

The Impact of the COVID-19 Pandemic on Final Year Medical Students in the United Kingdom: A National Survey

Byung Choi

Hillingdon Hospitals NHS Foundation Trust

Lavandan Jegatheeswaran

Hillingdon Hospitals NHS Foundation Trust

Amal Minocha

Hillingdon Hospitals NHS Foundation Trust

Michel Alhilani

Hillingdon Hospitals NHS Foundation Trust

Ernest Mutengesa (✉ ernest.mutengesa@nhs.net)

Hillingdon Hospitals NHS Foundation Trust <https://orcid.org/0000-0001-6282-8776>

Research article

Keywords: COVID-19, medical education, students, assistantship

Posted Date: May 7th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-24792/v1>

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Version of Record: A version of this preprint was published on June 29th, 2020. See the published version at <https://doi.org/10.1186/s12909-020-02117-1>.

Abstract

BACKGROUND

The COVID-19 global pandemic has resulted in unprecedented public health measures. This has impacted the UK education sector with many universities halting campus-based teaching and examinations. The aim of this study is to identify the impact of COVID-19 on final year medical student examinations and placements and how it might impact on confidence going into foundation training.

METHODS

An anonymous, self-administered survey of final year medical students from 33 UK medical schools.

RESULTS

441 students from 32 out of the 33 UK medical schools responded. 38% of respondents had their final OSCEs cancelled while 47% had already completed their final OSCEs before restrictions. 50% of assistantship placements were postponed while 77% of electives were cancelled. Respondents feel less confident entering FY1 as a result, but the majority agree that the measures taken to amend their curricula were necessary. Respondents also agree that assisting in hospital during the outbreak would be a valuable learning opportunity.

CONCLUSIONS

The impact on medical student education has been significant. The majority feel less prepared for FY1 but understand the necessity of these measures. Despite this, many are willing to assist in hospitals earlier than expected.

Article Summary Points

1. The COVID-19 pandemic has caused significant disruptions to UK medical schools' curricula and in particular, final year medical students who are facing unprecedented challenges in transitioning from student to doctor
2. Enforced examination format changes, notably written papers becoming remote online examinations, may have revolutionised medical student assessments.
3. Medical students in the UK who have been asked to volunteer or work earlier than expected as part of the NHS workforce, are confident in doing so, provided proper inductions and support are provided.
4. Student assistantship is a key part of medical education to aid in the transition from student to doctor. Early registration of graduating final year medical students may provide students an

opportunity otherwise lost due to cancellations of assistantships.

5. Longitudinal integrated clerkships (LIC) may be an upgrade on assistantship to aid the transition of final year medical students to doctors.

Background

Coronavirus disease 2019 (COVID-19) is a potentially severe acute respiratory infection caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It has been declared a pandemic by the World Health Organization (WHO) (1).

SARS-CoV-2 is highly transmissible, currently estimated to be 2 times more so than seasonal influenza (2) (3). This greater transmissibility has resulted in an unprecedented public health response from the United Kingdom (UK) government, who have enforced social distancing at both the individual and population level. Measures introduced include nationwide school closures, banning of public events, self-isolation for symptomatic individuals, and most recently 'lockdown': legislation restricting non-essential public gatherings such as public events; the closure of businesses, educational and public institutions; and stay-at-home orders aside from essential tasks and exercise. This governmental response has been guided by predictive modelling which has shown that these measures may slow the spread of COVID-19 to the most vulnerable populations and ensure a manageable caseload in the National Health Service (NHS) (4).

The introduction of these measures in the UK has had a profound impact on the economy, NHS, and in particular the education sector. Universities have halted non-essential services, with many restricting campus-based teaching, and continuing courses through online resources. Some are making use of remote online assessment (5). Final year medical students are a group who have been uniquely affected by these changes; they are required to pass written and practical examinations, as well as undertake student assistantships and elective periods as part of their transition from student to doctor. Many of these assessments have been affected as a result of the COVID-19 pandemic, with some being cancelled, postponed, or adjusted in format.

