

# Impact of the COVID-19 Pandemic on Medical Students and Students' Perspectives on COVID-19 Policies and Social Media in 2021 and 2022

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## Abstract

**Background:** The COVID-19 pandemic affected medical students in several ways in 2021 and 2022. In continuation of a previous study, this study sought to determine how the changing nature of the pandemic affected medical students' knowledge, experiences, perspectives on the policies and resources in 2022 compared to 2021. **Methods:** A qualitative study was conducted via open-ended journaling in 2021 and 2022. Participants were recruited from medical students in the U.S. as well as in Central America and the Caribbean, who were enrolled in a "Global Seminar for Health and Environment". **Results:** A total of 142 and 72 responses were obtained in 2021 and 2022 respectively. Regarding the COVID-19 policies, U.S. students were thankful for vaccinations and approved of initiatives in their regions in 2021. Later, they were equally divided regarding region-specific pandemic policies. International students mainly approved of the policies in both years. Students consistently noted negative mental health impacts and difficulty with social limitations. U.S. students noted decreased academic opportunities in both years while international students noted family concerns in 2021. U.S. students held negative views about social media due to fearmongering in 2021 and politicization in 2022. International students held neutral and/or positive views about social media. U.S. students relied on the CDC as a source of information while international students utilized the WHO. **Conclusion:** U.S. students had a more negative outlook as the pandemic progressed. It is difficult to draw comparisons within the international cohort due to limited responses obtained in 2022.

**Key Words:** COVID-19; Pandemics; Medical Students; Medical Education; Global Health; Policy; Vaccination; Sources of Information; World Health Organization; Centers for Disease Control and Prevention, U.S.; Social Media (Source: MeSH-NLM).

## Introduction

With the progression of the COVID-19 pandemic, academic institutions adapted to changing guidelines in order to reduce infections.<sup>1</sup> In 2021, 31,453,440 students across eight countries socially distanced themselves, shifted to online learning, and remained in their homes due to the shutdown of academic institutions.<sup>1</sup> Medical students in particular demonstrated growing rates of depression, deteriorating mental health, suicidal ideation, anxiety, burnout, and fatigue.<sup>2,3</sup> A survey-based qualitative study by Skoczek et al. assessed how medical students in the U.S., Central America, and the Caribbean were affected during the pandemic in 2021 and found that all medical students reported mental health impacts, and U.S. students reported decreased academic opportunities and performance.<sup>4</sup>

Additionally, increased demands for vaccinations in 2021 brought new distribution challenges.<sup>5</sup> Around the same time, the U.S. political environment and policies changed with the election of a new President. From November 2021 to January 2022, the global

rate of COVID-19 infections declined from 20% to 5%, which was attributed to an increase in vaccination rates, asymptomatic or milder cases, increased awareness, enhanced prevention strategies, and growing immunity.<sup>6,7</sup> In the U.S., January 2021 was the deadliest month of the pandemic with a reported 3,200 daily COVID-19 related deaths.<sup>8</sup> Later in April 2022, a declined number of 425 cases daily were reported.<sup>8</sup> Access to COVID-19 vaccination noticeably changed the course of the pandemic.<sup>9</sup>

Given the many changes that occurred between 2021 and 2022 related to vaccination distribution, disease severity and mortality, political leadership, and national policy, we questioned how medical students, who were identified as a vulnerable population during the pandemic, were affected differently in the two years.<sup>2</sup> We refer to the 2021 and 2022 pandemic years as phase 1 and phase 2 of the study respectively. This qualitative analysis was completed in continuation of the study by Skoczek et al., which focused on phase 1.

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As osteopathic medical students, we wanted to investigate how our peers were impacted by the COVID-19 pandemic, in mind, body, and spirit. We questioned how the changing nature of the pandemic affected medical students' knowledge, experiences, overall health, perspectives on the policies and resources differently in phase 2 compared to phase 1. We hypothesized that the perception of the COVID-19 pandemic and its effects on medical students had changed from 2021 to 2022 due to several factors including: vaccinations, political environments, social media and restrictions.

