Investigating the experiences of medical students quarantined due to COVID-19 exposure

Vécu des étudiants en médecine mis en quarantaine à la suite d'une exposition à la COVID-19

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Abstract

Background: The COVID-19 pandemic profoundly impacted medical education systems worldwide. Between March 2020 and December 2021, 111 MD students at the University of Toronto completed two-week quarantines due to hospital or community exposures and experienced disrupted clinical instruction. We explored the experiences, barriers, and supports of these quarantined medical students to identify program development opportunities and improve student supports.

Methods: We used a qualitative descriptive approach to explore experiences of clerkship students quarantined due to COVID-19 exposure. Methods included an online survey with open-ended questions and an audio-recorded interview. We analysed the demographic survey responses using descriptive statistics. Subsequently, we conducted descriptive thematic analysis of the narrative survey responses and transcribed interview recordings.

Results: Concerns reported in surveys (n = 23, response rate 20.7%) and interviews (n = 5) included themes of illness uncertainty, racial tensions, confidentiality of COVID-19 status, unclear academic expectations, and financial burden. Supports included friends, family, and MD program administration. Recommendations related to communication, administration, equity considerations, supports, confidentiality/privacy, and academics.

Conclusion: Supporting student wellbeing and learning is at the core of medical training. Enhanced understanding of health profession trainee needs during COVID can improve institutional supportive responses to students routinely and during times of crisis.

Résumé

Contexte : La pandémie de la COVID-19 a eu des répercussions importantes sur les systèmes d'éducation médicale dans le monde entier. Entre mars 2020 et décembre 2021, 111 étudiants en médecine de l'Université de Toronto ont été contraints à l'auto-isolement pour une période de deux semaines après une exposition au virus à l'hôpital ou dans la collectivité, voyant du même coup leur apprentissage clinique perturbé. Nous avons exploré les expériences, les obstacles et les types de soutien que ces étudiants ont eus alors qu'ils étaient en quarantaine pour en tirer des leçons afin d'améliorer notre programme et de mieux soutenir nos étudiants.

Méthodes : Nous avons utilisé une approche qualitative descriptive pour explorer le vécu des étudiants à l'externat mis en quarantaine en raison d'une exposition à la COVID-19. Les méthodes comprenaient une enquête en ligne avec des questions ouvertes et une interview enregistrée. Nous avons analysé les données démographiques à l'aide de méthodes statistiques descriptives. Par la suite, nous avons effectué une analyse thématique descriptive des réponses narratives à l'enquête en ligne et des transcriptions des entretiens.

Résultats : Les préoccupations signalées dans les réponses à l'enquête en ligne (n=23, taux de réponse de 20,7 %) et les entretiens (n=5) touchaient à l'incertitude face à la maladie, aux tensions raciales, à la confidentialité du fait d'avoir été infecté , au manque de clarté quant aux attentes académiques, et au fardeau financier. Les sources de soutien citées comprenaient les amis, la famille et l'administration du programme d'études. Les recommandations concernaient la communication, l'administration, les considérations d'équité, le soutien, la confidentialité et les études.

Conclusion : Le soutien au bien-être et à l'apprentissage des étudiants est au cœur de la formation médicale. Une meilleure compréhension des besoins des stagiaires des professions de la santé à l'occasion d'une infection par la COVID-19 peut améliorer le soutien institutionnel qui leur est offert en temps normal et en temps de crise.

Introduction

Since March 2020, the COVID-19 pandemic has significantly impacted global medical education systems. Many Canadian undergraduate medical programs introduced virtual learning and modified their clerkship curriculums.[1] Unfortunately, both pre-clerkship and clerkship students faced remote learning challenges, including lack of hands-on teaching, isolation from peers, and reliance on internet access, that contributed to learner distress.[2,3] Recent literature indicates that students quarantining from COVID-19 exposure felt disheartened, emotionally detached, and experienced decreased work performance, flagging the need for enhanced learner wellness strategies.[4] At the University of Toronto, academic leadership navigated rapidly evolving public health quarantine guidelines, ensuring learner safety from COVID-19 exposure and maintaining quality online education.[2,3] To better understand the educational and psychosocial impact of student quarantine, we explored the experiences of MD students isolated due to COVID-19 exposure and provided recommendations to the MD program to inform future interventions. We asked the following questions:

1. What were the **experiences, barriers, and supports** faced by clerkship MD students quarantined during the COVID-19 pandemic?

2. What were the **needs, recommendations, and opportunities** for MD program development to better support such students?