This pandemic is proving to be a significant challenge to our health and care services. There have been calls for final year medical students to either volunteer, or have their General Medical Council (GMC) provisional registration fast-tracked, so that they can assist as part of the workforce (6).

The aim of this study is to identify the impact of the COVID-19 outbreak on final year medical students' examinations, electives and assistantship placements, and how this has differed across UK medical schools. We also sought to identify what impact these changes would have on preparedness and confidence of medical students going into the Foundation Year 1 (FY1) of training.

Methods

Inclusion criteria

Participants were included in this study if they met the following criteria: medical students in their final year of a UK medical school who are due to start their FY1 training in August 2020. The list of UK medical schools was obtained from the Medical Schools Council website (Medical Schools Council 2018).

Participants and survey distribution

We utilised the NHS Research Ethics Committee tool provided by the Medical Research Council which determined that ethical approval was not required for this study (7). To obtain the data required for this study, a self-administered survey was created on Google Forms and disseminated to final year medical students online. Google Forms, created by Google, allows for the creation of surveys and provides a means to analyse data. To prevent multiple entries, participants were required to sign in using their Google account. UK medical schools were contacted to request participation of their students. Student participation was voluntary and anonymous. The survey was disseminated by posting a link to the survey with an accompanying paragraph on relevant social media groups of the final year medical students. During distribution of the survey to potential respondents, they were informed that by completing the survey, they would be providing consent for their anonymised data to be used, analysed and potentially published. The survey template is available in Appendix 1.

Results

A total of 441 students (average of 13.75 participants per medical school \pm 12.7) from 32 out of the 33 UK medical schools responded to our survey (Fig. 1). The impact of COVID-19 on final year examinations, assistantship placements and electives is shown in Fig. 2. Over 38% medical students had their final OSCEs cancelled while 47% had completed their OSCE examinations already before nationwide restrictions were enforced. A small proportion (12%) of medical schools used simulated scenarios without real patients for their clinical examinations (Fig. 2a). The impact on written exams was less significant as 63% of all medical students had already completed their written papers. For the remainder of students, their exams were either done remotely or online (19%), cancelled (12%) or the number of written papers reduced (6%) (Fig. 2b).

It was shown that 50% of respondents had their medical student assistantship postponed; 28% of respondents had no change to their medical student assistantship; 8% were cancelled; 7% were shortened; 5% were made optional and only 2% were made to do online modules instead of a medical student assistantship (Fig. 2c). Over 70% of respondents' electives were cancelled; 22% of electives were not affected as they occurred prior to the outbreak of COVID-19 in the UK and 1% of electives were made optional if they were UK-based (Fig. 2d). One student was unsure of their elective status at the time of answering the survey.

The impact of COVID-19 on the confidence of final year medical students entering FY1 this year can be seen in Fig. 3a. 18.6% strongly agreed that they felt less prepared for FY1; 40.7% agreed; 19.3% remained neutral on the question; 15% disagreed and 6.4% strongly disagreed.

Further analysis of whether respondents believed that the measures taken by medical schools to amend their curricula were necessary revealed that 57.8% strongly agreed with the measures and 36.1% agreed (Fig. 3b). 50.5% of respondents have not been asked to assist or start work in hospitals earlier than expected while 49.5% have been asked to assist or start work in hospitals (Fig. 3c). Only 8.7% of respondents strongly agreed that they would feel confident in starting earlier than expected in hospital while 39.5% agreed that they would feel confident in starting earlier than expected (Fig. 3d). When asked whether assisting in hospitals during the outbreak would supplement their learning opportunities the majority of respondents agreed (44.5%) or strongly agreed (26.5%) with the statement (Fig. 3e).

Discussion

In this study, we primarily investigated the impact of the COVID-19 pandemic on final year UK medical student's examinations and transition to FY1, as well as exploring their current attitudes toward the pandemic.

