



**COVID as a catalyst: medical student perspectives on professional identity formation during the COVID-19 pandemic**  
**La COVID-19 en tant que catalyseur : les étudiants en médecine portent un regard sur la formation de l'identité professionnelle pendant la pandémie**

Jordan Williams-Yuen, Mahesh Shunmugam, Haley Smith, Sandra Jarvis-Selinger and Maria Hubinette

Volume 13, Number 3, 2022

URI: <https://id.erudit.org/iderudit/1091005ar>

DOI: <https://doi.org/10.36834/cmej.73444>

[See table of contents](#)

Publisher(s)

Canadian Medical Education Journal

ISSN

1923-1202 (digital)

[Explore this journal](#)

Cite this article

Williams-Yuen, J., Shunmugam, M., Smith, H., Jarvis-Selinger, S. & Hubinette, M. (2022). COVID as a catalyst: medical student perspectives on professional identity formation during the COVID-19 pandemic. *Canadian Medical Education Journal / Revue canadienne de l'éducation médicale*, 13(3), 13–21. <https://doi.org/10.36834/cmej.73444>

Article abstract

**Background:** As a result of the COVID-19 pandemic, a national decision was made to remove all medical students from clinical environments resulting in a major disruption to traditional medical education. Our study aimed to explore medical student perspectives of professional identity formation (PIF) during a nationally unique period in which there was no clinical training in medical undergraduate programs.

**Methods:** We interviewed fifteen UBC medical students (years 1-4) regarding their perspectives on PIF and the student role in the setting of the COVID-19 pandemic. Data were analysed iteratively and continuously to create a codebook and identify themes of PIF based on interview transcripts.

**Results:** We identified three key themes: (1) Medical students as learners vs contributing team members (2) Decreased competency as a threat to identity and (3) Doctors as heroes.

**Conclusions:** The impact of disruptions due to COVID-19 catalyzed student reflections on their role within the healthcare system, as well as the role of self-sacrifice in physician identity. Simultaneously, students worried that disruptions to clinical training would prevent them from actualizing the identities they envisioned for themselves in the future. Ultimately, our study provides insight into student perspectives during a novel period in medical training, and highlights the unique ways in which PIF can occur in the absence of clinical exposure.



# COVID as a catalyst: medical student perspectives on professional identity formation during the COVID-19 pandemic

La COVID-19 en tant que catalyseur : les étudiants en médecine portent un regard sur la formation de l'identité professionnelle pendant la pandémie

Jordan Williams-Yuen,<sup>1</sup> Mahesh Shunmugam,<sup>1</sup> Haley Smith,<sup>1</sup> Sandra Jarvis-Selinger,<sup>2</sup> Maria Hubinette<sup>1</sup>

<sup>1</sup>Faculty of Medicine, University of British Columbia, British Columbia, Canada; <sup>2</sup>Faculty of Pharmaceutical Sciences, University of British Columbia, British Columbia, Canada

Correspondence to: Jordan Williams-Yuen; email: [Jordan.williams-yuen@alumni.ubc.ca](mailto:Jordan.williams-yuen@alumni.ubc.ca)

Published ahead of issue: March 16, 2022; published on July 6, 2022. CMEJ 2022, 13(3). Available at <https://doi.org/10.36834/cmej.73444>

© 2022 Williams-Yuen, Shunmugam, Smith, Jarvis-Selinger, Hubinette; licensee Synergies Partners. This is an Open Journal Systems article distributed under the terms of the Creative Commons Attribution License. (<https://creativecommons.org/licenses/by-nc-nd/4.0>) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is cited.

## Abstract

**Background:** As a result of the COVID-19 pandemic, a national decision was made to remove all medical students from clinical environments resulting in a major disruption to traditional medical education. Our study aimed to explore medical student perspectives of professional identity formation (PIF) during a nationally unique period in which there was no clinical training in medical undergraduate programs.

**Methods:** We interviewed fifteen UBC medical students (years 1-4) regarding their perspectives on PIF and the student role in the setting of the COVID-19 pandemic. Data were analysed iteratively and continuously to create a codebook and identify themes of PIF based on interview transcripts.

**Results:** We identified three key themes: (1) *Medical students as learners vs contributing team members* (2) *Decreased competency as a threat to identity* and (3) *Doctors as heroes*.

**Conclusions:** The impact of disruptions due to COVID-19 catalyzed student reflections on their role within the healthcare system, as well as the role of self-sacrifice in physician identity. Simultaneously, students worried that disruptions to clinical training would prevent them from actualizing the identities they envisioned for themselves in the future. Ultimately, our study provides insight into student perspectives during a novel period in medical training, and highlights the unique ways in which PIF can occur in the absence of clinical exposure.

