

# **‘I DON’T FEEL LIKE I’M LEARNING HOW TO BE A DOCTOR’: EARLY INSIGHTS REGARDING THE IMPACT OF THE COVID-19 PANDEMIC ON UK MEDICAL STUDENT PROFESSIONAL IDENTITY**

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## **ABSTRACT**

*Introduction:* Professional identity formation is a priority of medical training. Covid-19 pandemic caused disruption to medical education. We ask how this disruption impacted professional identity formation of medical students during the first wave of the covid-19 pandemic, and perceptions of conflicts between these activities.

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*Methods:* An online survey was distributed to medical students in the UK from 2nd May to 15th June 2020. Operating within the paradigm of constructivism, we conducted a reflexive thematic analysis of qualitative responses to five open questions. Analysis was focused around the disruption to medical education, actions taken by medical students during this disruption, and the tension between student actions (where they existed in conflict).

*Results:* We analysed 928 responses and constructed three themes:

- Status and role as a future doctor
- Status and role as a student
- Status and role as a member of the wider community

Conflict arose at the intersections between these three themes. Students noted that lack of clinical exposure was detrimental to their education, implicitly recognising that some aspects of professional identity formation require the clinical environment. Participants were keen to volunteer clinically, but struggled to balance this and academic work. Participants worried about risk to their families and the wider community and wanted to ensure their skills added value to the clinical environment. Volunteers felt frustrated when they were unable to perform tasks aligning with their identity as a future doctor. An exception was participants who worked as interim Foundation Year One doctors (FY1), which aligned with the role of an FY1.

*Conclusions:* During the disruption caused by the Covid-19 pandemic, medical students experienced conflict when different aspects of their identity demanded different actions. Covid-19 pandemic heightened issues with developing professional identity for medical students, including lack of a defined role, and perceived undervaluing of their skills by other members of the healthcare team. Care must be taken to nurture professional identity formation even during periods of disruption.

**Keywords:** medical students, professional identity, covid-19 pandemic, conflict, volunteering

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## INTRODUCTION

Professional identity development in medicine describes the process by which students move from being a “member of the public” to a member of the profession. Holden et al. described professional identity formation as the “transformative journey through which one integrates the knowledge, skills, values, and behaviors of a competent, humanistic physician with one’s own unique identity and core values” (Holden et al., 2015). Developing a strong professional identity is considered a key facet of medical education, as evidence suggests those with strong professional identities achieve higher levels of well-being and success in their careers as doctors (Monrouxe, 2010).

Professional identity is developed in part through interactions with the formal, informal, and hidden curricula (Goldie, 2012). The formal curriculum represents the overt teaching and learning medical students’ experience – for example, anatomy, physiology, and clinical teaching. The informal curriculum represents the learning done outside of the structured class or placement environment. The hidden curriculum consists of the overarching structural and cultural “rules” of medicine – what might be thought of as medicine’s “etiquette” (Hafferty and Franks, 1994; Hundert, Hafferty and Christakis, 1996; Lempp and Seale, 2004). Cruess et al. summarise the factors that contribute to this process of professional identity development, detailing a functionalist approach to the theory of socialisation, whereby students become part of the medical profession through role modelling, conscious and unconscious reflection on experiences, as well as participation in cultural rituals and engagement with symbols (Cruess et al., 2015; Brown and Finn, 2021). Learning through the three curricula results in students becoming increasingly integrated into the medical community of practice, membership of which provides the external backdrop for individual identity development. Communities of practice as applied to medicine represents the profession as a group “engaged in a common activity” – the practice of medicine – where members are united in shared activities, overlapping knowledge, and a set of shared values, beliefs and heritage focused on a mutual enterprise (Barab, Barnett and Squire, 2002). Communities of practice theory provides a framework within which individuals develop their professional identities as they

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move from the periphery of a community towards full membership, learning how to “think, act and feel like a physician” as they progress (Merton, Reader and Kendall, 1960).

Professional identity development is a complex process that can be conceptualised from a psychological orientation as individually mediated. Individuals construct professional identities aligning with their own personal values, beliefs and experiences, influenced by external factors, including their roles (Cruess et al., 2015). Medical students and doctors have multiple identities, and it is the successful integration of existing identities with the new identity of “professional” that represents the goal of professional identity development in medical education (Goldie, 2012). As has been explored in literature regarding dissonance between professional and personal identities, such as Costello’s work regarding race, class, gender and professional identity, conflict between different facets of identity can affect the well-being and career success of those in the process of integrating into a profession (Costello, 2005). As noted by Frost and Regehr, tension between different aspects of identity exists within the usual course of medical studies. They describe students resolving these tensions in different ways: some by aligning more strongly with standardisation, and others by rejecting standardisation and focusing on how their identities outside of medicine mark them as different from others in the community (Frost and Regehr, 2013). Areas of conflict between identities can represent areas where professional identity is developed by navigating tensions between identities as outlined in the work cited above; however, this is a less well-developed area of research in professional identity literature.

In this study, we explore early indicators of how the process of professional identity development was disrupted or changed due to Covid-19, the subsequent changes made to the medical curriculum, and student participation in voluntary work. With the removal of students from clinical and academic environments during the Covid-19 pandemic, opportunities to experience the facets of the formal, informal and hidden curricula that facilitate professional identity development may have been disrupted or changed, thus affecting an individual’s professional identity development. Additionally, during the pandemic some students took on new, voluntary clinical roles,

which again may or may not have had an impact on their professional development. These voluntary clinical roles may have resulted in conflicts between their identities which would require addressing and resolving in order to support professional identity development during this period.

