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Document Version
Early version, also known as pre-print

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RESEARCH ARTICLE

The impact of COVID-19-related educational disruption on final year medical students in Birmingham, United Kingdom: a mixed methods study [version 1; peer review: awaiting peer review]

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Open Peer Review

Approval Status *AWAITING PEER REVIEW*

Any reports and responses or comments on the article can be found at the end of the article.

Abstract

Background: The COVID-19 pandemic created unprecedented pressure on healthcare systems worldwide. Public health measures that intended to limit the spread of the virus had the unintended effect of necessitating the swift development of novel medical educational methods. The medical students most affected by this period of change were those entering their final year. This study aims to explore their perceptions of the impacts of COVID-19 on their clinical learning and mental health, as well as identify ways in which medical schools can mitigate these impacts.
Methods: This is a mixed method, single-site descriptive study comprising two parts: a questionnaire and semi-structured interviews. Participants were final year medical students at the University of Birmingham, UK.
Results: Key themes identified were learning opportunities, changes to assessments, communication, and wellbeing. Students were also found to experience higher levels of anxiety mid-pandemic compared to pre-pandemic.
Conclusion: The pandemic has had widespread effects on the learning and wellbeing of final year medical students, which may impact their competence and confidence as junior doctors. Improved two-way communication and access to wellbeing services have been identified as factors promoting the adjustment of students to rapid changes in teaching methods and assessments.

Keywords

COVID-19, education, medical student, anxiety, mental health, pandemic

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Author roles: Bustin C: Conceptualization, Formal Analysis, Investigation, Methodology, Project Administration, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Bawa S**: Conceptualization, Formal Analysis, Investigation, Methodology, Project Administration, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Munasinghe CK**: Conceptualization, Formal Analysis, Investigation, Methodology, Project Administration, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Wiskin C**: Conceptualization, Funding Acquisition, Resources, Supervision, Writing – Review & Editing

Introduction

On 7th January 2020, the emergence of a novel coronavirus was identified in Wuhan, China (World Health Organization, 2020). This new pathogen has since permeated all corners of the globe, and the resultant coronavirus disease-19 (COVID-19) was eventually declared a pandemic by the World Health Organisation on 11th March 2020 (World Health Organization, 2020). Since then, COVID-19 has had unprecedented and far-reaching economic (Global Economic Prospects, June 2020) and health consequences (World Health Organization, 2020). This global disease burden has exacerbated the pre-existing deficits in healthcare staffing and resources, and emphasised the demand for more skilled healthcare professionals (Mehta et al., 2021).

Shortly after the pandemic began, public health measures placing restrictions on day-to-day life were implemented across the UK. These aimed to limit the spread of COVID-19 and prevent hospitalisations overwhelming the National Health Service (NHS) (McLellan & Godlee, 2020). Unintended ramifications for medical education included a significant loss of face-to-face teaching and cancelled placements (Choi et al., 2020; Macdougall et al., 2020; Rainbow & Dorji, 2020). For graduating final year medical students (FYMS) this meant cancellation of electives, examinations, and student assistantships at rates of 70%, 35% and 40% respectively (Choi et al., 2020). Similar loss was experienced by the incoming FYMS cohort (Sandhu & de Wolf, 2020). The loss of these experiences has limited students' opportunities to refine clinical skills (Sani et al., 2020), and potentially reduced their confidence and preparedness for clinical practice (Ferrel & Ryan, 2020).

High quality medical education is the fulcrum for producing competent doctors. Hence, the abrupt halt to pre-COVID-19 medical education and the swift transition to distance learning necessitated the development of innovative educational methods, predominantly through the increased use of e-learning (Marshall & Wolanskyj-Spinner, 2020). Methods of examination also required transforming, with online exam papers and open-book examinations being introduced at some institutions (Sandhu & de Wolf, 2020).

In addition to educational impacts, the unique challenges brought about by the pandemic have been associated with heightened anxiety among FYMS (Ferrel & Ryan, 2020; Sandhu & de Wolf, 2020; Zis et al., 2021). Previous research has illustrated that deteriorations in mental health can significantly affect academic potential (Breslau et al., 2008; Murphy et al., 2015). Despite this, few studies have attempted to identify the extent and sources of distress among this cohort. In particular, limited qualitative data have been published exploring in-depth perceptions of FYMS on how the pandemic has affected their education and mental health. To effectively manage the potential adverse psychological consequences of COVID-19 for these students, it is also essential to identify modifiable COVID-19-related stressors, as well as possible interventions to mitigate against deteriorations in mental health.