Methods

This exploratory study is anchored in social constructivism, given that the experiences of quarantined students, MD program responses, and our research efforts are socially situated.[5] Our qualitative descriptive approach aimed to understand how students interpret, construct, or make meaning of their experiences.[6,7] We explored student experiences and narratives using a survey and semi-structured interviews.[8] We circulated an online questionnaire (Appendix B) with demographic and open-ended questions to 111 MD students quarantined due to COVID-19 exposure between March 2020 and December 2021. The questionnaire explored student concerns, supports, and recommendations for the MD program. Students could subsequently indicate in the questionnaire their interest in interview participation, and those students were contacted and consented.

We developed the questionnaire and a semi-structured interview guide (Appendix C) using team expertise and perspectives from students, faculty, and other relevant stakeholders. We iteratively modified the guide to reflect new participant perspectives as they arose. Each 30-minute, one-on-one interview was conducted and recorded over Zoom, a video-conferencing platform (SH, IK). Auto-generated transcriptions were manually reviewed for accuracy and de-identified (SH, IK).

We analyzed demographic survey questions using descriptive statistics. Narrative survey responses and interview transcripts were thematically analyzed.[9] We independently and recursively read, coded, and analyzed texts to identify themes in student narratives (SH, IK). Data were constantly compared within and across interviews and investigators. We triangulated questionnaire and interview responses to investigate this novel area of COVID-19 research and quickly provide recommendations for program improvement.[10]

This study received approval from the University of Toronto Research Ethics Board (Protocol #40279).

Results

Descriptive participant data

Twenty-three students completed a survey, for a response rate of 20.7%. Five interviews were conducted. Survey respondents were year 3 (60.9%) or 4 (21.7%) clerkship students, or recent graduates (17.4%). Twelve (52.2%) were <26 years old; eight (34.8%) were ≥26 years old, and three (13.0%) did not report age. The gender distribution included 52.2% identifying as men and 47.8% identifying as women (no respondents selected 'another gender identity'). Interviewees included two graduates, one third year, and two fourth year students. Four participants identified as women and one as a man.

General quarantine experience

Quarantined MD students had varied experiences given the novelty of COVID-19. Quarantine reasons included clinical duties in outbreak wards, non-school exposures, and being symptomatic. Stakeholder interactions during quarantine included infection prevention and control, occupational health, student services, public health, and MD program faculty.

MD program strengths

Students appreciated prompt programmatic communications through virtual town halls and email updates. The administrative team and faculty members

offered emotional, physical, and financial supports. Students explained, *"It was nice to know they were there"* (Interviewee #3). A virtual curriculum was quickly created, and academic expectations modified to support student learning (e.g., flexible elective make-up times). Lastly, students felt reassured by the supportive messaging from faculty, e.g., *"We [the MD program] are going to get you to the finish line"* (Interview #5). See also Table 1.

Quarantined student challenges

Students identified several quarantine challenges (Table 2), including uncertainty and psychological distress. For example, one participant highlighted uncertain quarantine timelines, stating, *"We had gotten different messages from the program director and occupational health"* (Interviewee #3). Some participants felt stigmatized from having COVID, and others faced racial tensions. One stated, *"There were a lot of implications to being a Black medical student in the wake of George Floyd's murder. [...] As much as I wanted to rest, I also felt like I needed to respond and get back to people and give them resources before I lost them or lost their attention"* (Interviewee #2). Others were concerned about privacy of their personal health information and COVID status. Despite accommodations, ambiguity existed in academic expectations due to unclear quarantine and public health guidelines. Students described expectations as *"subjective"* (Interviewee #1), and *"uncertainty"* (Interviewee #3) existed around make-up times for exams or clinical rotations. Finally, quarantine costs were burdensome even with funding access because *"it's still funds that come with interest"* (Interviewee #2). Although the university's Student Outbreak/Exposure Management Plan[11] was quickly established and programmatic supports offered, many students expressed difficulty navigating quarantine processes, describing it as *"all very confusing at the time"* (Interviewee #3).

MD program recommendations

These students shared their personal recommendations for improved MD program responses to their quarantine experience. They expressed a need for explicit communications about academic make-up time and information-sharing. Establishing a point-person and standard processes would help reduce students' administrative burdens while navigating quarantine. Providing conversation spaces to debrief social issues during crises can also enable students to feel heard. Maintaining stronger personal connections with students could reduce isolation. Academically, students advised standardizing policies and being transparent about the decision-making process to reduce ambiguity and stress.

Table 1. MD program strengths experienced by these MD student clerks during their COVID quarantines (March 2020 - December 2021).