## Résumé

**Contexte :** En réponse à la pandémie de la COVID-19, la décision a été prise de retirer les étudiants en médecine des milieux cliniques à l'échelle nationale, ce qui a entraîné une perturbation majeure de l'enseignement médical traditionnel. Notre étude visait à explorer les opinions des étudiants en médecine sur la formation de l'identité professionnelle (FIP) au cours de cette période unique marquée par l'absence de formation clinique dans les programmes d'études médicales pré-doctorales.

**Méthodes :** Nous avons sondé quinze étudiants en médecine de l'Université de Colombie-Britannique (1<sup>re</sup> à 4<sup>e</sup> année) pour recueillir leur point de vue sur la FIP et sur le rôle des étudiants dans le contexte de la pandémie. Les données ont été analysées de manière itérative et continue afin de créer une liste de codes et de dégager les thèmes en rapport avec la FIP à partir des transcriptions de ces entretiens.

**Résultats :** Nous avons identifié trois thèmes clés : (1) *les étudiants en médecine, en tant qu'apprenants versus en tant que membres actifs d'une équipe* (2), *la diminution des compétences comme menace pour l'identité* et (3) *les médecins comme héros*.

**Conclusions :** L'impact des perturbations dues à la COVID-19 a suscité chez les étudiants une réflexion sur leur rôle au sein du système de santé, ainsi que sur le rôle de l'abnégation dans l'identité du médecin. Parallèlement, les étudiants craignaient que les bouleversements de la formation clinique les empêchent de concrétiser leur identité professionnelle telle qu'ils l'envisageaient. En somme, notre étude donne un aperçu des réflexions des étudiants au cours d'une période inédite de la formation médicale et met en évidence les façons uniques dont l'identité professionnelle peut se construire en l'absence d'exposition clinique.

## Introduction

The concept of professional identity refers to the ways in which an individual understands themselves to be a part of their professional community.<sup>1,2</sup> Within medicine, professional identity formation (PIF) is hence the active process of internalizing those ideals, values, and skills associated with being a physician and a means of socialization into participation in the work of physicians.<sup>3,4</sup> Medical education literature has increasingly recognized the development of professional identity as an important aspect of medical student training, and has described PIF as a process that is complementary to the behaviors and abilities targeted by competency-based training.<sup>4,5</sup>

Different frameworks have been developed to conceptualize how medical students develop their professional identity.<sup>6,7</sup> Socialization has been centered as a fundamental driver of PIF on the “collective level”, however PIF also occurs on the individual level through personal psychological development.<sup>7</sup> Jarvis-Selinger et al. provide a framework for identity formation whereby medical students pull meaning about identity from specific observations, or “foci,” in their environment (e.g., interactions between physicians and patients).<sup>7</sup> Under this framework, “catalysts” represent stimuli (e.g., prior conversations, learning events) which provoke medical students to consciously think about professional identity as they move through their education. Ultimately, immersion in clinical experiences, specifically being involved with caring for and/or having responsibility for patients, has been framed as one of the key components to facilitate these different pathways towards identity formation. By providing opportunities to facilitate social learning and reaffirm one's competency, the experience gained from being in clinical environments becomes foundational to the developing identity of medical trainees.<sup>1,6</sup>

In March 2020, COVID-19 was declared a global pandemic. Within days, for a variety of reasons, all Canadian medical schools made the difficult decision to temporarily remove medical students from all clinical environments.<sup>8</sup> Pre-clerkship students transitioned to online learning for didactic lectures, small groups, and clinical skills sessions. Clerkship students were removed from their clinical rotations mid-block, and this was replaced with an independent research block. Given these understandings of identity formation, it is clear that the COVID-19 pandemic and resulting disruptions have the potential to impact many mechanisms traditionally framed as key to

medical student PIF; this has resulted in calls in the literature for pandemic-focused inquiries into medical student PIF.<sup>9-11</sup>

A previous qualitative study identified evidence of ongoing medical student PIF during the pandemic but suggested that traditional forms of socialization may have changed due to disruptions to clinical education.<sup>12</sup> While their study provides perspective on medical student coping and adaptation processes during the pandemic, questions still remain as to what insights into their identity and process of PIF medical trainees may have pulled from their experiences. Specifically, how have pandemic-related disruptions impacted the ways in which students view themselves, their training, and ultimately their conceptualization of doctors?