It was shown that the final year medical students that responded to this survey had a utilitarian opinion on the impact of COVID-19; almost all respondents (93.9%) felt changes that had been made were necessary measures during this pandemic. Seventy-seven percent of respondents had electives cancelled; although disappointing to many, students recognised worldwide travel restrictions as necessary. However, there are training issues that should be addressed in the immediate term, and the question of how best to support students transitioning into the workforce in the long-term remains.

The results of this survey highlighted two key topics: attitudes to student assistantship and the impact of this pandemic on the transition from student to doctor. In 2009, the General Medical Council UK (GMC) published guidance on medical education entitled 'Tomorrow's Doctors' (8). It was recommended that medical schools introduced student assistantships, where a senior medical student could take up a role "assisting a junior doctor and under supervision, [undertaking] most of the duties of an [FY1] doctor" (8).

Amongst our respondents across UK medical schools, only 8% reported that student assistantship had been formally cancelled, whilst 49.8% reported that assistantships were postponed. Fortunately, 25.4% had no change to their assistantship as they were completed prior to the introduction of COVID-19 related nationwide restrictions. It is conceivable that these results reflect medical schools biding their time to make decisions on student assistantships due to the unclear length and consequences of the pandemic. However, it may also reflect the importance and value placed upon the student assistantship by medical schools.

The aim of student assistantships is to provide students with an enhanced opportunity to build upon the domains set out by the GMC. These domains are broken down into 'scholar and scientist', 'practitioner'

and 'professional' (9). In contrast to traditional clinical rotations, assistantships are integrated in such a way that empowers students with greater responsibility and participation within the team, to help develop clinical, practical and administrative skills and ownership of responsibility in a professional capacity.

Further evidence that suggests the student body views assistantships in high regard, is that 71% of students agreed or strongly agreed that assisting in hospitals prior to formally starting as a doctor would supplement learning opportunities lost due to COVID-19. 59% of students agreed that they feel less prepared for FY1 because of the disruptions caused by COVID-19. Considering that 49.5% of respondents have been asked to begin assisting in hospitals earlier than expected, it is crucial to define the capacity in which final year medical students will be joining the workforce during this pandemic.

When gauging confidence levels of students about the possibility of assisting in hospitals earlier than anticipated, almost half the respondents agreed or strongly agreed that they felt confident but this was dependent on the level of support and protection provided for them. It is clear that students should not be brought in to enhance the workforce without proper inductions, pastoral support, and appropriate remuneration for their time. This is essential for maintaining both patient care and student wellbeing.

This global pandemic has created the opportunity to evaluate how to improve the transition from student to doctor. A survey in 2011 sent to all UK medical schools highlighted practical challenges of student assistantships such as the need for them to be long enough to create genuine responsibility for students (10). Currently, there is growing interest in a new model of undergraduate medical education in the UK: the longitudinal integrated clerkship (LIC). The model was initially created to address rural medical workforce shortages in the US in the 1970s (11). This has grown and spread worldwide and within medical education, it is most widely utilised in primary care. In 2017, UK medical school representatives met to discuss the potential integration of LIC into the curricula. Dundee School of Medicine was the first to introduce a comprehensive LIC lasting for a whole academic year (11). Other institutions such as Imperial College and Hull York Medical school have piloted LIC programmes that run in primary and secondary care.

During the LIC, students have prolonged continuity in the care of patients promoting ownership of care and responsibility whilst having adequate supervision. The students follow care pathways of patients within both primary and secondary care. This allows more time to integrate into their respective clinical teams and feel valued as a member of the team (12) (13). Further benefits of LIC are development of student empathy and patient-centredness due to their continued involvement throughout a patient's care. Increased interaction between students and patients helps to create a greater sense of duty and responsibility. It remains to be seen within the UK whether LIC will be introduced more widely into medical school curricula, but early student feedback is positive (14) (15).

