

Capstone for Impact Submission | GY2021

Project Title: Understanding Motivations behind Medical Student Involvement in COVID-19 Pandemic Relief Efforts

Student Name(s): Sanjana Prasad, Tiffany Bellomo, Julia Cartwright, Yibing Zhang, Lyna Azzouz, Deesha Bhaumik (Public Health PhD Candidate)

Advisor Names(s): Dr. Christian Vercler

If this project can be continued by another UMMS student, please include your contact information or any other details you would like to share here:

Summary (~250-500 words):

The AAMC guidelines in March 2020 called for the removal of medical students from the clinical space until further notice due to the COVID-19 pandemic.¹ Some medical schools graduated fourth-year medical students early to participate in pandemic relief,² but the potential role of other medical students was unclear. Many of my peers wanted to volunteer in some capacity and participated in M-Response Corps initiatives, but others did not volunteer for various reasons. I was interested in further exploring the reasons students across the country chose to volunteer or to not volunteer. I also wanted to understand how medical students felt about volunteering and whether they felt they had an obligation to serve in certain roles.

My team of students working on this project developed a survey to collect information about medical students from different parts of the country, to determine whether or not they had chosen to volunteer and in what capacity, to elicit the degree to which various factors influenced their decision, and to understand the degree to which they agreed with statements about their duty to serve as students and as physicians in various settings. The secure survey was distributed to 23 US allopathic medical schools that did not graduate students early, and 599 students participated. Our results showed that a majority of students volunteered in pandemic relief efforts and that in general, most students agree that clinical students should have the opportunity to participate in pandemic relief efforts. The main factor that influenced students' decision to not volunteer was concern for risk to themselves or to others. We hope that in the future, as the number of cases in the US are rising, institutions involve medical students and their viewpoints in decisions about their potential participation in pandemic relief efforts.

Methodology:

This research study was reviewed by the University of Michigan Institutional Review Board for Human Subjects Research and determined to be exempt under IRB #HUM00181078.

Student recruitment

Medical school student listserv administrators from 35 institutions were contacted via email between April and June 2020. The email included a detailed explanation of the study and a request to forward an email explaining how to voluntarily participate in the anonymous survey to the student listserv. Email information collected independently of survey responses would only be collected if the participant elected to receive a \$10 Amazon gift card, which was offered to the first 100 participants as an incentive. After a medical school

listserv administrator granted permission, a member of the study team or the listserv administrator emailed the medical student listserv the information on how to voluntarily participate in the anonymous survey. Twenty-three institutions distributed the survey to their medical school students.

Survey Creation

An anonymous online survey was developed using REDCap (2011), a secure, web-based survey application. The survey assessed the ways in which medical students were participating in COVID-19 pandemic relief efforts and their motivations. The survey was presented at the University of Michigan Center for Bioethics and Social Sciences in Medicine working group meeting, where specific feedback was provided on its content and format. The revised survey was then administered to 15 University of Michigan Medical School students who provided feedback on the clarity and readability of the questions. After another revision, the final survey was created and distributed to 23 schools.

Survey Topics

Survey questions included demographic questions (age, race, gender, year of medical school), multiple choice (yes/no) questions regarding specific volunteer involvement, and Likert scale 1 to 5 questions with 0 or 6 being does not apply.

Students were asked to rate a series of statements related to hypothesis-driven motivations concerning the decision to or to not volunteer in COVID-19 pandemic relief efforts. Students were also asked to rate their agreement with working in various risk settings during a pandemic in two stages of medical training: clinical student and physician. The survey can be found in the appendix.

Statistical analysis

Data analyses were conducted using R version 3.62 (r-project.org). Descriptive statistics were conducted using a Chi-Squared test for categorical variables and a one-way ANOVA for continuous variables. For the remaining analyses, Tukey's test was used to evaluate differences of the mean response for various questions of interest. Statistical significance was evaluated at $p < 0.05$.