While the COVID-19 pandemic is notable for its global involvement, public health crises are an expected aspect of healthcare which will continue to develop in different contexts or scopes. There is a need for further documentation and exploration of the pandemic's effect on medical student identity, which can guide forms of support both in the ongoing pandemic and for analogous disruptions in the future. Furthermore, the interruption of clinical involvement, alongside a large-scale health crisis, provides a seldom available lens through which to study medical student identity formation and may allow for identification of similarly novel perspectives that deepen our overall understanding of medical student identity formation. The goal of this study is to explore medical student PIF during a period of time shortly after the complete cessation of clinical experiences.

## Methods

### Study design and methodology

We used a qualitative description approach.<sup>13</sup> We chose this methodology based on the study's focus on naturalistic inquiry, and its purpose to produce a descriptive summary of the data as opposed to theory generation.<sup>13</sup>

This study was approved by the UBC Behavioral Research Ethics Board (H20-01053).

### Setting

This study was conducted within University of British Columbia's four-year undergraduate medical program. This academic medical program is distributed across four regional campuses. The first two program years are mostly classroom-based with clinical exposure through weekly half-days in community family physicians' offices. Years 3

and 4 students are mostly clinically-based with students participating in community- and hospital-based clerkships.

### Sampling and recruitment

Participant recruitment occurred between May and June 2020. We invited student participation in the study via email as well as a private Facebook group that included all students from each program year. Participants provided written informed consent for study participation.

Initially, we identified participants via convenience sampling and conducted interviews with the first six students who responded. These students were mostly from years 2 and 3. We then gathered a more purposive sample by sending study invitations to medical students who held leadership positions in either student government or student-led volunteer initiatives related to COVID, or years 1 and 4 students, who were underrepresented in our study at the time.<sup>14</sup> Nine additional interviews were arranged based on these recruitment strategies. We did seek equal representation from all program years however we were only able to recruit a single 4<sup>th</sup> year student.

### Data generation

We developed an interview guide based on our own experiences as students, as well as existing literature on professional identity formation (Appendix A).<sup>15</sup> Each of three researchers (JWY, MS, HS) conducted a short pilot interview with a medical school colleague, and we made adjustments to the guide after debriefing our experiences.<sup>15,16</sup> We did not include these interviews in the final analysis. We used an iterative process in which we conducted interviews, reviewed them, made small changes to the interview guide, then generated more data.

Fifteen semi-structured individual interviews were conducted by either JWY, MS, or HS via Zoom conference calls. The interview length ranged between 25 and 45 minutes. No honorarium or other incentives were provided to participants. We audio-recorded interviews and transcribed verbatim.

### Data analysis

We used a conventional content analysis approach to analyze the data. An initial round of open coding was performed in order to identify broad topics covered in interviews.<sup>17,18</sup> Researchers met regularly to discuss emerging ideas within the interviews, and also made sure to read each new transcript as they were being produced. We made adjustments to the interview guide iteratively in order to address topics which appeared to be significant

across multiple interviews.<sup>17</sup> Furthermore, these discussions allowed the primary researchers to assess whether new ideas were continuing to develop with further data collection. After 15 interviews we noted that similar topics were discussed across multiple participants and no substantively new topics had been introduced. Based on this process, we decided that we reached data saturation.<sup>19,20</sup> For coding we used the NVIVO program, version 12.5.

To facilitate further analysis after open coding, the researchers developed a coding manual which would be used for second-cycle coding.<sup>17</sup> We created individual codes based on discussion about the most impactful categories we identified from the data analysis, as well as concepts about professional identity formation established in the literature.<sup>17</sup> In comparison to the initial round of descriptive codes, these second-cycle codes were meant to represent more significant themes that more specifically addressed our research question.<sup>17</sup> JWY re-coded all the transcripts using the new codebook.

We then rearranged content from second-cycle coding into higher-level concepts that represented the themes presented in this paper. Researchers met regularly to develop these themes, with any disagreements being handled by discussion until consensus was reached.

### Reflexivity/rigor

JWY, HS, MS are all medical students enrolled in the same program as the participants in the study; they moved through both second- and third-year curriculum during the course of this study. They thus occupied similar roles as the interview participants, and measures were taken to address reflexivity related to these positions.<sup>21</sup> These included: having consistent group meetings, discussing our own expectations, experiences, and potential biases related to the study, reviewing findings with a supervisor who is not a medical student themselves, and having the lead researcher (JWY) keep a memo book of reflections throughout the project.<sup>22-24</sup> All participants were informed of the researcher's medical student background prior to conducting interviews. Having an 'insider' perspective as students provided a unique perspective and an ability to identify areas of relevance and interest to ourselves and our peers. MH is a practicing family physician, qualitative researcher and holds a leadership role in the medical program. SJS is a PhD trained educational researcher, the former director of curriculum for the MD Undergraduate Program and the current Academic Associate Dean in the Faculty of Pharmaceutical Sciences.