This study combines the results from a mixed-methods survey and a series of qualitative interviews. Findings are likely to have resonance at other institutions.

Aims

1. Understand how COVID-related educational impacts have impacted on the clinical learning of FYMS

2. Explore the impact of the pandemic on the mental health of FYMS

3. Explore ways in which medical schools can mitigate the impact of COVID-19 on FYMS to improve the student experience and their future practice

Methods

Ethics and consent

This study comprises two consecutive student-led research projects. Ethical approval for Part A was provided internally by the Bachelor of Medicine, Bachelor of Surgery (MBChB) Programme Research Advisory Committee and MBChB Curriculum Committee in December 2020. Ethical approval for Part B was provided by the University of Birmingham Internal Research Ethics Committee (reference IREC2020/1765645). Data from both Part A and B were de-identified using the Safe Harbour method. Informed consent was obtained from participants to use and publish data collected from the questionnaires and interviews.

Study design

This is a mixed method, single-site descriptive study that took place between February and April 2021. This approach was selected to generate a combination of quantitative and qualitative data to best address the research question and aims. The setting for the study was the University of Birmingham Medical School, however all questionnaires and interviews were carried out remotely.

Participants

Participants were FYMS from the University of Birmingham, who entered their final year in mid-2020. The sample population was 380 students, and participants were recruited through volunteer sampling. There were no exclusion criteria for Part A of the study (questionnaire). Exclusion criteria for Part B (semi-structured interviews) were lack of consent to being audio-recorded and not being available for at least 20 minutes for interview.

The study was advertised via emails to the FYMS cohort and in the Medical School newsletter. Convenience sampling utilising FYMS social media was also used to recruit participants.

Data collection

There were two data collection parts: A and B. Part A was a questionnaire; part B involved semi-structured interviews (SSIs).

Questionnaire (Part A)

The questionnaire had two main sections: the first related to participant characteristics and the second related to COVID-associated educational disruption and anxiety, with Likert scales and free-text boxes.

Questionnaires were delivered through the online platform SurveyMonkey, and were open for responses between 1st and 26th February 2021. It was accessible to all FYMS via an email

link sent to student university email addresses. Participant information was provided, which outlined the purpose of the study, the benefits of participating and the contact details of the researchers to direct queries or concerns about the research to. Additionally, students were signposted to University and external resources in the event of concerns regarding their own mental health. Before proceeding with the questionnaire, participants had to confirm their FYMS status and provide their consent to take part. Data collected from questionnaires were anonymous, except for IP addresses, which were removed from the dataset.

Semi-structured interviews (Part B)
SSIs took place via the online interface Zoom between 24th March and 2nd April 2021. Due to lockdown restrictions, in-person face-to-face SSIs were unfeasible. Online SSIs still permitted face-to-face interaction and facilitated the extraction of key perceptions and views. An interview topic guide (TG) was used to provide a framework and maintain inter-interview consistency. Data generated from the questionnaires were used to develop the TG for the interviews. The TG was modified iteratively throughout the research process.

The online interviews lasted between 30 and 45 minutes. In total, 9 SSIs took place with only 1 participant present at each interview. All SSIs were conducted by CM. Interviews were recorded directly onto Zoom software with automatic transcribing enabled. Field notes were taken on an iPad during the interviews to contextualise important information.

Analysis
Quantitative data from the questionnaire were analysed using simple descriptive statistics and presented in a table and box and whisker plots. Sample size was insufficient to power regression analysis. Qualitative data from the questionnaire free-text boxes were analysed independently by CB and SB using Braun and Clarke's thematic analysis (Braun & Clarke, 2006) to draw out pertinent themes. As CB and SB were FYMS at the time, researcher reflexivity was employed within this analysis to consider researcher biases.