## Methods

This qualitative and thematic study took place from February to May of 2021 and 2022. Prior to its start, questions used within the study were developed by a panel of experts, including a retired CDC infectious disease physician with 8 years of experience in Central America. U.S. and international physicians provided content validity instrument items to match research objectives. For this study, participation was voluntary, and subjects were recruited from cohorts of medical students enrolled in a "Global Seminar for Health and Environment" course. Eligible students maintained active enrollment at one of the following medical schools: Edward Via College of Osteopathic Medicine (VCOM) campuses in the U.S. based in Virginia, South Carolina, Auburn, and Louisiana, and three international medical schools: El Instituto Tecnológico de Santo Domingo in Dominican Republic, Universidad Evangélica de El Salvador in El Salvador, and Universidad Tecnológica Centroamericana in Honduras. Facilitators at each medical school assigned a three-digit code to each student which was used to retrieve the survey. Qualtrics, a web-based software, was used to collect medical students' perspectives on the following variables (main themes): COVID-19 policies, social media, news outlets, and their knowledge of the pandemic.<sup>10</sup>

During the thematic analysis, responses from the four VCOM campuses were classified under "U.S." and the remaining responses were categorized as "international." Responses to each individual question (main theme) were tallied for both phases. Subtheme percentages for each question were calculated by tallying the subthemes and dividing them by the total number of responses for each main theme ([Table 1](#)). Each data set was blindly analyzed by two members of the study and were compared with one another to ensure accurate analyses. This study was approved by VCOM Institutional Review Board (Ref# 2020-013).

## Results

Total responses obtained in 2021 and 2022 were 142 and 72 respectively. In 2021, there were 67 international and 75 U.S. responses and in 2022, there were 7 international and 65 U.S. responses. [Table 1](#) shows major themes studied in the two phases and subthemes found with percentages calculated for U.S. and international responses.

### Perspective on Prevention Initiatives Taken in Respondent's Country

When asked about students' perspectives on initiatives taken in their region, 34.9% of U.S. students in phase 1 reported appreciating vaccination availability and encouraging vaccination. Additionally, 30.2% approved of the initiatives implemented in their region as seen in [Table 1](#).

*"I think the US has done a fantastic job on vaccine distribution especially compared to other countries."* -U.S. 2021 response, subtheme #1

*"I believe our country did a great job with the interventions that have been placed for this virus. I would not change anything."* -U.S. 2021 response, subtheme #2

In contrast, responses in phase 2 were divided with equal percentages of students disapproving (31.1%) and approving (31.1%) of initiatives taken in their region ([Table 1](#)). The vaccination subtheme was found in phase 2 but it was not as prominent as phase 1. Additionally, the subtheme of 'a divided country noting better policies needed in the southern states' was mainly seen in phase 2.

*"I am severely disappointed in the response from the U.S. As the country to always act/speak first in a global issue, we were severely trumped by other countries."* - U.S. 2022 response, subtheme #1

*"The United States of America has been largely divided...I feel that Alabama has largely failed to address COVID-19 with appropriate severity, especially when compared to non-Southern states such as New York and Washington."* -U.S. 2022 response, subtheme #4

International students generally approved of initiatives in their region with 68.5% reporting approval in phase 1 and 50.0% in phase 2 ([Table 1](#)).

*"In El Salvador, the pandemic has been well controlled with different health measures that were imposed from the beginning."* -International 2022 response, subtheme #1.

### Perspective on Prevention Initiatives Taken in Country Other than Respondents

When asked about interventions taken in other countries, 2021 U.S. students either believed other countries had stricter precautions (39.7%) or were unfamiliar with international policies (25.8%) ([Table 1](#)). Phase 2 followed this same trend with 31.1% of students believing that other countries had stricter initiatives and 28.9% reporting unfamiliarity with international initiatives ([Table 1](#)).