As described above, there is a significant body of work exploring how and why professional identity develops during the course of medical school, but as of yet there are fewer studies exploring the impact of Covid-19 on medical students' professional identity development. It has been postulated that the changes to the learning environment caused by Covid-19 may have changed the process of professional identity development and integration into the medical community of practice (Kinnear et al., 2021), though little qualitative data exists to support this claim, a gap we intend to address. Some early work from clinical educationalists has suggested alternative routes to support professional identity development during Covid-19, calling for a "reimagining" of professional identity through, for example, work as an allied health professional, public health or community work, and through social media use (Stetson and Dhaliwal, 2020). One US institution even used the pause in clinical activity to deliver a structured professional identity curriculum to their medical students (Stetson et al., 2020). Some work using Indonesian students' reflections on their role during Covid-19 has focused on how students have adapted their learning to the new demands of the pandemic and argued that, despite disruptions, students recalled experiences that had continued their professional identity development (Findyartini et al., 2020). The work we have done is not intended to replace the calls for a reimagining of how student doctors integrate their identities with those of a professional, but rather to explore how disruptions influenced identity development, particularly focusing on the conflicts between the different identities medical students possess, as these are often fertile areas for professional identity development.

As blended or even fully online delivery of medical education is likely to continue beyond the Covid-19 pandemic, as a cost-effective way of delivering aspects of medical education at scale, an investigation of the challenges posed by recent disruptions on professional identity development has benefits beyond the current pandemic. The results

may also be useful for informing support for students who take a leave of absence from medical school for any reason.

## **METHODS**

The analysis presented in this paper is of qualitative data from a larger mixed-methods survey. We distributed an online mixed-methods survey to UK medical students. The STROBE guideline for cross-sectional studies was followed (STROBE Initiative, 2007). Initially, we performed a systematic review of the motivations for, and barriers to, healthcare volunteering during disasters (Ashcroft et al., 2020; Byrne, Ashcroft, Alexander, et al., 2021). Based on our interpretation of the original studies reviewed, MHVB and JA developed an original survey with a focus on the themes outlined in the systematic review. These survey items then underwent expert review by NS, MELB, CB. The survey was tested by student authors (JCWM, LA) to establish face validity and ensure that the full survey could be completed without undue time burden on participants.

Ethical approval for the study was obtained from the University of Cambridge Psychology Research Ethics Committee (Approval number: PRE.2020.040).

Inclusion criteria were any medical student registered for study on a UK undergraduate or graduate entry medical degree programme, including those who had graduated early due to changes to the end of medical training prompted by the Covid-19 pandemic. Medical schools were identified by their listing on the UK Medical Schools Council website (Medical Schools Council, 2020). All medical schools were contacted via their medical school office general enquiries email and the Dean responsible for education and asked to distribute the survey. Messages were also posted once weekly to social media from 2nd May to 15th June 2020 (via Twitter and Facebook accounts set up specifically for the purposes of promoting the study and to medical student university groups) asking medical students to complete the questionnaire and share the survey to recruit participants using a snowball approach. The survey was hosted on Google Forms with no identifiable data collected, and data were held on a secure server. Due to the nature of the survey hosting system, there was no way to prevent

participants from answering the survey more than once, which was a limitation of the survey system.

The survey consisted of 53 questions assessing (quantitatively and qualitatively) previous clinical experience, attitudes to volunteering and motivation and barriers, volunteering role, medical education and issues currently faced, and safety. Students were not remunerated for completing the survey.

The responses to open ended qualitative survey items were used for this thematic analysis, including:

- What issues are you currently facing as a medical student during the coronavirus pandemic?
- What issues do you think you will encounter if you volunteer to work during the coronavirus pandemic?
- What is the main emotion you feel about working during the coronavirus pandemic?
- Have you heard any stories about medical students volunteering experiences? Please describe them.
- If you have ethical concerns [regarding volunteering clinically] what are they?

We selected these five qualitative questions as the basis for our analysis as the quantitative data was analysed and presented elsewhere (Byrne, Ashcroft, Wan, et al., 2021), and on review of the data generated through these qualitative questions we felt that the themes generated were robust enough to sit in their own piece of work rather than alongside the not-insignificant volume of data generated by the quantitative section of the survey. Whilst the survey itself captured both quantitative and qualitative data, this paper addresses only the qualitative aspect of the work. This paper has previously been published as a preprint (Byrne, Ashcroft, Wan, et al., 2021).

The survey is available in the supplementary material.

