Medicine e-mentoring: accessibility and suitability of e-mentoring for applicants from widening participation and non-widening participation backgrounds

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Abstract This paper investigates the accessibility and suitability of e-mentoring to support access to medicine for applicants from diverse backgrounds. Through qualitative analysis of the conversations between mentors (current medical students) and mentees it aims to identify the main concerns of potential medical applicants and investigate similarities and differences between mentees from widening participation (WP) and non-widening participation backgrounds. Thirty-six medicine applicants from varied backgrounds subscribed to e-mentoring during their UCAS application preparation making it possible to address the study's research questions. No discernible difference between WP and non-WP applicants was evident which suggests the label is not indicative of prior knowledge or support needed to navigate the application process. E-mentoring was found to be a suitable platform for the delivery of outreach and both WP and non-WP applicants benefited equally. The findings from the study are discussed in the context of Health Professional Admissions and Outreach and the use of e-mentoring as a means of delivering on the WP access agenda.

Key words e-mentoring; medicine; outreach

Introduction

The Office for Students (OfS; independent regulator of Higher Education in England, formerly Office for Fair Access) considers under-represented groups of potential or current students to include those 'who share the following particular characteristics where data shows gaps in equal opportunities in relation to access, success and/or progression:

- students from areas of low higher education participation, low household income and/or low socioeconomic status;
- students of particular ethnicities;
- mature students [classed as 21 years and over at enrolment];
- disabled students.'

OfS requires all HE providers in England, who charge tuition fees above the basic amount,[1] to set out how they will ensure equal opportunities for under-represented groups. Through an Access and Participation Plan (APP) the provider outlines their commitment, targets and investment in access, success and progression. In addition to the APP, the introduction of Teaching Excellence Framework (TEF), which awards rating of teaching quality at a university- and subject-level, aims to drive sector improvements in attainment, retention and progression to address potential gaps in these measures between WP and non-WP students.

[1] In 2017-18 up to £6165 with a TEF rating of 'Meets Expectations', or £6000 if TEF rating has not been achieved; see https://hansard.parliament.uk/commons/2016-07-21/debates/16072152000025/HigherEducationStudentFinance

WP in medicine

Highly selective universities and courses, including medicine, have the most inequitable access (Milburn, 2012). In part, this can be traced to inequality in pre-university education systems meaning those from lower socio-economic backgrounds are less likely to achieve the required academic qualifications. That said, academic excellence is not the only factor considered during the selection process and consequently major players in the UK, including Medical Schools Council (MSC), British Medical Association (BMA) and General Medical Council (GMC), have produced guidance to support medical school policy and practice around applications from those who are under-represented in HE and in medicine.

In particular, those from the lowest participation neighbourhoods (POLAR4 quintile 1) are disproportionally under-represented in medicine, in comparison to other degrees. The HESA (2019) Clinical Medicine (A3) sector average for intake of students from POLAR4 quintile 1 is 6.1% (3-year average 2015/16-2017/18). This contrasts with 18.9% of entrants to Nursing (B7) and 14.8% for Other Subjects Allied to Medicine (B9). MSC's (2017) Selection Alliance reports that in 2015, 40% of entrants to medical schools were from families with higher managerial and professional occupations; this is significantly higher than the HE sector average where only 24% of first-degree entrants in 2015/16 fell in this category (HESA, 2019).

WP outreach initiatives: e-mentoring

As mentioned above, much guidance on WP in medicine now exists, in particular for the access strand which is often referred to as outreach. Many medical schools now run outreach initiatives and these are diverse in duration, focus and delivery. The MSC's (2014) Outreach Guidance highlights examples of good practice and advocates activities should be

longitudinal and developmental across a student's journey, from primary-school children to mature learners, therefore encompassing many interlinking initiatives.

At the host Medical School, in collaboration with its central Outreach, Recruitment and Admissions department, many initiatives have been implemented to support access to medicine for those from under-represented backgrounds. These target different age groups and have been designed to complement each other and achieve the goal of progression to a medical degree programme. One longitudinal scheme, the subject of this paper, targets older, secondary-school students (year 12, *c.*17 years old) who are considering applying to medicine in the next UCAS cycle. The purpose is to provide young people from disadvantaged backgrounds the human and social capital needed to submit a competitive application. A complementary package of activities is offered as part of this scheme and includes an on-campus residential to meet current medical students and experience life as a medical student, a work experience placement, aptitude test support, personal statement writing workshops and mock interviews. Participants are selected based on meeting WP eligibility criteria which link to the OfS under-represented groups. Parts of the scheme are supported by a generous alumnus donor who also supports a related Scholarship for participants who successfully progress to the Medical School.