*"I admire Australia and New Zealand for the measures they took. They took COVID-19 very seriously and did not allow anyone to enter or leave the country...which allowed the number of cases to remain low and not super spread as they did here in the United States."* -U.S. 2022 response, subtheme #1

**Table 1.** A Comparison of Themes from Medical Student Journal Entries in 2021 and 2022.

Major Theme	Location	2021 Subthemes and % of Responses		2022 Subthemes and % of Responses	
		Subtheme	%	Subtheme	%
Perception of COVID-19 in Respondent's Own Country/Region	United States	1. Thankful for vaccination/encourage it	1. 34.9%	1. Disapproval of policies or initiatives	1. 31.1%
		2. Approval of policies or initiatives	2. 30.2%	2. Approval of policies or initiatives	2. 31.1%
		3. Disapproval of policies or initiatives	3. 14.3%	3. Thankful for vaccination/encourage it	3. 26.7%
	International	4. Divided country. Better policies needed in U.S. southern states	4. 17.8%	4. Divided country. Better policies needed in U.S. southern states	4. 17.8%
		1. Approval of policies or initiatives	1. 68.5%	1. Approval of policies or initiatives	1. 50.0%
		2. Some individuals show a lack of regard	2. 24.1%	2. Good initiatives but would have placed more restrictions	2. 50.0%
Perception of COVID-19 Policies and Intervention from Countries other than Respondents'	United States	3. Disapproval of policies or initiatives	3. 16.7%	3. Stricter precautions that are harmful, political, or only concerned about economic impact	1. 31.1%
		1. Stricter precautions that are harmful, political, or only concerned about economic impact	1. 39.7%	2. Others or unfamiliar	2. 28.9%
		2. Other or unfamiliar	2. 25.8%	3. Countries performed assessments to meet the needs of the country	3. 24.4%
		3. Less precautionary due to less vaccines or delays in prevention actions	3. 11.8%	4. Other countries developing new ideas	4. 11.1%
		4. Other countries developing new ideas	4. 11.8%	5. Less precautionary due to less vaccines or delays in prevention actions	5. 4.4%
	International	5. Countries performed assessments to meet the needs of the country	5. 11.8%	1. Stricter precautions that are harmful, political, or only concerned about economic impact	1. 50.0%
		1. Countries performed assessments to meet the needs of the country	1. 38.3%	2. Other or unfamiliar	2. 50.0%
		2. Stricter precautions that are harmful, political, or only concerned about economic impact	2. 23.4%		
		3. Other countries were innovative during the COVID-19 pandemic	3. 17.2%		
		4. Less precautionary due to less vaccines or delays in prevention actions	4. 14.9%		
Beliefs, Knowledge, and Impact from COVID 19	United States	5. Other or unfamiliar	5. 8.5%	1. Good understanding of COVID-19 policies and prevention methods	1. 30.4%
		1. Recognized that COVID-19 is a serious disease	1. 27.8%	2. Decreased academic opportunities and performances	2. 26.1%
		2. Social limitations were difficult	2. 24.1%	3. Social limitations were difficult	3. 23.9%
	International	3. Impacted education and learning experience	3. 24.1%	1. Good understanding of COVID-19 policies and prevention methods	1. 40.0%
		1. Recognized that COVID-19 is a serious disease	1. 32.1%	2. COVID-19 impacted mental health	2. 40.0%
		2. Family impacted	2. 23.2%	3. Social limitations were difficult	3. 20.0%
Perspective on Social Media's impact on COVID-19	United States	3. Anxiety, emotional, and/or mental health impact	3. 19.6%	1. Negative due to false or political information on COVID-19 or the vaccine	1. 51.1%
		1. Negative, due to inciting fear	1. 29.4%	2. Neutral (states positives and negatives or neither)	2. 28.8%
		2. Negative due to false or political information on COVID-19 or the vaccine	2. 25.5%	3. Positive, spreads useful information and prevention efforts	3. 11.1%
		3. Neutral (states positives and negatives or neither)	3. 21.6%	4. Negative, due to inciting fear	4. 6.7%
		4. Others, non-specified	4. 17.6%	5. Others, non-specified	5. 2.2%
	International	5. Positive, spreads useful information and prevention efforts	5. 7.8%	1. Negative due to false or political information on COVID-19 or the vaccine	1. 40.0%
		1. Negative, due to inciting fear	1. 57.4%	2. Negative due to inciting fear	2. 20.0%
		2. Positive, spreads useful information and prevention efforts	2. 12.8%	3. Neutral (states positives and negatives or neither)	3. 20.0%
		3. Negative due to false or political information on COVID-19 or the vaccine	3. 10.6%	4. Positive, spreads useful information and prevention efforts	4. 20.0%
		4. Neutral (states positives/negatives or neither)	4. 10.6%		
Sources of Information	United States	5. Others, non-specified	5. 8.5%		
		1. CDC	1. 89.7%	1. CDC	1. 88.7%
		2. WHO	2. 63.7%	2. Social Media	2. 7.5%
		3. Social Media	3. 41.2%	3. Regional/State/Municipal Health Systems	3. 1.9%
		4. Scientific Journals	4. 30.1%	4. Other	4. 1.9%
		5. Regional/State/Municipal Health Systems	5. 23.6%		
		6. National Ministry of Health	6. 6.8%		
International	7. Other	7. 1.5%			
	1. WHO	1. 69.4%	1. WHO	1. 60.0%	
	2. Social Media	2. 44.6%	2. CDC	2. 20.0%	
	3. CDC	3. 42.9%	3. National Ministry of Health	3. 20.0%	
	4. National Ministry of Health	4. 35.7%			
	5. Regional/State/Municipal Health Systems	5. 25.0%			
	6. Scientific Journals	6. 14.3%			
7. Other	7. 1.8%				