Perhaps, for medical schools deploying medical students to assist in hospitals during the COVID-19 outbreak, this is an opportunity to evaluate their involvement, level of responsibility and roles they are given. Feasible adaptations can be made during this time in liaison with NHS trusts for the future, given the unique position the NHS workforce and medical schools have found themselves in.

Another area of interest from the survey was the impact on final year examinations. A significant proportion of final year students had already undertaken written and clinical examinations prior to the COVID-19 outbreak, or indeed prior to implementation of social distancing, and subsequent university closures. For objective structured clinical examinations (OSCEs), just under half of UK medical schools had already completed them, and around a third had these clinical examinations cancelled. Four medical schools adjusted them by using actors rather than real patients.

Similarly, written examinations were completed prior to the disruptions caused by COVID-19 in more than half of UK medical schools. Interestingly, in a first for UK medical schools, 6 medical schools changed the written examination to be done remotely at home. If the COVID-19 lockdown continues, it may be possible that re-sitting of examinations may also be online. At Imperial College London, their online assessment consisted of an open book examination of 150 questions, with 72 seconds to answer each one. Question orders were randomised to prevent students helping each other. Students were presented with simulated patients and through provided history, examination and investigation findings were required to work through questions (5).

If psychometric analysis of the data from these remote examinations appear to be comparable with that of closed book examinations, it may dawn a new era of medical student assessment. However, it must be considered that some students may not have a home environment conducive to sitting an examination, or have difficult personal circumstances at home, or have technical problems, or barriers of access to adequate online facilities (5). A robust system to ensure standardisation for student's remote examination setting and clear guidance on extenuating circumstances must be made. Formative online assessments are already widespread in medical education and so a move towards virtual assessments may begin taking prominence. This is another potential leap in revolutionising medical education enforced by COVID-19.

Our study has some limitations which should be stated. The first limitation is the retrospective nature of the study design. Although we established the perspectives of final year medical students on the disruptions caused by COVID-19 thus far, we did not have a follow-up period for the participants. Consequently, the long term impact of COVID-19 on the transition period from student to doctor cannot yet be determined.

Another limitation is the difference in the number of participants across medical schools (average of 13.75 participants per medical school \pm 12.7). This variation between medical schools means that our data does not represent the entire cohort of final year medical students who will be entering hospital trusts to join the medical workforce.

Conclusion

The impact of COVID-19 on final year medical student education has been significant. The majority of students feel less prepared for FY1 due to COVID-19-related disruptions, but many acknowledge that assisting in hospitals early could be beneficial to supplement lost learning opportunities. The disruption

to medical student examinations and placements has provided a valuable opportunity for us to further evaluate virtual learning and assessment, which can play a key role in the future of medical education.

Abbreviations

FY1

Foundation Year 1

GMC

General Medical Council

LIC

Longitudinal Integrated Clerkship

OSCE

Objective Structured Clinical Examination

WHO

World Health Organization

Declarations

Ethics approval and consent to participate

We utilised the NHS Research Ethics Committee tool provided by the Medical Research Council which determined that ethical approval was not required for this study. This study did not include experiments on animal or human subjects. Consent was received from the participants to use the information anonymously for the purpose of this study.

Consent for publication

During distribution of the survey to potential respondents, they were informed that by completing the survey, they would be providing consent for their anonymised data to be used, analysed and potentially published. Consent was received from the participants for the publication of this manuscript.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

There was no funding received for the publication of this manuscript.

Authors' contributions

BC, LJ, AM, MA and EM contributed to the data collection, writing, and revision of the manuscript. All authors have approved the final manuscript and take full responsibility for the data presented.

Acknowledgements

The authors wish to thank the 441 medical students who responded to this survey.

Authors' information

BC FY1 trainee doctor at Hillingdon Hospital.

LJ FY1 trainee doctor at Hillingdon Hospital.

AM FY1 trainee doctor at Hillingdon Hospital.

MA FY1 trainee doctor at Hillingdon Hospital.

EM FY1 trainee doctor at Hillingdon Hospital.

