

Student Volunteers' Contributions to Public Health Services during COVID-19: Evidence from Vaccination Support, Protocol Supervision, and Hospital Assistance within MBKM Context

Dwi Linna Suswardany^{1,2*}, Muhtadi³, Ambarwati³

¹Public Health Department, Faculty of Health Science, Universitas Muhammadiyah Surakarta, Indonesia

²Chronic Disease Research Center, Universitas Muhammadiyah Surakarta, Indonesia

³Directorate of Research, Community Service, Publication and Intellectual Property Center, Universitas Muhammadiyah Surakarta, Indonesia

How to cite: Suswardany, D. L., Muhtadi, M., & Ambarwati, A. Student Volunteers' Contributions to Public Health Services during COVID-19: Evidence from Vaccination Support, Protocol Supervision, and Hospital Assistance within MBKM Context. *Jurnal Kesehatan*, 19(2), 157-173. <https://doi.org/10.23917/jk.v19i2.13246>

Article Information

Article History:

Submission: 9 October 2025

Revision: 30 August 2026

Reception: 30 August 2026

Keywords: Humanitarian projects, independent learning, independent campus, job skills, student volunteering.

ABSTRACT

Background: The COVID-19 pandemic created an unprecedented demand for public health services, and universities mobilized student volunteers to help meet these needs, yet few studies have evaluated this process. This study aims to evaluate the activities of student volunteers in the Humanitarian Project "Merdeka Belajar Kampus Merdeka" organized by the University of Muhammadiyah Surakarta (UMS) during the Covid-19 Pandemic. **Method:** This mixed-methods study assessed five COVID-19 humanitarian activities involving UMS student volunteers within an MBKM implementation context. We quantified implementation adherence using a structured scoring rubric and described respondent characteristics. Perceived health-service contributions and barriers were examined through thematic analysis (Braun-Clarke) of open-ended online survey responses from purposively sampled volunteers (n=24), with reporting aligned to SRQR. **Results:** Five activity types showed tangible service contributions: assistance with vaccinators and registration/IT, supervision of masking and distancing at polling sites, and non-clinical hospital support enabling task-shifting. Perceived benefits centred on smoother patient flow and operational efficiency. However, MBKM implementation adherence was modest (22.2-50%) and constrained by unclear SOPs, limited supervision, and role ambiguity. However, students experienced an increase in soft skills during the event. **Conclusion:** Student volunteers added public-health value by bolstering vaccination operations, promoting protocol compliance, and enabling task-shifting in hospital workflows.; clear SOPs, supervision, and monitoring are needed to enhance health impact and volunteer competency.

Corresponding Authors: (*)

Public Health Study Program, Faculty of Health Sciences, University of Muhammadiyah Surakarta, Indonesia

INTRODUCTION

The Covid-19 pandemic and Indonesia's natural disaster-prone conditions are two crucial issues that need to be addressed. As of September 30, 2022, there were 6,714,802 confirmed cases of Covid-19, with 97.3% recovered, 0.4% active, and 2.4% deceased (Covid-19 Dashboard, 2022). In addition to threatening physical and mental health, this pandemic also has an impact on the world of education (Indrawati, 2020; Aji, 2020) and reducing the nation's economic growth (Nasution et al., 2020). This adverse effect spreads from the national, sectoral, and business levels (Hadiwardoyo, 2020) to Micro, Small, and Medium Enterprises (Sugiri, 2020). In addition, according to the Indonesian Disaster Data and Information (DIBI), from 2010-2020, there were more than 28,000 disaster events in ten years. The number of killed, missing, injured, suffering, and displaced is more than 40 million, plus other losses, such as damage to homes and public facilities (BNPB, 2021).

Universitas Muhammadiyah Surakarta (UMS) is located in Central Java, which is the province with the highest probability of disasters in Indonesia in the 2010-2020 period (Apriadi et al., 2022) and occupies the third highest position at the national level in the number of confirmed cases of Covid-19 (Covid-19 Task Force, 2021). The Covid-19 pandemic and various types of disasters in Indonesia threaten human security (Bahtiar et al., 2021) or non-military threats that have an impact on national security (Yulianto et al., 2021). Therefore, it requires the attention of the entire nation, the government, the private sector, and all levels of society, including universities, as a form of shared responsibility, including UMS. This commitment also reflects Muhammadiyah's vision of holistic character education (Risman & Asman, 2022) that integrates humanitarian values and civic engagement.