In phase 1, an equal percentage (11.8%) of U.S. respondents felt there were either less precautions in other countries, new ideas were developing in other countries, or that countries performed assessments to meet the needs of that country ([Table 1](#)). In contrast, in phase 2, the idea that countries performed assessments to meet the needs of that country grew to 24.4% of responses.

*"There were many different ways that different parts of the world handled their situations. Some were more strict, but necessary, while others were more lax."* -U.S. 2022 response, subtheme #3.

International students in phase 1, primarily perceived that countries performed assessments to meet the needs of that country (38.3%) with reports of other countries having strict precautions (23.4%) coming in second ([Table 1](#)).

*"I like how many countries adopted all the measures necessary swiftly with the support of their government to avoid new infections. Thus, they managed to contain the virus and avoided major losses."* -International 2021 response, subtheme #1

Fifty percent of international students in phase 2 felt there were stricter precautions in other countries while 50% indicated they were unfamiliar with other countries' initiatives ([Table 1](#)).

*"I think that those countries that closed the entering of tourists to decrease the positive cases and ordered their people to wear mask made the best decisions."* -International 2022 response, subtheme #1

### Beliefs, Knowledge, and Impact from COVID-19

In phase one, 32.1% of international and 27.8% of U.S. students recognized the serious nature of COVID-19 ([Table 1](#)). A year into the pandemic, 40.0% of international and 30.4% of U.S. responses noted that students had a good understanding of COVID-19 policies and prevention methods ([Table 1](#)).

*"I still think that COVID-19 has been one of the worst viruses the world has ever experienced because of its wide-reaching effects. These effects impact everyone regardless of if they have been infected or not."* - U.S. 2021 response, subtheme #1

*"My knowledge has also increased about various symptoms or no symptoms that infected individuals can present with."* - U.S. 2022 response, subtheme #1

Difficulty with managing social limitations were seen in 24.1% of U.S. phase 1 and 23.9% of U.S. phase 2 and 20.0% of international phase 2 responses ([Table 1](#)).

*"It has been hard to live mainly in isolation for the past year. Not feeling comfortable hanging out with friends in public is hard."* -U.S. 2021 response, subtheme #2

Another common subtheme was that students felt the pandemic impacted their education and academic performance. This was

seen in 24.1% and 26.1% of U.S. students in phase 1 and phase 2 respectively ([Table 1](#)).

*"My education...was majorly affected as well with no anatomy labs and online lectures."* -U.S. 2021 response, subtheme #3

*"I did not have certain shadowing opportunities I was planning to have, and I did not get to attend an international missions trip."* -U.S. 2022 response, subtheme #2

In phase 1, 19.6% of international students noted impacts on anxiety, emotional, and mental health ([Table 1](#)). In 2022, 40.0% of international students noted impacts on mental health. Of note, 23.2% of international participants reported that COVID-19 impacted their family in 2021.