All SSIs were transcribed verbatim and analysed by CM. Only audio recordings were used for data analysis; these were securely stored on an encrypted memory stick. Complete coding was conducted using NVivo 12 software with the transcripts read twice over and coding occurring in both instances. Blinded double coding was also conducted by CM to enhance the transparency of the coding process and improve the trustworthiness of the data analysis. Researcher-derived coding (Clarke & Braun, 2013) facilitated a more in-depth interpretive analysis, whilst the constant comparison method was used to continually compare and integrate newer codes into all interviews. Multiple mind maps were then used to group together codes with a 'common point of reference'. As analysis progressed, the TG was adapted to reflect the early findings to refine data collection in future interviews. Thematic network theory (Attride-Stirling, 2001) was used as the basis to construct themes in a hierarchical order,

from basic through to global themes. De-identification of all transcripts was conducted using the Safe Harbour method.

Results
Forty-four students responded to the questionnaire, and a further nine were interviewed. Due to the anonymous nature of the questionnaire, it is not known if any interviewees also completed the questionnaire. There were no exclusions or withdrawals. The questionnaire participant characteristics can be seen in Table 1 below. The full dataset can be found under *Underlying data* (Bawa *et al.*, 2022).

Quantitative results
Anxiety levels
Students were surveyed regarding their pre- and mid-pandemic anxiety levels using a visual analogue scale, where 0 = 'not anxious at all' and 100 = 'the most anxious I have ever been' (Figure 1). Students self-reported higher levels of anxiety mid-pandemic on average.

Students were also asked about changes to teaching and assessment due to the pandemic, and how they perceive these changes have impacted on their anxiety levels (Figure 2). A higher proportion of students felt that the changes to assessment had increased their anxiety levels, when compared to changes made to teaching.

Qualitative results
We identified four key themes from the free-text section of the questionnaire and the interviews: learning opportunities, assessments, communication, and wellbeing. The full transcripts can be found under *Underlying data* (Bawa *et al.*, 2022).

Theme 1: Learning opportunities
Some students felt that the opportunity to volunteer or work during the first lockdown widened their learning opportunities and allowed them to "integrate into the team" [questionnaire participant (QP) 28]. This was described this as a "useful" [QP27], "enjoyable" [QP29], "eye-opening" [QP15] and a "very positive experience" [QP30] that was "fantastic for [their] learning and prepared [them] well as to what to expect for… foundation[1] years" [QP23]. Several felt this provided insight into working in a hospital setting, made them feel more prepared to be a foundation doctor, and enhanced their confidence and communication skills. Follow-up interviews similarly revealed that students had been able to consolidate key communication skills, such as "breaking bad news" [QP13] and "end of life" [interview participant (IP) 4] conversations. As a benefit, they felt more integrated into multi-disciplinary teams due to the "unifying experience" [IP3] of the pandemic. Additionally, others noted that senior doctors were present more often on the wards, who were "sometimes available to teach" [QP35].

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[1] Foundation training comprises two years immediately following graduation from medical school

Table 1. Questionnaire participant characteristics.

Characteristic	Results, n (%)*
Age	
20–24	31 (70.4)
25–29	12 (27.3)
30–39	1 (2.3)
Gender	
Female	27 (61.4)
Male	16 (36.4)
Non-binary	1 (2.3)
Ethnicity	
White British	27 (61.4)
Irish	1 (2.3)
Any other White background	2 (4.6)
Mixed or multiple – White and Asian	2 (4.6)
Asian or Asian British Indian	9 (20.5)
Asian or Asian British Pakistani	2 (4.6)
Arab	1 (2.3)
Cohort	
5-Year programme	37 (84.1)
Graduate entry programme	7 (15.9)
Home or International student	
Home	43 (97.7)
International	1 (2.3)
Widening Participation student	
Yes	5 (11.4)
No	39 (88.6)
Previous intercalated degree	
Yes, 2017–18	1 (2.3)
Yes, 2018–19	12 (27.3)
Yes, 2019–20	4 (9.1)
No	27 (61.4)
Volunteered in a healthcare setting during pandemic outside of clinical placement	
Yes	26 (59.1)
No	18 (40.9)
Living situation	
Living with housemates/flatmates (shared accommodation)	28 (63.6)
Living in student communal accommodation	2 (4.6)
Living with partner/spouse	7 (15.9)
Living with relatives	6 (13.6)
Living alone	3 (6.8)
Most frequent method of travel to placement	
Walking	4 (9.1)
Bicycle	2 (4.6)
Motorbike	1 (2.3)
Own car	26 (59.1)
Car share	2 (4.6)
Public transport	9 (20.5)
Taxi	1 (2.3)

