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Preparing for Medical School Selection: Exploring the Complexity of Disadvantage through Applicant Narratives

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ABSTRACT

Background: Despite a growing drive to improve diversity in medical schools, those from state schools and less-advantaged sociodemographic backgrounds remain underrepresented. We explore applicants' approaches to preparing for medical school selection, considering the complexity of sociodemographic disadvantage in this highly competitive process. **Methods:** Narrative interviews were undertaken with applicants to a United Kingdom medical school, exploring experiences of preparation for selection ($n = 23$). Participants were purposively sampled based on involvement in widening participation schemes, school background, gender, and ethnicity. Transcribed data were analyzed using Labov and Waletzky's analytic framework. Bourdieu's concepts of cultural capital and habitus provided a lens to constraints faced and variable experiences. This informed a consideration of the ways applicants approached and navigated their preparation, in the face of various constraints. **Results:** Constraints to resources and support were often apparent for those from state nonselective (SNS) schools. These applicants and those beginning their preparation later (12–18 months before application) appeared particularly vulnerable to myths and misunderstandings about the application process and appeared less confident and less discerning in their navigation of preparation. Some of the applicants, particularly those from independent and state selective schools, appeared confident and competent in navigating the complexities of the application process, while others (often from SNS schools) were more frequently lost or stressed by the process. **Discussion:** Those who lack particular preparatory tools or resources (materially, culturally, or perceptually) must "make do" as they prepare for medical school selection. In doing so, they may risk a haphazard, ill-informed or ill-equipped approach. Constraints to opportunities, more typically experienced by those from SNS schools, appeared to motivate the process of bricolage for a number of the applicants. Perversely, medical schools have introduced nonacademic requirements to level the playing field of disadvantage, yet applicants in this group appear to experience challenges as they prepare for selection.

Keywords: Admissions, narratives, qualitative, selection, widening participation

Background

When considering success in medical school admissions, how narrow is the gate and difficult the road to enter; only a few find it... (Anon).

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Changes have been made by medical schools to improve the demographic diversity of those who do make it through the “narrow gate.” In the United Kingdom (UK), both policy and investment have driven widening access (WA) activities to increase the representation of applicants from less advantaged sociodemographic backgrounds (LA-SDBs) within medical schools and to ultimately promote social mobility and develop doctors who are more likely to practice in underserved areas after graduation.^[1,2] Despite these changes, those from state schools and LA-SDBs remain underrepresented.^[3-5] This has caused concern that medical schools may not be developing workforces to best care for diverse or underserved populations.^[2,6,7] The complexity of variables and heterogeneity of applicants make it difficult to articulate an easy “fix” to turn the tide of disadvantage in medical school admissions, and recent research suggests that this has only been compounded as a result of the COVID-19 pandemic.^[3,5,8]

A number of studies have focused on the aspirations of school pupils, and have discussed common “barriers” to a career in medicine, such as financial constraints, lack of information or cultural factors.^[9-13] However, there is growing evidence that the aspirational tide is turning, particularly for those involved with WA initiatives, and nontraditional pupils may be beginning to see medicine as a “reachable” profession, and one in which sociodemographic status may no longer represent an insurmountable barrier.^[9] While the aspirations of school pupils represent a key consideration in WA to medical school, it is also important to explore the experiences and perceptions of applicants under the testing and rigor of the application process.^[9] In preparing for medical school selection, inequalities of this nature appear to permeate; particularly in the degree of access that applicants have to resources traditionally used to support preparation. For example, coaching support may improve performance in aptitude tests, and courses run by private companies have been shown to be associated with the offer of a place at medical school, suggesting that those who cannot afford or access this support risk disadvantage.^[3,14,15] Work experience is perceived by applicants as an important aid to get into medical school, yet some students continue to encounter difficulty in arranging placements.^[8,16]

This research focuses on the preparatory experience of applicants. Preparing for selection takes place in schools, colleges, homes, and families; frequently shaped over the preceding months or years before an applicant first engages with the application process, or with a medical school. Medical schools themselves have become more explicit and transparent about their expectations for success, and the methods by which a candidate should prepare.^[17] In an environment where the number of applicants outstrips available places, those who wish to succeed must typically demonstrate the cognitive ability to excel on a medical course, alongside the personal attributes that would be expected in a trainee doctor.^[18] In

addition to grade requirements, many medical schools also require applicants to perform well at interview, score highly in aptitude tests, and appreciate the demands of a career in medicine through participation in work experience.^[18,19]

Within the literature, studies frequently focus on the quantification of applicant participation in various types of preparatory activity and the association with success.^[15,18] However, such studies only begin to pull at a complex thread of complexity and disadvantage in this setting. Efforts by university admissions teams to support the opportunities afforded to applicants to prepare for selection tests may neglect the nuanced effects of socialization that lead to the “know how” required to succeed in medical school admissions. It is unclear how preparatory resources are negotiated and navigated by applicants in practice and how the lived experiences of preparation vary between sociodemographic groups. Furthermore, in the exploration of a phenomenon that occurs largely outside of the hegemony of medical schools, we must also appreciate the ways in which applicants internalize their own ideas of what is required to meet the expected standard. For this to be explored further, a greater understanding of the nuanced applicant experience is required. For researchers, there is a need for conceptual tools to understand the ways in which applicants are developing the skills and attributes desirable for a career in medicine and preparing for the admissions processes that will ultimately assess their ability to demonstrate them.^[20]

We aimed to explore the approach taken by medical school applicants to prepare for selection, considering the issue of inequalities in opportunities afforded to applicants, challenges experienced, and the ways in which these are navigated in preparing for medical school selection.