References

1. World Health Organization (WHO). 2020. WHO Director-General's Opening Remarks At The Media Briefing On COVID-19 - 11 March 2020. [online] Available at: <<https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19-11-march-2020>> [Accessed 15 April 2020].
2. Biggerstaff M, Cauchemez S, Reed C, Gambhir M, Finelli L. Estimates of the reproduction number for seasonal, pandemic, and zoonotic influenza: a systematic review of the literature. *BMC Infect Dis.* 2014 Dec;14(1):480.
3. Liu Y, Gayle AA, Wilder-Smith A, Rocklöv J. The reproductive number of COVID-19 is higher compared to SARS coronavirus. *Journal of Travel Medicine.* 2020 Mar 13;27(2):taaa021.
4. Flaxman S, Mishra S, Gandy A, Juliette H, Unwin T, Coupland H, Mellan TA, Zhu T, Berah T, Eaton J et al. Estimating the number of infections and the impact of non pharmaceutical interventions on COVID-19 in 11 European countries. Imperial College London; 2020.
5. Tapper J, Batty D, Savage, M. Medical students take final exams online for first time, despite student concern. *The Guardian.* The Guardian [Internet]. 2020 Mar 22 [cited 2020 Apr 3]; Available from: <https://www.theguardian.com/education/2020/mar/22/coronavirus-forces-medical-students-sit-final-exams-online>
6. Iacobucci G. Covid-19: medical schools are urged to fast-track final year students. *BMJ.* 2020 Mar 16;m1064.

7. NHS Health Research Authority. Do I need NHS REC Review? 2020. [Cited 2020 Mar 3]; Available from: <http://www.hra-decisiontools.org.uk/ethics/>
8. General Medical Council. Tomorrow's Doctors Outcomes and standards for undergraduate medical education [Internet]. London; 2009 [cited 2020 Apr 15]. Available from: http://www.ub.edu/medicina_unitatededucaciomedica/documentos/TomorrowsDoctors_2009.pdf
9. Crossley JG, Vivekananda-Schmidt P. Student assistantships: bridging the gap between student and doctor. *Adv Med Educ Pract*. 2015;6:447–57.
10. Vivekananda-Schmidt P, Crossley J, Bax N. Student doctors taking responsibility. *Clin Teach*. 2011 Dec;8(4):267–71.
11. Bartlett M, Muir F. A new model of undergraduate clinical education? *Br J Gen Pract*. 2018;68(670):216–7.
12. Worley P, Couper I, Strasser R, Graves L, Cummings B-A, Woodman R, et al. A typology of longitudinal integrated clerkships. *Med Educ*. 2016 Sep;50(9):922–32.
13. Hudson JN, Poncelet AN, Weston KM, Bushnell JA, A Farmer E. Longitudinal integrated clerkships. *Med Teach*. 2017 Jan;39(1):7–13.
14. Mundell L. Being an agent of change: a student's view of the UK's first yearlong Longitudinal Integrated Clerkship (LIC). *Educ Prim Care*. 2018;29(2):121.
15. McKeown A, Mollaney J, Ahuja N, Parekh R, Kumar S. UK longitudinal integrated clerkships: where are we now? *Educ Prim Care*. 2019;30(5):270–4.