The newest addition to the programme was virtual mentoring (e-mentoring) offered through a third-party, online platform. This affords flexibility to both mentors (current medical students at the host institution) and mentees with regards to when and where they can engage with mentoring. Audit and evaluation of the e-mentoring aspect of the scheme is the focus of this paper.

Mentoring has been used in many community, educational and workplace settings to achieve a range of positive outcomes and individual goals (Eby et al., 2008). Reviews into the effectiveness of mentoring have found short- and long-term effects on mentees' attitudes, behaviours, interpersonal relations, and motivation. Health-related outcomes and career outcomes were also influenced but to a lesser extent. Although the magnitude of these effects is small, they were statistically significant in many academic-based programmes (Eby et al., 2008) and both mentees and mentors self-report benefits.

E-mentoring has been shown to have significant advantages over off-line mentoring for specific groups such as university students (see Tinoco-Giraldo et al., 2020) and doctors (see Chong et al., 2020), particularly in terms of ease of access. However, the lack of non-verbal communication cues, the potential difficulty in establishing rapport with a stranger and delays in interactions have been cited as barriers which need further investigation (Griffiths and Miller, 2005; Miller and Griffiths, 2005). These barriers may be compounded if mentees lack cultural and social capital and the accompanying experience of communication, confidence and value placed on networking and information-seeking. This may be true for individuals who would meet the WP characteristics outlined above (Clarke, 2017) and therefore the current paper endeavours to investigate if this might be the case.

Study purpose and research question

The study was possible due to the introduction of e-mentoring to an existing outreach programme and a second interested party who enquired about applicant support along the same timeline. The inclusion of both groups provided a diverse group of mentees and allowed the e-mentoring platform to be evaluated.

The analysis aimed to explore the accessibility and suitability of e-mentoring for students from diverse backgrounds, and through analysis of the conversations between mentors and mentees identify the main concerns of potential medical applicants.

Specifically, the analysis wanted to investigate similarities and differences between mentees from widening participation and non-widening participation backgrounds in order to inform Medical School Admissions and Outreach and the use of e-mentoring as a means of delivering on WP access agenda.

E-mentoring as a means of supporting potential HE applicants is not novel (see Cullen, 2018 and Smith et al., 2013 as examples), however evaluation in previous research has been limited to stakeholders' self-reported satisfaction, application rate and progression to HE. NCOP (2019) report on an RCT design to evaluate the efficacy of e-mentoring to increase applications and learners' propensity to think HE is for 'people like them'; neither of which were shown to significantly improve. To the authors' knowledge, the accessibility of e-mentoring for young people from diverse backgrounds has not be explored by way of textual analysis and therefore this study brings a novel perspective which may help explain why similar interventions have shown little impact on applications or progression to HE.

Methods

The e-mentoring platform Brightside© was used, and mentoring took place between March 2017 and September 2017 (inclusive).

Participants

mentors

Sixteen medical students currently studying at the host Medical School were recruited as mentors. Mentors were volunteers and applied for the role by responding to an internal advert with a short expression of interest. In addition, a medical student who had been involved in previous outreach initiatives, including e-mentoring in 2016, acted as lead-mentor and supported the recruitment of new mentors by sharing the advert via social media and via various medical student associations. The lead-mentor was not a mentor on the 2017 scheme but acted as an accessible point of peer support for the other mentors.

The host Medical School offers a 5-year MBBS (A100) and a 6-year MBBS with a foundation year 0 (A104). Mentors spanned 1st- to 5th-year and included an intercalating student, although the majority were 1st- to 3rd-year students. Mentors received training, delivered jointly by the host institution and Brightside©, to upskill them in the nature and purpose of a mentoring relationship, safeguarding and best practice. A communications schedule was created by the project lead (corresponding author) and the Brightside© coordinator to help steer conversations along the application journey. A total of 10 prompt messages were sent over the course of the 7-month duration at pre-specified time points. Mentors and mentees received tailored but complementary messages and prompts included setting goals, overcoming barriers, stress management and self-reflection.