## Findings

A total of 15 students were interviewed, with demographics as outlined in Table 1.

Table 1. Gender and year of study of participants.

Gender		Year of Study	
Men	9	Year 1 (MSI-1)	5
Women	5	Year 2 (MSI-2)	3
Did not disclose	1	Year 3 (MSI-3)	6
		Year 4 (MSI-4)	1
Total	15	Total	15

### Theme 1 – Medical students as learners vs. contributing team members

Participants described ways in which the pandemic acted as a catalyst to understanding their own identity as medical students. Specifically, participants reflected on the importance of utility in their sense of self, and what it means to 'contribute' as medical trainees and as members of the health care team.

The decision to pull medical students from clinical environments was described as an experience that prompted participants to reevaluate their role within the healthcare team. As an example, one third-year student described how the decision seemed, at first, to undermine their identity as "core" (P8) team members.

*I think at the end of the day, my thoughts on it have evolved. At the beginning it was a sense of - why? Why not have us there? We can do things that should help out...The faculty – they talk a lot about us being a part of the team. We're core members as well. We can do something. And when we were taken out, I guess there was a sense of – I don't want to say that our value was not as meaningful as we thought it would be, but I think there were just risks. (Participant 8, MSI-3)*

Participants often distinguished between being a 'learner' versus being a 'contributor'. For another student, also in third year, being pulled from clinical practice led them to more strongly identify with being a learner.

*I just assumed that my role from here on out would always be in the hospital setting...When we were asked to leave – I don't think I was ever upset, but I think I was just a little bit uncertain as to where they felt our role fits in...I have realized more and more, with time, that...that our role, first and foremost, is as a learner in the hospital setting... I think that was just proven more so with the pandemic. Realizing [that] if I was in a hospital right now I would probably just add*

*additional work to the preceptors. (Participant 11, MSI-3)*

While participants from all cohorts universally acknowledged their clinical limitations, students in clerkship years were the only ones to describe feelings of tension towards their place as learners or contributing clinical team members, in response to being pulled from clinical settings. Participants in pre-clerkship years largely felt that the decision to remove students from clinical practice was in line with their own views of themselves as students having limited utility. For them, the experience was described more as an affirmation of medical student identity, rather than a challenge to it.

*I think [the pandemic] has probably just reaffirmed what I thought before. We are often not there providing the best possible front-line care from a medical sense, but there are other things we can do." (Participant 1, MSI-2)*

### Theme 2 – Decreased competency as a threat to identity

Participants frequently brought up the pandemic's impact to their training, as well as concerns about related impacts to their clinical competency. Beyond the feeling of how being removed from clinical sites impacted personal feelings of competency, this disruption to medical aptitude was seen to be inexorably linked with professional identity in two ways; it impacted participants' abilities to feel like medical students in the moment, while also threatening their capacity to become the types of physicians they envision themselves to be in the future.

Training in clinical setting was seen as more than just an effective way to gain proficiency; it was often described as the defining characteristic of practicing as, and hence being, a healthcare trainee. As one student put it, "real medicine is going in and actually doing it, not reading off a book" (Participant 5, MSI-3). Some participants felt they had lost a defining component of their medical student identity when they were unable to develop, and demonstrate, their clinical competency in-person.

*I just feel like a regular student now, really even like undergrad...it doesn't really feel any different from any other program at this point. Until I get back into the clinics, I think I'm not going to feel like it's really med. (Participant 13, MSI-1)*

Fears surrounding decreased competency were strongly tied to participants' visions of themselves. Sometimes this was an inward dynamic, with students questioning

whether they would see themselves as competent. For example, lower-year students often wondering whether the pandemic would prevent them from becoming adequate clerks entering third year. Other students looked further ahead, and questioned whether impact their ability to become "*the best resident you possibly can be*" (Participant 4, MSI-2) or ultimately "*be competent physicians*" (Participant 9, MSI-3).

Participant concerns could also be more outwardly oriented, with students wondering whether they would be perceived as competent by others. Sometimes the focus was on informal interactions with colleagues: "*I worry that I'll look pretty ignorant*" (Participant 14, MSI-1). Third-year students were particularly concerned with the "*looming*" (Participant 10, MSI-3) prospect of residency matching, and whether they would be seen as adequately competent along more formal identity transitions.