## **CONTEXT**

The survey was active from 2nd May to 15th June 2020, providing a snapshot of the experiences of a wide variety of students in the midst

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of Covid-19 disruption. Students were asked to reflect on their experiences since their medical education had been halted, the timing of which varied between medical schools, but the majority of students had clinical placements suspended in March 2020. The Medical Schools Council issued guidance on the 13th March 2020 indicating that training of medical students should be based on local needs, and that final-year students who had met the GMC Outcomes for Graduates would be given provisional registration earlier than usual (Atherton, no date). Practically, this meant that most students were removed from the clinical environment in their capacity as medical students, with some having the opportunity to volunteer in roles both within and outside the clinical environment. These roles were allocated locally and there was considerable diversity in the roles students were able to take up. For graduates, a structured “Interim FY1 programme” was introduced, aligned with the job role of a Foundation Year 1 doctor (the term used for doctors in their first-year postgraduation in the UK), including provisional registration with the GMC (Joint statement from the UK Health Departments, the General Medical Council, Health Education England, NHS Education for Scotland, Health Education and Improvement Wales, the Northern Ireland Medical and Dental Training Agency, 2020).

### **RESEARCH APPROACH**

Operating within the paradigm of constructivism, we conducted a reflexive thematic analysis following Braun and Clarke’s six-step approach to code and construct themes (Braun and Clarke, 2006). In this context, identity was conceptualised as an individually mediated but dynamic entity influenced by social relationships, and constructed, in part, through role and through increasing levels of integration into the medical community of practice, as discussed and defined in the introduction. Given the range of viewpoints and backgrounds of respondents represented in the existing dataset, this methodological approach is appropriate in that it allows for different interpretations and constructions of identity to sit alongside one another, allowing for examination of tensions between the multiple facets of one’s identity. Analysis was focused around the disruption to medical education,



actions taken by medical students during this disruption, and the tension between student actions (where they existed in conflict).

Three authors (LA, MHVB and AH) familiarised themselves with the data by reading and re-reading the data. Initial ideas were noted. LA and MHVB created initial descriptive codes using an inductive approach, and the dataset was coded systematically. To identify themes a semantic approach was used. Codes were then analysed for patterns, grouped, summarised, interpreted and discussed with all authors to generate early themes. Using the theory of integration into communities of practice as a facilitator of professional identity development as a sensitising lens the codes and their relation to the data and themes were then systematically reviewed by AH. Three themes were constructed. Themes and subthemes were checked against the dataset as a whole and refined. Themes and subthemes were discussed at length by all authors, and a final set of themes named and defined. To preserve participant voice, quotes were selected to illustrate the final themes and highlight areas of concordance and tension between them.

## **REFLEXIVITY STATEMENT**

Reflective notes were made to promote interrogation of the relationship between authors and the dataset. Given our constructivist approach, we acknowledge that realities are variable, and that each researcher brings their own reality to the dataset, influencing interpretation. Rather than viewing this as an issue, the authors perceive this as a strength – their insider statuses, background in identity theory, and education offer a unique perspective they believe has deepened analysis.

AH is a medical student who spent time during the Covid-19 pandemic reporting on issues faced by other students. MELB is a PhD student in medical education, previously familiar with identity development theory. MHVB and JA are Academic Clinical Fellows who worked in a clinical capacity with volunteer medical students during the Covid-19 pandemic and have postgraduate qualifications in medical education, LA and JCMW were final-year medical students during the Covid-19 pandemic, NS is an NHS consultant and tutor in medical education with a research interest in postgraduate medical training. CB holds multiple senior medical educational university

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positions and has been directly involved in the changes being made to medical student teaching during the COVID-19 pandemic.

### **TEAM REFLEXIVITY**

This study was conducted by a diverse collaborative of medical students, doctors in training, medical education researchers, and consultants spanning multiple educational institutions. This plethora of viewpoints and independence from any single institution allowed the authors a broad spectrum of thought in relation to the data and mitigates the temptation to give undue weight or to dismiss contributions made by participants.

### **RESULTS**

#### **Respondent Demographics**

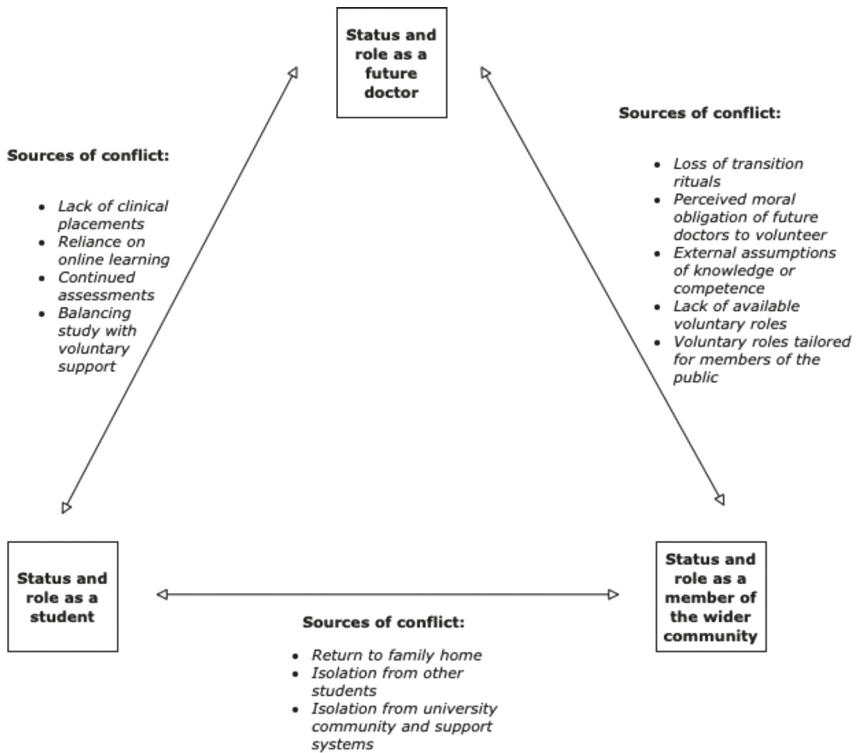
1,145 medical students completed the survey. Of these, 928 provided qualitative responses analysed in this study. 687 out of 928 (74.0%) respondents were female, though women made up 55% of the medical student population (The General Medical Council, 2019). The median age of respondents was 22 (interquartile range, IQR, 20–24). The modal year group of the respondents was third year, and 129 (14.0%) were in their final year of study. At the time of responding (median response date 16/04/2020), 282 out of 928 (30%) had commenced volunteering in a clinical capacity.