Mentees were randomly allocated to mentors, up to a maximum of 3 per mentor. Eight mentors had 3 mentees each, 4 mentors had 2 mentees each and 4 mentors had 1 mentee each. As per the privacy policy, agreed to by all participants, mentors did not have access to mentee personal details to know if they were from a WP or non-WP background. Due to the random allocation of mentees, this evaluation was not investigating individual mentor-mentee

relationships by characteristic but rather the collective experience of WP and non-WP mentees.

mentees

Twenty-three participants from the longitudinal outreach programme were invited to take part in e-mentoring, 17 subsequently joined Brightside. To have gained a place on this scheme, participants had to meet at least one of the following WP criteria set at the time:

- living in low participation in HE area
- young carer or previously / currently in care
- disability, mental health condition or specific learning difficulty
- household income under £25,000
- attended a school where more than 25% of students were eligible for pupil premium
- have the grades to progress to standard entry medicine (A100) or medicine with a foundation year (A104)

Places on the scheme were offered competitively and therefore the majority of participants met more than one criterion. All participants were studying at non-selective schools in the East of England.

Twenty-three additional mentees who did not meet WP criteria, but who were available to participate along the same timeline, provided the opportunity for comparison from which this evaluation arose. All were studying at a selective school in Cambridgeshire that has long-standing, high numbers of medical school applicants and very good progression rates to medicine and Oxbridge. Nineteen subsequently joined Brightside© and took part in e-

mentoring, not the full outreach scheme. The inclusion of these mentees made it possible to address the research questions posed in this paper and to investigate the application support needs, experiences of and engagement with e-mentoring among a diverse group of potential medical applicants.

All participants agreed to the terms and conditions and the privacy policy of the Brightside© mentoring programme. This allowed personal contact details, biographical details, demographic information and information related to use of the Brightside© Services, including course progression, messages sent or received, and number of visits to the Brightside© Services to be collected and processed for monitoring, evaluation, research and reporting purposes. Brightside© and institutional ethics were also consulted and confirmed the proposed analysis was covered by the policy. All reported data has been anonymised in line with the policy.

In addition to High School / College status, mentees' postcodes were used to calculate average levels of young people participating in HE in their area and acted as the main source of WP comparison. Table 1 shows that students classified in this study as WP had, on average, significantly lower Polar3 quintile scores.

Table 1: School status and Polar3 quintile score for WP and non-WP mentees in this study

	WP	Non-WP
n	17	19
School status	state school	selective school
Average Polar3 quintile score	2.5	4.5
Polar3 quintile 1 (n)	4	0
Polar3 quintile 2 (n)	4	0
Polar3 quintile 3 (n)	6	2
Polar3 quintile 4 (n)	2	5
Polar3 quintile 5 (n)	1	11
No Polar 3 data (n)	0	1

Analysis

Data analysis was conducted by an experienced qualitative researcher who was separate from the Medical School's outreach programmes and e-mentoring initiative. The e-mentoring conversations were read through in random order, rather than being governed by a specific criterion such as the number assigned to a mentee or the designation of WP or non-WP.

Thematic analysis was employed to analyse the 36 e-conversation transcripts. Major themes suggested by recurrent questions or issues discussed were identified; minor themes were pooled from the points which surfaced less frequently in messages. Questions or issues usually were voiced by mentees themselves; on occasion, they surfaced in mentees' responses to information or a question asked by their mentor. Thematic analysis continued until no new major or minor themes were detected in the data. Outlying and exceptional cases were noted.

The researcher chose to remain blind to which mentees were designated WP or non-WP in order to limit bias during the analysis, such as anticipating associations within the data. At the final stage of the analysis, the researcher accessed the key which identified the two categories of mentees and the final, comparative stage of analysis was completed to address the study's full research question.

Results

General features of the e-mentoring

Overall, few indications within the 36 e-mentoring conversations unequivocally suggested that mentees met either WP or non-WP criteria. The commonality of purpose and aim across the conversations seemed to transcend such categorisation. All mentees engaged with the e-mentoring in order to learn about matters of interest and/or concern to them in the context of medical school application. The specific topics of conversation are explored below.

Twenty-eight of the e-mentoring partnerships were initiated by the mentor and the other eight were initiated by the mentee. With few exceptions, mentors and mentees engaged immediately in their e-conversations. The exceptions were three mentees who never responded or engaged, despite introductions and a few repeated overtures from the mentors; a fourth mentee responded only once. Nearly all mentors and mentees established a rapport quickly, based on what appeared to be the friendly tone of their exchanges. In three cases, the engagement took extraordinary lengths (one example equated to 47 printed pages of messages; two each equated to 27 pages). Overall, it can be claimed that mentors and mentees engaged in meaningful exchanges of information-seeking, advice and feedback.