Methods

A social constructivist approach was taken, acknowledging the shared knowledge constructed through social interaction, and the roles of the researcher and participant in the co-construction of this knowledge.^[21] In this paradigm, the aim is to understand particular situations, drawing on the rich and multiple perspectives of participants, and emphasizing the importance of interpretations, context, and culture.^[22]

Interviews

Narrative interviews with applicants were conducted during November 2017 until February 2018. In the UK admissions calendar, the offer of a medical school place is provided by March-April, and the study period represents a window when applicants would have submitted their applications, but typically would not have received offer decisions. Telephone interviews were chosen to encourage a breadth of respondents from across the UK and facilitate discussion of sensitive

data (without the pressure of face-to-face contact).^[23] Facilitation of the narrative was encouraged by building rapport with the respondent and offering advance information about the focus of the interview.^[24-26] To manage consistency in the interviewing, the opening statements and approach to the narratives were developed in a workshop for all interviewers (DJ, GS, NW, and HW). The interview schedule is shown in Appendix 1 (Interview Schedule). No interviewers were involved in the selection interview process for any of the study participants.

The interviews typically lasted 30–50 min. The participant table is shown in Table 1 and indicates respondents from a variety of school and demographic background. With a reflexive approach to analysis, judgments around data saturation were not made in advance of analysis.^[27] To aim to provide sufficient breadth of experience, and in view of the time window between application and offer decision, we aimed to recruit 20 applicants. We received positive responses from 23 of those sampled and chose to include all of these. Following analysis, further interviews were not deemed necessary. Each interview was audio-recorded and transcribed verbatim by the interviewer shortly afterward, ensuring timely reflection on reflexive considerations at the time of interview.

Identifying participants

The University of Birmingham receives over 2000 applicants annually for around 360 undergraduate places (the

second-largest medical school in the UK^[28]). We focused on the experiences of those applying to the 5-year medicine program as their first undergraduate degree. The University of Birmingham uses “contextual data” to reduce selection requirements for those from LA-SDBs^[29] and offers places on WP programs to provide additional support with applications or interview places.

Within the UK, applicants typically attend state nonselective schools (SNS), state selective schools (SS), or independent (private) schools (IND).^[30] Participation in or SS school education is linked with higher rates of acceptance to highly-selective universities, and private education is concentrated at the very top of family income distribution.^[29,31] School background, therefore, offers a rudimentary marker for SDBs in the UK setting.^[30]

In the 2017/18 application cycle, all applicants to the University of Birmingham medical school were invited to complete an online survey, to register their interest in the research, and to provide some baseline demographic data and contact information to enable purposive sampling [Figure 1: Recruitment process]. The aim was to recruit 20 participants, to provide sufficient insight to experiences across the 3 school backgrounds (SNS, SS, IND), while balancing feasibility considerations relating to the 3-month calendar window available for conducting the interviews (November– February).^[32]

Table 1: Participant demographic data and outcomes at selection

Pseudonym	School	Ethnicity	Contextual data used to offer interview	Interview	Offer	Contextual data used to give offer
Ella	SNS	White British		Yes	Yes	
Annabelle	SNS	White British	Yes	Yes	Yes	
Lily	SNS	White British		Yes	Yes	
Iffat	SNS	Asian Pakistani	Yes	Yes	Yes	
Michelle	SNS	White British	Yes-but below threshold	No	No	
Izabel	SNS	White British		Yes	Yes	
Gracie	SNS	White British		Yes		Yes
Musa	SNS, WP	Asian Pakistani	Yes	Yes		Yes
Anabelle	SNS	Asian other		Yes	Yes	
Tisha	SNS	Black Caribbean		Yes	Yes	
Charlotte	SS	White British		Yes	Yes	
Luke	SS	White British		No	No	
Harry	SS	Mixed white/Asian		Yes	Yes	
Kareena	SS	Asian Indian		Yes	Yes	
Fatima	SS	Asian Pakistani		Yes	Yes	
Tracey	SS	Black Caribbean	Yes	Yes	Yes	
Hugh	IND	White British		Yes	Yes	
Sonal	IND	Asian Indian		No	No	
Melissa	IND	White British		Yes	Yes	
Freddie	IND	White British		Yes	Yes	
Ethan	IND	White British		Yes	Yes	
Pooja	IND	Asian Indian		Yes	Yes	
Adaeze	IND	Black African		No	No	

IND: Independent, SNS: State nonselective, WP: Widening participation, SS: State selective