*"My anxiety and panic have risen to such levels that it is hard for me to tolerate casual touch and proximity. I don't remember the last time I hugged a friend."* -International 2021 response, subtheme #3

*"[COVID-19 has impacted me] emotionally and in my study methods. Everything became a disaster."* -International 2022 response, subtheme #2

*"My dad is a pilot who lost his job during the pandemic. Even though I'm in my last year of medical school, since my university is private, I'm still paying so it's been a difficult time."* -International 2021 response, subtheme #2

### Social Media's Impact on the Perspective of COVID-19

In phase 1, 29.4% of U.S. and 57.4% of international students held negative views on social media due to it inciting fear in the general population ([Table 1](#)).

*"They have presented the topic in an informative but slightly drastic way...sometimes I feel that news outlets incite more fear to their viewers rather than educating them."* -U.S. 2021 response, subtheme #1

Beyond this, 25.5% of U.S. students in phase 1 held a negative view of social media due to false or political information on COVID-19 or the vaccine ([Table 1](#)).

*"There is so much false news about the vaccine right now."* - U.S. 2021 response, subtheme #2

While 10.6% of international students in phase 1 also held a negative view of social media due to false or political information, another prevalent subtheme among these students was positive views on social media due to its ability to spread useful information (12.8%) as seen in [Table 1](#).

*"We have been actively informed by the news about COVID-19 in our country thanks to the platforms of our health institutions."* -International 2021 response, subtheme #2

When examining the subthemes among U.S. students, the primary subtheme of negative views about social media due to inciting fear (29.4%) in phase 1 switched to negative views due to false or political information on COVID-19 or the vaccine (51.1%) in phase 2. The second most prevalent subtheme for U.S. students

in phase 2 was neutral, sharing both positive and negative views about social media (28.8%) ([Table 1](#)).

*"Many people are against the vaccine and continue to post false articles that display the "negative consequences" of the vaccine." -U.S. 2022 response, subtheme #1*

*"While some of the information put out on social media in my region was accurate and helpful, there was a lot of misinformation being spread." -U.S. 2022 response, subtheme #2*

Finally, 40.0% of international students in phase 2 held a negative view of social media due to false or political information ([Table 1](#)). Beyond this, in phase 2, an equal percentage of international students held the view that social media was negative due to inciting fear (20.0%), positive due to spreading useful information (20.0%), and neutral (20.0%) ([Table 1](#)).

*"Some social media spread a lot of disinformation about COVID-19, so people were scared about some things about the virus. I always try to read trustworthy media, scientific articles, or magazines." -International 2022 response, subtheme #1*

### Sources of Information Utilized

In phase 1, most U.S. students indicated they relied on the CDC (89.7%) and the WHO (63.7%) to learn about the pandemic. In phase 2, 88.7% of U.S. students indicated using the CDC followed by 7.5% of students that reported using social media ([Table 1](#)).

International students during both phases reported WHO as the primary source of information. This was seen in 69.4% of phase 1 and 60.0% of phase 2 responses. Beyond this, 44.6% of international students in phase 1 relied on social media compared with 0.0% in phase 2. The second most common source of information used in phase 2 was tied with 20.0% of respondents indicating the CDC or the National Ministry of Health.

## Discussion

### Perception on COVID-19 Policies and Intervention

A year into the pandemic, with more knowledge about the virus and vaccination availability, students' perspectives on the initiatives taken in their regions changed between the two phases.<sup>7</sup> While the majority of U.S. students reported approval of the policies in their region phase 1, the second phase lacked a unanimous response. This could be due to the presence of political division around COVID-19 in 2022. The vaccination subtheme may have been more prominent in 2021 due to political changes in the U.S. contributing to hopes that vaccinations can end the pandemic. Reports of the country being divided and southern states needing better policies were prominent in phase 2 only. According to Stoto et al., "a narrative of two Americas" emerged in summer 2021 with high demand for COVID-19 vaccination seen in some areas and vaccine hesitancy and opposition seen in others.<sup>11</sup> Stoto et al. reported that compared to the rest of the U.S., southern parts of the country had higher mortality rates and noted that 62% of the south's

death rate was avoidable.<sup>11</sup> This finding supports criticism found in phase 2 responses and was attributed to differences in mask usage, social distancing, and school attendance policies between the states.<sup>11</sup>