The 32 mentees who participated fully on the programme sought guidance and input from their mentor, some more frequently or consistently across the 7-month programme than others. For some mentees, the sounding-board provided by the mentor was immensely useful: having someone neutral who provided concrete, non-judgemental feedback and who was both highly informed and able to relate closely to their own experience added credibility and relevance to the process they experienced. As examples below illustrate, mentors

acknowledged the challenges the mentees faced, combining this understanding with support and encouragement.

Issues of concern to mentees

Analysing the full spectrum of e-conversations indicated that certain issues were of particular concern to the mentees, which reflected their aspirations to study medicine. Most of these involved queries around:

- grades,
- their UCAS application – especially the Personal Statement,
- which university to choose,
- how best to prepare for the UKCAT or BMAT entry tests,
- the pros and cons of different learning styles offered by medical schools.

The above topics were of interest to virtually all mentees who engaged on the programme. Some mentees placed more emphasis on some topics than others. For example, a few mentees asked for and obtained support and feedback on their Personal Statements; by contrast, some mentees displayed greater concern for their grades and, if exam results were not as successful as they had hoped, began to explore other routes into medicine or even to voice thoughts about a non-medical career.

It was also instructive to identify the first topic mentees raised with their mentor. These varied widely and can be grouped as follows, from most to least frequent:

- application process (including Personal Statement and the mentor's own experience of applying)
- which university to choose

- what is university life like //what is it like to study medicine
- grades
- the interview
- UKCAT
- (*one-off questions*) work experience; the gap year; obstacles to overcome; why you [the mentor] wanted to study medicine

These topics may indicate the needs or goals uppermost to mentees and which they hoped to address through e-mentoring. This does not mean that the first question remained the mentee's dominant concern during their involvement or that other subjects important to the mentee did not arise during e-conversations. Rather, it likely signals what was occupying the mentee's thoughts at the programme's outset.

None of the mentees' first questions was unique in and of itself. Questions asked at the start by some mentees surfaced during other stages of the e-mentoring for nearly all participants. The variety of topics raised at the outset of each mentor-mentee partnership and subsequently throughout speaks to the multiple types of help and information prospective medical applicants are seeking.

Emotions or feelings expressed by mentees

Typically, mentees were upbeat about any achievement that occurred during e-mentoring, such as obtaining successful grades or securing their preferred work experience. They also expressed gratitude for the benefits they obtained from their mentor's input. However, in seeking advice around their concerns, mentees revealed high levels of negative emotion. They demonstrated this, directly and indirectly, through a wide range of feelings, expressed as:

- Lack of confidence
- Uncertainty
- Worry
- Disappointment
- Daunting
- Struggling
- Concern about time or time management
- Trying to remain calm
- Doubts
- Fears
- Stress
- Feeling unsupported (by those other than the mentor)

These emotions surfaced differently. For example, lack of confidence applied as much to understanding how to approach the UCAS application as to the best way to prepare for the UKCAT. Worries were expressed about achieving top marks or finding good work experience or, as one remarked, *"being stuck in a degree I don't like*" (mentee 28). One mentee mentioned being stressed because they found it *"tricky… to relax*" (mentee 27). Other mentees described the application process as *"daunting"* (mentee 18) or suggested loneliness or isolation because their school seemed to be *"very discouraging about [their aspiration for] medicine"* (mentee 16).

Mentors acknowledged and were empathetic when concerns were expressed in emotional language. Nowhere in the e-conversations did a mentor ignore, deny or downplay a mentee's worry or the stress they disclosed. Rather, most mentors showed an understanding, encouraging attitude: they echoed back the *"difficult process"* (mentor 1) the mentee was experiencing; affirmed that the mentee had to deal with *"a lot of exam stress...can [I] help in any way?"* (mentor 6); and paralleled their own experience of finding the application process *"SCARY [sic]… after failing once, it seemed even more challenging*" (mentor 15). Such comments underlined the extent to which mentors empathised with their mentees.