MD Program strengths		
Themes	Description	Narrative examples
Communication	Effective and prompt communication through virtual town halls and email updates.	*"[The MD program] responded promptly about questions and what to do regarding isolation timeline." (Survey #6)* *"The faculty did their best to communicate with us constantly about the changing guidelines for the outbreak." (Survey #15)*
Administrative support	Point of contact roles were important across hospital and health care sites, as were resources offered (e.g., COVID-testing), and connecting students to the Office of Health Professions Student Affairs (OHPSA).	*"They specified in our emails that you know, OHPSA is always available to us. I think the program directors offered to speak with us individually if we had concerns… I didn't take anyone up with those offers, but it was nice to know they were there." (Interviewee #3)*
Physical & financial support	Living accommodations and some financial aid were offered.	*"Very quickly the school offered [my roommate] to have like a suite, so that we could isolate separately…they also offered to like drop-off a week's worth of groceries for her too." (Interviewee #1)* *"They had some kind of financial aid fund if the pandemic had introduced like new costs for us." (Interviewee #3)*
Academic accommodation	A virtual curriculum supported quarantined students missing clinical time. Flexibility in clinical and academic expectations was offered, including make-up times and later completion of mastery exercises.	*"It was very nice of them to have quickly set up virtual sessions to support our learning." (Survey #11)* *"[The] program told us by email that we could use some subspecialty electives to make up time if we didn't want to do a full CTU [clinical teaching unit] elective." (Survey #17)*
Supportive messaging	Supportive messaging from the MD program effectively reassured students.	*"We're going to get you to the finish line. It's all going to be okay; you're going to graduate on time" (Interviewee #5)* *"The program, the faculty – everyone wants us to succeed and pass and match to what we want to match to. And they will take steps to make that happen." (Interviewee #3)*

Table 2. MD program challenges experienced by these MD student clerks during their COVID quarantines (March 2020 - December 2021).

Challenges faced by quarantined MD students		
Themes	**Description**	**Narrative examples**
Psychosocial	Common concerns included illness uncertainty, mixed program messages about quarantine timelines, isolation, school pressures (e.g., CaRMS), guilt, impact of social issues (e.g., Black Lives Matter, anti-Asian hate crimes), fear of judgment, and COVID-19 status stigma.	*"That was my biggest concern, it wasn't even like my own health or me testing positive and stuff, it was the people around me, like my loved ones and who I had come into contact with if they got COVID because of me." (Interviewee #4)* *"I really found it challenging to study for my exam in quarantine. I just had a lot of trouble like focusing. I was in my small apartment…And you kind of go crazy." (Interviewee #1)* *"We had gotten different messages from the program director and occupational health…We were all supposed to call 'occ health' for some kind of assessment…After each of us as individuals had spoken to 'occ health', we were in our Facebook group talking about it and people had gotten different instructions from occ health as to whether they should go to work or not. So that was all very confusing at the time." (Interviewee #3)* *"It was still stressful because there were a lot of implications to like being a black medical student, in the wake of George Floyd's murder… I almost felt a guilt of 'I have COVID. I should just be sleeping, but this is the most attention that this issue has ever really gotten in the last 40- 50-years, maybe in the history, of talking about anti-black racism'; so I thought, as much as I wanted to rest, I also felt like I needed to respond and I needed to get back to people and give them resources, before I lost them or lost their attention." (Interviewee #2)* *"There's an assumption that you had to be doing stupid things or at risk or risky things [to catch COVID]." (Interviewee #2)*
Confidentiality	Some students were concerned about inappropriate sharing of personal health information relating to their COVID-19 status.	*"I felt like I didn't know who was speaking with whom, and if they were, who had like been sharing the information that I was COVID positive?" (Interviewee #1)*
Academic	Students felt challenged by lost clinical time, unclear quarantine protocols (e.g., duration) and expectations (e.g., make-up time), difficulty reintegrating into clerkship, and concerns about graduation.	*"It was like kind of weird to like write [the exam] having like missed so much of the course." (Interviewee #1)* *"It is little bit subjective on whether you do make up time or not; I know, some people have had to do make up time. I was never like told explicitly if I was going to pass the course." (Interviewee #1)* *"It was mostly about the clarity … for the first couple of days, it felt like every day we weren't sure if we were supposed to go into work. That was fairly quickly clarified, but in the moment, it felt like a long time of uncertainty." (Interviewee #3)*
Financial	Quarantine costs (e.g., finding living accommodations during isolation)	*"A part of me was wondering like 'how much am I going to spend on UberEats for two weeks just to get through this period of time?'[…] Even though I had access to funds, it's still funds that come with interest. I was concerned about how much quarantining would cost me." (Interviewee #2)*

Discussion

The experiences of these quarantined students during COVID-19 and the accompanying insights from the study's student investigators informed the key recommendations for the MD program. +These include improving communication, organizing an administrative response plan during a crisis, incorporating equity considerations into program improvement efforts, personalizing supports, protecting confidentiality and privacy of personal health information, and standardizing academic policies.