One participant outlined the interconnected nature between training opportunities, internally feeling competent, and externally being seen as competent by others.

*The more time you have in clerkship, the more chance that you'll do better in fourth year, and get better reference letters...So that kind of worries me too...it's like 'how good will I be in third year? How good will I be in fourth year? And will I get into the residency that I wanted?' Because this has affected so much of my plans. (Participant 4, MSI-2)*

### Theme 3 – Physicians as heroes

Participants described how the pandemic gave them a new understanding of doctors as altruistic practitioners. As students discussed their developing understanding of the 'physician as hero', they also reflected on the implications of this dynamic to their personal lives and values.

Many of the experiences which contributed to students' changing perspectives were described through non-clinical forms of socialization. Living with family members working as physicians, talking with research supervisors, consuming news stories, and exposure to social media posts were collectively cited as experiences contributing to students' evolving outlook on physician identity.

*You hear on the news how some doctors, they had to say goodbye to their kids for a few months while they were helping out in the hospital...Those sacrifices that never crossed my mind before this whole pandemic. So after Coronavirus, I recognize that there's a lot*

*more to being a physician. And it can affect your personal life in that sense. (Participant 12, MSI-1)*

Some students expressed a tension between the premise of heroic physicians and other aspects of their identity. For one student, witnessing doctor's continue practice during the pandemic had brought out a conflict between the ideal, self-sacrificing physician and their own identity as a child or future parent.

*I have always had this impression of a physician as someone who is very selfless...But now I am realizing that there are very real consequences for that. And I am a very family-oriented person...Obviously I want to be that altruistic physician – but also, I don't want to put the people I care about in danger. (Participant 4, MSI-2)*

The pandemic had also given some students insight into physician identity as seen from the public perspective. In other words, how the community sees doctors as opposed to how doctors see themselves. Students emphasized the roles of responsibility and self-sacrifice in the media portrayal of physicians in the pandemic. For one student, the media's portrayal of physicians as heroes was in conflict with their own boundaries of physician responsibility.

*There was almost this painting of it as 'oh you're heroes'...and that didn't sit too well with me to be honest. Because it's setting up this narrative that it's okay that [physicians] had to risk their lives...If you told me that I had to go and intubate without proper PPE, I don't know, I'd be hesitant...I look at that [dynamic] and I go - if that's going to be what the future climate looks like, I'm going to end up having some struggles down the road with figuring out how I want to navigate that. (Participant 10, MSI-3)*

For some participants, physician altruism during the pandemic was a dividing line between student and physician identities. The apparent lack of medical student self-sacrifice was seen as highlighting their place as trainees, and ones that are separate from the inner physician community.

*I sometimes feel a little bit guilty...My parents work in hospitals that have COVID outbreaks...and seeing how that has affected them, and just their emotional stress, and how much more on edge they are - I feel guilty knowing that my biggest worry right now is, you know, waking up for CBL [case-based learning] and staying on top of my work. (Participant 6, MSI-1)*

## Discussion

This study was able to identify influences on medical student PIF which were brought about by pandemic-related disruptions to clinical education. Within existing literature, we are aware of only two qualitative studies to explore medical student PIF during COVID.<sup>12,25</sup> A major focus of the first study was students' exploration of their roles in non-clinical environments; the second study explored student experiences on clinical placements as medical student healthcare assistants. Our study complements their findings by further exploring the larger theme of student-as-contributor when students were not able to participate clinically. Under this framework, students' exploration of their non-clinical roles and simultaneously questioning of their place within the healthcare team both represent attempts to navigate their professional identity as a contributing student under seemingly limiting circumstances.

Literature on medical student PIF often differentiates between a student's identity as a learner versus a care-providing physician.<sup>26</sup> Our findings are notable because they demonstrate ways in which medical students have adopted the service-focused aspect of physician identity during early stages of their education. While students may be well aware of their clinical limitations, their drive to find utility may remain a dynamic which should be recognized throughout all stages of medical training.

Current literature on PIF oftentimes centers role-models and experiential education as the primary forms of medical student socialization.<sup>1,6</sup> Despite the fact that medical students temporarily found themselves separated from both of these factors, previous literature has suggested that socialization continued without clinical experiences, and did so through forms that are different than what is traditionally described in PIF models.<sup>12</sup> Our findings provide support for this idea, as we were able to identify many forms of socialization that were both non-clinical and occurred in the absence of face-to-face interactions. Experiences involving social media and news coverage were the specific situations most commonly cited, although they were not the only ones. The decision to withdraw students from clinical settings was itself seen as a form of implicit communication from the faculty body; it conveyed messaging about the student's role as learners and not as vital members of the health care team even if that was not the explicit purpose. Notably, early discussion about pulling students from clinical practice predicted this

type of messaging as a possible consequence of the decision; our study now provides evidence in support of that prediction.<sup>10</sup> Together, these findings represent novel, oftentimes overlooked, mechanisms of socialization that emphasize the diverse ways in which PIF can occur.