Results:

Volunteer Activities

There were 599 participants in this study, 65.5% of whom self-identified as female and were an average age of 25.94 years (SD = 2.5). 42.6% had completed their core clerkships, 34.2% had not, and 23.2% were currently on core clerkships. Only 3.5% of students reported that their medical school had required them to participate in activities that aid in the COVID-19 pandemic response. Although 3.0% of all students did not have any available opportunities to volunteer, 67.6% of students indicated that they volunteered with non-curricular activities that aided in the COVID-19 pandemic response. Of these students who chose to volunteer, 79.5% of students did not work in patient-facing activities but rather chose to work remotely to support relief efforts. Interestingly, of the 20.5% of students who chose to volunteer in patient-facing capacities, 44.6% were working with patients who had confirmed active COVID-19 infections.

Motivations for Volunteer Activities

Results of students' rating of a series of statements related to hypothesis-driven motivations concerning the decision to or to not volunteer in COVID-19 pandemic relief efforts can be seen in Figure 1.

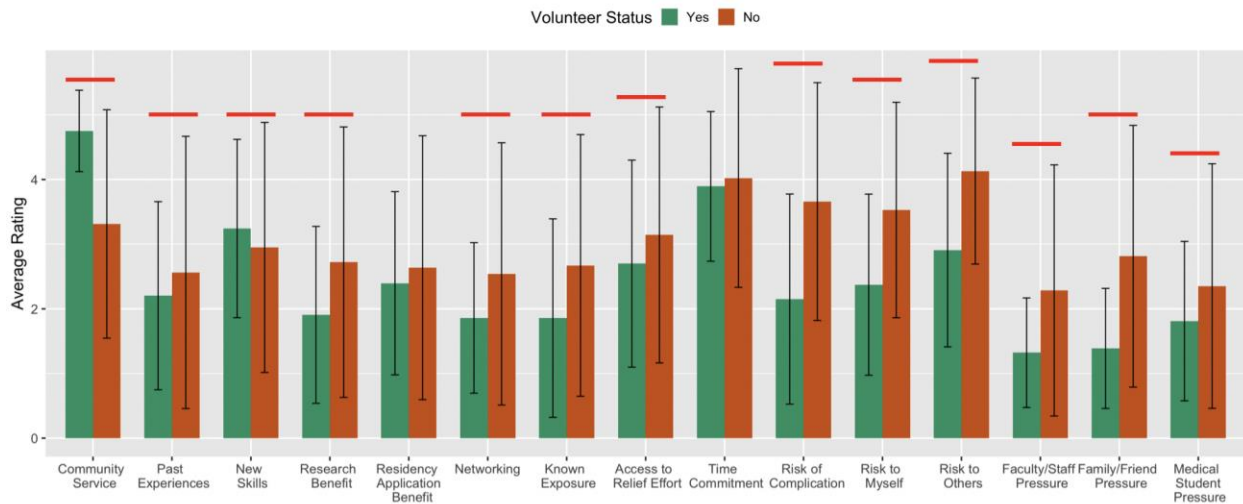


Figure 1. Average ratings to 15 questions pertaining to medical students’ motivation towards volunteering for COVID-19 efforts. Likert scale with 1 representing not a factor and 5 representing a primary factor in the decision to volunteer. Red lines signify a statistically significant difference ($p < 0.05$) between the volunteer statuses. Medical students who indicated there were opportunities available to volunteer ($n = 581$).

When the data is stratified by volunteer status of the student, students who volunteered indicated community service (mean=4.75 [SD=0.63], $p < 0.001$) and gaining new skills (mean=3.24 [SD=1.38], $p = 0.039$) were significantly greater factors in their decision than students who did not volunteer. Students who volunteered felt on average minimal pressure from faculty/staff, family/friends, and other medical school students (faculty/staff pressure: mean=1.32 [SD=0.85], $p < 0.001$; family/friends pressure: mean=1.39 [SD=0.93], $p < 0.001$; other medical school students pressure: mean=1.81 [SD=1.23], $p < 0.001$).

