Medical training pathways and underdoctored areas: a qualitative study of doctors working in areas that struggle to recruit and retain

Abstract

Some areas struggle more than others to recruit and retain doctors to provide healthcare services. Often, these areas are rural, coastal, remote, deprived or a combination of all these factors, compounding difficulties in access to healthcare; we refer to these areas as 'underdoctored'. This paper aims to describe experiences of working in underdoctored areas, with a focus on exploring why doctors work in these places to highlight what might enable future recruitment. It considers: the routes by which they arrived in an area and the drivers that facilitated those routes; the key stages in participants' lives at which transitions into the area were made; the agency – or lack thereof – that was involved in the choice to work in the area. While previous research has focused on factors driving workforce attrition, we work here to identify what encourages retention, particularly in areas that are known to have difficulties maintaining sufficient medical workforce. Drawing on interviews with doctors who work in these areas across case study sites, we conceptualise how there is a need to understand experiences of working in these areas to surface three intertwined elements – people, career, and place – within a doctors' place-life trajectory. We then explore how one or more of these elements might need to be compromised, how the acceptability of these compromises might change over time, and how the affordances associated with an underdoctored area can be negotiated and re-negotiated in order for those who move to an underdoctored area to want to stay. These findings have implications for improving recruitment and retention, health service provision, and ultimately, health inequalities in these underdoctored areas.

Background

Providing access to healthcare where and when patients need it is an ongoing challenge, impacted by medical workforce shortages (1,2). Evidence suggests that some locations are more affected by this challenge, with areas that are more remote, rural and coastal often presenting recruitment challenges (3,4). Similarly, areas with high levels of deprivation and high levels of health needs are also seen as more challenging to work in, and can be more difficult to recruit doctors to work in these locations (5). Much attention has been given to issues of recruitment and retention of doctors; interventions to improve the geographic distribution of workforce have been directed at medical school admissions policies (e.g.

widening access to careers) (6–8), curricular change (e.g. exposure to remote and rural medicine, longitudinal clerkships) (9) or incentivisation for working in difficult to recruit to areas (10–13).

Several terms have been coined to refer to places that struggle to recruit and retain a medical workforce, including ‘underserved’ areas and ‘medical deserts’ (14–16). We refer to these areas as ‘underdoctored’ to centre workforce rather than service provision. Although evidence suggests that the UK has fewer doctors per 1,000 population than many comparable countries (17), we do not use underdoctoring to directly refer to a numeric value. Instead we consider the relationship between doctor availability and patient need (waiting lists, ease of getting an appointment with a general practitioner (GP)) and how easy or difficult it is to recruit and retain doctors (organisational turnover, vacancy rates, use of temporary (locum) doctors) (18,19). We apply underdoctoring, as a concept, to doctors working in secondary care/hospitals as well as primary care/general practice, given the shared start to these training pathways and our desire to understand access to all medical services required by patients. Our focus on ‘underdoctoring’ enables us to account for the workforce-related impacts on doctors themselves that affect experience in a place, such as out of hours cover in general practice and team stability in hospital settings (20). By centring professionals, it also allows for exploration of diversity of places experiencing similar issues to consider place-based factors rather than centring a facet of the place itself as an object of inquiry as in previous work (e.g. rurality, deprivation) (21,22).

While this paper focuses on health service provision in England, it has relevance internationally as it engages with issues of workforce shortage that affect multiple countries across the globe. Place-based medical workforce shortages are commonplace in countries with remote/rural challenges (10,12,14,23–26). Our work makes a novel contribution by moving beyond a focus on remote and rural locations, and tries to account for struggles to recruit and retain doctors across diverse locations, including socio-economically deprived areas and more urban settings, which have previously been investigated in general practice in the UK (5,21), and to support understanding of doctors who work in underdoctored areas.

We situate our study within the wider context of the need to provide healthcare: where doctors work is not simply a matter of personal preference, and is linked to population healthcare needs. Much work has been done to try to understand the ‘dual agenda’ (27) of ‘personal and organisational pressures’ to ensure service delivery (28). However, we would argue that this has sometimes neglected understanding of the impacts at the level of individuals (29).

Previous research has articulated the usefulness of relevant concepts from health geographies in the context of workforce shortages, which we use here to support our understanding (30,31). We briefly outline their utility for understanding underdoctored areas here. Place can be thought of as the ways in which space is given meaning within its social context (32). Sense of place, as a subjective yet interdependent construction of the value of a location, is useful to consider how a place is perceived, understood and experienced (33). Sense of place is used broadly here, because a place may be objectively undesirable (e.g. poor environment caused by for example, industrial activities), but subjectively satisfying for a doctor to work in (e.g. ability to make a positive difference to a population). We draw on Shield's conceptualisation of place impressions and place images (34) to support our understanding of how imagined characteristics of places might drive and perpetuate underdoctoring itself.

Sense of place scholarship has been criticised for assuming that these processes of forming place impressions take significant time to accumulate, and does not allow for immediate sensory perceptions (35). To account for this, we draw on notions of affordances to consider how people may construct a sense of place quickly, and in dynamic and changing ways that shift across the life-course (35,36). Given the longevity of medical careers, with their multiple stages, accounting for temporal aspects and shifts is fundamental. Affordances, as a term applied to the environment or space that people find themselves in, refers to the properties and characteristics of that environment that enables people to act (37). Affordances are relational in scope, constructed in the interplay between person and space, and as in the example for sense of place above, are both objective and subjective.