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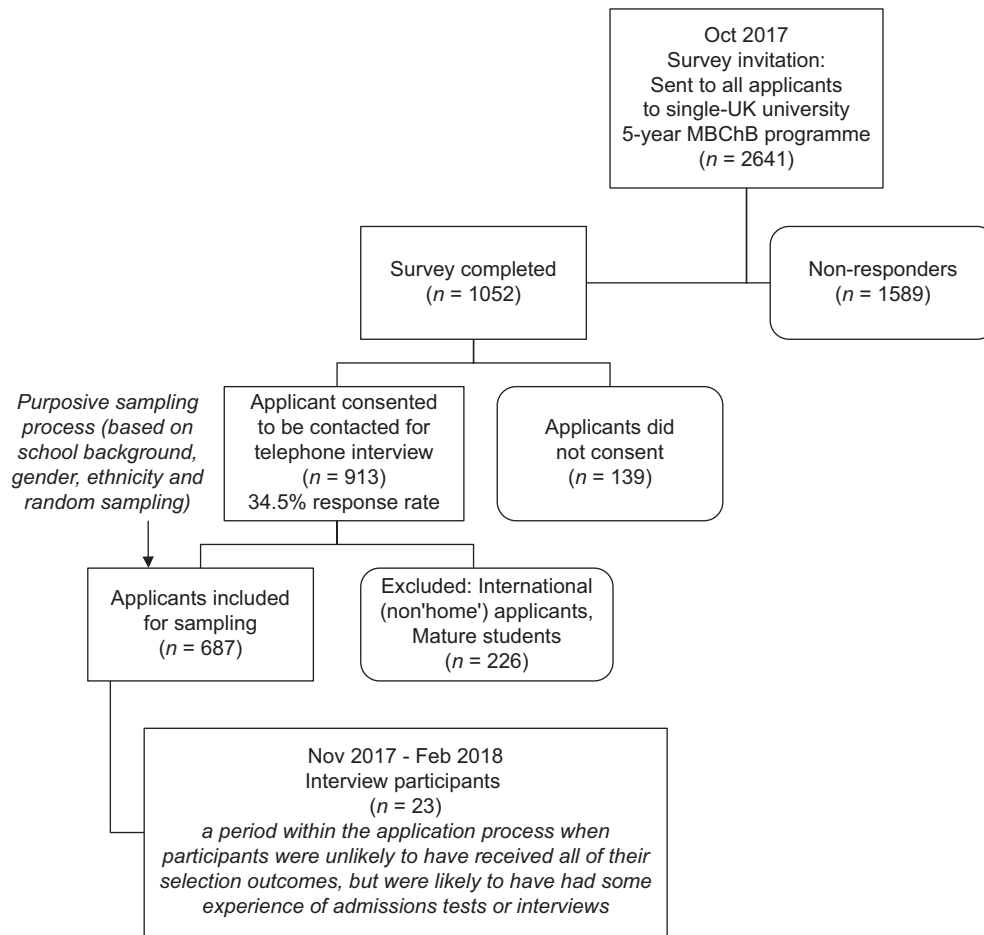


Figure 1: Recruitment process for narrative interview participants

Ethical approval

The study was approved by the University of Birmingham ethics committee. Culturally congruent pseudonyms, based on applicants' self-declared ethnicity, have been used to protect anonymity. Sensitive data that risked identification of the applicant have been changed.

Analysis

Riessman describes narrative analysis as a broad method, where individual accounts of experiences can be sectioned into smaller groups of focus for analysis.^[33] Our research considered the first-person accounts of applicant experience, and Labov and Waletzky's framework enabled a structural approach to the analysis of each narrative.^[34,35] A workshop was undertaken in the early stages of analysis to refine the application of Labov and Waletzky's approach to our data. Smaller narrative "episodes" were identified within each interview transcript and retranscribed according to abstract (starting point of the narrative episode), orientation (background information about the applicant), complicating actions (narrative clauses outlining sequences of events), resolution (the result), evaluation (the significance and meaning of the episode to the applicant), and coda (an optional section marking the

end of the episode).^[34-36] This structural approach helped facilitate analysis across a large analytic team and enabled the illumination of statements relating to participant context and culture (the referential functions of the narrative), and the meaning ascribed to the applicants' experiences (the evaluative functions of the narrative or the reasons for its telling).^[37]

Through reading and re-reading, the orientation, complicating actions, results, and evaluation sections of each narrative were reviewed. This approach to analysis enabled the identification of themes within the data.^[23,38] DJ, AS, NW, GS, and CA performed the initial analysis, working in pairs through analytical cycles and resolving disagreement through discussion and consensus. SG and JP helped refine the themes and contributed to the consideration of these through the conceptual lens of bricolage. Figure 2 summarizes the analytic approach taken.

Developing the conceptual lens

Identified themes were explored through the conceptual lens of Levi Strauss' bricolage.