Universities are very important in disaster management, including handling the Covid-19 disaster. During the pandemic, universities followed the government's recommendations in implementing health measures (health protocols) according to the dynamics of Covid-19 conditions at the national and regional levels, developing knowledge, and empowering the community to help break the chain of Covid-19 transmission (Haris et al., 2021). Djalante et al. (2020) recommend voluntary action considering that the government will be more successful in tackling the pandemic if various parties help it. Student volunteers have a high role in disaster management (Lanni, 2019). A systematic review of 37 studies from 1996 to 2021 revealed that 68.4% of students (weighted average of 7 studies, $n=2911$ medical students, $SD=21.7\%$, $range=26.7\%-87.8\%$) were willing to volunteer during both pandemics and disasters. Based on the same systematic review, students' knowledge of disasters and pandemics and their role as volunteers is still relatively low, and the researchers suggest that policymakers, the institutions where volunteers work, and universities develop infrastructure and provide education and training to facilitate student volunteering (Byrne et al., 2021).

The "Merdeka Belajar Kampus Merdeka" (MBKM) program, which translates as the Merdeka Learning Merdeka Kampus Merdeka Program, launched in early 2020 by the Ministry of Education and Culture of the Republic of Indonesia, has facilitated and appreciated the role of students as volunteers. The Humanities Project of the MBKM program aims to prepare excellent students who uphold human values in carrying out tasks based on religion, morals, and ethics; as well as train students to have social sensitivity to explore existing problems and contribute to providing solutions according to their respective interests and expertise (Directorate of Belmawa, 2021). In addition, many studies have proven the benefits of volunteering, both for students and universities (Khairani et al., 2022), as well as for the community (Morris et al., 2020) or other stakeholders such as Non-

Governmental Organizations working with universities (Taylor et al., 2018), and even benefiting students, universities, and stakeholders simultaneously (Haski-Leventhal et al., 2020).

A study that used the Randomized-Controlled Trial method to look at the effectiveness of weekly volunteering in adolescents proved that volunteering regularly can reduce the risk of cardiovascular disease, reduce systemic inflammation, lower total cholesterol, and treat obesity (Schreier et al., 2013). Other studies with diverse respondents, including student or adolescent respondents, explored increased resilience of volunteers working in post-disaster environments and increased resilience in affected communities (Miller, 2020). Volunteer activities can also increase gratitude, improve student welfare (Llenares et al., 2020).

In addition, other research shows that students who regularly participate in volunteer activities score higher on graduate attributes related to professional competence, communication skills, and social and ethical responsibility than students who engage in irregular volunteering or volunteer as beginners (Llenares and Deocarís, 2019). Although it seems that the positive impact of volunteering outweighs the negative impact that comes with it, the university and lecturers who supervise student volunteers at MBKM Humanitarian Project need to pay attention to the negative impacts that arise, such as the risk of physical and spiritual pain, especially Post-Traumatic Stress Disorder (PTSD). Such negative impacts occur on volunteers for disaster events, both natural disasters and other disasters such as accidents, bombings, etc. (Pormar, 2015).

Although there is quite a lot of research related to student volunteerism in humanitarian projects, there is a large knowledge gap about the phenomenon of students' roles as volunteers in humanitarian projects related to MBKM program policies. Currently, research published in peer-reviewed journals and related to the topic of student volunteering in humanitarian projects in Indonesia is only limited to the analysis of motivation to volunteer based on the level of knowledge (Sari, 2020), the analysis of the determinants of motivation to become a student volunteer (Adella et al., 2021), the analysis of the influence of educational simulations and disaster management on student volunteers for disaster preparedness (Ambarika, 2016), the character of student volunteers, and student-based disaster management (Cahyono, 2014).

As of December 24, 2022, there has been no research evaluating the benefits and barriers of the Humanitarian Project in the MBKM program published in peer-reviewed journals. Meanwhile, the published papers are limited to the analysis of student knowledge, perceptions and preferences, activity levels, and the impact of the MBKM program (Kusumawati et al., 2021; Rahman, 2021) or a review of the descriptive literature on the prospects of sharia philanthropy as part of humanitarian projects in the MBKM program (Khalilah, 2022), students' perceptions of the benefits of the MBKM internship program at Islamic Finance Institutions for humanitarian projects or sharia philanthropy (Makhrus et al., 2022), and a descriptive report on the process of raising funds for earthquake victims as a humanitarian project in the MBKM program (Debora and Deca, 2022).