### **THEMATIC ANALYSIS**

Three themes were constructed to describe the identities participants felt were in conflict during the first wave of the Covid-19 pandemic:

- Future doctor
- Student
- Member of the wider community

Figure 1 provides an overview of the themes and conflicts between them.



**Figure 1. Identity themes and the conflicts between them as expressed by our participants**

Participants from all years of all medical schools identified a lack of opportunity to learn within a clinical environment as a key educational issue, highlighting that “*nothing can really replace face-to-face patient contact*” (Participant 163). Students implicitly identified that “becoming a doctor” involves more than simply learning material didactically: “*no clinical skills, no hospital or lab experience . . . I don’t feel like I’m learning to be a doctor*” (Participant 608). Participants worried about the cancellation of assessments in regard to academic competency when moving into their next year of study, sometimes linked to the lack of clinical exposure: “*missing placement blocks and learning, not doing exams and therefore not knowing if I’m competent*” (Participant 348). Transition symbols such as end of year assessments were seen as important by participants in assuring their competence to move into the next stage of their medical

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school careers – continuing their integration into the community of practice.

For final year medical students, many of whom were moved into the workforce early, the loss of graduation rituals left participants dissatisfied with the legitimacy of their transition into qualified professional, with *“no elective, no free time, no graduation ceremony, no final year dinner, no closure from the hardest years of my life at medical school”* (Participant 42), with some stating that the lack of these rituals left them with *“impostor syndrome”* (Participant 19). Others felt being unable to sit their final examinations, or undertaking truncated versions, caused them to doubt their skills as a junior doctor: *“my medical degree ended so abruptly and I didn’t get to take my finals which means I have not revised as intensely as I would have otherwise, therefore may lack knowledge/skills”* (Participant 180).

Participants were keen to volunteer in a clinical capacity as their placements and often assessments had been cancelled, though many found it challenging logistically to secure roles. Many who did secure roles as support workers or similar outlined the *“great benefit in many ways – learnt new communication skills I otherwise would not have developed at medical school, part of team, clinical experience”* (Participant 375). Many participants valued opportunities to work in allied roles and the additional insight this would bring to their future medical careers: *“working as HCSW [healthcare support worker] . . . I have been able to understand the patient experience a lot better and understand how the different roles of a HCSW, nurse and doctor all fit together with regards to patient care. My inter-professional skills have also improved. As a medical student it can be difficult to understand how you fit in this dynamic but being able to work as HCSW has enlightened me in the reality of the daily ins and outs”* (Participant 1024).

In contrast, others did secure roles but felt that their skill sets were not adequately used, mentioning that they were unable to undertake some skills that they felt comfortable with: *“for example, I am currently not allowed to cannulate or do bloods even though that would be the most helpful thing . . . so it doesn’t appear the roles have been thought through”* (Participant 757). Many linked their roles

with their “utility” – as a medical professional in training they became frustrated when their roles were not aligned with skills in which they were competent. Those skills often aligned more closely with the role of a junior doctor than, for example, a healthcare assistant. Some participants drew comparisons with allied health students, who were more often kept in the clinical environment, feeling “*that medical students are not useful or recognised to the NHS . . . all my allied health professional friends have recognised roles. We do not, we are very much not wanted I feel*” (Participant 232), with others highlighting that pandemic pressures had highlighted existing tensions with medical students being unable to properly integrate into clinical teams, with “*the pandemic [proving] that medical students are the bottom rung of the ladder and their placements aren’t important, as soon as anything happens we are seen as a nuisance*” (Participant 318). Concerningly, some participants reported perceived hostility from other members of the healthcare team. There was additional guilt around this, especially in relation to being remunerated for their work. These experiences reflect medical students’ perceptions that other healthcare professionals do not regard them as “members” of the wider healthcare team, and that medical students are unable to add value or be useful: “*[allied health professionals] complained to us that we were doing work that they could do and were more qualified to do, while they had very little to do, and thus they felt that paying us was wasting NHS funding*” (Participant 514).

Perhaps unsurprisingly, guilt was expressed by many participants, particularly where conflicts existed between the actions demanded by different aspects of their identities. For example, there was significant guilt described around voluntary work – participants felt that as future doctors they had an obligation to utilise their skills, but were unsure of their relative utility balanced with the risk to themselves and their wider communities: “*I felt like I had a duty to help, as in 3 years time I would be working as a doctor anyway. I have skills and understanding that other members of the public don’t have and I should use that for the greater good. I wanted to help so much that I did apply to work in a hospital until my family circumstances changed*” (Participant 1114). Another key concern was “*weighing up study and revision and helping in the ICUs*” (Participant 242), especially with “*not clear*

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*enough guidance from the medical school; dilemma for volunteering vs studying for exams”* (Participant 959). Most medical schools did not require students to work in voluntary roles as part of their course, but many participants felt under pressure to seek out these roles alongside their studies.