We wished to consider the contextual and cultural experiences of medical school applicants, exploring the ways in which

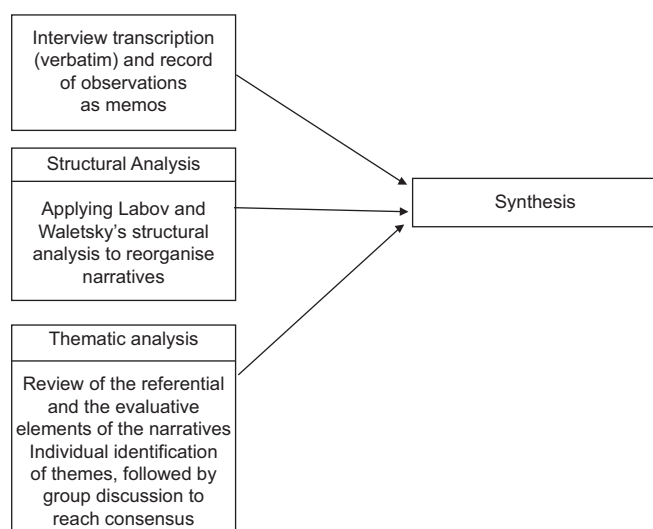


Figure 2: Approach to narrative analysis

they navigated and responded to their situation. Bricolage has frequently been described as a response to depleted resources or opportunities, where the “bricoleur,” working within the parameters of these constraints, “makes do” with whatever resources they have at hand, and recombines them in innovative ways to complete the task at hand.^[39] Levi-Strauss describes bricolage as the difference between the “Do-It-Yourself” approach to a household project, using whatever nonspecific tools are available, and the approach of the “engineer,” characterized by specialized tools for the task. While some may argue that bricolage is a “second best option,” associated with primitive cultures (and the engineer with modern), Strauss contests this distinction.^[40] Furthermore, contemporary views of the concept have put bricolage at the heart of innovation; incorporating individual agency to skillfully operate in systems and structures, and to offers ways to create something novel or more fit for purpose.^[40,41] Bricolage has been applied in many different spheres and settings, including the study of subcultures,^[42] qualitative methodologies,^[43] educational research,^[44] institutional contexts,^[40] and health care.^[45]

While Strauss’ contrast between the “engineer” and “bricoleur” is an idealized comparison, it offers a lens to consider preparation for medical school selection in the context of inequalities in access to resources and also to consider applicants’ responses to constraints and challenges.

Trustworthiness, reflexivity, and research team

Interviewer roles (3 junior doctors and an admissions team member not involved in selection interviews) were chosen to encourage the positioning of researchers as “near-peers,” to encourage narrator participation and ease.^[46] The analytic team was expanded to include 2 further members of admissions staff, AS and CA (1 clinical and 1 nonclinical).

SG and JP (experienced in research and medical education) assisted in refining the themes and consideration of the conceptual lens. The diversity in the research team provided a broad range of interpretation. Field notes were kept during each stage of analysis and immediately after each interview.

Results

Table 2 outlines the themes from the results, alongside illustrative quotes from the participants’ stories of preparation.

Resources for preparation

Variability was evident in the degree of school, family and financial support available, and constraints to these sources of support more frequently observed in those who attended SNS schools. Table 2 illustrates the contrasting experiences of Melissa (IND) and Iffat (SNS). Melissa received significant in-school support for preparation, some of which was timetabled, while support from Iffat’s school was in the form of signposting to sources of support, to explore in her own time. Some applicants reflected on the variation on local availability of support, either due to ineligibility based on post code, or simply a lack of local opportunities.

Social support

Peer support appeared to consist of sharing and swapping stories and tips about medical school selection processes, and was considered to be an information resource for a number of the applicants, from which to accept or to reject advice.

A number of the applicants described significant relationships, either in school or outside of school, where they were able to access advice, contacts, or encouragement to progress in their preparation for medical school. For some, this involved harnessing the support of a preexisting network of relatives or family friends in the medical profession. Not all the applicants had these resources, but some described innovative alternatives, such as Charlotte’s work experience connection made at the hairdresser (see Table 2).

Cultural messages on preparation for selection

Myths

Belief in particular myths regarding a career in medicine, or the application process, were evident. This related to the setting or duration of work experience, an overly positive appraisal of their personal academic threshold scores or an underestimation of the extent of competition within the application process. Insight into a career in medicine, and “being” a doctor were most poorly expressed, and reflections were frequently superficial, such as in Luke’s reference to observing “*kind of GP things.*” (see Table 2)