One notable finding of our study involved the physician-as-hero archetype, and how it relates to students' experience of their physician identity. Heroism has been noted as one of medicine's foundational narratives and has drawn critique from recent literature for its potential to act as a barrier to patient-physician communication, and also for its roots in a patriarchal or militaristic model of medicine.<sup>27-30</sup>

In our study, physician heroics were communicated through forms of public media, a dynamic which has been noted previously.<sup>31-33</sup> We identified conflicts between personal identities (e.g., being a family member) and the notion that being a doctor means engaging in heroic self-sacrifice and even knowingly placing oneself in harm's way. Many of the situations students expressed anxiety around could be described as work-family conflicts, which is the sense of incompatibility between these two roles and also an experience closely associated with physician burnout.<sup>34-37</sup> These findings emphasize that the development of professional identity does not occur in isolation. Rather, students must navigate their developing understanding of what it means to be a physician with their pre-existing values and identities. While some literature does exist which addresses the interplay between professional and personal identities in medicine, literature on PIF largely focuses on medical identities in isolation.<sup>38</sup> Further research is needed to parse out the intersectional ways in which medical students experience PIF.<sup>5,39,40</sup> In the context of our study, further work could specifically explore how medical students have experienced the pandemic differently based on other aspects of their identity, and how their perspectives may have evolved over time.

This study was conducted with medical students at a single Canadian university, and at a specific time point during the COVID-19 pandemic's trajectory. Although the decision to pull Canadian medical students from clinical settings was largely shared across the country, the experiences of our participants will still be region-specific and may be less generalizable to those in other geographic regions or other medical programs. Regarding the demographics of our interview pool, we note that our study did recruit less women than men (five women, nine men, one did not disclose). We managed to recruit equal total numbers of students from pre-clerkship and clerkship years, and our



findings suggested there were distinct perspectives from these groups. However, we only included one 4<sup>th</sup> year student, and this limited our ability to comment on differences in perspectives between 3<sup>rd</sup> and 4<sup>th</sup> years of study specifically.

## Conclusion

This research explores medical student PIF during a unique time when clinical experiences were halted due to the COVID-19 pandemic. The novel situations which students found themselves in prompted new insights into their identities as contributing team members, as well as future physicians with professional responsibilities. As medical trainees, the impact to clinical training was perceived as a threat to students' abilities to become the version of themselves they envisioned in the future. Despite the absence of exposure to clinical settings, socialization continued through unique avenues such as social media posts, news coverage, and implicit messaging of Faculty and program decisions. Avenues of further research include continuing to explore the role of large-scale events in precipitating medical student PIF, as well as the relationship between medical and non-medical identities in this process.

**Conflicts of Interest:** The authors declare that no conflicts of interest exist due to financial or personal relationships that could potentially bias their work.