Therefore, to fill the existing research gap, this article aims to evaluate the implementation of volunteer activities in the Humanitarian Project during 2020-2021 related to Covid-19 pandemic prevention/protocols, mitigation, and response among students at University of Muhammadiyah Surakarta from both health and non-health faculties. The sub-objective of this study was to analyze the benefits and barriers of student volunteering to humanitarian projects and their policy implications for relevant public health service stakeholders.

LITERATURE REVIEW

1. Community Engagement and Evidence-Based Interventions to Increase Vaccination

Recent syntheses reinforce that community engagement (CE) and pragmatic demand- or access-side measures, such as home visits, reminder/recall via letters, SMS or phone, and provider-support strategies, consistently increase vaccination coverage among vulnerable populations. A systematic review and meta-analysis by Xie et al. (2024) reported significant improvements in vaccination uptake in both pre-post (rate difference [RD] 0.34; 95% CI 0.21–0.47) and between-group comparisons (RD 0.18; 95% CI 0.07–0.29), with larger effects when community engagement intensity was high (RD 0.49). Complementing this, a rapid overview of 23 systematic reviews by Norman et al. (2024) found strong evidence for person-to-person communication and reminder/recall systems, and highlighted home-visit outreach as particularly persuasive in underserved contexts. Programmatically, these findings justify student volunteers' roles in education, service navigation, and vaccination-site operations as levers with clear public-health relevance.

2. Strengthening Service Capacity via Vaccine Champions and Community-Based Clinics

At the service front line, train-the-trainer and “vaccine champion” models show measurable gains in confidence and intent to vaccinate. A mixed-methods RE-AIM evaluation in Fiji demonstrated that training health workers and community influencers substantially improved communication self-efficacy and increased community vaccination intent from 41% to 83% after dialogue sessions (Kaufman et al., 2024). Operationally, qualitative evaluation of a community-based mass-vaccination clinic in Canada documented mobilisation of ~600 volunteers, peak throughput of approximately 700 injections per day, and four success drivers: a collaborative model, mobilisation of local knowledge networks, logistical flexibility and autonomy, and volunteers as strategic assets (Gaudet et al., 2024). These insights align with student volunteer contributions described in this manuscript (registration/IT flow, non-invasive clinical support, and prevention education) and indicate how structured training plus community partnerships can translate into tangible gains in public-health service delivery.

3. Targeted Vaccination Implementation and System-Level Determinants

Ensuring equitable coverage requires targeted vaccination strategies underpinned by implementation science. A qualitative study in Greater Manchester identified five determinants of successful implementation, which were integrated working, robust data and monitoring, adequately resourced population/community engagement, infrastructure and resourcing, and coherent policy and messaging (Bradley et al., 2025). These determinants underscore the need for standard operating procedures, supervision, and formalised partnerships to function as implementation scaffolding that enables, rather than eclipses, health outcomes. In Indonesia's context, alignment with programmatic frameworks (e.g., MBKM) should therefore be positioned to support safe non-clinical task-shifting, community engagement, and the primacy of measurable public-health indicators (coverage, protocol compliance, and service throughput).

METHOD

This research uses qualitative and quantitative approaches. A quantitative approach was used to evaluate the implementation of the Humanitarian Project Mechanism by setting assessment scores for five Humanitarian Project activities related to measures to prevent, mitigate, and contain the Covid-19 pandemic. Descriptive statistical analysis was also carried out on respondent characteristic data. A qualitative approach was carried out by analyzing primary data thematically from an online survey using open-ended questions.

The respondents of this study are UMS students from various faculties who have participated in one of the Humanitarian Projects. Each program is announced and coordinated by UMS or searched independently by students.

Respondents were selected using the Purposive Sampling Technique. The criteria are students who participate in humanitarian projects for Covid-19 prevention/health protocols, mitigation, or detention measures and agree to become respondents. Recruitment is carried out online through a Whatsapp group or direct message to students. There is no coercion in becoming a respondent, and respondents can decline the invitation. Respondents get a small incentive in the form of mobile phone credit. The researchers are aware that incentives may affect respondent participation, but because the sum of incentives is likely to be small, this may not cause respondents to participate in the study for incentive reasons. Thus, selection bias may not arise due to these incentives (Felderer et al., 2017). Twenty-four students are willing to be respondents from health and non-health faculties at UMS.