Some mentors offered helpful suggestions or tried to ground the mentee constructively: *"stay cool-headed"* (mentor 4) and, to the concerns a mentee had expressed about time management, the mentor suggested, "*I wouldn't worry – your exams should be your main focus for now*" (mentor 11). Another mentor drew on his/her own experience when recommending to the mentee: *"make sure you enjoy life outside of work/careers … I've been guilty of not doing this at times"* (mentor 6). One of mentor 12's mentees had asked several questions early in the e-mentoring about different types of medical courses, adding that they hoped their "*indecision wasn't too difficult for [the mentor]"*. mentor 12 replied:

"*Don't worry at all, your indecision is a good thing really, it shows you are really giving it some thought. It's a huge commitment as a career choice so it makes sense to be sure it's the right thing for you."*

The mentors' responses acknowledged and addressed mentees' concerns and helped them persist with working towards their goal. They also indicated the potential emotional labour placed on mentors.

Meeting the mentees' goals and needs

Evidence within the messages shed light on the extent to which e-mentoring met the needs or interests of the majority of mentees. In general, e-conversations suggest mentees were becoming more confident, even in small degrees, and more assured of the application process and their goals, compared with their circumstances at start of the e-mentoring. The increased confidence is indicated by mentees' increasing familiarity with and certainty about the steps they take and how they are shaping their goals; as well as by the fewer doubts or worries expressed in later stages of the e-conversations compared with earlier stages. For example,

mentee 2 thanked their mentor for looking into options for work experience, adding that "*it has really calmed my worries about work experience. I think I'm managing okay as my grades haven't slipped... and I'm not feeling too stressed*". Mentee 4 seemed more at ease later in the programme and reported: *"Everything good, I've applied for GP work experience in the summer and have got several open days lined up"*. In early August of the programme, mentee 16 informed their mentor that the *"uni hunt is going well, I think I've decided on four..."*.

In this sense, the programme seems to have been experienced as an individual journey to achieve each mentee's goals in partnership with their mentor.

Those who participated regularly and those who did so infrequently or in a stop-and-start manner all exhibited positive engagement with e-mentoring, and all three forms of engagement appeared to result in meaningful exchanges. The value that the mentees obtained from participating in e-mentoring was revealed in the expressions of appreciation given by many mentees to their mentor throughout conversations and in the Brightside© exit survey at the conclusion of the programme. Mentees cited the whole programme as well as specific aspects that they appreciated:

"My mentor was excellent… and has overall helped me more than my college. I would recommend her to anyone and everyone." (anonymous quote from exit survey conducted by Brightside©)

"I am so grateful for your help over these months, and I have gained a lot from the scheme. … The most helpful part was definitely getting an opinion for my personal statement from a medical student... Thank you for everything!" (mentee 24)

"Thanks for all the advice for interviews. ...It's been so useful having you there to give me a hand and I definitely don't think I would be as confident as I am with my application without you." (mentor 12)

"Thank you so much, mentor 10, for all the help you have given me! It has been great and hopefully the application will go well. I hope that you continue to enjoy your studies too!" (mentee 19)

It cannot be determined from the evaluation what decision about pursuing medicine was taken by the four mentees who never engaged with e-mentoring or did so only once. By contrast, five of the 32 engaged mentees informed their mentor that they had decided not to study Medicine. This decision was usually communicated in the last month of e-mentoring. The options they chose instead were (in their own words) neuroscience; something biomedical; dentistry; paramedical sciences; and history. The reasons they gave their mentors for their decisions were varied. mentee 20 wrote that "*applying to medicine isn't feasible at this moment in time and am looking to study biomedicine instead or take a gap year*...". Another mentee exhibited distinct self-awareness about choosing neuroscience, telling the mentor: *"I think I need more life experience before I go into medicine"* (mentee 35). Mentee 11 (who decided to pursue paramedic sciences) thanked their mentor for helping them to make an informed choice: "*I do thank you for your advice and I assure you that it hasn't gone to waste*". Other mentees exhibited similar sentiments demonstrating the value of e-mentoring in confirming if medicine is the right career to pursue:

"[mentoring] made me think critically about my options … I have decided medicine is not the right path … this is an invaluable decision that my mentor gave me the information to decide." (anonymous quote from exit survey conducted by Brightside©)

Analysis suggests the e-mentoring programme was a suitable method to address the needs, interests or goals of prospective medical students during the applicant process. E-mentoring appears to have the ability to support informed decisions around applying to medicine and builds subjective knowledge and confidence to pursue that choice.

The mentee-mentor relationship

The extent to which mentors acknowledged and empathised with their mentees is worth further exploration. It demonstrates that rapport was built, a crucial aspect of any successful mentoring relationship. In addition, it appears to have met what is likely a common mentee need: to have their feelings and experiences validated as 'normal' or 'typical' for someone applying to medicine.

