Vietnam Journal of Community Medicine, Vol. 67, English version No. 1, 2026, 117-122

ROLES AND ATTITUDES OF MEDICAL STUDENTS TOWARD THEIR INVOLVEMENT IN LOCAL COMMUNITIES FOR PANDEMIC PREVENTION AND CONTROL IN VIETNAM: A LESSON FROM COVID-19 PANDEMIC

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Received: 21/04/2026
Revised: 14/05/2026; Accepted: 25/05/2026

ABSTRACT

Objectives: Public and community health is a critical section for medical students during the training program in universities as well as in the future work as medical staff. Important lessons could be learnt from prevention and control efforts of Covid-19 pandemic. This study examined the roles and attitudes of medical students who actively participated in Covid-19 prevention and control activities in Vietnam.

Methods: A survey was conducted among 1175 medical students via questionnaires to assess their satisfaction and attitudes toward their participation.

Results: It indicated high satisfaction with the preparation and assurance, including specialized training and knowledge preparation. Collaborative efforts between medical students with healthcare staff, local authorities, or patients were viewed positively. Medical students played a significant role in alleviating healthcare system pressure, promptly supporting patients as well as reducing patients' anxiety. Their participation facilitated knowledge reinforcement, the acquisition of clinical skills, and the development of communication abilities. Furthermore, medical students demonstrated an increased awareness and sense of responsibility towards the community, exhibiting a positive attitude toward their involvement and a willingness to engage in similar situations in the future.

Conclusions: These findings emphasize the positive impact of involving medical students in pandemic response efforts and the need to address their concerns for future initiatives. The outcomes of this study contribute to the understanding of the valuable role that medical students can play in public health emergencies and provide insights for educational and healthcare institutions on effectively exploring their potential.

Keywords: Public and community health, Pandemic, Medical student, Roles and attitudes.

1. INTRODUCTION

Public and community health are critical for fostering well-being, longevity, and economic stability by preventing disease, promoting healthy behaviors, and managing community-specific needs. Generally, it is an important section in academic curriculum for undergraduate students in medical universities. However, how to intergrade the practical activities of medical students with actual public and community health is an important issue with diverse opinions. When Covid-19 first emerged, many countries around the world had to deal with overloaded healthcare systems including a lack of human resources and supplies to care for patients (Armocida et al., 2020). In response to this crisis, medical students were mobilized to volunteer in pandemic prevention and control efforts. For instance, in an attempt to ease the healthcare burden, the UK, US, and Denmark incorporated final-year (DeWitt, 2020) and non-final-year students (Drexler et al., 2020) into their healthcare workforce or expedited the graduation process to enable them for working as frontline clinicians in Covid-19 hospitals). In Germany, Spain, Poland, and Indonesia, healthcare facilities were able to enlist the help of non-final-year students who volunteered to provide assistance.

In Vietnam, to combat the Covid-19 pandemic, the Vietnam Ministry of Health mobilized its entire healthcare workforce and provided training on disease prevention, patient care, surveillance, detection tests, and epidemic prevention measures to students at healthcare universities and colleges, including those studying medicine, nursing, or pharmacy. Many students from medical universities participated in supporting the healthcare system (Tran et al., 2020, 2021). They carried out a range of tasks, including providing telephone counseling services, collecting samples from potentially affected communities, entering data into computer systems, and carrying out cleaning and disinfection procedures in communal areas to prevent the spread of Covid-19 (Tran et al., 2020).

The participation of medical students in emergency

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situations has been documented not only during Covid-19 but also in past pandemics (Starr, 1976; Trubuhovich, 2003). However, certain experts contended that medical students, who are not considered essential healthcare personnel, should concentrate on their medical education instead of participating in pandemic response efforts (Menon et al., 2020). Especially in the early stages of the pandemic response, due to a lack of experience and skills, the involvement of students could affect patients and healthcare workers On the other hand, many opinions suggest that the assistance of medical students is necessary due to the limited number of healthcare staff who cannot handle an overwhelming number of patients (Wang et al., 2020; Domaradzki, 2022). Noted that to ensure a truly beneficial and exceptional experience for healthcare, medical schools, and society, it is crucial that students' participation in pandemic response efforts be voluntary and free of any external, formal, or informal pressure. Adequate training and continuous supervision should be provided to medical students to ensure their preparedness for such tasks (Bank and Wijnen-Meijer, 2020; Domaradzki, 2022).