Many of these dilemmas were compounded by students returning to their family homes during the first lockdown period, and *“trying to continue with medical school studies at home”*, (Participant 100) some with additional pressures of household work or vulnerable family members. Isolation from medical school friends and support systems left some participants *“trying to maintain academic motivation without the support of colleagues”* (Participant 470), and others simply *“missing friends and normal life”* (Participant 79). Interestingly, some participants reported that family members had high expectations of their medical student relatives, mentioning *“pressure from family to volunteer as they believe I am more qualified than I am”* (Participant 228). Others reported feeling pressured to explain rapidly changing public health measures, *“people expecting me to know more than I do about the pandemic and having to answer friends’ and colleagues’ questions continually about this; this is incredibly stressful”* (Participant 370). Guilt and frustration were expressed where these external perceptions of a student’s identity and membership of the profession conflicted with a student’s own perceptions of their position and ability as a healthcare professional in training.

A key exception to the issues with voluntary work outlined above was the group of participants who worked as interim FY1s, aligned with the role of an FY1. Whilst these newly graduated doctors missed out on traditional transition rituals, the extended “shadowing” period was effective in supporting their new identities as junior doctors, as well as relieving the usual pressures of the first weeks and months of working: *“frankly, I feel it’s made been hugely beneficial as the work is pretty easy and manageable, and has given me time to get to grips with what being a newly registered doctor is like with 0% of the usual responsibilities yet 100% of the pay”* (Participant 436).

Further representative quotes are included in the supplementary materials.

## DISCUSSION

The participants in this study perceived disruptions to the usual process of professional identity development during the first wave of the Covid-19 pandemic in 2020, especially where their identities were in conflict. This work provides early evidence, collected at the beginning of the pandemic, that the effects of disruptions to professional identity development are an important topic for future exploration. This has the potential to provide insight into how medical training can better nurture professional identity development, as the pandemic has highlighted areas of conflict.

Some work has suggested that medical students' professional identity formation is driven in part by both "professional inclusivity" – doctors and other healthcare professionals treating students as future doctors – and "social exclusivity" – medical students considering themselves as socially distinct from other groups of students (Weaver et al., 2011). During Covid-19, casual and informal interactions between groups of medical students were reduced, and many students returned to their family homes. As a consequence, both professional inclusivity and social exclusivity were reduced, and this potentially weakened students' professional identity development.

The key exception to this was the group of students who graduated early to take up interim FY1 posts. In this cohort of respondents, who had roles aligned to that of a junior doctor, feedback was positive, which is supported by insights into the interim Foundation posts in the literature (Youssef et al., 2020). As well as structured roles, interim FY1 doctors were immersed in the milieu of their jobs, including social contact with other junior doctors, which may also contribute to strengthening their professional identity, in contrast to the challenges to professional identity development experienced by more students from junior years. Students working in these jobs experienced less conflict between their identities, and so had lesser feelings of guilt and distress. For these new graduates, it was the loss of transition events and rituals, such as final exams, that was cited as a source of anxiety, with participants concerned that the loss of assessments meant they would be poorly prepared for their jobs as junior doctors.

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Medical students self-categorise as future doctors and, even at the very beginning of their medical degrees, are likely to describe themselves in line with attributes associated with doctors, who are a large and well-known group (Burford and Rosenthal-Stott, 2017). During Covid-19 pandemic, medical students have been, in some ways, dislocated from their usual anchors to the profession and have developed new behaviours in which to anchor their perceptions of what a future doctor “should” be doing in a crisis, often influenced by their perceptions of external attitudes, such as those of their family and friends. For many, this meant volunteering in a clinical capacity. A key feature of our data was the conflicts between students’ identities, and the difficulties some participants had resolving these conflicts. Under the specific circumstances of our respondents, resolving these tensions in the way described by Frost and Regehr, described in the introduction, was potentially more challenging, as the uncertainties of the pandemic meant there was no “standard” with which to align oneself.

There is recognition within our data that one does not “become a doctor” through lectures on an online platform alone. There is conflict, then, between students brought provided with online learning in their identity as “student”, but students conceptualising themselves as a future part of the medical workforce and recognising the need for immersion in the clinical environment. Some participants’ comments implied that the risk/benefit analysis for them weighed in favour of seeing patients rather than potentially lacking the skills to practice effectively as a doctor when they graduate. Preparedness for practice is still a key priority in UK medical education, and there is extensive literature suggesting that newly qualified foundation doctors lack preparedness even after completing their medical education in ‘the usual way’ (Morrow et al., 2012; Kellett et al., 2015; Monrouxe et al., 2018). It is reasonable that medical students would be concerned about the impact of this disrupted education on their future competency as a junior doctor. This mismatch of expectation, and lack of guidance around what to prioritise, left respondents questioning their own alignment with the profession and status as a future doctor, especially if they were unable to volunteer clinically.