Students who did not volunteer indicated lack of research benefit, access to the relief effort, and COVID-19 related risks were significantly greater factors in their decision than students who volunteered (research benefit: mean=2.72 [SD=2.09], $p < 0.001$; access to the relief effort: mean=3.14 [SD=1.98], $p = 0.005$; risk of COVID-19 complication: mean=3.66 [SD=1.84], $p < 0.001$; risk of COVID-19 to myself: mean=3.52 [SD=1.67], $p < 0.001$; risk of COVID-19 to others: mean=4.13 [SD=1.44], $p < 0.001$).

Students who volunteered most frequently rated community service, new skills, and time commitment as a top 3 primary factor in their decision, while students who did not volunteer most frequently rated risk to others, time commitment, and risk to myself as a top 3 primary factor in their decision (Figure 2).

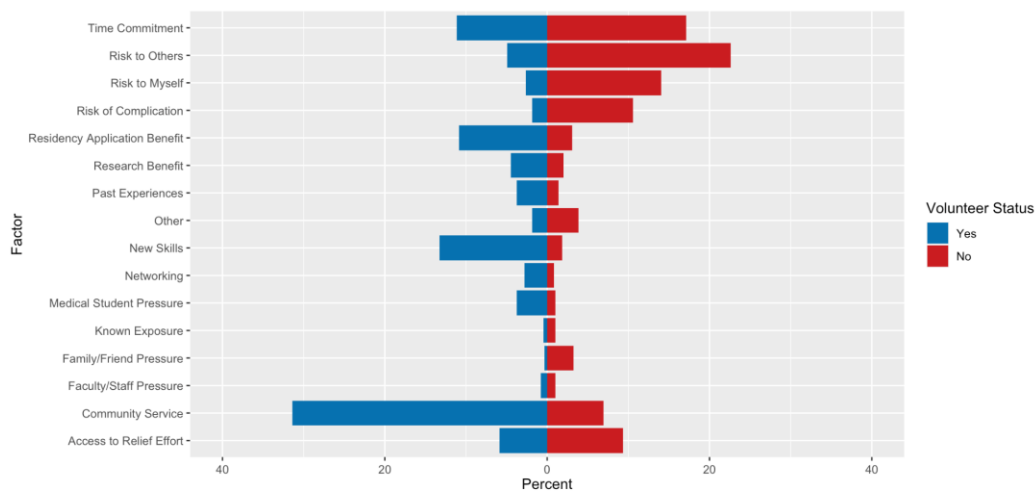


Figure 2. The frequency of each factor was ranked as a student’s top 3 primary factors in their volunteer decision. Medical students who indicated there were opportunities available to volunteer ($n = 581$).

Duty to Serve

Figure 3 shows the results from students' attitudes towards a choice or duty to serve in various risk settings during a pandemic as clinical students and physicians.