Medical education has been particularly affected by the pandemic, with medical students facing unprecedented challenges in their training due to disruptions in traditional modes of learning and clinical training. However, medical students had a chance to take part in Covid-19 prevention and control activities, working alongside healthcare professionals and other relevant parties. This study aims to assess the roles and satisfaction level of medical students who used to participate in pandemic prevention and control activities, to figure out their attitudes and perspectives towards such involvement and suggestions for enhancing the effectiveness of student activities in the community. Through this comprehensive analysis, we seek to provide insights into the experiences of medical students involved in pandemic response efforts and to identify the best practices for supporting medical students including approaches for effectively utilizing and coordinating their participation in similar crisis situations in the future.

2. MATERIALS AND METHODS

2.1. Questionnair design

The questionnaire has a total of 39 questions, of which 37 are multiple-choice questions and 2 are open-ended questions. Multiple choice questions are divided into 3 groups to collect information: 1) Basic information of subjects; 2) Assess students' satisfaction levels about the activities in the community; 3) Assess students' awareness and attitude about epidemic prevention in the community.

Two open-ended questions aimed to collect information on strengths, and weaknesses during the involvement of activities in the front line and suggestions for improving the effectiveness of student activities in the community.

The questionnaire was built by a group of experts in the education and training Department, epidemiology and public health department based on the principles of building satisfaction assessment questions that have been standardized on a 5-point Likert scale. The questionnaire was tested on a small scale on 44 subjects to assess its relevance and feasibility before being deployed in the survey.

2.2. Survey performance and ethical issue

The questionnaire is built in Google Form format for information collected via online method. An internet link is sent to 1419 academic e-mail addresses of medical students that participated in the Covid-19 prevention front lines in local communities between November 2021 and February 2022, including an explanation of the purpose of the study and accompanying the survey questionnaire. The information of individual participants, including name, class and university is kept confidential. A total of 1175 (82.8%) subjects voluntarily participated and responded to the questionnaire.

2.3. Data analysis

All individual responses were automatically updated and stored. The results are extracted as Excel files, then coded suitable for statistical analysis by SPSS ver 21.0 software for Windows (IBM SPSS, Armonk, NY, USA). The results are described as numbers and ratios.

3. RESULTS

3.1. Characteristics of participants

Among representations from all six training years, 59.8% belonged to the year 3rd to 6th, 60.5% had taken the clinical rotation, and 42.4% were engaged in the health care support at least 2 times during the COVID-19 pandemic. In the time spent volunteering, many students joined over 2 months (48.2%) followed by under 1 month (37.7%), and around 1-2 months (14.1%). About 55.3% worked more than 8 hours/day, of which 12.6% spent over 12 hours/day. Students could join more than one activity, and their activities mainly were sample collection (89.9%), clinical support at communes (47.6%), vaccination (49.9%), consulting for patients (48.9%) (Table 1).

Table 1. Characteristics of participants

Characteristics	Total	
	n	%
Sex		
Male	950	80.9
Female	225	19.1
Class		
Year 1-3	472	40.2
Year 4-6	703	59.8
Clinical rotation		
Yes	770	65.5
No	405	34.5
Participated times		
1 time	677	57.6
>= 2 times	498	42.4
Total duration		
<1 month	443	37.7
1-2 months	166	14.1
>2 months	566	48.2
Average working time in one day		
≤ 8 hours	525	44.7
8-12 hours	502	42.7
>12 hours	148	12.6

Characteristics	Total	
	n	%
Kinds of activities*		
Sample collection	1056	89.9
Testing	205	17.4
Clinical support at communes	559	47.6
Clinical support in a field hospital	85	7.2
Vaccination	586	49.9
Consulting for patients	574	48.9
Epidemiological screening	202	17.2
Others	44	3.7

*n: number; %: percentage; *: one student may joint more than one kind of activities*

3.2. The level of satisfaction of medical students in participating in COVID-19 prevention and control

The survey results indicated that medical students were generally satisfied with the preparation and assurance work provided (Table 2). The quality of specialized training and knowledge preparation is highly praised, with almost half of the students expressing satisfaction (49.3%) and over a quarter being very satisfied (28.2%). As for ensuring safety equipment during work, most students (95%) reported being normal, satisfied, or very satisfied, with only 5% expressing dissatisfaction. It is important to note that the provision of logistics and accommodation support is also crucial, and although there was a slight increase (12.7%) in dissatisfaction compared to the previous tasks, more than half of the students (53.6%) still express satisfaction.