Those who were able to find voluntary posts valued volunteering as helping them to develop personally and professionally. Many



participants enjoyed experiences working in different roles than usual, being more involved in direct patient care and feeling part of a team. Conversely, some respondents felt their skills as a medical student had been under-utilised. This mismatch between the roles given to medical students, and their perception of their identity as a future doctor (often conceptualised as a leader or decision maker), left some respondents feeling their professional identity had been undermined – they were not being ‘professionally included’ and regarded as future doctors by other members of the healthcare team. Role recognition is considered an important facet of developing a robust professional identity (Cruess et al., 2014). Indeed, for other professions – such as physician associates – lack of role recognition amongst other healthcare professionals has been noted to hinder the development of professional identity (Brown et al., 2020). Some respondents compared their positions to those of student nurses and other allied health professionals, who were given the option to remain in the clinical environment in their usual placement structure. Though there has been very little work on the perceptions and experiences of such allied health students during Covid-19, it is interesting to consider how experiences might differ. One study of qualified nurses in China found that the Covid-19 pandemic solidified nurses’ professional identity, with a sense of professional unity and utility to the public noted as particularly influential (Li et al., 2020). This early work stands in contrast to our findings regarding the experiences of many medical students, who were often removed from their peer groups, struggling to find roles in which they felt “useful”.

Our results highlight early signals that the disruption caused by Covid-19 had an impact on the professional identity development of our participants, particularly where conflicts existed between the identities associated with the roles students were expected (or not expected) to perform. Further research is needed to explore this in greater depth. Longitudinal work could explore how this may change students’ perceptions of their own identities and position within the medical profession, especially the differences between those who did and did not take on clinical voluntary work.

For educators, the findings of this study suggest that a focus is needed to specifically support students to develop a professional

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identity, particularly when much of their learning is online. Previous work on strategies to “effectively scaffold the necessary critical reflective learning and practice skill set for our learners to support the shaping of a professional identity” has highlighted the importance of structured reflective practice in “teaching” professional identity to medical students (Wald et al., 2015). Small group work where students are invited to share personal narratives which are then discussed and fed back by trained education professionals, including members of the multidisciplinary team, have reported success in student feedback. Universities that do not already facilitate such groups should consider integrating such strategies into their curricula to help students continue their identity development whilst curricula are adapted to Covid-19 restrictions, and beyond. The findings around identity conflict may be useful for educators whose students increasingly enter medical school with a wide range of previous identities. The varied roles students have outside of their medical studies also contribute to their personal and professional identities, and they should be supported to integrate these identities successfully.

### **LIMITATIONS**

The nature of the collection and analysis of the qualitative data used in this paper may limit the transferability of the conclusions. In particular, the qualitative data were collected via short form survey, meaning we were unable to clarify or seek further depth in the free text responses that have been thematically analysed in this paper. Responses were self-reported with little guidance for structure and depth of answers, resulting in variable levels of engagement with reflection upon respondents’ experiences (Lefever, Dal and Matthíasdóttir, 2007). We selected this method over in-depth interviewing for pragmatic reasons, as a survey-based data collection method was better suited to reflect the varied experiences of medical students during the crisis, rather than retrospectively. The survey intended to generate a “snapshot” of the varied experiences of medical students during this period of disruption, rather than an in-depth exploration of any individual experience. We hope that future work may use interviews or focus groups to further explore the impact of the Covid-19 pandemic on professional identity development.

## CONCLUSION

The spring 2020 wave of the Covid-19 pandemic and its disruption to medical education in the UK has implications for the professional identity development of medical students. The significant break in studies, lack of transition rituals, and the perceived under-utilisation of medical students' skill sets have all served to disrupt students' identity development. Conflicts between various identities and the behaviours associated with them impacted participants well-being, and, for some, undermined their perceptions of the profession and their own identity and position within it. Notably, those students who were allocated a role aligning with their pre-conceived professional identity – in particular, those allocated interim FY1 roles – broadly reported far less conflict and guilt than more junior students, many of whom were unable to secure roles which they felt aligned with their skill sets and identity. Students recognise that learning to be a doctor requires more than online learning, and that experience in the clinical environment is not only a desirable extra but is essential to develop a professional identity. As many universities move towards programmes of blended learning with significant online components, to address not only disruptions due to the pandemic but also rising student numbers and distance learning, educators must consider how their online programmes of learning are fostering identity development. This particularly needs to be considered when planning learning for students early in their medical school careers, for whom clinical experience may be regarded as less important and potentially dispensable. For these students, structured opportunities to continue reflective practice and address issues of professional identity development should be integrated into the formal curriculum. Further research is needed to continue to explore how students negotiated the challenges to their professional identity development during Covid-19, and the implications this might have for their future practice.

## ACKNOWLEDGEMENTS AND DISCLOSURE

**Sources of support:** Nil

**Conflicts of interests:** None financial or otherwise

**Authorship:** AH, MELB, MHVB, LA, JA, JCMW were responsible for conceptualisation. All authors were responsible for writing the first draft. MHVB, JA, JCMW, LA were responsible for data collection. JCMW was responsible for quantitative analysis, and AH, MHVB, LA were responsible for qualitative analysis. AH, MELB were responsible for interpretation of data. All authors were responsible for revisions. CB was responsible for supervision.