The open-ended questions in the online survey aim to explore the implementation of volunteering projects and student volunteer perspectives on the benefits and barriers/challenges during volunteering for Humanitarian Projects. Open-ended questions consist of two core questions, namely:

1. What benefits do you get from volunteering for a humanitarian project, whether in academics, soft skills, hard skills, or from a spiritual perspective and other aspects?
2. What are some of the obstacles/obstacles/challenges you face while volunteering for humanitarian projects?

Online survey responses were analyzed thematically using six steps based on the Braun and Clarke (2006) approach: a. familiarize themselves with the data, b. develop initial code, c. search for themes, d. review and approve codes and themes, e. define and name themes, and f. create reports.

The results of this research were presented at the MBKM national research meeting organized by the Ministry of Education and Culture. Because the answers to open-ended questions in surveys are often insufficient for in-depth analysis (LaDonna et al. 2018), in this study, the coding focused on the theme of 'semantics' (Braun and Clarke, 2006) and did not search for or analyze hidden meanings, which underlie respondents' answers.

Coding is done manually without using an app because coding for open-ended questions is usually done manually. In addition, a current study shows that statistical models produce higher rates of coding errors than manual coding by humans, and both methods tend to make similar types of coding errors (He and Schonlou, 2021). To improve the quality of this article, the authors compiled this paper following the International Standard for Qualitative Research Reporting (SRQR) created by the editors of the Equatorial Network (O'Brien et al., 2014).

RESULTS AND DISCUSSION

There are various student volunteer activities in humanitarian projects coordinated by UMS or independently sought by students. The study describes only five of those humanitarian projects:

a) Behavior Change Education Program run by the Ministry of Education and Culture of the Republic of Indonesia in collaboration with the national Covid-19 Task Force.

The program lasts for three months and aims to: identify people's behavior in the New Normal era, increase public awareness of 3M (maintain distance, wear masks, and wash hands), and provide brief but precise knowledge about Covid-19 to people in public places such as parks, markets, malls, and in their neighborhoods. In addition, the

program uses a hybrid approach that allows students to promote Covid-19 prevention measures through offline and online methods.

A total of 15 students from the Faculty of Health Sciences UMS were involved in this program and 60 students from other universities in Surakarta. Nationwide, thousands of students volunteer in this program. Students participate in a series of relevant trainings before and during the program. Students are also provided with masks, hand soap, hand sanitizers, and disinfectants provided by the Ministry of Education and Culture and from community donations entrusted to students to be distributed to the community.

b) Information Dissemination and Communication, Muhammadiyah Covid-19 Command Center (MCCC)

The National Council of Muhammadiyah helped the government overcome the pandemic by establishing MCCC, which was tasked with coordinating the implementation of Covid-19 programs and actions. One of the programs is to break the chain of Covid-19 transmission through online education on MCCC social media. The Humanitarian Project student volunteers worked under MCCC's Information Dissemination and Communication Program Division for about three months. There were 24 students from UMS volunteers for this activity from several faculties.

c) Covid-19 Vaccination Programme at UMS

A total of 12 students from the Faculty of Health Sciences UMS were involved in this student volunteer program. According to their respective fields, students help the program committee to help vaccinator officers, communicate through the media, handle information technology and data management, registration, and printing vaccination cards.

d) Supervisor of Covid-19 prevention measures during district/city elections

This program is run by the Indonesian Public Health Association Surakarta Branch to help the Surakarta City Health Office prevent the spread of Covid-19 during the election. Thirty-two students from the UMS Public Health Study Program voluntarily monitored the practice of Covid-19 prevention measures by the community and the election committee in December 2020. Before delivering the assignment, student volunteers received short training related to the program.

e) Health Assistant at Dr Moewardi Hospital

It is a humanitarian activity that students strive for independently. A student from the Department of Public Health, Faculty of Health Sciences, UMS, volunteered with nurses and medical doctors at the hospital for about three months. Such tasks include preparing medical equipment, work clothes, food, and Personal Protective Equipment (PPE) for nurses and doctors, delivering clean or dirty clothes from or to the laundry department, moving patients from different areas of the hospital, etc. The duties are dynamic and based on the needs of the paramedics during the day.

Analysis of the Conformity Score of the Implementation Mechanism of the Humanitarian Project

The researchers assessed the Humanitarian Project Implementation Mechanism based on the MBKM Guidelines (Directorate of Belmawa, 2021). The mechanism for implementing humanitarian projects is then given a score of 1 if it follows the MBKM Guidelines and 0 (zero) if it does not follow the guidelines or is not in the guidelines. In summary, the percentage and score of the suitability of the humanitarian project implementation mechanism are divided into three assessments, namely the assessment of the Implementation Mechanism that has been carried out by UMS, MBKM Partners, and

Students. The exact value of the results of this assessment process can be seen in Appendix 1 as an additional file of this paper.