As discussed above, mentees expressed both positive and negative feelings in their communications. Mentors' responses to their mentees suggest substantial engagement and empathy on their part: *"I didn't know where to start when I was choosing which medical schools to apply to. I was very worried about it at the time"* (mentor 6), "*… my score was very similar to yours. Although it isn't in the highest bracket for scores it is a good average score"* (mentor 11)". Mentor 4 responded to difficulties experienced by their mentee with, *"Don't be too disheartened"*, and mentor 15 praised their mentee's exam results, "*Congratulations on those results. That's excellent so well done!"*.

The rapport which seemed to be established quickly between mentor and mentee may also have been fostered by mentors giving their reasons for joining the e-mentoring scheme. As part of the training provided by Brightside©, mentors were encouraged to share why they were participating, a suggestion that nearly all mentors followed. The reasons they cited

helped to forge a sense of common ground between the medical student and the college student. One mentor revealed that the lack of support they received when applying to medical school prompted them to become a mentor:

"...I didn't have much support from those around me when I was deciding to do medicine in university, and would have loved someone to guide me through the difficult process!" (mentor 1)

Another mentor explained their reason to each of their three mentees:

"...because I know how beneficial it can be to talk to someone who has been through the things you are about to go through." (mentor 5)

Other reasons given by mentors included their own *"very difficult journey"* into medicine (mentor 15) and wanting to *"give that same help back to students currently applying"* that they had benefitted from (mentor 11).

Throughout their e-conversations, most mentors demonstrated a caring, responsive manner and exhibited significant empathetic energy, which appears to be one of the key mechanisms by which mentees' goals were met. This altruism, through what is a very demanding degree programme, is likely to have both protective and damaging effects on mentors and this will be elaborated later in the context of support and training for mentors.

WP and non-WP mentees

During the analysis, notes were made where conversations seemed notably distinct from the majority, whether in language used, questions asked, concerns expressed, ability to engage or communication effectiveness. In the concluding stage of analysis, after WP and non-WP

participants were revealed, findings were re-examined for internal evidence to determine if any signs in the e-conversations had accurately predicted WP or non-WP status.

In general, the conversations were similar, allowing for the presence of individual personalities or writing styles. Few distinctions were apparent in the use of language, the formality or informality of written communication, the questions raised by mentees or the usefulness they expressed about the programme. As a result, the emergence of categories that might reasonably correspond to WP and non-WP did not seem evident. On these grounds, no evidence suggested definitively that one mentee was WP and another non-WP.

Three criteria left open a possible WP vs non-WP identification: i) any mention of family circumstances or familiarity with higher education; ii) degree of worry or concern expressed by a mentee and iii) engagement or non-engagement with the programme.

Regarding the first criterion, four examples across the mentee cohort referred specifically to aspects of family circumstances or their familiarity with higher education:

> *"No one in my family has studied medicine or has a career in science… so university applications are a bit new to us!"* (mentee 17)
>
> *"I have no history of medics in my family so I'm finding out everything by myself…"* (mentee 25)
>
> *"[I want] greater experience in the application process of universities and understanding what uni life is going to be like."* (mentee 8)
>
> *"Both of my parents used to work in care homes…"* (mentee 26)

No further internal evidence suggested explicitly that the four mentees quoted above might be from a WP background, with a possible exception of mentee 17, who exhibited great concern, especially at the start of e-mentoring, about obtaining grades and exam results good enough

for an application to medical school. Although concern about grades was common across all conversations, this mentee expressed doubts or worries with more frequency than most other mentees in the programme's first few months.

The de-coding key revealed that, of the four quotes above which mentioned family circumstances or familiarity with higher education, only one came from a WP background; the other three were reported by non-WP mentees. This underscores the importance of not associating such circumstances with one "type" of student relative to another. The single example from the above quotes from a WP participant was:

"[I want] greater experience in the application process of universities and understanding what uni life is going to be like." (mentee 8) - WP

Identification of WP and non-WP mentees also revealed that neither group exhibited more worry than the other. Some examples of the most sustained stress and worry were expressed by non-WP mentees. Overall, however, the groups were not significantly different:

"I am definitely struggling to keep up with everything [school; preparing the UCAS statement]. ... I am definitely a bit worried". (mentee 17, non-WP)

"I am stressed and am finding it tricky to find ways to relax". (mentee 27, non-WP)

*"I have fears that I might not get all A*s in my subjects and thats [*sic*] another reason why I signed up, so I could explore other options to get to medicine."* (mentee 11, non-WP)

These results contradict any preconception that more frequent or more emotive expressions of concern with applying to medicine might point to WP, rather than non-WP, applicants.