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# APPENDIX 1

## SURVEY

### DEMOGRAPHICS

- Age – NUMERICAL, PREFER NOT TO SAY
- Gender – MALE, FEMALE, OTHER, PREFER NOT TO SAY
- Medical school – DROP DOWN OF ALL UK MEDICAL SCHOOLS, PREFER NOT TO SAY
- Year at medical school – DROP DOWN 1–6 AND INTERCALATION, PREFER NOT TO SAY
- If you are a final year have you already graduated? YES/NO

### PREVIOUS CLINICAL EXPERIENCE AND SKILLS

Have you been employed in a clinical role before?

- Dentist
- Healthcare assistant
- Laboratory scientist
- Paramedic
- Physician's assistant
- Nurse
- Pharmacist
- Other
- None

What training have you had before?

- First aid training
- BLS training
- Basic infection control training (e.g. handwashing)
- Surgical scrubbing and gowning
- Infection control training with personal protective equipment (e.g. respirator masks, donning and doffing of goggles and garments)



- Pandemic influenza teaching at medical school
- Disaster medicine teaching at medical school

I am confident independently performing:

- Venepuncture
- Cannulation
- Arterial blood gas
- Prescription of medications
- Clerk new admissions (history, examination)
- Organise appropriate investigations for newly clerked patients
- Initiate management plans for newly clerked patients

## **VOLUNTEER TO WORK**

Volunteering to work means the recruitment of medical students to work at hospitals in any form during the coronavirus pandemic. Please rate your agreement with the statements below.

Are you aware that medical students may be asked to volunteer to work at hospitals due to the coronavirus pandemic?

YES/NO

I have already started as a volunteer in a hospital during the coronavirus pandemic.

YES/NO

If you have already volunteered in a hospital, when did you start?

DATE\_\_\_\_\_

If you have already volunteered, in what capacity have you volunteered?

- Administrative role
- Dentist
- Doctor (interim foundation or equivalent)
- Healthcare assistant
- Laboratory scientist
- Nurse
- Paramedic

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- Pharmacist
- Physician's assistant
- Other

I would be willing to volunteer to work.

I believe I will have a positive impact by volunteering to work.

Volunteering to work will benefit my medical education.

Volunteering to work will benefit my career.

Not volunteering will negatively affect my career.

I believe medical students should be encouraged to volunteer to work.

I believe there are ethical problems with asking medical student to volunteer to work.

If you have ethical concerns what are they?

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The coronavirus pandemic has made me consider a career outside of medicine.

**MEDICAL EDUCATION**

I have received sufficient medical education to volunteer to work?

Medical school training helped me to understand the strategies taken by Public Health England when controlling the spread of coronavirus.

Medical school training has prepared me for conversations about end-of-life care for patients.

My medical education has been negatively affected by the coronavirus.

What are the most useful things you learnt at medical school that have prepared you for volunteering?

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Medical school training should include pandemic influenza teaching.

I would want additional training if I volunteer to work?



## MOTIVATION/BARRIERS

Why would you volunteer to work?

- Altruism (e.g. helping those in need)
- Career (e.g. opportunity to improve CV, make new contacts)
- Guilt you would feel if not volunteering
- Moral obligation (e.g. need to do the 'right' thing)
- Medical school expectation or directive
- Peer pressure
- Pay
- Professional development and training (e.g. opportunity to learn new skills and gain experience)
- Societal expectations
- Other

Why wouldn't you volunteer to work?

- Academic commitments
- Family/social commitments (e.g. caring for a family member)
- Financial implications
- Lack of information on volunteering opportunities available
- Lack of personal protective equipment for healthcare staff
- Personal safety (fear of catching coronavirus)
- Pre-existing health conditions
- Psychological impact
- Work commitments
- Other

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**ROLE**

What role are you willing to do, if you volunteer to work?

- Full clinical role expected of a doctor (e.g. clerking, prescribing, ordering investigations, cannulation)
- Assistant medical role (e.g. phlebotomy, cannulation, vaccination)
- Indirect medical care (e.g. providing meals, moving patients)
- Laboratory role (e.g. performing PCR tests)
- Administrative role
- No role

I am willing to do **day** on-calls, if I volunteer to work.

I am willing to do **night** on-calls, if I volunteer to work.

Would you be willing to do the same role on a ward with coronavirus patients? Yes/No

**ROLE FOR PATIENTS WITH CORONAVIRUS  
(IF NO THESE QUESTIONS APPEAR)**

What role are you willing to do on a ward with coronavirus patients, if you volunteer to work?

- Full clinical role expected of a doctor (e.g. clerking, prescribing, ordering investigations, cannulation)
- Assistant medical role (e.g. phlebotomy, cannulation, vaccination)
- Indirect medical care (e.g. providing meals, moving patients)
- Administrative role
- No role

- I am willing to do **day** on-calls on a ward with coronavirus patients, if I volunteer to work.
- I am willing to do **night** on-calls on a ward with coronavirus patients, if I volunteer to work.

## RISK

- I am worried about catching coronavirus, if I volunteer to work.
- If volunteering to work what is your chance of **catching coronavirus** as a percentage? RAW percentage \_\_\_\_\_
- I feel confident saying no to tasks I am not adequately prepared for.
- I will receive adequate personal protective equipment if I volunteer to work.
- I am confident donning and doffing personal protective equipment.
- I believe I will receive adequate supervision if I volunteer to work.

