including intrinsic and extrinsic aspects. Another study revealed that intrinsic motivation refers to personal desires. In comparison, extrinsic motivation is an external drive such as praise or incentives.[37] For example, this review showed that the desire to help others is one of the most commonly found intrinsic motivations, while extrinsic motivation is an attractive incentive offer.[26,36,31] Intrinsic motivation is more expressed than extrinsic motivation.

These results consistently revealed that a desire to help and feelings of moral responsibility or patriotic duty are associated with an increased willingness to volunteer.[38]

The authors found that deciding to volunteer was also related to perceptions of COVID-19 and its barriers. Nursing students showed significant obstacles related to emotional feelings: anxiety and fear of safety for themselves and their families, although these emotions were influenced by lack of information, knowledge, training, personal protective equipment, disease transmission, and management.[25–28,30,31,33,34] The findings of this study are supported by previous research showing that psychological factors are a common barrier where around 25% of students experience 1 or more forms of anxiety.[39] Emotional or psychological factors are caused by a lack of knowledge and uncertainty about situations and roles.[40] In this review, the authors highlight that exploring the factors associated with nursing student decisions is critical to determining strategic approaches to volunteer programs in critical conditions. This finding is consistent with research exploring volunteer driving factors to define strategies and ensure volunteer sustainability.[41]

Before starting their volunteer role, nursing students had expectations and stated that expectations and actual conditions differed. Most of their expectations are focused on themselves and their future careers, such as gaining skills and experience development. However, during their time as COVID-19 volunteers, they lack adequate information, education, training, and competence.[27,28,30,31,34] These results are supported by a study that revealed that students who volunteer during the COVID-19 pandemic have limited knowledge and skills, so their self-confidence is low.[40] According to some studies, students experience disappointment when expectations before joining as a volunteer are not met, resulting in quitting or not volunteering at all.[42,43] However, unlike the findings in this review, students, apart from being willing, felt proud and satisfied with their contributions to critical situations.[25–28,30,31,33,34]

Another finding was that student needs were identified, focusing on themselves or the university and its associated health system. These findings can accommodate the expectations and actual conditions felt by students. Students requested education, training, and mentoring programs from lecturers and senior staff to improve their skills and support facilities, including child care and vaccination. The results of this review support a qualitative study in Australia on aspects of student and university volunteer needs identified for activities to run effectively and efficiently.[42]

Universities are responsible for providing integrated curriculum clinical practice.[26–30,32,34,36] This includes professional development such as adaptation of ethical dilemmas and conflicts,[33,35] in addition to culturally sensitive occupational safety and competence protocols,[25,34,44] as well as ensuring ongoing collaboration, coordination, and communication between universities and partners[29,31] that nursing student volunteers care for the patients following their competence. In line with studies that support, for example, training, a clear framework from universities and related parties proves to be an essential factor that helps volunteer retention, development of skills, and confidence in new roles and permitted tasks.[45]

The authors found that the impact of nursing students as volunteers proved to be most important in helping the shortage of health workers and supporting the control of the spread of COVID-19. Similar to a study that showed the global impact and goal of health volunteers is to help solve the problem of health crises.[46,47] Other studies have revealed that student volunteers can meet community needs, economic goals, and the reputation of universities and related organizations or systems.[48,49]

In general, findings related to contributions are that all student volunteers actively provide services to patients directly or indirectly. While no studies report specifically on the effectiveness of student volunteer engagement levels during COVID-19, several studies describe the engagement they have had and have successfully contributed to the health system and themselves. According to another study, volunteering helps students develop an uncompromising attitude personally and professionally.[48,49] The same study reveals the positive potential for students and the implications for universities, health facilities, and health departments for future research, funding, and development of student volunteers[42,50] since volunteers need a support system to volunteer and continue to contribute a valuable asset.[51]

5. Conclusions

This review showed that most nursing students willing to volunteer during COVID-19 are influenced by motivations, perceptions, barriers, expectations, and program support from universities, health care providers, and policymakers. We highlight this review providing an overview of nursing students' volunteer needs to help develop interventions/competency frameworks and the role of culturally sensitive volunteers in education and training, such as mentoring and supervising lecturers or senior nurses to ensure volunteers' safety and quality of care. Universities and health care establishments can provide feedback on achieving their practice's

safety goals, professionals, service commitments, and potential competencies. In the future, student volunteers can choose volunteer programs according to their competence.

Limitations

The limitation of this review showed that not all studies mention contribution type and study period. For example, studies were carried out during or after the volunteer program or after. There are no studies that address and measure the level of student volunteering or the effectiveness of their involvement. In addition, it is necessary to review each country's cultural influences or policies.

Author contributions

YNF and SA contributed to the data's conceptualization and methods. YNF collected data, and all authors were responsible for data analysis and interpretation. YNF was responsible for writing the draft manuscript. All authors approved the final version for submission.

Ethical approval

Ethical issues are not involved in this paper.

Conflicts of interest

All contributing authors declare no conflicts of interest.

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