The third possible criterion considered was engagement or non-engagement with the programme. Three mentees never engaged in e-mentoring and one engaged only once; of these, one came from a non-WP background and three from WP. Comparing these with the most fully engaged: the lengthiest e-conversation involved a non-WP mentee; the second lengthiest conversations involved one WP and one non-WP mentee. Although these differences in engagement might suggest a possible pattern between WP and non-WP, the sample's small size does not allow an association between non-engagement and WP status to be claimed. Many factors, including personal circumstances, motivations and preferences, factors that remain beyond the scope of the e-mentoring programme, might account for differences in engagement and none of these necessarily relate to WP status. Additional data would be required to affirm any conclusions before suggesting changes to e-mentoring practice.

Upon their own entry to medical school, the mentors involved in this project would have fallen into the categories of WP and non-WP. Although not an explicit aim of this project, it is worth noting that analysis of the conversations show strong and successful relationships were built across nearly all pairings and did not suggest a need for mentors to come from a similar background to the mentee.

Discussion

This study set out to identify the main concerns of potential medical applicants and to explore if e-mentoring was a suitable method to support applicants' goals of preparing to apply to medicine. It also aimed to explore the experiences of WP and non-WP mentees to ascertain if e-mentoring was accessible and suitable for students from diverse backgrounds.

It is recognised that the metrics of under-representation used in this study were narrow and will not necessarily represent the heterogeneity of those who would fall under the bracket of WP, as defined by OfS. However, based on mentees' demonstration of increased knowledge, confidence and clarity of direction, as well as their expression of thanks towards mentors and the scheme, e-mentoring is judged through this evaluation as a worthwhile programme which benefited all who engaged, even those who decided not to progress with their medical application. Findings agree with evaluation reported by NCOP (2019) who concluded that 'e-mentoring has the potential to help learners refine and strengthen their plans, including going on to HE'.

Commonalities were seen across all mentees in terms of the questions and concerns they had around the application process. In general, mentees required very similar support in order to reach their goals, with a common need emerging for nearly all mentees: to have their feelings and experiences validated as 'normal' or 'typical' for someone applying to medicine. The topics of grades, personal statement, medical school choice and entry exams / interviews transcended almost all conversations and echo the research of the MSC (2017) Selection Alliance who identified knowledge deficits across these areas in both WP applicants and their teachers. Further to the report by MSC, this research suggests that similar knowledge, skills and confidence gaps exist for non-WP applicants and therefore there is *no* discernible deficit in a sub-group of applicants when it comes to the information and support they need. The findings presented here attest that the WP label is not indicative of an applicant's subjective ability to apply to medicine and therefore advocates that improved information, advice and guidance be available to all. The similarity in experiences between WP and non-WP mentees also suggests the limited impact of e-mentoring on progression to HE (as reported by NCOP, 2019 and Smith *et al*., 2013) is not due to an inability to engage with e-mentoring. It should be noted however, given the definition of WP in this study, that it is not possible to determine

how wide these commonalities reach and if groups such as those from under-represented ethnic backgrounds or with a disability would have the same experience as this data was not captured from participants. Future studies should ensure a broad range of WP characteristics are measured to understand the experience of what is an extremely heterogenous group.

Evidence is limited, but high levels of anxiety have been highlighted in medical applicants and new medical students due to the need for high academic achievement and internal and external pressure to achieve (Karaoglu and Şeker, 2010; Yusoff *et al.*, 2013). Countless lay publications and notable affiliates of medical education, e.g. BMA, write about the high anxiety levels and propose ways of coping. To our knowledge no previous studies present tangible evidence of this anxiety manifested in conversation, but the levels of worry demonstrated by mentees, in this paper, presents a concerning picture. Had the participants of this study not had the outlet of e-mentoring it is possible, and suggested in some e-conversations, that they would not have had the support to rationalise and cope with their experience. Given the emotional burden this places on mentors it is vital that they have appropriate training and support. Although outside the scope of this paper, mentors' experiences were also evaluated using a post-mentoring survey as well as a debrief discussion with the lead-mentor. Data showed all mentors who responded to the survey enjoyed the project and felt that they had improved their mentoring skills. It was clear that mentors engaged to different degrees depending on their capacity (as evidenced by the differing length of replies). However, as explained in the findings, this does not appear to have impacted the mentoring relationship. Many mentors did use the lead-mentor as a soundboard or to reply to mentees during busy periods and it was clear that this role was necessary as some queries were raised first with the lead-mentor and not the academic lead. However, it was noted that not all mentors used the lead-mentor and there were occasional instances when a mentee's message went unanswered. In these instances, email reminders were sent to the