**Funding:** There was no funding for this study.

## References

- Feldman M, Edwards C, Wong A, et al. The role of stimulation in professional identity formation in medical students. *Simul Healthc* 2021. <https://doi.org/10.1097/SIH.0000000000000583>
- Sharpless J, Baldwin N, Cook R, et al. The becoming: students' reflections on the process of professional identity formation in medical education. *Acad Med*. 2015; 90: 713 – 717. <https://doi.org/10.1097/ACM.0000000000000729>
- Wong A, Trollope-Kumar K. Reflections; An inquiry into medical students' professional identity formation. *Med Educ*. 2014; 48: 489 – 501. <https://doi.org/10.1111/medu.12382>
- Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. Reframing medical education to support professional identity formation. *Acad Med*. 2014; 89: 1446-1451. <https://doi.org/10.1097/ACM.0000000000000427>
- Jarvis-Selinger S, Pratt DD, Regehr G. Competency is not enough: integrating identity formation into the medical education discourse. *Acad Med*. 2012; 87: 1185 – 1190. <https://doi.org/10.1097/ACM.0b013e3182604968>
- Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. A schematic representation of the professional identity formation and socialization of medical students and residents: a guide for medical educators. *Acad Med*. 2015; 90: 718-725. <https://doi.org/10.1097/ACM.0000000000000700>
- Jarvis-Selinger S, MacNeil KA, Costello GRL, Lee K, Holmes C. Understanding professional identity formation in early clerkship: A novel framework. *Acad Med*. 2019; 98: 1574 – 1580. <https://doi.org/10.1097/ACM.0000000000002835>
- The Association of Faculties of Medicine in Canada. COVID-19. <https://afmc.ca/en/priorities/covid19>. [Accessed Aug 20, 2020].
- Compton S, Sarraf-Yazdi S, Rustandy F, Krishna LKR. Medical students' preference for returning to clinical setting during the COVID-19 pandemic. *Med Educ*. 2020; 54: 932-950. <https://doi.org/10.1111/medu.14268>
- Khamees D, Brown CA, Arribas M, Murphey AC, Haas MRC, House JB. In crisis: Medical students in the COVID-19 pandemic. *AEM Educ Train*. 2020; 4(3). <https://doi.org/10.1002/aet2.10450>
- Stetson GV, Kryzhanovskaya IV, Lomen-Hoerth C, Hauer KE. Professional identity formation in disorienting times. *Med Educ*. 2020; 54 (8). <https://doi.org/10.1111/medu.14202>
- Findyartini A, Anggraeni D, Husin JM, Greviana N. Exploring medical students' professional identity formation through written reflections during the COVID-19 pandemic. *J Public Health Res*. 2020; 9 (1): 1918. <https://doi.org/10.4081/jphr.2020.1918>
- Colorafi, KJ, Evans, B. Qualitative descriptive methods in health science research. *HERD*. 2016; 9(4):16–25. <https://doi.org/10.1177/1937586715614171>
- Gill SL. Qualitative sampling methods. *J Human Lac*. 2020; 36(4): 579 – 581. <https://doi.org/10.1177/0890334420949218>
- Castillo-Montoya M. Preparing for interview research: The interview protocol refinement framework. *Qual Rep*. 2016; 21(5): 811–831. <https://doi.org/10.46743/2160-3715/2016.2337>
- DeJonckheere M, Vaughn LM. Semistructured interviewing in primary care research: a balance of relationship and rigour. *Fam Med Community Health*. 2019; 7:e000057. <https://doi.org/10.1136/fmch-2018-000057>
- Saldana J. *The coding manual for qualitative researchers*. Thousand Oaks, CA: SAGE Publications; 2009.
- Miles MB, Huberman AM, Saldana J. *Qualitative data analysis: a methods sourcebook* (3rd edn). Thousand Oaks, CA: SAGE Publications; 2014
- Saunders B, Sim J, Kingstone T, et al. Saturation in qualitative research: exploring its conceptualization and operationalization. *Qual Quant*. 2017; 52: 1893– 1907. <https://doi.org/10.1007/s11135-017-0574-8>
- Fusch PI, Ness LR. Are we there yet? Data saturation in qualitative research. *The qualitative report* 2015; 20(9): 1408 – 1416. <https://doi.org/10.46743/2160-3715/2015.2281>
- Berger R. Now I see it, now I don't: researcher's position and reflexivity in qualitative research. *Qual Res*. 2015; 15(2): 219– 234. <https://doi.org/10.1177/1468794112468475>