Improve communication to mitigate uncertainty

To reduce uncertainty and stress during emergencies, effective communication is key.[12] These students were frustrated about conflicting information from sources like program directors and occupational health. Similarly, in Kerr et al.,[13] students could not manage uncertainty when information was lacking, inaccurate, or unreliable.

Providing clear, standardized communication and encouraging students to participate in communication strategy development can mitigate uncertainty and reduce misunderstandings during a crisis.

Establish administrative crisis response plan

During a pandemic when public health guidelines are constantly changing, academic institutions and students may benefit from an individualized emergency management plan. Several respondents recommended establishing a point-person to navigate quarantine logistics, consistent with Zdiarski et al.'s[14] recommendation to identify clear lines of authority with role hierarchies during campus crisis management. Establishing an institutional emergency management unit, simulation exercises, and regular risk assessment are strategies for program-wide quality improvement.[15]

Incorporate equity considerations in program response

The intersection of race and COVID-19 was a unique challenge identified by our students and continues to be an ongoing topic of reflection and discussion among students, faculty, and the public. Microaggressions experienced by minoritized students and social tensions ensuing after George Floyd's death in May 2020 were among stressors our students (i.e., Interviewee #2) navigated during their quarantines. In response, we can learn from the Racial and Sociopolitical Trauma Protocol established by Black medical students at the University of California as an exemplary "coordinated institutional response to incidents of national racial and sociopolitical trauma." [16] Future study is required to implement such models in our context. The literature supports our student recommendations for safe debriefing spaces for vulnerable learners and incorporating rest into medical education.[15]

Offer personalized supports

The pandemic's mental health burden was evident in quarantined students' expressed loneliness, uncertainty, and guilt. Medical programs could establish dedicated contacts offering personalized learning and wellbeing supports for quarantined and absent students, similar to the e-buddy initiative implemented by an Italian school supporting isolated international students.[17] We recommend a standard systematic supportive response during medical absences to reduce social isolation, like the Bolton Clarke Research Institute's HOW-R-U? program for older people discharged from hospital.[18] Financially, medical programs could usefully allocate absence-related support funds, with a simple application to reduce access barriers.

Protect confidentiality/privacy

To address respondent confidentiality and privacy concerns, students' personal health information must be shared only with relevant stakeholders and students explicitly informed about this process, including how confidentiality will be maintained.

Standardize policies and personalize academic accommodations

Recommendations for academic accommodations during quarantine absences include clear communication by faculty, standardized grading policies, and personalized make-up time requirements to reduce arbitrary expectations and stress. Similarly, Boyd et al. suggested shortening clinical rotations and shifting assessment criteria.[19] Such strategies would benefit from student input and should be transparently and promptly communicated to all stakeholders.

Limitations

We had a 20.7% response rate, so response bias may have impacted our findings. Only five students participated in interviews. Reasons for low interview participation may include video-conferencing fatigue, student graduation prior to the study, and COVID-19 related fatigue, stress and anxiety.[20,21]

Conclusion

University of Toronto MD students provided insights into how trainee wellbeing and learning can be better supported during a crisis. Specifically, their recommendations for improved programmatic communications, administration, equity, support, confidentiality/privacy, and academics are useful starting points for improvement. The MD program responded positively to student recommendations and subsequently implemented numerous changes with their guidance. The impact of social identity and socioeconomic factors on student experiences require further research and ongoing dialogue amongst students, faculty, and healthcare programs.

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Appendix A. Research Ethics Board (REB) approval letter

UNIVERSITY OF
TORONTO

OFFICE OF THE VICE-PRESIDENT,
RESEARCH AND INNOVATION

RIS Protocol
Number: 40279

Approval Date: 15-Jun-21

PI Name: Dr Joyce Nyhof-
                   Young

Division Name:

Dear Dr Joyce Nyhof-Young:

Re: Your research protocol application entitled, "Holding it Together While Apart? Investigating the experiences of MD students quarantined due to COVID exposure"

 The Health Sciences REB has conducted a Delegated review of your application and has granted approval to the attached protocol for the period 2021-06-15 to 2022-01-11.

This approval covers the ethical acceptability of the human research activity; please ensure that all other approvals required to conduct your research are obtained prior to commencing the activity.