Table 2: Themes identified from within the narratives

Theme	Sub-theme	Illustrative quote (s)
Deductive analysis (cultural capital and habitus)		
Material The objectified and tangible resources available to applicants, linking to economic capital and infrastructures ⁴⁷	School support (variable)	<p><i>“then, we started doing interview preparation at school, which would be once a week for an hour twenty, which was compulsory”</i></p> <p style="text-align: right;">Melissa, IND</p> <p><i>“not many people in my school apply for medicine every year, like one or two. ... but she (assistant head of 6th Form) does deal with early applications so Oxbridge and medicine, dentistry. So I talked to her, I asked her, I really want work experience where would you suggest and then she forwarded me some links”</i></p> <p style="text-align: right;">Iffat, SNS</p>
	Local support (variable)	<p><i>“the problem was I kept on applying for them and they said they only look at people in the borough of London territories”</i></p> <p style="text-align: right;">Sonal, IND</p> <p><i>“that was really difficult to organise actually I emailed loads of hospitals and umm lots of them kept saying they'd lost my email in their system . no you haven't . it was actually really quite hard umm which I think can be difficult especially if you don't have parents who are doctors that can be a little bit more challenging”</i></p> <p style="text-align: right;">Charlotte, SS</p>
	Financial cost	<p><i>“I was only able to get this Southampton thing because I had a friend that was going. I wouldn't have been able to get to otherwise because it's quite awkward getting to stations and it's quite expensive”</i></p> <p style="text-align: right;">Gracie, SNS</p>
	Family support	<p><i>“Both my parents are doctors in hospital, so he kind of, as a kid I spent quite a bit of time in hospitals. Um, just kind of hanging out, cos whenever they didn't have a babysitter, I'd go on ward rounds with my Dad. Which is probably very bad childcare, I don't know if he'd be allowed to do that anymore (laughter). So he's at “a hospital which is quite near my school, so I'd often pop in and I got to know some of the doctors and a few of the staff there”</i></p> <p style="text-align: right;">Melissa, IND</p>
Social capital The resources that can contribute to networks of mutual recognition and acquaintance	Network of peers	<p><i>“so a couple friends and I got together, There was nothing to do with discussion of medical ethics at our college so we set up a kind of like a little club for the medical students and we were in the second year then and so we opened it to first years as well and we set that up ourselves”</i></p> <p style="text-align: right;">Gracie, SNS</p> <p><i>“yeah, and a lot of people said, went on courses and this kind of thing and they, they read books about it. I, umm, I did it by practising really, that's, that's how I got through it. And, on the day, I, I felt like very unprepared, because people say that, you know, it's basically like an IQ test, so you can't really prepare”</i></p> <p style="text-align: right;">Luke, SS</p>
	Leverage	<p><i>“So from year 11, just at the hairdresser, I met someone who was a diabetic retinopathy screener so I told her that I wanted to do medicine and was trying to get some work experience”</i></p> <p style="text-align: right;">Charlotte, SS</p>
Perceptual Related the habitus, the “long-lasting dispositions of the mind” conveyed through the narrative accounts ^{48p243}	Myths	<p><i>“I've heard that universities like people who volunteer at old people's homes instead of things like scouts or something because it shows different skills set, so that would be preferable”</i></p> <p style="text-align: right;">Gracie, SNS</p> <p><i>“And, on the day, I, I felt like very unprepared, because people say that, you know, it's basically like an IQ test, so you can't really prepare... ...a couple of weeks before the UKCAT, I'd been away on a kind of a trip to Tanzania... And I think that was err a great thing to do and it was a great experience as well. And then obviously after that, I had my UKCAT so, umm, and I didn't really do any practice out there because it's all on a computer and we didn't really have any internet or anything”</i></p> <p style="text-align: right;">Luke, SS</p>
		<p>(reflecting on GP work experience) <i>“I saw a lot of kind of GP things... I saw how much kind of reading into their studies they had to do”</i></p> <p style="text-align: right;">Luke, SS</p>

Contd...

Table 2: Contd...

Theme	Sub-theme	Illustrative quote (s)
Deductive analysis (cultural capital and habitus)		
	Competition at every level	<p>“so my UCAS referee was the Head of Chemistry at my school, so he was doing references for, erm, I think he, apparently he specifically had the, err, the, I suppose stronger academically, stronger academic pupils in some ways”</p> <p>Harry, state-selective</p> <p>“I applied through school for the Intromed course (a local hospital course) which is introduction to medicine and we were selected based on a small application and our GCSE grades and predicated grades for A-Level”</p> <p style="text-align: right;">Kareena, state-selective</p> <p>“the problem was I kept on applying for them and they said they only look at people in the borough of London territories”</p> <p style="text-align: right;">Sonal, IND</p>
	Stressed	<p>“I think especially this, I mean maybe it’s just me but I just find it really intense, there’s a lot of pressure. And it does drain like the fun out of it sometimes and I’d just think oh my G** why am I doing this then I have to remind myself”</p> <p style="text-align: right;">Iffat, SNS</p>
	Confidence	<p>“I did feel really out of my depth. I’d just finished my GCSEs and didn’t really know any of the science of the heart really. I was still very grateful to be there and be on the programme...So it was a bit, I didn’t really know what to do”</p> <p style="text-align: right;">Iffat, SNS</p>
Emergent themes and subthemes		
Strategy and navigation	Degrees of confidence in navigation	<p>“I collected all of the information and had a look at what suited me. Then I thought about the admission tests and balancing my school work. So I did half and half, 2 UKCAT and 2 BMAT. I started my UKCAT revision in March/April time. Tried to do a bit every day”</p> <p style="text-align: right;">Tisha, SNS</p> <p>I actually decided to not sit the BMAT at all, because I found that I wasn’t particularly good at the exam and I didn’t particularly want to go to any of the BMAT universities. So after I got a fairly strong UKCAT result I thought that instead of, I don’t know, getting unnecessarily stressed and worried about that, I would work on my personal statement more, and um kind of focus on other studies and A levels, keeping up to date with that</p> <p style="text-align: right;">Melissa, IND</p> <p>“So, I sort of slipped up a bit with the UKCAT, I think I massively underestimated it. Erm and I just thought, err, OK it’s a multiple choice exam, why not get that out of the way quickly. So, I booked in an early sitting for that...Err and I hadn’t prepared at all while we were at school so I basically left myself about a week to prepare for it, which (laughs) I can definitely say was a mistake”</p> <p style="text-align: right;">Harry, SS</p> <p>“I looked at thirty big topics in medicine and tried to learn those facts and figures...and umm just more how interviews worked, which I probably should have been able to figure out before them but I think I wanted to look at that so I did. I found that was kind of irrelevant”</p> <p style="text-align: right;">Charlotte, SS</p>
	Early and late starters	<p>“I’ve started preparing for my interviews now... I’ve got a big folder and I’ve got in it, like, a copy of my personal statement, like a list of competencies, so things that I’ve done over the years that could contribute to medicine”</p> <p style="text-align: right;">Annabelle, SNS</p> <p>“so, umm, then I got my GCSEs back and they were a lot better than I’d expected really, so, erm, I thought why not go for medicine”</p> <p style="text-align: right;">Luke, state selective</p>