22. Buetow S. Apophenia, unconscious bias and reflexivity in nursing qualitative research. *Int J Nurs Stud.* 2019; 89: 8–13. <https://doi.org/10.1016/j.ijnurstu.2018.09.013>
23. Dodgson JE. Reflexivity in qualitative research. *J Hum Lact.* 2019; 35(2): 220–222. <https://doi.org/10.1177/0890334419830990>
24. Gough B. Reflexivity in qualitative psychological research. *J Posit Psychol.* 2017; 12(3): 311–312. <https://doi.org/10.1080/17439760.2016.1262615>
25. Nolan H, Owen K. Qualitative exploration of medical student experiences during the Covid-19 pandemic: implications for medical education. *BMC Med Educ.* 2021;21:285. <https://doi.org/10.1186/s12909-021-02726-4>
26. Stubbing E, Helmich E, Cleland J. Authoring the identity of learner before doctor in the figured world of medical school. *Perspect Med Educ.* 2018;7:40-46. <https://doi.org/10.1007/s40037-017-0399-0>
27. Bleakly A. Force and presence in the world of figured medicine. *Healthcare.* 2017; 58 (5). <https://doi.org/10.3390/healthcare5030058>
28. Brown M. “Like a devoted army”: medicine, heroic masculinity, and the military paradigm in Victorian Britain. *J. Br. Stud.* 2010; 49 (3): 592 – 622. <https://doi.org/10.1086/652000>
29. Collie GM. A Bakhtinian approach to (re)visioning heroic rhetoric in medical discourse [Dissertation]. Indiana University of Pennsylvania. 2015.
30. Foster K, Robert C. The heroic and the villainous: a qualitative study characterizing the role models that shaped senior doctors’ professional identity. *BMC Med Educ.* 2016; 16 (1). <https://doi.org/10.1186/s12909-016-0731-0>
31. Strauman EC, Goodier BC. The doctor(s) in house: an analysis of the evolution of the television doctor-hero. *J Med Humanit.* 2011; 32: 31 – 46. <https://doi.org/10.1007/s10912-010-9124-2>
32. Joseph T. *Playing doctor.* University of Michigan Press. 2010.
33. Mroz G, Papoutsis C, Greenhalgh T. ‘From disaster, miracles are wrought’: a narrative analysis of UK media depictions of remote GP consulting in the COVID-19 pandemic using Burke’s pentad. *Med Humanit.* 2021;47:292-301. <https://doi.org/10.1136/medhum-2020-012111>
34. Picton A. Work-life balance in medical students: self-care in a culture of self-sacrifice. *BMC Med Educ.* 2021; 21 (8): <https://doi.org/10.1186/s12909-020-02434-5>.
35. Blanco-Donoso LM, Moreno-Jimenez J, Hernandez-Hurtado M, Cifri-Gavela JL, Jacobs S, Garrosa E. Daily work-family conflict and burnout to explain the leaving intentions and vitality levels of healthcare workers: interactive effects using an experience-sampling method. *Int J Environ Res Public Health.* 2021; 18:1932. <https://doi.org/10.3390/ijerph18041932>
36. Kocalevent R, Pinnschmidt H, Selch S, et al. Burnout is associated with work-family conflict and gratification crisis among German resident physicians. *BMC Med Educ.* 2020; 20: 145. <https://doi.org/10.1186/s12909-020-02061-0>
37. Kleiner S, Wallace JE. Oncologist burnout and compassion fatigue: investigating time pressure at work as a predictor and the mediating role of work-family conflict. *BMC Health Serv Res.* 2017; 17(639). <https://doi.org/10.1186/s12913-017-2581-9>
38. Matsui T, Sato M, Kato Y, Nishigori H. Professional identity formation of female doctors in Japan – gap between the married and unmarried. *BMC Med Educ.* 2019; 19:55. <https://doi.org/10.1186/s12909-019-1479-0>
39. Volpe RL, Hopkins M, Haidet P, Wolpaw DR, Adams NE. Is research on professional identity formation biased? Early insights from a scoping review and metasynthesis. *Med Educ.* 2019;53:119-132. <https://doi.org/10.1111/medu.13781>
40. Wyatt TR, Balmer D, Rockich-Winston N, Chow CJ, Richards J, Zaidi Z. ‘Whispers and shadows’: A critical review of the professional identity literature with respect to minority physicians. *Med Educ.* 2021;55:148-158. <https://doi.org/10.1111/medu.14295>

# Appendix A: Interview guide

## General questions

- Can you briefly walk me through your experience with the COVID-19 pandemic to date? From when you first started hearing about the virus, when you started to take it more seriously, and how it has been affecting you now?
  - I was wondering if you could describe, in broad strokes, what the last few months have looked like for you? And felt like for you?
- “Feeling like a doctor”: Frame as a spectrum, or a gradual process
  - To what extent do you feel like a doctor? Has that changed over time?
  - What sort of experiences make you feel more like a doctor?
    - How has COVID affected those experiences?

Bring up the distinction we might feel between our ‘medical’ and ‘non-medical’ parts of our lives:

- How connected have you felt to the medical community, and that medical part of your life, since classes transitioned online?
- NOTE - some students will be on summer break, so we might have to ask them to think back to when they were still in class.

## Current experience

### *Role of medical students in COVID pandemic*

- What is the role of medical students in the ongoing pandemic?
  - What is the role of medical students, generally?
- How do you feel about occupying that role?
  - We often have external bodies, committees, giving us explicit descriptions of our roles, and what we can or cannot do. And those roles may or not line up with what we feel we, as individuals, should or could be doing. I was wondering whether you feel that

### *Changes to curriculum/program delivery*

- How have you been affected by not having clinical experiences? What has that felt like?

## Implications for the future

- Has the COVID pandemic changed your outlook on working as a physician in the future?
  - Have your thoughts on potential career paths been affected by watching the pandemic unfold?
- What has it been like watching this play out as a medical trainee, knowing that you may potentially be in a similar position yourself, either as a student or physician?
  - Has the pandemic given you any new perspectives on the concept of ‘risk’ as a physician?