Table 1 shows that the five types of MBKM activities of the Humanitarian Project whose implementation mechanism follows the 18 items required by the new MBKM Guidelines are in the compliance range of 22.2% to 50%. However, there are still many activities where the implementation mechanism is not in accordance with the recommendations of the MBKM Guidelines. For example, in the Higher Education section, the coordinator of each program at UMS is only around 12.5%-50%, which follows the implementation mechanism.

Table 1. Percentage of Conformity and Value Assessment of the Mechanism for the Implementation of Humanitarian Projects at the University of Muhammadiyah Surakarta

Standard Humanitarian Project Implementation Mechanism (18 items)	Types of Humanitarian Project Activities									
	Behavior Change Education		Information Dissemination and Communicati on		Covid-19 Vaccination Program		Covid-19 Precautions Supervisors		Hospital paramedic Health Assistant	
	Score and percentage of conformity of the MBKM mechanism of humanitarian projects									
	Score	%	Score	%	Scor e	%	Scor e	%	Scor e	%
1. University (8items)*	4	50	1	12.5	3	37.5	2	25	1	12.5
2. Partners (5items)**	3	60	2	40	2	40	2	40	2	40
3. Students (5items)***	2	40	2	20	0	0	0	0	0	0
Entire	9	50	5	22.2	5	27.8	4	22.2	4	22.2

*Assessment items for universities include: establishing MoUs with partners, providing supervisors, providing notebooks, final evaluations, transfer of credits, ensuring continuity, providing technical guidance, reporting

**Assessment items for partner institutions include: assurance in accordance with the MoU, guaranteeing rights and safety, supervision, monitoring & evaluation, credit recognition scoring

***Assessment items for students include: Receiving academic advisor approval, having a supervisor, completing a notebook, completing a report, publishing and presenting a report

The highest percentage of conformity is the Behavior Change Education activity which is a three-month activity with the most types, namely coordination, training webinars, education in the field/offline and online, as well as the distribution of Covid-19 prevention tools and materials, monitoring and reporting through the *Peduli Lindungi* application. This activity also has a high percentage of implementation suitability between Partner Institutions (60%) and Students (40%). However, the suitability of the implementation mechanism for students who are not in these five Humanitarian Projects is that they are not required to publish or present reports, and there are no MoUs and agreements regarding the implementation, assessment, and reporting processes.

Perceived Benefits

Thematic analysis of open-ended survey responses identified two overarching benefit domains: those experienced by students themselves and those accruing to other stakeholders, including the community, government, and partner institutions (Table 2).

Table 2. Perceived Benefits of Being a Student Volunteer in a Humanitarian Project

Benefits for	Theme	Sub-theme	Details
Volunteers	Essential Skills Improvement (Job Skills)	Hard Skills	Create educational content, new knowledge, skills using medical devices,
		Soft Skills	Decision Making Skills, Problem-solving Skills, Leadership, Teamwork, Creative and Innovative Thinking, Critical Thinking, Networking, Public speaking, Communication, Time management, Character strengths: faith and piety, patience, sincerity, courage, gratitude, confidence, confidence, respect, agility, trustworthiness, discipline, solidarity, challenging mentally and physically, patriotism, agility, honesty, fairness, not lazy, responsive to change, improving friendship, helping each other,
	Rewards	Academic	Credit conversion, Certificate,
Community	Covid-19 Prevention	3M, promotive, and other prevention	Changes in knowledge about Covid-19 and its prevention, Changes in attitudes, Changes in behaviour
Partner Institutions	Dr Moewardi Hospital	Doctors, nurses, and other healthcare workers in hospitals	Facilitating work that does not require special expertise of medical personnel so that health workers can provide services to Covid-19 patients and other patients faster
	MCCC	Information Dissemination and Communication Division	Facilitating Promotional and Prevention Content Creation Work
	Government	Surakarta Regency Health Office, Surakarta City Government	Breaking the chain of transmission, reducing the potential danger of Covid-19

Most students wrote that there are many benefits to soft skills, as shown in the following snippet of their answers:

"On the academic side, we are indirectly required to understand the problems that we will socialize to the community, in this case, namely Covid 19, so whether we like it or not, we must understand so that when we are asked in the community, we can channel this knowledge." (R12).