UKCAT: United Kingdom Clinical Aptitude Test, IND: Independent, SNS: State nonselective, SS: State selective, GCSE: General Certificate of Secondary Education, BMAT: BioMedical Admissions Test, GP: General Practice, IQ: not applicable to have to explain this (remove), UCAS: Universities and Colleges Admissions Service

Myths and misunderstandings were more often evident in narratives from applicants from SNS schools, those attending schools without an active peer-support group (such as a medical society), and those starting their preparation “late” (in the 12–18 months before application). Interestingly, a number of applicants from SNS schools who, by our evaluation, were lacking in support or resource, overestimated the quality and extent of support provided.

Competition at every level

Competition was perceived in spheres beyond simply the selection process itself. A number of local work experience

schemes required a separate application, considering academic achievement and commitment to medicine. Within the school setting, some participants perceived variability in support for medical school applicants, with more support afforded to those who were felt to be more likely to succeed.

Upshots of preparation for the individual

Feeling “lost” and “stressed”

Some described feelings of “stress” or feeling “lost” throughout the application process. Additional sources of stress related to

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ambiguity in the offer process, and the need to juggle their preparation for selection alongside their school studies. A number of the applicants reflected that some of their extensive preparation, in hindsight, may have been irrelevant.

Confidence

Applicants attending SNS schools more frequently conveyed a lack of confidence, such as Iffat's references to feeling "daunted" and "out of [her] depth."

Strategy and navigation

A striking observation was the range and number of activities undertaken by the applicants, with many undertaking various types and durations of work experience, volunteering, extracurricular activities and numerous approaches to admissions test and interview preparation. Some of the applicants (particularly those from IND and SS schools) appeared confident and competent in navigating the complexities of the application process and preparatory activities and appeared to have a keen awareness of the requirements, procedures, timings, and resources available.

Particularly noteworthy activities discussed as part of the application "strategy" were using grade calculators to anticipate the chances of being offered an interview, applying to universities which were perceived more likely to give an offer (based on the applicant's admissions test and General Certificate of Secondary Education, or GCSE, scores), and choosing to drop A level subjects to focus on the necessary hurdles for success at selection. For others, this involved innovative ways to make connections and arrange opportunities, such as connecting with neighbors or the local community, contacting hospital staff directly and harnessing the help of staff at school. Charlotte's reflections on some of her activities as "irrelevant" illustrates the ways in which some of the applicants took up opportunities or activities that presented themselves, but did not appear to have considered what was important (see Table 2). For others, a strategy evolved (sooner or later) and they began to work to achieve this.

Early and late starters

For some of the applicants (termed "late starters" within our analysis), the first exploration of medicine as a career destination began 12–18 months before application. Some in this group lacked clarity on the intricacies of the application process, or relied heavily on the advice of others to guide their preparation, appearing to be less "strategic" in their approach to preparation.

Variable experiences

Although the narrative approach does not quantify variation, the experiences of those from SNS schools frequently appeared

to differ from those attending SS and IND schools. Materially, these respondents frequently lacked quality support from schools, peers, and family, although some did not appear to recognize their disadvantage in this regard. Participants from SNS schools also more frequently appeared to lack confidence in navigating the various preparatory hurdles, and more frequently referred to a sense of being daunted, lost or stressed by the application process within their evaluation. Perceptually, myths and misconceptions were seen more commonly in this group, and reflection on a career in medicine was more frequently absent or superficial.

Of our sample, 4 students were not given a medical school offer (at our single UK institution): 2 were from IND schools, 1 from a SS school, and 1 from a SNS school. A number of these accounts included stories of late preparation, a lack of support from school, or feeling "lost" when navigating the selection process.

Discussion

Strauss' concept of bricolage offers a picture to conceptualize the way in which the "bricoleur" improvises a solution with the tools and materials they have to hand.^[39,49] Previously unexplored in the literature on medicine admissions, we will explore the ways in which the results from this study relate to bricolage and consider the implications for this in developing WA.