In both phases, the most common subtheme for international students was approval of policies and initiatives within their regions. Prior to distribution of COVID-19 vaccinations, countries in Latin America were significantly impacted by the pandemic, but noted improvements in containment of the virus after vaccination availability increased.<sup>12</sup> Both phases were conducted after availability of vaccines, which explains the positive views of the international students.

Most U.S. students in both phases consistently reported feeling that there were stricter precautions taken in other countries. This belief could be attributed to the increased availability of epidemiological statistics showing top performing countries (i.e. countries with lower mortalities) having longer lockdowns.<sup>12</sup> From March to August 2020, the U.S. had the highest case rate and number of deaths globally.<sup>13</sup> This could imply a level of bias among U.S. students but it may also suggest that U.S. students felt the impact of the worse disease statistics.

### Beliefs, Knowledge, and Impact from COVID 19

From the onset of the pandemic, medical students consistently noted that social limitations were difficult to manage, including restrictions on mass gatherings and reduced contact with peers.<sup>14</sup> Although social media had been incorporated into the healthcare community in unique ways, concerns specific to medical students included lack of family interactions at major milestones and living in isolation during their education.<sup>15</sup> U.S. medical students were consistently worried about the impact of the pandemic on their education and academic opportunities, noting concerns about missed in-person anatomy labs, shadowing opportunities, and missed experiences in global healthcare through international mission trips. Though these concerns are specific to the experience of a medical student, a study conducted by Biber et al. found that students in all disciplines had difficulties in managing their resources and engaging in self-regulated learning.<sup>16</sup> U.S. and international students shared a belief that COVID-19 is a serious disease and reported being confident in their knowledge about the virus. One cross sectional study found that when asked basic scientific questions about the virus, over 86% of the students recognized main symptoms and basic treatment.<sup>17</sup> Interestingly, a study completed in Turkey in 2020, found that clinical students were found to have higher knowledge levels and a slightly more positive attitude about the virus than preclinical students.<sup>18</sup> International students in our study noted increased levels of anxiety, emotional, and mental health concerns associated with the pandemic in 2021 and 2022. O'byrne et al. found that these concerns may be attributed to transitions associated with online learning and testing and concerns about family members.<sup>19</sup> Of note, international students

in phase 1 shared concerns about the impact the virus had on family members.

### Perspective on Social Media's Impact on COVID-19

When asked about the impact of social media on perspectives of COVID-19, U.S. and international medical students in phase 2 shifted toward a negative view with the primary reason being its political nature. This shift might be due to the growing divide between far-left and far-right political parties.<sup>20</sup> In one study, the two political extremes led to severe criticism of the government, which fostered distrust of public health authorities, including decisions related to COVID-19 and vaccines.<sup>20</sup> While this might account for the negative view related to politics, other negative views could be due to growing online misinformation. One study in Taiwan found a significant negative relationship between "fake news" and vaccination doses administered.<sup>21</sup> The idea of fake news has yet to be fully developed, though many studies suggest that fake news or misinformation is due to cultural factors, marketing incentives, and poor legal supervision.<sup>22</sup> Additionally, other studies attribute negative effects of social media to the overwhelming amount of information available leading to panic transmission, manipulations, and unverified data.<sup>15</sup> Regardless of the reason for negative views, several studies indicate that health organizations should have created and promoted more shareable graphics and/or information to reduce misperceptions.<sup>23</sup> While the 2022 U.S. students primarily demonstrated a negative view on social media, some 2022 international students considered social media to be a positive and/or beneficial way to spread information. This might be due to ease and the ability to rapidly share data, interact with other healthcare professionals, and increase awareness of COVID-19.<sup>15</sup>

### Sources of Information

The majority of U.S. students consistently reported using the CDC while international students primarily relied on the WHO during both phases. These differences might be due to the mission of each of these organizations. The CDC is primarily there to "protect America from health, safety and security threats, both foreign and in the U.S."<sup>24</sup> In contrast, the WHO is a United Nations organization that serves in a global health capacity, reaching many nations.<sup>25</sup>

### Limitations

The 2022 survey was severely limited by the number of responses received. We were particularly limited in comparing our international data collected in phase 2 to phase 1. This might have been potentially due to the declining severity of COVID-19 or changes in staff facilitators at each campus. Additionally, there was a measurement bias as participants had diverse backgrounds and may not have spoken English as a first language.