Figures

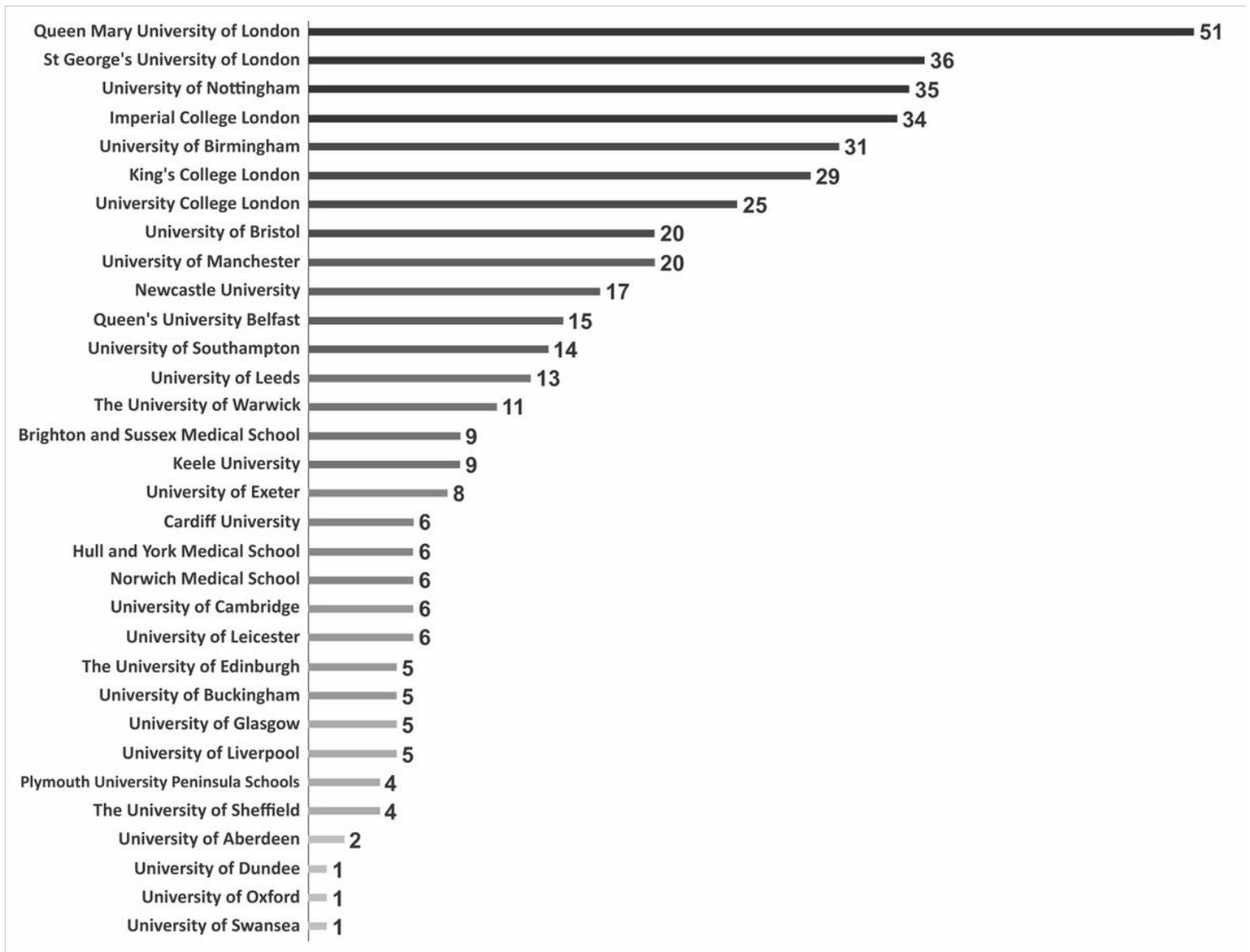


Figure 1

Number of final year medical students participating in this survey per UK medical school. Out of 33 UK medical schools, 32 had respondents to this survey. Total number of respondents: 441.