Hallmarks of bricolage in our findings included the strategic approach employed by applicants to navigate the complexities of the selection process, leverage contacts and do whatever was needed to achieve success, often at high cost to their time, effort and stress.^[50] Constraints to opportunities and unexpected situations appeared to motivate the process of bricolage for a number of the applicants (particularly those from LA-SDBs and those starting their preparation "late"), who leveraged limited resources and used innovative strategies to navigate the application process. A practical example of bricolage amidst constraint was Charlotte's opportunistic identification of a work experience opportunity when at her hairdresser. In this story, she overcame a lack of health-care connection, made use of her local knowledge, and found an innovative solution. These responses to scarcity (particularly in regard to a lack from support from school or family) represent problem-solving approaches rooted in rational choice and bricolage, where individuals will choose a problem-solving approach in situations where the "specialized and reliable toolbox of the engineer" is not available or not effective" ^[49p258].

The "late starters" represent an interesting group who, although material support and resource may have been available from school, family or peers, were potentially vulnerable to difficulties due to the reduced time available

for preparation. Bricolage is not simply a response to depleted resource and has been described in the literature as motivated by unexpected situations or surprise.^[51]

When considering individuals as “bricoleurs,” the literature can be viewed to emphasize the status associated with this term. It can be perceived to be a “second best” option, implemented only in necessity, and possibly a process hidden to avoid disapproval.^[47,52,53] Strauss’ comparison of the bricoleur and the engineer, although idealized, offers a potential conceptualization. Levi-Strauss refers to the metaphorical character of the “engineer” in his work. This is a provocative, idealized individual, but serves as a means to highlight the activities of the bricoleur. The engineer works in predictable ways, using the correct tools for the job, and pursuing mastery of the task. For some of the applicants in our study (particularly those from IND and SS schools) equipped with the correct “tools” for the job, acquiring knowledge about medicine and selection was a more linear path; that of the “engineer.” For others (more frequently those from SNS schools or those starting preparation “late”), either through necessity or inclination, the approach could be best described as bricolage. The discussion thus far, which illuminates both resource constraints and late preparation as motivators for bricolage, may support this perspective.

However, our results suggested a more complex picture, where hallmarks of bricolage appeared evident in stories of significant resource, early preparation, and across SDBs. Melissa’s (IND) school and stories of family support suggested an “engineer’s toolbox” to help her prepare for selection. However, she also took creative opportunities to attend her local hospital during lunch breaks at school, to interact with the staff there and ask questions. Although Melissa could be described as an “engineer” within Strauss’ conceptualization, the examples of bricolage within her narrative render this dichotomy overly simplistic. Elsewhere in the literature, this complexity is recognized, and bricolage has been associated with high status and innovation.^[40,49,54] Certainly, our results would suggest that bricolage appears evident across SDBs and amidst resource-intense situations. The reality is that the vast majority of applicants will incorporate both approaches, an observation made by Levi-Strauss when commenting on his idealized comparison.^[50]

However, bricolage is not simply a response to resource constraints but also a cultural effort, where the bricoleur “makes do” with the current social repertoire of myths, signs, and precepts, “whatever the task at hand.”^[5] Considering our applicants as “bricoleurs,” they were driven by an application process characterized by competition, myths, and “ticking boxes,” with those from LA-SDBs potentially more vulnerable to myths and misunderstandings. For a number of the applicants, feelings of “stress” or being “lost”

painted a picture of a haphazard approach to preparation, often learning in hindsight the areas where they could have avoided considerable, but irrelevant, effort. A number of these related to perceptions of overly-prescriptive requirements for medical school selection, which potentially compounded the growing sense of effort and endeavor of applicants, and potentially additional confusion. Recognizing this in the field of medical school application may go some way to explain the sense of increasing activity, irrelevant tasks and stress that characterized the preparation journeys of some applicants, despite efforts by admissions teams to provide transparency and equal access to information regarding selection requirements.

In contrast, there were a number of applicants in our study (most frequently those from SS and IND schools) who appeared to have a realistic grasp of the requirements and timelines of the application process, making confident choices to avoid activities they perceived to be unhelpful, and focus their efforts on those deemed more likely to yield success. Levi Strauss’ idealized “engineer” works in predictable ways, using the correct tools for the job, and pursuing mastery of the task. Many of the SS and IND applicants appeared to have a range of resources at their fingertips, and approaches to application were less frequently driven by constraint. Like browsing a catalogue, the approach for some applicants involved stepping back, and choosing the correct “tool” that would be most likely to yield success. For example, after a good performance in the UK CAT aptitude test, Melissa chose not to apply to universities that would require preparation for an additional aptitude test.

A note of caution within our discussion relates to an assumption within the literature that bricolage is “unquestionably positive,” and leads to growth^(40p14). However, there is little in the literature that describes what successful bricolage might look like, or how this might be measured. In our results, which suggested a culture of increasing effort and endeavor for medical school applicants, there is a risk that bricolage may simply lead to the acquisition of ever-increasing opportunities, some of which might prove to be more effective than others in securing success at selection. Karl Weick’s perspective on “successful” bricolage suggests that the bricolage involves an intimate knowledge of resources, careful observation, a trust of (their own) ideas, and self-correction (with feedback).^[55] However, with this framework in mind, our results suggest variability in applicants’ knowledge of resources and outline instances where applicants felt isolated and unconfident in their preparation; potentially markers of “unsuccessful” bricolage.