Table 2. Assessment of the satisfaction level for preparation and assurance work

The satisfaction level				
Very dis-satisfied	**Dissatis-fied**	**Normal**	**Satisfied**	**Very satisfied**
Specialized training and knowledge preparation				
18 (1.8%)	9 (0.8%)	235 (20%)	579 (49.3%)	331 (28.2%)
Ensuring of safety equipment in practice				
15 (1.3%)	44 (3.7%)	358 (30.5%)	585 (50%)	170 (14.5%)
Ensuring logistics and accommodation				
35 (3%)	114 (9.7%)	407 (34.6%)	467 (39.7%)	152 (12.9%)

n: the number of survey objects; %: the percentage is calculated based on the total number of responses to the corresponding questions

To achieve high efficiency in pandemic prevention and control work, it is essential to have cooperation among relevant parties. This study shows that healthcare staff and local authorities closely collaborated with medical students. Specifically, around 65% of respondents expressed satisfaction or high satisfaction (Table 3). Conversely, when asked about the satisfaction level of relevant parties such as patients, local healthcare staff, or local authorities towards medical students participating in pandemic prevention and control, most attendants believed that the relevant parties were highly satisfied, with over 85% satisfaction rate.

Table 3. Assessment of the satisfaction level for the cooperation with the relevant parties in COVID-19 prevention and control

The satisfaction level				
Very dis-satisfied	**Dissatis-fied**	**Normal**	**Satisfied**	**Very satisfied**
Collaboration with the local authorities				
23 (2%)	64 (5.4%)	329 (28%)	575 (48.9%)	184 (15.7%)
Collaboration with healthcare staffs				
14 (1.2%)	45 (3.8%)	315 (26.8%)	604 (51.4%)	197 (16.8%)
Satisfaction level of patients/people				
16 (1.4%)	2 (0.2%)	156 (13.3%)	725 (61.7%)	276 (23.5%)
Satisfaction level of the local health force				
9 (0.8%)	3 (0.3%)	156 (13.3%)	687 (58.5%)	320 (27.2%)
Satisfaction level of the local authorities				
9 (0.8%)	9 (0.8%)	155 (13.2%)	673 (57.3%)	329 (28%)

n: the number of survey objects; %: the percentage is calculated based on the total number of responses to the corresponding questions

3.3. Perspective on the Role of medical students

According to the survey, the support of medical students in pandemic prevention and control plays an important role. A large majority of respondents agreed that medical students assisted in alleviating the pressure on the healthcare system (91.8%), supported patients promptly (92.3%), and reduced patients' anxiety (88.9%). A small proportion of respondents were undecided, disagreed, or strongly disagreed (Table 4). In addition, the survey also shows that participating in pandemic prevention and control has helped medical students reinforce and acquire additional knowledge and clinical skills, as well as develop communication and teamwork skills.

Table 3.4. Assessment of the impact of COVID-19 prevention and control activities on the local healthcare system, and on medical students' studying

The satisfaction level				
Completely disagree-able	**Dis-agree-able**	**Doubtful/ Normal**	**Agree-able**	**Very agree-able**
The impact of COVID-19 prevention and control activi-ties on the local healthcare system				
Assist in alleviating the pressure on the healthcare system				
71 (6%)	2 (0.2%)	24 (2%)	593 (50.5%)	485 (41.3%)

The satisfaction level				
Completely disagree-able	**Dis-agree-able**	**Doubtful/ Normal**	**Agree-able**	**Very agree-able**
Support patients promptly				
56 (4.8%)	4 (0.3%)	30 (2.6%)	669 (56.9%)	416 (35.4%)
Help patients to alleviate their anxiety				
48 (4.1%)	12 (1%)	70 (6%)	695 (59.1%)	350 (29.8%)
The impact of anti-pandemic activities on studying				
Consolidating clinical knowledge and skills				
45 (3.8%)	11 (0.9%)	54 (4.6%)	688 (58.6%)	377 (32.1%)
Learning more clinical knowledge and skills				
45 (3.8%)	14 (1.2%)	51 (4.3%)	715 (60.9%)	350 (29.8%)
Training in communication skill				
45 (3.8%)	3 (0.3%)	18 (1.5%)	698 (59.4%)	411 (35%)
Training in cooperative collaboration skills in the work-place				
40 (3.4%)	3 (0.3%)	23 (2%)	733 (62.4%)	367 (32%)

n: the number of survey objects; %: the percentage is calculated based on the total number of responses to the corresponding questions