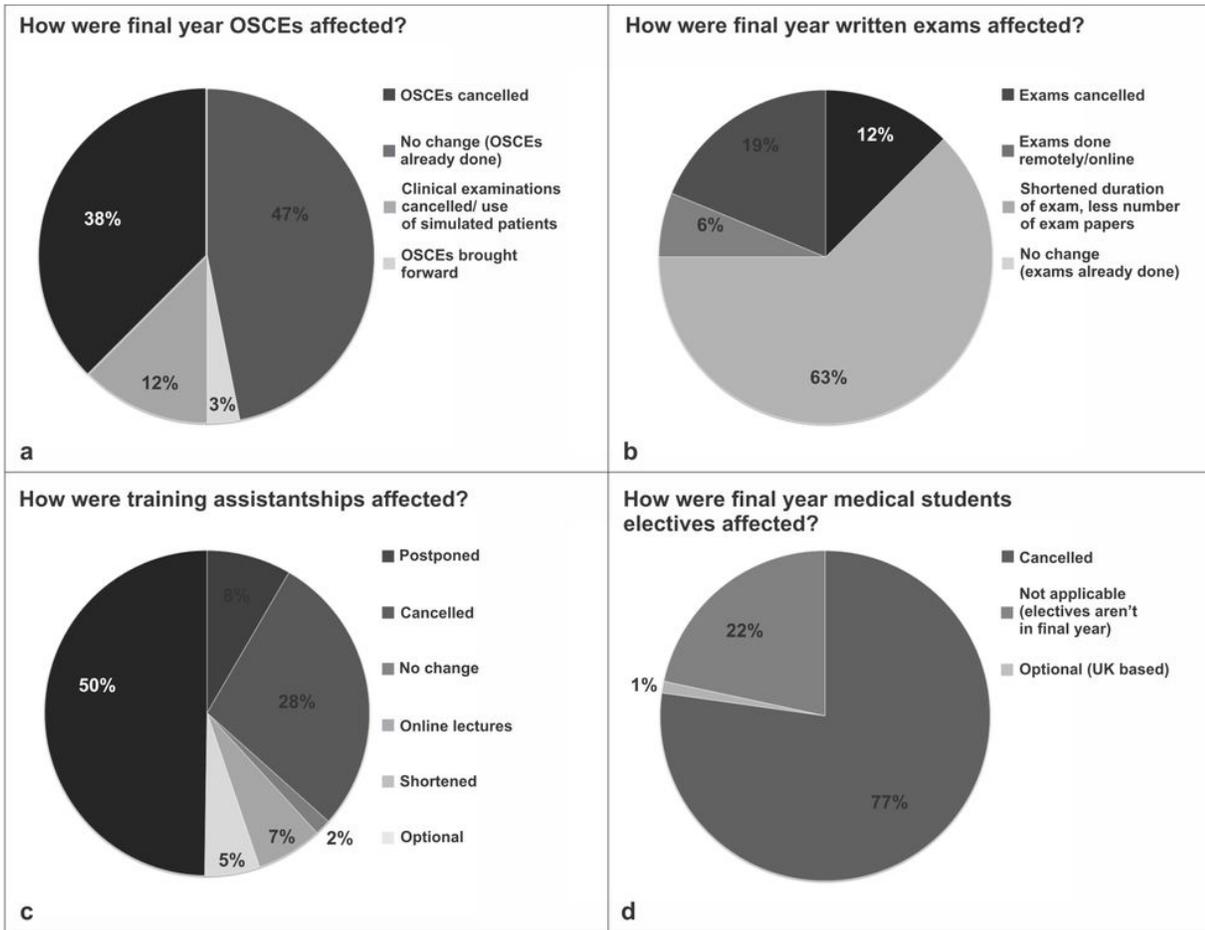


Figure 2

Pie-charts showing the impact of COVID on medical school OSCEs, written exams, assistantships and electives. 2a. The impact of COVID-19 on final year OSCE examinations. 2b. The impact of COVID-19 on final year written examinations. 2c. How student assistantships were affected by COVID-19. 2d. How medical electives were affected by COVID-19. For 2a-d, n=441.