Characteristic	Results, n (%)*
Vulnerable to serious COVID-19 related illness	
Yes	4 (9.1)
No	38 (86.4)
Unsure	1 (2.3)
Prefer not to say	1 (2.3)
Friends/family who are vulnerable to serious COVID-19 related illness	
No vulnerable family/friends	5 (34.1)
No contact with vulnerable family/friends during clinical placements	24 (54.6)
Contact with vulnerable family/friends in a domestic setting	4 (9.1)
Contact with vulnerable family/friends in a work or study setting	1 (2.3)
Current mental health condition	
Yes, diagnosed	10 (22.7)
Yes, suspected but not diagnosed	5 (11.4)
No	27 (61.7)
Prefer not to say	2 (4.6)

*Percentages may not sum to 100% due to rounding

However, many felt that the pandemic had an overall negative impact on learning opportunities. Students reported struggling with the lack of clinical teaching, due to reduced access to clinical areas, limited patient contact, and staff being too busy to offer ad hoc teaching and clinical skills support:

> "Doctors and nurses don't have time for you even more than before so it's even harder to complete clinical skills [and] assessments… It's just a nightmare." [QP28]

Some students also commented on the disruption to education due to COVID-related changes, including masks and social distancing. One interviewed student discussed the impracticality of social distancing in the hospital environment: "[social distancing is] pointless because when you're at crashes or when you're at the bedside… there's no way you can keep two metres" [IP4]. When surveyed, students expressed frustration that these rules meant missing out on clinical exposure due to being "turned away from ward rounds/handovers/clinics due to social distancing rules" [QP4]. One student commented that "social distancing rules… mean that clinical experience is significantly harder to come by than in previous years" [QP26] and felt that this loss of experience made them feel "significantly" less competent, which was their "main worry" [QP26].

Further lost learning opportunities were highlighted in the questionnaire: the final weeks of fourth year placements, the Elective Project, Selected Career Experience (SCE) Module and exams:

> "I am also worried about the amount of placement I missed in 4th year as well as the fact that I didn't get to go on elective or do my SCE." [QP20]
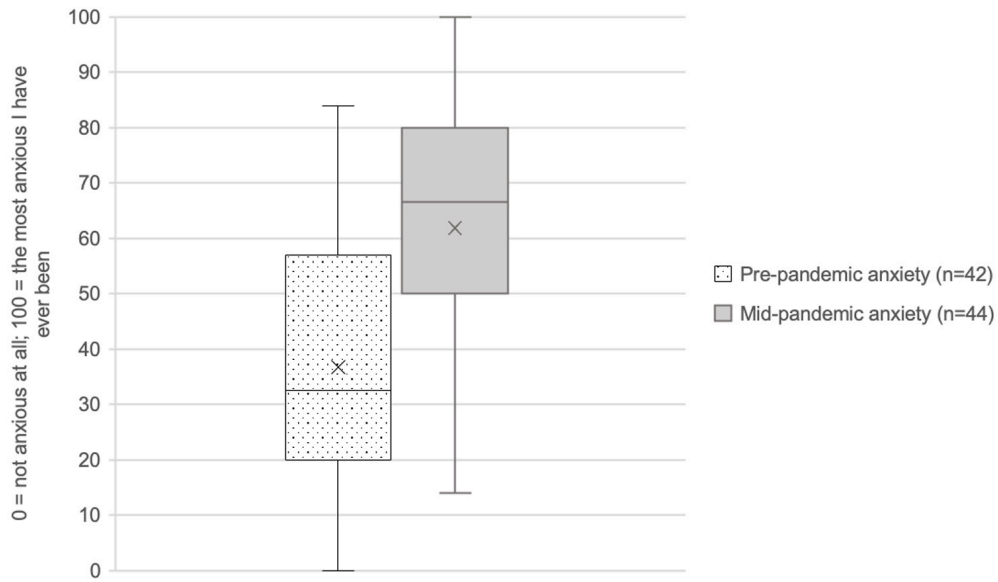
Figure 1. Box and whisker plot showing self-scored pre- and mid-pandemic anxiety levels.
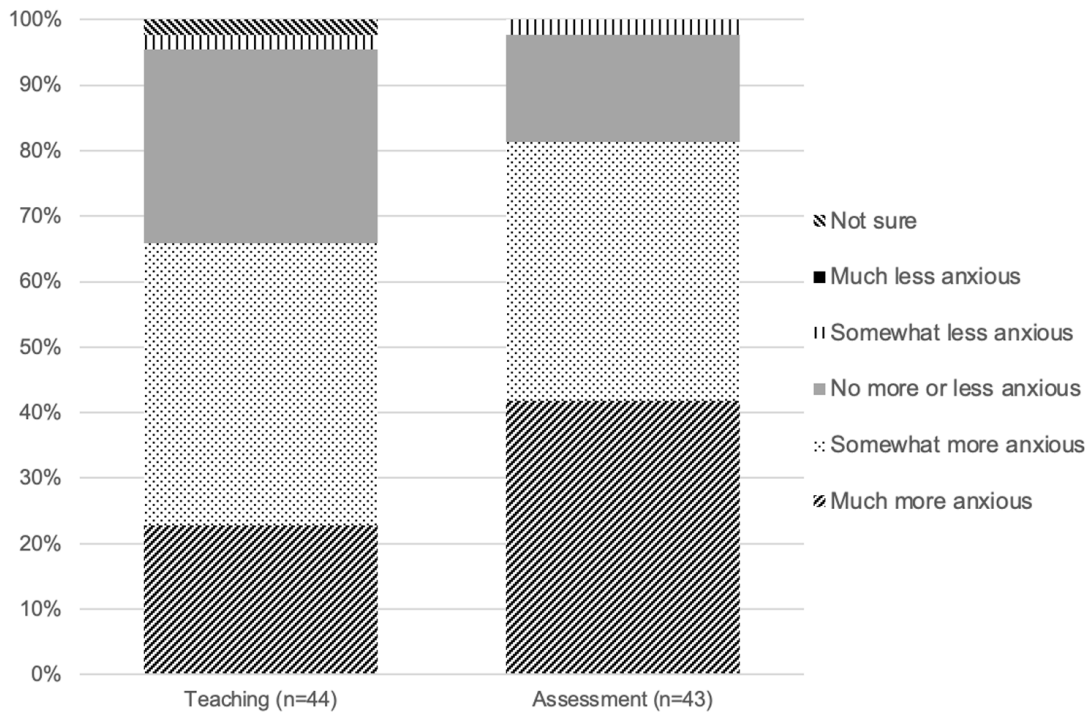
Figure 2. Perceived impact of COVID-related changes to teaching and assessment on anxiety levels.

Students felt that the loss of these made them feel "under-prepared" [QP2] and "less competent" in final year [QP23]. This was compounded by the homogeneity of patients and pathologies seen on final year placements during the pandemic:

> *"Just not seeing the range of things other years saw… the NHS has become a 'COVID reaction service' so little in outpatients to learn off."* [QP42]

One student described how "the ward rounds are… one-hour tops and [they] don't see any children with chronic conditions, and [they] don't see any emergencies" [IP2].

"De-skilling" [QP39; QP1] due to factors including the hiatus from placement during lockdown, restrictions on patient contact and patients "not wishing to engage… because of

wanting to limit social interaction" [QP4] emerged as a key sub-theme:

> "Clinical skills opportunities … are no longer easily available… Having the long break from clinical placements has also made me less confident with simple clinical skills such as venepuncture and cannulation." [QP31]

Some associated these impacts on learning opportunities with feeling "much less prepared" [QP4] and "far less competent" [QP33] for Foundation Year 1 (FY1) due to lower "patient exposure", less "clinical skills practice" and "limited clerking practice." This was identified as a key source of "stress" and "anxiety" [QP37].

However, although most interviewees perceived themselves as less clinically competent FYMS because of COVID-related changes to education, they did not feel that it would impact on their clinical competence as an FY1 doctor. Many reasoned that they would be "close to otherwise expected" [QP9] and "as competent as any other FY1 before me" [QP10]. Additionally, some of those who volunteered during the first wave believed they would be more confident because of this. Others regretted not volunteering:

> "I would have ideally liked a more active role in the pandemic as my colleagues who worked on the wards seemed to benefit from the experience." [QP18]

Theme 2: Assessments

Most students, who felt that COVID-19 related changes to their education had impacted on their anxiety, discussed assessments when asked why. They felt that communication, particularly surrounding assessments, had been limited and "hectic" [QP2].