 Please be reminded of the following points:
- An **Amendment** must be submitted to the REB for any proposed changes to the approved protocol. The amended protocol must be reviewed and approved by the REB prior to implementation of the changes.

- An annual **Renewal** must be submitted for ongoing research. Renewals should be submitted between 15 and 30 days prior to the current expiry date.

- A **Protocol Deviation Report** (PDR) should be submitted when there is any departure from the REB-approved ethics review application form that has occurred without prior approval from the REB (e.g., changes to the study procedures, consent process, data protection measures). The submission of this form does not necessarily indicate wrong-doing; however follow-up procedures may be required.

- An **Adverse Events Report (AER)** must be submitted when adverse or unanticipated events occur to participants in the course of the research process.

- A **Protocol Completion Report** (PCR) is required when research using the protocol has been completed.

- If your research is funded by a third party, please contact the assigned Research Funding Officer in Research Services to ensure that your funds are released.

Best wishes for the successful completion of your research.

	Protocol #:27582				
Status:Delegated Review App	Version:0001	Sub Version:0000	Approved On:15-Jun-21	Expires On:11-Jan-22	Page 10 of 10

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Appendix B. Online Qualtrics Questionnaire

MD Program
UNIVERSITY OF TORONTO

Survey Questions

Demographic questions

1. What year of the MD Program are you in?

2. Which academy are you assigned to?

3. How old are you?

4. What is your gender identity? - Selected Choice: Woman, Man, Another gender identity

5. Please provide your quarantine start and end date (mm/dd/yyyy):

Narrative response questions

1. What were your major concerns about your quarantine situation?

2. What supports did you have to improve your experience?

3. What educational challenges and tensions did you face?

4. How were these educational challenges and tensions addressed by you, the MD Program, and/or other stakeholders?

5. What were the best things that the MD Program did to support you during quarantine?

6. What could the MD Program have done better to support you during the quarantine process?

7. What recommendations do you have for Dr. Houston as the MD Program continues to respond to medical students quarantined due to COVID?

8. What advice do you have for other students going through quarantine?

9. Do you have any final comments you would like to share?

Appendix C: Moderator's Guide for Interviews

MD Program
UNIVERSITY OF TORONTO

Moderator's Guide for MD Student Interviews

PRIOR TO AUDIO RECORDING:

Introduction

The moderator will:

• Introduce themselves, welcome respondent, and thank them for participating;

• Ask participant if they have read the study letter and have any questions, and answer any questions;

• Confirm that the respondent consents to participate;

• Remind participants that they can refuse to answer any questions and withdraw from the interview at any time, and

• Outline/review the study objectives to set the stage for the interview.

Objectives: This study investigates the experiences of medical students quarantined during COVID19 pandemic in order to improve the design of psychosocial and educational support strategies and tools of the MD Program during the constantly evolving pandemic situation. We aim to enhance our understandings of:

(1) Your quarantine experiences;

(2) The barriers and supports you experienced as you dealt with quarantine, and

(3) The psychosocial and educational supports provided by the MD Program and their strengths and weakness.

The audio-recorder is activated.

Demographic Data

The moderator will collect the following demographic data:

What is your:

- Age

- Gender Identity

- Year of study

- Academy

- Time of quarantine period

In light of our goals, please tell me about your experiences as a medical student quarantined during the COVID-19 pandemic.

- Could you tell me about your diagnosis process and the events (such as a clinical exposure) that preceded your quarantine period?

- What were your main concerns (e.g. psychosocial, physical, informational, and financial)?

- How did your social identity (i.e. race, gender, socioeconomic status, etc.) impact your quarantine experience?

- How was confidentiality about your COVID quarantine/COVID positive status handled? What were some good practices for how it was handled and/or what recommendations do you have for how it can be better handled?

- What were your main sources of support outside of school (e.g. family, friends, religious, financial) to help you cope with the quarantine?

MD Program specific questions to Identify needs, recommendations and opportunities for educational program development to better support these students.

- How well did the quarantine process work?

- What educational challenges and tensions did you face? How were they addressed by you, the MD Program, other stakeholders? (e.g. communication with MD Program/hospitals)

- What MD Program supports were in place to improve your experiences and support your ongoing education? (e.g. hospital, academy, program/rotation leads, policies, changes to adapt your rotation) What were their associated strengths and drawbacks?

- What were the best things that the MD program did to support you during your COVID quarantine experience?

- What could the MD Program have done better to support you?

- What advice do you have for other students going into quarantine?

In summary, what recommendations do you have for Dr. Law and Dr. Houston as the MD Program responds to the needs of medical students quarantined due to the COVID pandemic?

Do you have any final comments you would like to share?

Thank you so much for your participation in this interview!