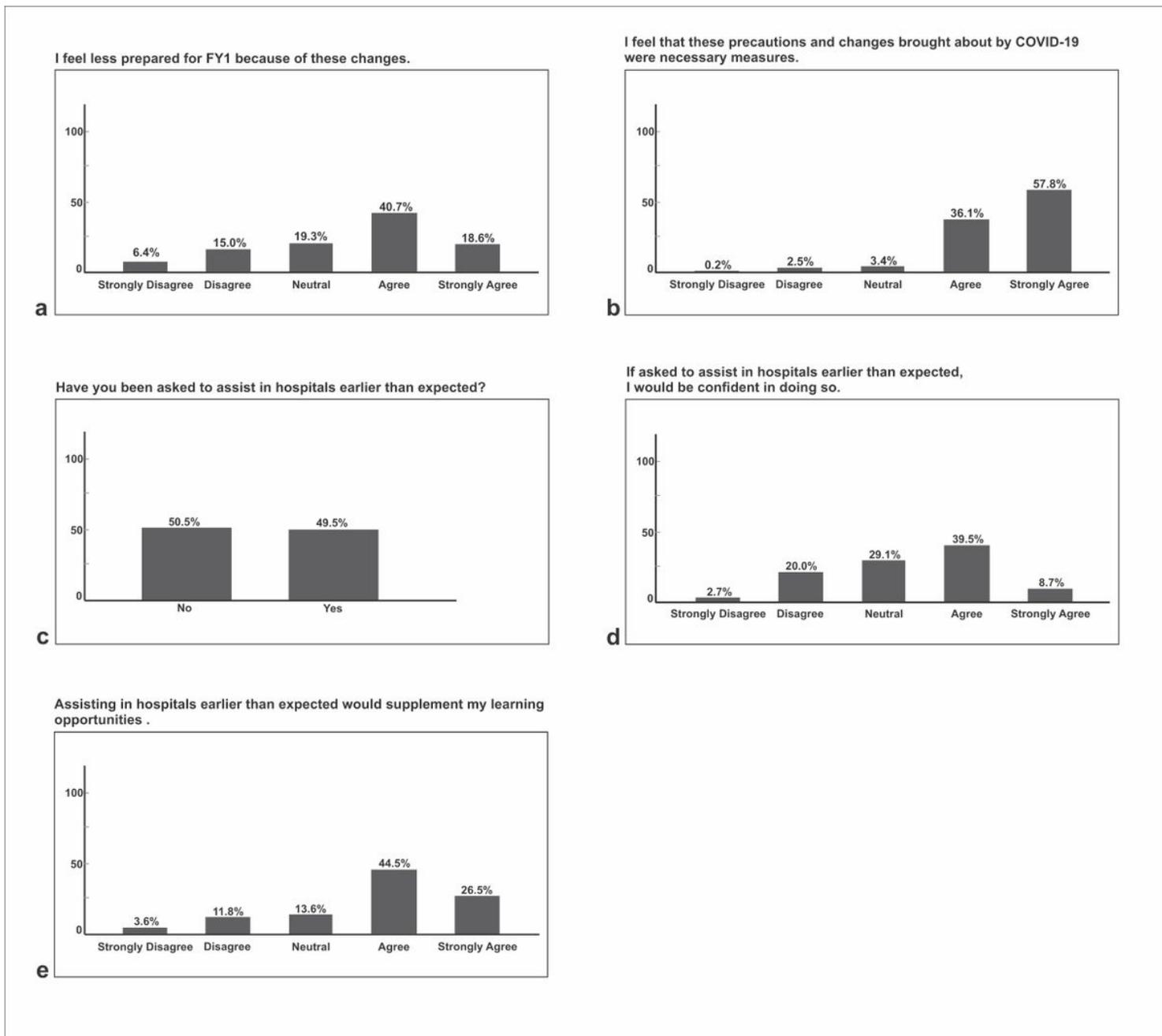


Figure 3

Column charts showing how final year medical students responded to statements about readiness for FY1. The questions about students preparedness for FY1 in the survey tackled the following matters: if students feel prepared to start FY1 after these changes (a), if they feel that the changes brought about were necessary (b), if they have been asked to assist in hospitals prior to the usual start of FY1 (c), if they feel confident in doing so (d), and if they sense that helping in hospital early on would supplement their learning (e).

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [COVIDquestionnaire.docx](#)