> "I feel that [exams] are being done unfairly and that we are getting little to no communication about them which is extremely stressful." [QP20]

Direct Observation of Examination Skills (DOES) assessments were newly introduced during the pandemic as an expedient means of continuous assessment and were reportedly a significant source of anxiety. DOES assessments are the responsibility of students to organise and require a middle-grade doctor or consultant to examine. Participants struggled with completing DOES assessments due to "diminishing… opportunities" [QP19], significant time spent trying to find suitable examiners and assessing doctors' unfamiliarity with them:

> "I understand the point of DOES, but it feels like an inefficient way to spend our time chasing consultants to observe us do a hand exam on AMU" [QP2]

> "I think DOES introduces a low level of anxiety throughout placements as they are constantly hanging over you." [QP28]

Two surveyed students conversely felt that having to do DOES assessments throughout the placement reduced their anxiety and made them feel more competent:

> "Having the DOES assessments has incentivised me to pace my learning better, which has overall reduced my anxiety" [QP9]

Theme 3: Communication

When asked about how the Medical School could have better supported students, communication was raised as an issue. Communication was perceived as "awful" [QP19], "chaotic" [QP22] and anxiety-inducing:

> "I feel like the medical school has been unacceptable at communicating what is happening with our education and exams. It feels like we've just been left to get through it and the uncertainty is causing a lot of people a lot of anxiety." [QP22]

It was also highlighted that communication from the Medical School did not need to contain detailed information to be helpful and reassuring:

> "Better communication even if it was just saying we don't know what is going on." [QP13]

The tone of email communication was also raised as being possibly "patronising" [QP34] and unsupportive:

> "A fair amount of the emails we are sent seem to be phrased somewhat passive-aggressively... I have been distinctly upset by certain emails received in the past." [QP3]

It was reported that communication had been "overwhelming" [QP20] and that concise summaries from one source could have quelled anxiety:

> "I think the updates [the Medical School] gave us were helpful, but I think these could have been summarised and sent in a single email at a time, rather than having numerous emails from different people containing slightly different information." [QP20]

Theme 4: Wellbeing

The direct and indirect impacts of COVID were noted. Some individuals had personal and familial vulnerabilities to COVID-19 that negatively impacted their mental health. This includes students experiencing long-term physical and mental effects of the virus and anxiety about the risk to family members:

> "I have had COVID-19… I still am not the same physically… I feel I have missed out on so much and I feel anxious about being on the wards." [QP28]

Many students discussed the implications of lockdown and social distancing on their mental health. This was particularly related to the lack of social interaction and subsequent failure to access support networks.

> "[I have] less motivation, stamina and passion due to personal effects of lockdown." [QP4]

"Reduced space for teaching, for taking breaks and socialising, for independent study" [QP11] were noted as having negative impacts on wellbeing.

It was also suggested that, with the increased need for self-directed learning, reduced study spaces available on-site at the Medical School and increased anxiety levels, additional Leave Days in which students would not need to attend placement should have been considered:

> *"Allow one day off a week for students. This gives us time to cover extra work or catch up on important aspects of mental self-care."* [QP16]

Loneliness and isolation were factors that also came up throughout the data. This was linked to the effects of lockdown out of hospital, and lack of face-to-face services at Medical School:

> *"This year has felt so anonymous."* [QP4]

Additionally, student support (both from peers and Medical School) was discussed frequently in this research. On a positive note, some students reported having more frequent interaction with their Personal Tutor and Senior Academic Tutor (SAT) who provided appropriate support. Others felt that increased staff workload meant clinicians were simply too busy to provide adequate support:

> *"SAT forms and mid-placement reviews aren't effective when the SAT has only met the students once or twice over the course of their placement."* [QP22]

Furthermore, it was raised that whilst Medical School had provided communication about wellbeing support, this was not always explicit:

> *"There's talk of support but no specific support has really been offered. What does that mean? Talk to Wellbeing? What do they specifically do?"* [QP22]

Providing "more active wellbeing support" where the Medical School "check-in" with students on an individual basis was proposed by one student, who also stated that "a lot of people are suffering in silence right now" [QP19] because of a perceived lack of support. Solutions suggested included students having a set individualised wellbeing meeting or ensuring that vulnerable students were directly contacted and followed up, however issues relating to identifying these students and maintaining confidentiality remain.