The majority of medical students expressed the belief that participating in pandemic prevention and control helped them to increase their awareness and sense of responsibility towards the community when asked about their attitudes and perspectives on this matter (Table 5). The percentage of those who agreed or strongly agreed was very high, at 94.2%. They agreed with the idea of sending medical students to join the pandemic prevention and control effort (92.1%) and are willing to participate in similar situations in the future (94.2%). The survey also showed that 39.7% of respondents believed that pandemic prevention and control was suitable for all medical students, 55.7% believed it was suitable for medical students who had received clinical training at healthcare facilities.

Table 5. Attitudes and perspectives of students when participating in COVID-19 prevention and control

Characteristics	Total	
	n	%
Enhancing medical students' awareness and responsibility towards the community		
Completely disagreeable	45	3.8
Disagreeable	3	0.3
Normal	20	1.7
Agreeable	720	61.3
Very agreeable	387	32.9
The willingness level to participate in similar situations		
Completely not willing	12	1.0
Not willing	5	0.4
Normal	57	4.9
Willing	520	44.3
Very willing	581	49.4
Perspective on sending medical students to participate in COVID-19 prevention and control		
Very disagreeable	26	2.2
Disagreeable	2	0.2
Normal	64	5.4
Agreeable	683	58.1
Very agreeable	400	34.0
Suitable group of medical students		
All medical students	467	39.7
Medical students who have been undergoing clinical training at medical facilities	654	55.7
Only final-year medical students	31	2.6
Medical students should not be allowed to participate in COVID-19 prevention and control	9	0.8

n: the number of survey objects; %: the percentage is calculated based on the total number of responses to the corresponding questions

3.4. Positive aspects and limitations in pandemic prevention efforts, and suggestions for improving the effectiveness of student activities in the community

Based on the survey conducted with two open-ended questions, we collected 366 comments regarding positive aspects, 410 comments regarding limitations in the pandemic prevention process, and 693 suggestions for pandemic prevention activities. Most of the comments regarding the positive aspects were as: (1) The participation of medical students helps reduce the workload for frontline healthcare staff and actively supports medical care for the community; (2) allowing students to gain practical experience, enhances their skills, and accumulate medical knowledge for future work; (3) Helping students develop teamwork skills, coordination between different parts of the healthcare system, and a sense of unity; and (4) enhancing the social responsibility of medical students and fosters positive evaluations and enthusiastic support residents.

However, there are limitations observed during the pandemic prevention process such as: (1) Lack of consistency in work and inadequate distribution of tasks; (2) Lack of regular medical equipment and supplies resulted in inadequate safety measures; (3) Lack of adequate food provisions for medical students affected their health and work efficiency; (4) Facing difficulties in their studies likely rescheduled classes and exams. The condensed schedule of classes and exams affected their study results.

Regarding the key suggestions from medical students regarding their participation in pandemic prevention efforts, the highest-ranked suggestion, accounting for 19.91%, highlights the crucial need for effective training before students engage in prevention activities. This training should equip them with comprehensive knowledge of the disease and the necessary skills to ensure effective measures and personal safety. Two other significant suggestions, accounting for 13.56% and 12.99% respectively, emphasize the importance of clear transparency in student support provisions and collaboration among local authorities, healthcare staff, and residents to enhance the effectiveness of students' efforts. Additionally, medical students emphasized the necessity of ensuring an adequate supply of medical equipment and facilities (10.25%) to protect both students and healthcare staff. They also stressed the importance of appropriate time management, workload distribution, and coordination among groups and teams (9.52%) to support task completion. The last two additional key suggestions, accounting for 6.2% and 4.47% respectively, highlight the need for comprehensive and timely plans from local authorities and a well-balanced arrangement for classes and exams from the university.