mentor after 3 weeks. The reminder email generally initiated a reply however, on reflection, a time interval of 2 weeks may have been more appropriate and to further support mentors the academic lead could have provided a draft reply to reduce the mentor's workload. It is advocated that future mentoring projects employ the role of lead-mentor or allow an alternative mechanism for mentors to seek informal support with the workload of being a mentor. Further research is needed to better understand the emotional experience of applying to medical school and to understand what aspects of training prepare mentors to deal with such high levels of concern.

The format of e-mentoring, delivered online using current medical students as mentors, appears to be entirely suitable to support information-gathering and application preparation over a long period of time. The flexibility provided by the online platform was advantageous and pauses or long breaks in contact did not seem to work against effective mentee-mentor communication. Conversations analysed in this research provide no evidence that a sub-group of applicants struggled with building the necessary rapport for effective mentoring. This may, in part, be due to the good practice exhibited by mentors, including: explaining their own motivation to participate and demonstrating appropriate care and empathy with mentees' achievements and/or setbacks. These characteristics are known to foster good mentoring relationships (National Academy of Engineering and Institute of Medicine, 1997).

Mentors and mentees were matched randomly but our evaluation found most pairings were very successful and the conversation analysis did not indicate a need to match mentors and mentees based on their background. The success in this e-mentoring programme may have arisen in part from the common goal of applying to medicine, which the mentor has achieved, and the mentee aspires to. Therefore, other commonalities may not be needed, as confirmed by Cox (2005) in the context of mentoring lone parents wishing to return to work. Literature on the effectiveness of mentor-mentee matching is variable but appears to conclude that

formal schemes which assign a mentor to a mentee (as in this e-mentoring scheme) result in higher uptake than informal programmes where mentees find their own mentor. However, no difference in mentoring quality results from matching mentors and mentees by background except for ethnic background, where some evidence suggests greater benefits. This appears to be the case across a range of education and industry contexts (see discussions in Ramani, Gruppen and Kachur, 2006; Campbell and Campbell 2007; Cohee *et al.,* 2015; Nimmons, Giny, and Rosenthal, 2019).

The success of this e-mentoring programme rested on mentors supporting potential applicants to achieve their goals in preparation for applying to medical school. E-conversations demonstrate the time and effort mentors contributed and, given this voluntary investment, reward (financial or otherwise) may be considered. It could be correctly argued that participation brought benefits to mentor's wellbeing through altruism and the power of giving back (Casiday *et al*., 2008), and that it built employability skills (Ghosh and Reio, 2013) relevant to the role of educator that many will assume in their qualified roles (Ramani, Gruppen and Kachur, 2006). Reward aside, scheme leaders must be prepared to protect both the mentor and mentee. Findings from this research suggest that the following features of mentor training benefited mentors and the mentoring relationship to ensure maximum success: i) guidance on initial contact to include rationale for becoming a mentor, ii) training to increase mentor's awareness of the challenges faced by medical applicants (which they may not have personally experienced) and iii) an agreed member of staff or senior student to act as a point of support for mentors should they need advice.

Conclusion

This study found no detectable differences between WP and non-WP medical applicants in their ability to benefit from an e-mentoring programme. Mentees from WP backgrounds and those who did not meet WP criteria sought similar information, advice and guidance; suggesting all applicants could benefit from additional support to navigate the application process. The findings presented here dispel myths of WP applicants as being less knowledgeable and / or less able to benefit from networking interventions due to lower levels of social capital. E-mentoring, using current medical students as mentors, was found to be a suitable and effective method of raising medical applicants' knowledge, skills and confidence. The online platform therefore proved itself to be a flexible and beneficial method for delivering on HEI's Outreach commitments remotely, something which is of increasing importance. The results also remind us not to make assumptions about the prior knowledge of any applicant and encourages medical schools to consider the information and support offered as well as the channels through which they disseminate that guidance.

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Declaration of Interest

The authors report no declarations of interest. The authors alone are responsible for the content and writing of this article.