"Courage certainly increases as a result of the decision to volunteer." (R3).

"The benefit I get is that I have valuable experience, and I rarely find it. Also, I can see the state of society which makes me more grateful." (R5).

Other benefits are reflected in the following student quotes:

"In addition, following these volunteers can convert credits in a particular course". (R7).

"Instilling a sense of love for the nation and patriotism according to one's ability." (R15)

"Improve your intuitive and patient attitude." (R6).

"The existence of an official certificate and a report showing that we as official volunteers have carried out or participated in humanitarian activities can be used as an attachment to the requirements to participate in the scholarship portfolio or job application." (R7).

Perceived Barriers

In addition to the reported benefits, students also described a range of practical challenges encountered while volunteering. These barriers emerged across individual, community, partner, and policy levels and help explain variability in implementation quality. Table 3 summarises the key obstacles reported by student volunteers and the recommended follow-up actions.

Table 3. Perceived Barriers Encountered by Student Volunteers in Humanitarian Projects and Proposed Mitigation Strategies

Barriers/Shortcomings/Challenges			Proposed Strategies
	Theme	Sub-theme	Details
Source from within volunteers			
Volunteer	Difficult time management	It is not easy to synchronize the time of online activities with volunteers, the difference in volunteer lecture hours	Schedule settings are dynamically created according to the available time taking into account the workload. Coordination and schedule matching is improved. Monitoring and evaluation of the process is carried out with an accompanying lecturer
	Lack of discipline, lack of trust, leadership, and teamwork	There are no binding rules, sometimes it makes them uncooperative, burdens the work on one person, doesn't adhere to the timeline because there are no deadlines and binding rules,	Create rules and deadlines listed in the manual. The supervisor carries out monitoring, evaluation, and feedback for improvement.
	Language	The problem is that not being able to speak Javanese/regional languages with dialects of people outside Solo is difficult to understand,	Training to improve volunteer skills, including cross-cultural lectures.
	Collaborate with new people	Adaptation of requests many times due to frequent work with new volunteers,	
Source from outside volunteers			
Community	Different perceptions of student volunteer functions	Expect student assistance in the form of money and goods	Improve students' communication skills with training and activity guidelines related to basic skills that must be mastered before entering the field. Implementing SOPs for self-identification, explaining the

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Barriers/Shortcomings/Challenges			Proposed Strategies
Theme		Sub-theme	Details
<i>Source from within volunteers</i>			
			purpose of activities at the beginning of education
	Rejection of education	Just not wanting to, busy, feeling misunderstood because they didn't go to school, asking for permission with the date, time, and location of the activity (especially), Afraid of getting information about Covid-19, Involved in hoaxes: not believing in Covid-19, Covid from kyai, etc., considered asking for donations	Provide persuasive communication skills, both verbal and gestural, that are essential for persuasion. Students are provided with learning resources according to the needs of the Humanitarian Project
Partner	Information Technology	Reporting on the Lindungi Peduli page is sometimes hampered	Report to partners immediately and monitor improvements
	Guidelines and rules for the implementation of activities	The work desk is unclear, the distribution of workload is uneven, there is no guidance, sometimes without direction, communication is not smooth, there is no feedback, and the target numbers are not right, lack of direction, Vaccination implementation dates often change and disappoint vaccination registrants,	Adjust the process of the Humanitarian Project Implementation Mechanism with the MBKM Guidelines so that quality types of activities can be designed, including a clear guidebook
	Excessive busyness of health workers	Volunteers do work outside of competence, namely handling patients over the phone who want to contact the nurse / who knows the answer to the patient's questions is the nurse on duty	
Government	Community Activity Restrictions Implementation Policy (PPKM)	The educational process cannot have many people at once due to the prohibition of crowding. Round-trip transportation to the location became further due to PPKM conditions	

Lack of clarity of activities, absence of unclear activity guidelines or guidelines, uncertainty of activities, and absence of feedback from partners or supervisors are sources of obstacles/challenges in the implementation of humanitarian projects felt by most of the student volunteers in this study.