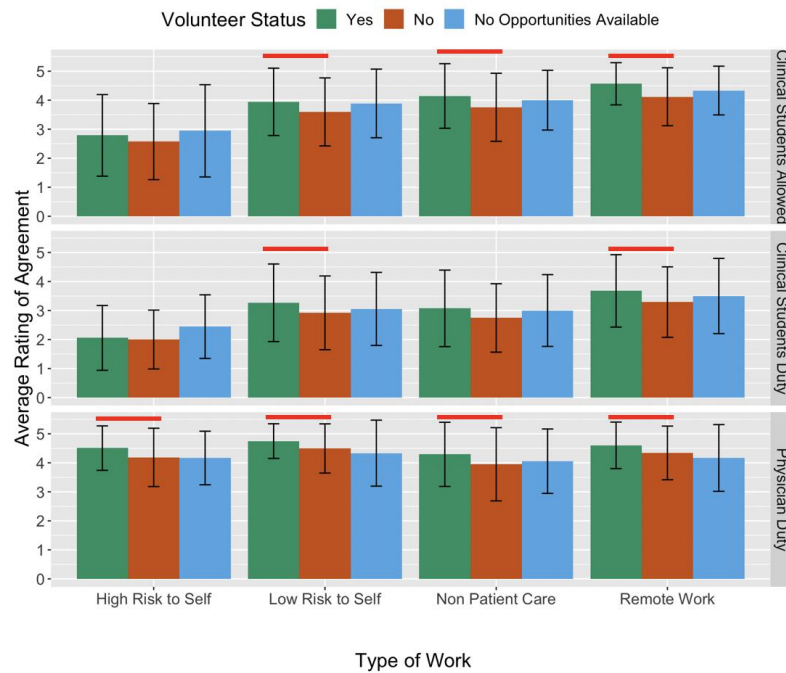


Figure 3. Medical students' average rating of agreement with working in various risk settings during a pandemic based on stage of medical training (A-C). Stratified by whether or not student volunteered during COVID-19 pandemic. Likert scale with 1 representing strongly disagreeing and 5 representing strongly agreeing with working in various risk settings. Red lines signify a statistically significant difference ($p < 0.05$) between the volunteer statuses. A. Should clinical students be allowed to work in these settings? B. Do clinical students have a duty to work in these settings? C. Do physicians have a duty to work in these settings?

Students who volunteered had a statistically significant higher average rating of agreement with the statement that clinical students should have the option to work in in-person patient care roles with a low risk of disease exposure, in-person non-patient care roles, and remote roles when compared to students who did not volunteer (Mean [SD]; low risk to self: 3.94 [1.16] vs 3.60 [1.17], $p = 0.002$; non-patient care: 4.15 [1.11] vs 3.76 [1.17], $p = 0.012$; remote work: 4.57 [SD=0.73] vs 4.12 [1.00], $p < 0.001$). Interestingly, students who volunteered also had a higher average rating of agreement with the statement that clinical students have a duty to work in in-person patient care roles with a low risk of disease exposure and in remote roles compared to students who did not volunteer (Mean [SD]; low risk to self: 3.27 [1.33] vs 2.92 [1.27], $p = 0.007$; remote work: 3.68 [1.25] vs 3.29 [1.21], $p = 0.012$). Further, students who volunteered had a higher average rating of agreement with the statement that they as future physicians have a duty to serve in settings of all risk levels compared to students who did not volunteer (Mean [SD]; high risk to self: 4.51 [0.77] vs 4.19 [1.01], $p = 0.011$; low risk to self: 4.75 [0.60] vs 4.50 [0.85], $p = 0.003$; non patient care: 4.29 [1.11] vs 3.95 [1.26], $p = 0.002$; remote work: 4.60 [0.80] vs 4.34 [0.92], $p < 0.001$). Students interested in primary care specialties agreed to a greater extent that physicians have a duty to serve in low risk settings and remote settings compared to radiology/pathology and other specialties, respectively (Mean [SD]; low risk to self: 4.72 [0.63] vs 4.47 [1.25], $p = 0.027$; remote work: 4.58 [0.80] vs 4.23 [1.03], $p = 0.049$) (Figure 4).

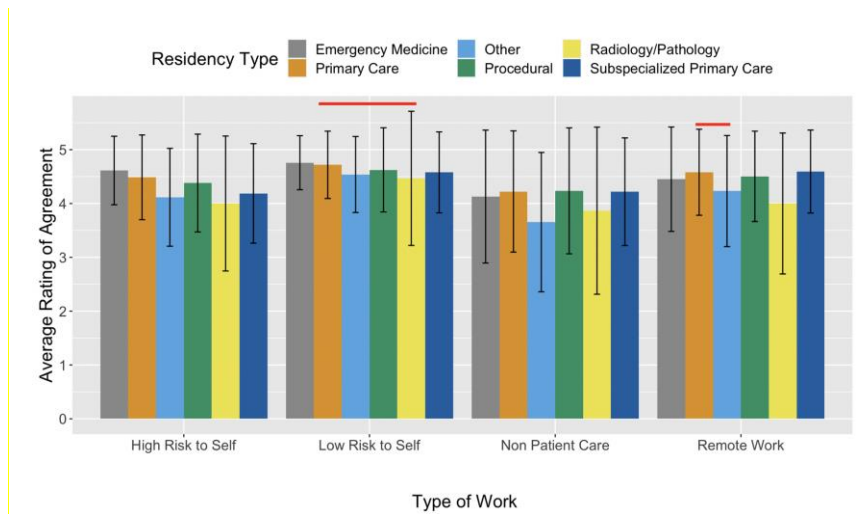


Figure 4. Medical students' average rating of agreement with whether physicians have a duty to work in various risk settings during a pandemic. Stratified by student's self selected future residency type. Likert scale with 1 representing strongly disagreeing and 5 representing strongly agreeing with working in various risk settings. Red brackets signify a statistically significant difference ($p < 0.05$) between the residency type.