### Conclusion

From 2021 to 2022, the global response to the pandemic shifted due to increasing access to vaccinations, social media, and political and national restrictions. During this time, medical

students changed perspectives about prevention strategies, personal and family impacts, social media, sources of information, and social opportunities. In general, phase 2 medical students indicated that while they had more information on the pandemic, the pandemic itself had become more political and still limited future opportunities. Further research might indicate whether these fears of lost opportunity remain in the future careers of medical students. Learning about the differences in pandemic's impact on medical students in 2021 compared to 2022 and students' insights on the initiatives taken in their regions during the COVID-19 pandemic can potentially help inform academic institutions and policymakers regarding medical students' concerns, perspectives, and experiences during the pandemic.

## Summary – Accelerating Translation

**Title:** Impact of the COVID-19 Pandemic on Medical Students and Students' Perspectives on COVID-19 Policies and Social Media in 2021 and 2022

**Background:** Medical students are a vulnerable population, and were affected in several ways during the COVID-19 pandemic in 2021 and 2022. A previous study found that U.S. and international medical students reported mental health impacts, and U.S. students reported decreased academic opportunities and performance in 2021. With the progression of the pandemic, students had to adapt to changes in guidelines in their academic institutions and regions. From 2021 to 2022, knowledge of the virus increased, COVID-19 vaccinations became more readily available and COVID-19 mortality rate overall decreased. Additionally, there were changes in the political environment of the U.S.

**Aim:** Given the changes that occurred between 2021 and 2022 affecting factors such as vaccination distribution, disease severity and mortality, political leadership, and national policy, we questioned how medical students were affected differently during the two years.

**Methods:** We electronically surveyed medical students in the United States (Louisiana, Virginia, Alabama, and South Carolina) and in El Salvador, Honduras and Dominican Republic. Survey results were collected in 2021 and 2022. We were specifically interested in finding out how the pandemic impacted medical students personally, their knowledge about the virus, their thoughts on public health policies in their region compared to other states or countries, sources they used to get information about the pandemic, and thoughts on how social media spread pandemic related information. When analyzing the responses, we developed concise subthemes that summarized the nature of the students' opinions.

**Results:** A total of 142 and 72 responses were obtained in 2021 and 2022 respectively. Students in both years reported that pandemic-induced social limitations were difficult to manage. Further, international students during both years reported a negative impact on their mental health. U.S. students noted decreased academic opportunities in both 2021 and 2022 while international students noted concerns about impacts on family in 2021. Regarding COVID-19 policies and restrictions, most U.S. medical students reported being thankful for vaccines and approved of initiatives taken in their region in the 2021 survey. In the 2022 cohort, there was an equal mixture of U.S. students who disapproved of the policies in their region and those who approved of them. Most international students reported approval of policies in their region in both years. In 2021, when asked about the impact of social media, U.S. as well as international

students, held negative views of platforms primarily due to its role in inciting fear. In 2022, U.S. students had negative thoughts due to social media's political nature while in 2021, international students held neutral and/or positive views of social media. Regardless of the year, most U.S. students relied on the CDC as a source of information while international students tended to turn to the WHO.

**Conclusion:** The lives of U.S. and international medical students were impacted by the pandemic in both years. In general, phase 2 medical students believed that while they had more information about the virus,

the pandemic had become more political and still limited future opportunities. Due to the limited number of students participating in 2022, particularly international students, it is difficult to determine the changes and impacts caused by the pandemic from 2021 to 2022. Further research might be warranted to determine whether these fears of lost opportunity remain in the future careers of medical students.

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