"Lack of coordination and management of the volunteer team. We were only introduced at the beginning of the meeting, but there were no clear guidelines about this volunteer system. Content delivery schedules aren't made with certainty either; Follow-up is minimal, so the volunteers become confused and passive over time. It is hoped that in the future, partner teams and volunteers can hold more frequent meetings even though it is online and a clear CP is made for each team so that if you want consultation, there will be no confusion." (R2)

"During the early stages of implementation, the dates were unclear, and when it came to public outreach, there was not enough briefing, so many relied on just one person." (R5)

"It is necessary to improve the clarity of information, coordination and implementation per task area (in terms of targets and number of targets) so that volunteers are not confused in their implementation." (R9)

The implementation of Humanitarian Projects based on the MBKM Guidelines can improve the quality of student volunteer experience and increase the number of student activities from humanitarian projects. In addition, if the Humanitarian Project is carried out according to MBKM guidelines, students are expected to be able to provide solutions to problems faced in the field by using better quality solutions from the presence of supervisors and clarity of tasks and activities. Although one of the challenges in many humanitarian activities is the commitment of time and other resources, both the commitment of students and the assistance of lecturers as supervisors are very significant and need to be pursued. Mentoring techniques by active lecturers (e.g. by role-playing) and feedback and evaluation of student volunteer competencies have an impact on increasing compliance with activity implementation procedures and determination to achieve the goals of humanitarian activities (Passeti et al., 2019).

In a sample of research that is different/not as student volunteers, qualitative research shows that when there is an even distribution of power between students and supervisors in the field, this kind of relationship is more effective in improving students' skills/competencies that are to be achieved and increasing students' ability to initiate ideas to overcome problems in practice (Vassos et al., 2017). For this reason, training of supervisors for the MBKM Humanitarian Project Program is also needed to ensure that the program's goals are achieved.

However, currently there is no research related to the role of supervisors in the MBKM program and the phenomenon of supervision or the relationship between student volunteers and supervisors of the MBKM program. Including whether the Humanitarian Project can be achieved according to the Ministry of Education and Culture's target if there is or is no supervisor. It also includes research on training and technical guidelines in student volunteer satisfaction and the achievement of activity targets, as mentioned in the MBKM guidelines of the Ministry of Education and Culture. Research in this area is still a gap and is open to future exploration.

Humanitarian Project activities at UMS in the form of Covid-19 Vaccination Volunteers and Health Protocol Supervisory Volunteers in the Surakarta Regional Elections have a shorter duration and have fewer types of work than the other three activities. So, it is possible that the committee does not need a supervisor for every student. In addition, if the activity guidelines are complete and appropriate, the existence of mentors or facilitators from MBKM partners will meet the needs of student volunteers in these activities. Therefore, adequate humanitarian guidelines are needed.

The study also shows the need to classify humanitarian projects considered for credit conversion according to the type, duration, and complexity of the activities. Activities that are less type and shorter duration certainly cannot be equated with more complex and extended activities.

Currently, there is also no research on the role of partners in MBKM activities, including in the Humanitarian Project, so it is an input for future researchers to analyze the role of MBKM Partners both qualitatively and quantitatively in achieving the competency targets of student volunteers in the Humanitarian Project. It is also necessary to pay attention to activities that arise due to emergency conditions, especially with the lack of manpower, such as handling Covid-19, the ethics of making MoU and the implementation of the Humanitarian Project mechanism based on MBKM guidelines are carefully considered. The urgent needs of partners during humanitarian projects must be prioritized.

Benefits of Humanitarian Projects Based on Students' Perspectives

Student humanitarian work inherently requires sustained interaction with patients, communities, and interprofessional teams; unsurprisingly, participants reported gains in transversal “soft skills” (e.g., communication, teamwork, initiative) that are transferable to professional practice. Prior evidence indicates that volunteering can cultivate such competencies and personal attributes valuable to careers (Khasanzyanova, 2017). In our context, these competencies accompanied tangible public-health contributions (support for vaccination, protocol supervision, non-clinical hospital assistance), suggesting that skill development emerged alongside service benefits rather than as a stand-alone goal.

Based on the responses of other students in the current study, there was only one student who each stated the benefits of volunteering for the Humanitarian Project in the form of credit conversion and certain personal characteristics, as well as the benefits of improving skills that are useful for applying for jobs (employability skills).

For humanitarian projects, this is possible, given that the main motive for volunteering is the humanitarian element. However, related to the MBKM program, only one student in the current study mentioned the conversion of credits as a benefit in humanitarian activities that needs to be considered.

This could happen because students at that time did not know about the MBKM program with credit conversion or felt that the activities carried out in the program were not convertible. Therefore, increasing the socialization of MBKM needs to be intensified, including using peer social marketers such as MBKM alumni who are satisfied with humanitarian programs.