The approaches to preparation in this study certainly appear to suggest hallmarks of bricolage, frequently (though not always) motivated by resource constraint or unexpected situations.

However, they also raise questions about whether these processes are ultimately helpful for applicants or whether they are employed successfully. Levi-Strauss is clear in his appraisal that neither the engineer nor the bricoleur is superior.^[50] Instead, knowledge acquired by either means is valid and relevant. However, outcomes of selection processes that favor a demonstration of mastery of an increasingly competitive and complex selection process, may well be valuing the acquisition of knowledge of the “engineer” above that of the bricoleur. By contrast, the personalized and innovative approach of the bricoleur is difficult to define or “measure” within standardized assessment systems. There are those who consider bricolage as a “second best” option; as something that should be moved away from once sufficient tools and processes are established.^[39,40,45] However, successful bricolage can be viewed as an opportunity and a strength, facilitating innovation and adaptation in response to resource-limited conditions.^[40] In the rapidly evolving and unpredictable environments experienced in health care, particularly as the profession navigates the challenges of the Covid-19 pandemic, it could be argued that health-care professionals are expert “bricoleurs.”^[56] This raises important questions regarding the qualities that are assessed at selection, and whether the assessment of these qualities favors the “engineer” or the “bricoleur.” As a concept, gaps in the literature remain regarding what “successful” bricolage may look like, and, certainly in our context, what is meant by “resource.”^[40,45] With this in mind, further research is required to consider whether bricolage offers an important lens to consider the workplace for doctors in health care and the attributes that mark “success.”

Strengths and weaknesses

The use of narrative interviews facilitated a thick description of individual experiences of preparation, and enabled the applicants to define sources and experiences of perceived disadvantage for themselves, should they choose to do so.^[57] However, we recognize that these stories represent applicant perceptions and that further work is required to appreciate the extent and variability in disadvantage in this context.

Conclusions

Medical school selection remains a highly competitive process and (in the eyes of applicants) is characterized by increasing activity and “ticking boxes” to achieve success. Our results suggest that, for some, it is possible to access the tools for this task in a relatively straightforward fashion, relying on the resources of school and family connections; well-versed in what is required (and what is not) and providing the necessary support. However, for those who lack adequate information and resources, it is more of a Do-It-Yourself effort, where rumors and myths abound. Perversely for this group, significant effort may be expended trying to collect experiences that medical

schools had introduced with the intention to reduce reliance on socially patterned requirements, which may do little to enhance their application. Recognizing this in the field of medical school application may go some way to explain the sense of increasing activity, irrelevant tasks, and stress among applicants, despite concerted efforts by educators to “level” the playing field. Levi-Strauss’ concept of bricolage is relatively unexplored with respect to medical school selection, yet it offers a useful lens to explore this observation. We suggest that it also extends a provocation for those in undergraduate medical education; to consider whether the traits of the bricoleur are desirable in medical school cohorts and, if this is the case, to develop selection processes that recognize these qualities.

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Conflicts of interest

There are no conflicts of interest.

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Appendix

Appendix 1: Interview Schedule

Introduction

Thank you for agreeing to take part in this interview.

Interviewer introduces themselves: name, background. Discusses (briefly) their experience of medical school application.

The study aims to explore how you have prepared to apply for medical school.

You've been asked to take part because you are currently going through it, and therefore have up to date knowledge about what's involved.

This interview hopes to explore your experiences.

The interview should last around 30 min.

You are free to decline to answer any question without reason.

You are free to withdraw from the study up to 28 days after the interview has taken place.

Please do let me know if you feel uncomfortable in the interview or wish me to pause.

Your name or any other identifying information will be removed so that your responses are anonymous when we write up the research for publication.

Signing of Consent

Opportunity to review participant information sheet.

Introduction to consent form, and completion of this by reading out each statement.

Supplementary Consent

Supplementary consent question:

Would you be happy for the research team to look at your progress in medical school selection:

(Please circle the participant's response):

1. At the University of Birmingham Yes/No.

Question

So today's interview, as I said, is about your experiences of preparing to apply for medical school.

Take time to think where you need to, you don't have to launch in straight away.

This is a different type of interviewing to maybe what you've you're expecting. I don't have a predefined list of questions to ask.

I'm more interested in hearing your story and what you feel is important

So you won't hear me speaking much.

Don't feel uncomfortable about that-that's supposed to be the case. You might not hear much from me. But you can stop at any point and ask questions wherever you like.

Can you tell me the story of your how you've prepared for applying to medical school?

You can start however you like, and think about the experiences, events or people that have helped, or hindered, and that you think are important to share.

PROMPTS (if needed)

Formal preparation: UK CAT, interviews.

Informal preparation

- Work experience
- Voluntary experience
- Paid work
- Discussions
- Reading
- Hobbies
- Challenges faced.