## SAFETY

- I am aware I should be paid appropriately for any role I undertake in a clinical environment.
- I am aware I should be provided with a contract prior to starting work.
- Do you know how to exception report? Yes/No
- Do you know how to report clinical incidents, e.g. DATIX? Yes/No
- Do you know who you should speak to if you have personal, health, or psychiatric problems while volunteering to work? Yes/No

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**FREE TEXT QUESTIONS**

What issues are you currently facing as a medical student during the coronavirus pandemic?

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What issues do you think you will encounter if you volunteer to work during the coronavirus pandemic?

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What is the main emotion you feel about working during the coronavirus pandemic?

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Have you heard any stories about medical students volunteering experiences? Please describe them

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Would you like to be followed up for a future questionnaire? This study is part of a longitudinal study evaluating the effect of volunteering. All emails will be anonymised prior to data analysis.

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**Supplementary Table 1. A summary of the conflicts between the identity themes constructed from the data with representative quotes from participants**

<b>Role 1</b>	<b>Role 2</b>	<b>Conflict</b>	<b>Comments</b>
Future doctor	Student	Lack of clinical placements; reliance on online learning	<p>“Nothing can really replace face to face patient contact and hospital and GP clinical experience.” – Participant 163</p> <p>“No clinical skills, no hospital or lab experience, no meeting patients, I don’t feel like I’m learning how to be a doctor.” – Participant 608</p> <p>“Missing out on 10 weeks of acute care placement that I will not get back. Also missing 8 weeks of elective placement. So in total minimum of 18 weeks of intense placement missed, which is a lot. I’m worried I won’t have the knowledge for fifth year and then subsequent F1 posts.” – Participant 113</p>
Future doctor	Student	Balancing study with voluntary support; continued assessments	<p>“I have had to make decisions weighing up study and revision and helping in the ICUs.” – Participant 242</p> <p>“Not clear enough guidance from the medical school; dilemma of volunteering vs studying for exams.” – Participant 959</p>
Student	Member of the wider community	Return to family home; isolation from other medical students and university community and support systems	<p>“Lack of a proper study environment at home—makes it harder to study.” – Participant 132</p> <p>“Trying to continue with medical school studies at home, running the household with members as NHS staff.” – Participant 100</p> <p>“Social and academic isolation (I live alone).” – Participant 200</p>

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**Supplementary Table 1. (Continued)**

<b>Role 1</b>	<b>Role 2</b>	<b>Conflict</b>	<b>Comments</b>
Future doctor	Member of the wider community	Loss of transition rituals	<p>“No elective, no free time, no graduation ceremony, no final year Dinner, no closure from the hardest years of my life at medical school.” – Participant 42</p> <p>“No formal graduation or finals. Imposter syndrome.” – Participant 19</p>
Future doctor	Member of the wider community	Perceived moral obligation of future doctors to volunteer	<p>“I felt like I had a duty to help, as in 3 years time I would be working as a doctor anyway. I have skills and understanding that other members of the public don’t have and I should use that for the greater good. I wanted to help so much that I did apply to work in a hospital until my family circumstances changed.” – Participant 1114</p> <p>“Risk of infection to medical students and risk of passing on to others, should not be made to feel guilty for not wanting to volunteer.” – Participant 511</p> <p>“Personal and familial health conditions, resulting in vulnerability (myself and family members) and a responsibility to those at home.” – Participant 64</p> <p>“I have a long-term mental health condition and I’m stressed. I know working would negatively impact me, but I still feel ashamed of my cowardice because of the pressure put on me by my peers to ‘do the right thing’. I’m bad at saying no and frequently allow myself to be taken advantage of when I’m on placement, I do what I’m asked to do and feel embarrassed to refuse a task, and I know this would be much worse in the current environment. I’d have to live alone because one of my parents is in the shielding group and I know isolation would make my health and mood plummet, and I could end up being admitted to a psychiatric ward again. The moral burden of what I ‘should’ be willing to do is haunting me every day.” – Participant 172</p>

(Continued)



**Supplementary Table 1. (Continued)**

<b>Role 1</b>	<b>Role 2</b>	<b>Conflict</b>	<b>Comments</b>
Future doctor	Member of the wider community	External assumptions of knowledge or competence	<p>“People expecting me to know more than I do about the pandemic and having to answer friends’ and colleagues’ questions continually about it; this is incredibly stressful.” – Participant 370</p> <p>“Pressure from family to volunteer as they believe I am more qualified than I am.” – Participant 228</p>
Future doctor	Member of the wider community	Lack of available voluntary roles	<p>“No work for me, skills not recognised or useful. No demand – on three zero hour healthcare assistant roles where I am ‘not needed’ my peers are in the same situation. Feel that medical students are not useful or recognised to the NHS. . . . All my allied healthcare profession friends have recognised roles. We do not, we are very much not wanted I feel.” – Participant 232</p>
Future doctor	Member of the wider community	Voluntary roles tailored for members of the public	<p>“It’s strange not being able to do some skills that I am competent in and are needed but I can’t use them as they are outside of my job role.” – Participant 179</p> <p>“For example I’m currently not allowed to cannulate or do bloods even though that would be the most helpful thing on the wards as I have been asked to do this several times. So doesn’t appear roles have been thought through. Speaking to others they have had similar problems.” – Participant 752</p>