4. DISCUSSION

This study provides valuable insights into the experiences and perspectives of medical students who actively participated in pandemic prevention and control activities in Vietnam. The survey data revealed that most medical students expressed satisfaction with the preparation and assurance measures prior to their engagement in pandemic prevention. Especially, two aspects, namely "Specialized training and knowledge preparation" and "Ensuring safety equipment in practice," received high ratings, with only 2.6% and 5% expressing dissatisfaction, respectively. The results demonstrate thorough preparation and attention given to the safety and accommodation of students during their involvement in the pandemic response.

The collaboration between medical students and healthcare staff, local authorities, and patients was rated positively. These demonstrate the effectiveness of coordination and teamwork in response activities. Communication skills, working effectively in teams as well as the ability to interact and converse with patients play a crucial role in the medical profession. In the academic environment, although many students have participated in clinical education, their experience with real-life encounters and practical exposure remains limited. Medical students collaborated closely with relevant parties indicating that participation in pandemic prevention was a valuable experience for medical students to develop essential soft skills. This experience helps them gain confidence and competence when interacting with patients in their future work.

In addition, the engagement of medical students had a positive impact on reducing the burden on the healthcare system, providing prompt patient support, and alleviating patient anxiety, as reinforced by the high agreement rates according to the report. This emphasized the valuable role of medical students in the pandemic response, contributing to the overall success of the efforts in Vietnam.

Medical students reported reinforcing and acquiring knowledge and clinical skills, as well as developing communication and teamwork abilities. These findings aligned with previous research highlighting the positive impact of practiced experiences in emergency situations on medical students' education and professional development (Tran et al., 2020; Domaradzki, 2022). The practical exposure to real-world healthcare challenges during the pandemic provided valuable learning opportunities. Furthermore, the participation of medical students in pandemic response activities fostered a sense of awareness and responsibility toward the community. The involvement of students in such efforts not only benefits the healthcare system but also cultivates a sense of social responsibility and civic duty. The high level of agreement among the medical students regarding the suitability of their participation and their willingness to engage in similar situations in the future further emphasizes their positive attitude towards these activities.

However, medical students highlighted several key limitations related to pandemic prevention and control efforts. Due to the urgent nature of community-based pandemic response with a large number of patients, coordinating and assigning tasks often faced difficulties, resulting in the improper division of workload. To facilitate effective student participation in pandemic prevention, several measures were suggested by medical students. Firstly, comprehensive training is necessary to equip students with knowledge about the disease and the skills needed to ensure their work's effectiveness and personal safety. Secondly, transparent student support provisions are crucial to provide clear guidance and assistance. Thirdly, collaboration among local authorities, healthcare staff, and residents is vital to enhance the students' efforts. Fourthly, ensuring an adequate supply of medical equipment and facilities is essential for infection prevention. Fifthly, proper time management, workload distribution, and coordination among teams are necessary to support each other in completing tasks. Sixth, providing meals for students is vital for their health and work performance. Seventh, local authorities should develop comprehensive and timely plans, including information on locations and working schedules. Finally, the university should arrange classes and exams in a balanced manner to avoid overwhelming schedules that could adversely affect students' academic performance.

This study has a limitation which only examines medical students from limited number of medical universities in northern Vietnam. Therefore, the findings may not provide a comprehensive and representative view of the situation. However, the strength of this study is to conduct the survey on medical students, who are frontline people directly involved in pandemic prevention, providing an objective perspective from those on the ground. Moreover, the positive experiences and perspectives of medical students highlighted in this study have implications for policymakers and educators. They reinforce the importance of involving medical students in pandemic prevention and control efforts and provide a strong basis for collaboration between healthcare and academic institutions. By harnessing the potential of medical students and fostering their skills, knowledge, and sense of responsibility, healthcare systems can be better prepared to respond to future public health emergencies.

5. CONCLUSION

Medical students in Vietnam played a crucial role in COVID-19 prevention and control efforts. They effectively supported alleviating pressure on the healthcare system. Participation in these activities also provided valuable learning experiences for the students, enhancing their knowledge, skills, and sense of responsibility. Overall,

involving medical students in the pandemic response proved beneficial and should be considered in future public health emergencies.

ACKNOWLEDGEMENT

We are grateful to all students that voluntarily participated in this study.

CONFLICTS OF INTEREST

This work has no funding source. The authors declare that there are no conflicts of interest related to this work

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