Conclusion (~250-500 words):

Overall, we found that there were different motivating factors for students who decided to volunteer compared to students who did not: community service, new skills, and time commitment were primary factors for students who volunteered, while risk to other, time commitment, and risk to self were primary factors for students who did not volunteer. We also found that motivations for volunteering may change over the course of medical training as students gain more clinical experience: three-fourths of third-year medical students and half of fourth-year medical students volunteered for COVID-19 related relief efforts. Compared to students interested in radiology/pathology and other specialties, students interested in primary care specialties agreed to a greater extent that physicians have a duty to serve in low risk settings and remote settings. However, medical students in general agreed that clinical students should be allowed to volunteer in COVID-19 related relief efforts. As large areas of the United States continue to experience increases in COVID-19 cases, institutions should involve medical students in evaluating what the acceptable risks are compared to the ethical educational benefits of student involvement in patient care. Institutions may utilize the data collected through this study to integrate student perspectives into future medical trainee involvement in pandemic response initiatives. Initiatives which require student presence in the hospital and regular contact with SARS-CoV-2 positive patients should consider balancing educational benefit with trainee risk exposure. Such initiatives should acknowledge the real and perceived pressures felt by medical students in both voluntary and required clinical experiences. Efforts should be made to identify risk mitigation strategies, reinforce institutional non-retaliation policies to protect trainees, and support trainees who require testing, medical care, or extended medical leave due to SARS-CoV-2 infection.

References:

1. Guidance on Medical Students' Clinical Participation: Effective Immediately. Association of American Medical Colleges. Published 2020. Accessed March 17, 2020. <https://lcme.org/wpcontent/uploads/filebase/March-17-2020-Guidance-on-Medical-Students-ClinicalParticipation.pdf>
2. DeWitt DE. Fighting COVID-19: Enabling Graduating Students to Start Internship Early at Their Own Medical School. *Ann Intern Med*. Published online 2020. doi:10.7326/M20-1262

Reflection/Impact Statement:

You may use the following questions to guide your reflection:

1. How did the process of conducting this research confront any limitations of your prior thinking?
2. Who could potentially benefit from this CFI project over different timescales and how?
3. What actions will you take afterwards to continue the momentum of this project, and maximise the likelihood of the identified benefits being achieved?
4. What advice would you give to another student completing their CFI?

The process of conducting this research confronted the limitations of my prior thinking about conducting research across institutions. By reaching out to colleagues at different institutions, we were able to navigate the process of emailing our survey to as many students as possible within the guidelines of each institution. I also learned the process of having our survey reviewed by the Institutional Review Board before it was determined to be exempt.

We are hopeful that the publication of this data and research will allow our conclusions to be reviewed by institutions establishing future guidelines for student participation in pandemic relief efforts. Clinical students in general believe they should have the opportunity to volunteer in such efforts, and institutions may consider this when weighing the risks and benefits of having students involved in relief efforts.

I am currently working on editing the manuscript we have written to publish the data and results from our survey. We are hoping this will maximize the likelihood that other institutions can access the data and conclusions we drew from it.

To another student completing their CFI, I would tell them to find a project they are truly excited about and to never be afraid to reach out to any of the faculty to ask for help. I found Dr. Englesbe to be a huge help in getting the funding for my project expedited when I needed it. My faculty mentor has been a very supportive and helpful resource and has directed my questions to other faculty if he does not have the answers. Overall, the CFI project is a great opportunity to explore any interest you have.