Furthermore, students mentioned access to university counselling services. Many felt that access to these services was too difficult:

> *"Counselling queues/access are too long to be safe."* [QP28]

Proposed solutions to this included having specific Medical School counselling services with suitable staff to support unique medical student concerns. Two students mentioned the possibility of Zoom wellbeing workshops. A "peer group support" [QP13] was also suggested to facilitate students sharing and working through difficult experiences. It was also suggested that a manned phone line could be used to facilitate immediate access to wellbeing services.

Much came down to reassurance and positivity:

> *…reassurance about next year, reminders that we're doing ok despite the circumstances... might help us feel a bit grounded. Consistently kind phrasing of emails will go far. My anxiety spikes when I hear the email sound telling us that we MUST do certain things by certain dates otherwise you will raise Fitness to Practice cases against us!''.* [QP4]

Discussion

Learning opportunities

This study showed that increased integration into clinical teams during COVID-19 increased students' clinical confidence and competence. This reflects Nolan and Owen's study (Nolan & Owen, 2021), which determined that the socialisation of medical students into clinical teams made clinical staff more invested in their learning. Staff members therefore provided students with more responsibilities and thus learning opportunities.

Legitimate Peripheral Participation Theory (Lave & Wenger, 1991) posits that individuals become members of a community over time by acquiring necessary experience, skills and attributes. However, the transient nature of clinical placements can prevent progression of medical students from peripheral to full participation in their clinical teams, thus limiting learning. The continuity offered by establishing students long-term within a team could improve their knowledge and skills as well as facilitate development of interpersonal skills and professional identity (Nolan & Owen, 2021). Our findings, therefore, support the aspiration of The Royal College of Physicians that the final year of Medical School should move towards apprenticeship-style placements (Royal College of Physicians, 2021). Cancelled student assistantships, reduced outpatient volume, and reduction in the variety of disease pathology of hospital patients have significantly limited undergraduate clinical experience (Edigin *et al.*, 2020). As reflected in our study, Sharma and Bhaskar also reported concerns of students regarding inadequate skill development secondary to the pandemic (Sharma & Bhaskar, 2020). Specifically, FYMS experience added stress as students have reduced time to rectify clinical deficiencies prior to becoming doctors (Sandhu & de Wolf, 2020).

Participants in this evaluation described how the cancellation of elective surgeries and effects of social distancing measures on access to theatre lists had significantly reduced surgical exposure (Munro *et al.*, 2021). Aside from the obvious impact on surgical knowledge and skills, this could have long-term implications on the career aspirations of students (Chia *et al.*, 2020), especially in regards to future choice of speciality (Byrnes *et al.*, 2020).

Assessments and communication

Our participants reported that changes made to assessments were generally more anxiety-inducing than changes made to teaching. Upon analysis of the qualitative data, we found reasons for this focused more around lack of communication and uncertainty surrounding assessments, rather than the nature of

the assessments themselves. That said, the introduction of a new continuous style of assessment – the DOES assessment – was identified as a novel source of stress for these students.

Participants reported the limited and often "late" communication from the Medical School regarding examinations to be key stressors. In a 2019 statement of expectation (British Medical Association, 2020), the British Medical Association (BMA) stated that medical schools should communicate information regarding examinations "with notice of four weeks or longer to minimise the impact… on students' wellbeing". However, FYMS at the University of Birmingham reported being given 25 days' notice of organisation factors for their multiple-choice exams. Pre-2020 guidance did not anticipate the need for a shift to online testing or continuous changes to guidelines and so although meeting all pre-COVID-19 exam expectations would have been optimal, it was not always possible.

In this evaluation, communication from the Medical School was widely viewed as an important factor influencing mental health. This is supported by Lane et al. (Lane et al., 2020), who stated that effective communication to medical students is vital in alleviating stress, particularly in emergency situations. Chandratre (Chandratre, 2020) found that weekly robust communication describing the latest Medical School action plan was a successful way of mitigating student anxiety. This reflects Pecora et al. (Pecora et al., 2021), who emphasised the importance of projecting compassion and humanity in all communications.

Overall, medical schools should not underestimate the importance of regular, transparent communication with their students. However, where this is not possible, medical schools should be open to students about this, and explain underlying reasons. Additionally, student leaders should be utilised to facilitate effective two-way communication between students and educators (Elmer et al., 2020).