Student awareness of the benefits of being a humanitarian volunteer can be in the form of a portfolio of job applications submitted by students. There is an opportunity to conduct further research by following students from MBKM activities to get a job. Will they get better jobs than those who do not take MBKM, get jobs faster/be accepted for further study, or be more successful in entrepreneurship than students who do not take MBKM? If this is done, it can indicate whether the activities of the Humanitarian Project MBKM can increase the achievement of MBKM IKU 1 set by the Ministry of Education and Culture.

On the other hand, three of the five Humanitarian Projects in this study did not have a manual or a guideline for the implementation of volunteer tasks, let alone a guideline for activities that could measure the improvement of volunteers' employability (Table 1). Previous research has shown that proper guidelines for volunteer activities and initial training (appropriate for knowing the work skills gained from volunteering activities) can make it easier for students to evaluate whether or not these skills have improved while volunteering. The study also recommends indicators for assessing job skills in volunteers. Thus, as student volunteers equipped with clear guidelines for skill improvement (Green et al., 2020), the Humanitarian Project can be a more measurable bridge between volunteers and the world of work.

Barriers and Implementation Follow-up

These barriers are not only organisational but have direct implications for the continuity and quality of essential health services during crisis response. Implementation of student humanitarian projects was hindered by unclear operational standards, insufficient supervision, and fragmented partner coordination, which can compromise service safety and efficiency. Evidence from recent community-run vaccination programmes shows that clearly specified roles, reliable information flows, and cross-sector collaboration are essential to maintain smooth service delivery and protect volunteer well-being (Gaudet et al., 2024). Qualitative evaluations of targeted vaccination efforts in England also highlight the importance of integrated working and consistent monitoring to maintain equitable access and service fidelity (Bradley et al., 2025).

Another systemic gap was the absence of activity-specific manuals and competency indicators, which limited both supervision and self-assessment. Pandemic response research demonstrates that structured preparation of front-line intermediaries—for example, training health workers and community influencers as “vaccine champions”—improves communication self-efficacy and broadens implementation reach when paired with clear task expectations (Kaufman et al., 2024). Similar challenges have been documented among community health cadres in Africa, where vague role definitions and weak feedback mechanisms erode programme fidelity and responsiveness (Namuhani et al., 2024; Oliver et al., 2024).

To strengthen MBKM humanitarian activities as part of health emergency response, universities should co-develop with partners: (i) task- and duration-specific SOPs/role maps, (ii) a supervisor support routine with briefing and feedback cycles, (iii) core indicators tracking both service outcomes (coverage, adherence, patient flow) and volunteer competencies, and (iv) lightweight digital monitoring to support rapid course correction. These measures align with current implementation-science recommendations for sustaining health workforce surge capacity and ensuring safe, effective service during public health crises (Gaudet et al., 2024; Bradley et al., 2025).

This study analysed open-ended survey responses from 24 student volunteers using thematic analysis. Although the modest sample and single data source may limit thematic saturation and transferability, we applied systematic coding, peer review of themes, and clear audit trails to enhance trustworthiness. Future studies with larger, more diverse samples and multi-method data collection (e.g., focus groups, in-depth interviews, longitudinal follow-up) are recommended to confirm and extend these findings.

CONCLUSION

Student volunteers provided tangible public health support by strengthening vaccination operations, promoting protocol compliance, and enabling safe non-clinical task shifting in hospital workflows. However, implementation weaknesses such as unclear standard operating procedures, limited supervision and feedback, and the absence of competency-based manuals and indicators constrained programme fidelity and the learning value of volunteering. We recommend developing activity-specific standard operating procedures and role maps, establishing structured supervisory routines that include briefing, check-in, and debriefing, and creating a concise indicator set that tracks both service outcomes including coverage, adherence, and patient flow as well as volunteer competencies. Positioning MBKM requirements as practical implementation scaffolding rather than as endpoints can strengthen the safety and reach of public health interventions and, where appropriate, contribute to employability targets such as MBKM Key Performance Indicator 1 through clearly defined and assessable skill development.

ACKNOWLEDGMENT

We would like to thank the Secretariat of the Directorate General of Research and Technology of Higher Education, which provided funding for this research activity through the Funding Assistance for the Independent Learning Policy Research Program for the Independent Campus and Community Service Based on Research Results and Prototype Private Universities Number: 404/PPK/Kerma/PKS/2021. We would also like to thank all UMS volunteer students who have taken the time to become respondents to this research.

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