Wellbeing

This study found, as anticipated, that isolation secondary to social distancing measures increased stress, anxiety, and loneliness. Additionally, for medical students, fear of exposing family members to COVID-19 may have further compounded this. However, Elmer (Elmer et al., 2020) identified that digital communication helped to successfully maintain the support and study networks of students. Lane et al. (Lane et al., 2020) also noted the effectiveness of social media platforms for medical schools to update and interact with students. Therefore, medical schools might evaluate their current use of social media and identify how they can optimise its use to positively impact students. The increased demand that COVID-19 has placed on student services, and tutors, in addition to the increased mental burden on students has meant that demand for wellbeing services has increased significantly.

Chandratre (Chandratre et al., 2021) identified that the utilisation of counselling services by US medical students increased significantly during the pandemic. In previous work, the author also describes measures implemented by the Medical College of Wisconsin to aid student wellbeing (Chandratre, 2020). These included virtual mental health support groups and fully subsidised access to digital mental health services to aid sleep and build resilience. The College also expanded the original counselling services to meet the additional student need.

As emphasised by the BMA, medical schools must ensure that vulnerable medical students are identified and followed up appropriately (Lane et al., 2020). Students with existing mental health diagnoses, where known, must be particularly safeguarded. Research during COVID-19 has identified that the psychological consequences of COVID-19 could be exacerbated in those with pre-existing mental illness (Munro et al., 2021). Medical schools must ensure these individuals are provided with adequate and individualised support throughout a pandemic, however this would require students to disclose their mental health condition.

Overall, it is vital that medical schools ensure there is easily accessible wellbeing support for all students. Moving forward, medical schools should ensure that supply meets demand, and that waiting lists are an appropriate length. Whilst individualised support for every student would be ideal and would avoid the need for students to disclose mental and physical health vulnerabilities, it is important to recognise that wellbeing staff similarly experienced illness, shielding and resource limitations that made this difficult to achieve. Advancing human resources for wellbeing services should be a future priority to help meet student demand.

Importantly, there has been little research describing or evaluating how wellbeing services in medical schools have been adapted or expanded during the pandemic. Further research is urgently needed given the clear impact of the pandemic on the mental health of medical students and the unique challenges this population faces. Additionally, future research could explore the use of "days off", as suggested by questionnaire participants, in promoting wellbeing during difficult times.

Limitations

This study was limited by its sample size: response rate was 11.6% and 2.4% for the questionnaires and interviews respectively. Recruitment was hindered by several factors including email overload, lack of direct peer access on-site, student stress and high workload. Limited sample size meant there were insufficient participants for the use of complex statistics using demographic data such as multiple logistic regression.

Sampling was also subject to volunteer bias, affecting the validity of the data. Only University of Birmingham medical students were sampled in this study. Therefore, while themes identified may apply to other FYMS, it is not possible to demonstrate transferability.

Conclusion

This study suggests that the COVID-19 pandemic has had widespread effects on the learning and wellbeing of FYMS, which has potential to impact their competence and confidence as

junior doctors. Improved two-way communication and access to wellbeing services have been identified as factors promoting the adjustment of students to rapid changes in teaching methods and assessments. This will likely be a wider picture; these challenges will not be exclusive to our institution. Further work is needed from multiple medical schools to give weight to the conclusions of this evaluation.

Data availability

Underlying data

Figshare: Data from questionnaire, blank questionnaire and interview topic guide. https://doi.org/10.6084/m9.figshare.19583587.v7. (Bawa *et al.*, 2022)

This project contains the following underlying data:

- Copy of Impact of Covid-19 related educational disruption EXCEL V2 44.xlsx
- Interview 1.docx
- Interview 2.docx
- Interview 3.docx
- Interview 4.docx
- Interview 5.docx
- Interview 6.docx
- Interview 7.docx
- Interview 8.docx
- Interview 9.docx
- Participant Characteristics.docx

Extended data

This project contains the following extended data:

- questionnaire v5.docx
- Topic Guide.docx

Data are available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).

Acknowledgments

The authors would like to thank Professor Alice Turner, Year 5 lead at the University of Birmingham, for her support in the conception of this project, her interest in its findings and her proof of the final manuscript. The authors would also like to acknowledge Dr Gilles de Wildt for his advice in carrying out Part B of the methodology (SSIs).

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