Place attachment, often defined as the factors that keep a person in a location, is sometimes seen as a facet of sense of place (38,39). This attachment is usually conceived as a long-term and affective bond, but here we also consider place attachment in relation to the affordances provided to enable people to access resources, services or conditions that they feel are important in their lives. These can be practical in scope, adhering someone to a location through a need for e.g. work, childcare. Finally, belonging in place also speaks to a sense of being linked to a place through connections that may be affective in nature, or notions of cultural or social affinity (30,31).

Research context: healthcare infrastructure in England

The socialised healthcare system in England is organised nationally and delivered locally, with regional structures shaping its form (40). Despite multiple eras of reform and policy intervention, problems in the recruitment and retention of healthcare staff persist (41). Others have focused on how the spatialization of policy has impacted on ongoing reforms (42) or

how funding models may need to change to improve equity of access to care (43). Our concern here is the implications of these policy structures for where medical work takes place, with a focus on medical training and the impacts on doctors.

The infrastructure of medical work is, at least in theory, configured to support population need, and to concentrate some services into specialised centres. This concentration of services means that patients may need to travel significant distances to access care, which has implications for health outcomes (44,45). It also affects how doctors make decisions about where they live and work if they want to train in these specialties.

Recent health education policy in England aims to overcome difficulties in recruiting doctors to certain areas by opening new medical schools in regions that struggle with staffing. Our underdoctored case study sites all gained a new medical school in the 2017 distribution of medical school places (46), partly because studies affirm that most medical students end up working near their home or early training location in the longer term (47,48).

In the UK, medical training pathways have a rotational structure through different placements, which is conceived as a linear progression towards the expected outcome of becoming a consultant or GP. Not all doctors reach this point, either through choice or necessity, and there are alternate career pathways. Medical training is a lengthy process, with a minimum of five years of postgraduate training, up to ten for some specialties, following four-to-six years at medical school (which may also include a year's intercalation at a different school). Throughout their training, doctors move around geographically to get different experiences in training and experience different settings, including multiple hospitals, General Practices, and community placements, and ways of working. The ingrained mobility of medical work, requiring multiple rotations across potentially wide geographic areas, has been explored in detail elsewhere (29). Accounting for this movement across different places is important as it affords place-based comparison amongst those asked to move repeatedly across different places. Therefore, for discussion of the medical workforce in England, NHS organisations must be seen as a grounding architecture or infrastructure, which situates and potentially constrains decision-making about careers.

Aim

This paper aims to describe experiences of working in underdoctored areas in England, with a focus on understanding how and why doctors work in those locations. This involves consideration of:

- the routes by which they arrived in the area and the drivers that facilitated those routes;

- the key temporal stages in participants' lives when transitions were made;
- the agency – or lack thereof – that was involved in the choice to work in the area.

Methods

Study design

A case study design of sites in England was selected (49), in keeping with the overall study aims (50). Four areas were selected as cases: three areas classified by the research team as 'underdoctored,' or where there were known issues in recruiting and retaining medical workforce, and one area classified as 'over-subscribed,' or where more people wanted to work than there were jobs available. A qualitative approach was selected, given the need to explore personal experiences, permit insights into real-world decision making, and situate these insights and experiences within a broader context of healthcare structures (51,52).

Case study areas

The case study areas were identified through review of NHS England workforce statistics including vacancy rates and staff turnover, and other sources such as competition ratios for training places (which are a marker of desirability of place). Case studies reflect real-world boundaries that cut across multiple healthcare organisations' footprints and are aligned to the architecture of medical training (i.e. where a trainee might go if they worked in those locations) (Table 1). Within these broad geographical case study boundaries, we also worked to account for a more granular sense of place. We used the postcode of participants' current work location (GP surgery, hospital) to more formally classify the location using the Office for National Statistics rural/urban taxonomy (Figure 1) and Indices of Multiple Deprivation (IMD) quintile (Figure 2) for England. This classification work allowed us to understand more about the characteristics of locations, and to for analysis, highlight how individuals made places on their own terms.

Broadly, these classifications of place show that most of our participants were located in urban areas. Aside from those in London or Newcastle in the north east as major urban areas, these were mainly urban towns or cities. This is, in part, because our data included the workplace location of the participant rather than the home location, and hospitals are, broadly, in towns/cities. Few participants were identified by these classifications as in rural villages in sparse settings. Given that we know that some participants worked in isolated coastal communities, which could be considered to lack resources, this demonstrates the shortcomings of using these classifications. Identifying these shortcomings also speaks to questions asked by other scholars about the wider complexities of rurality as a concept given

the potential diversity of the various settings seen as rural (53). However, there is not scope to explore this in depth in this paper.

Table 1: Overview of case studies, medical schools, GP practices and NHS Trusts

Case study site	Medical school(s)	Number of GP practices[1]	Number of NHS organisations
North West	Lancaster Medical School*, University of Central Lancashire Medical School, Edge Hill University*	195	4
Northern and North East	Newcastle Medical School, University of Sunderland Medical School**	363	10
Lincolnshire	Lincoln Medical School**	80	3
North London (oversubscribed site)	Imperial College School of Medicine, UCL Medical School, Barts and The London School of Medicine and Dentistry	811	10

**Awarded 70 places in 2017 placement expansion, *new medical school, 2017 expansion

[1] Taken from NHS Digital *Data for General Medical Practices, General Medical Practitioners, Prescribing Cost Centres and Dispensaries, supplied by the NHS Prescription Services (NHS PS)* uploaded 30 August 2024 and mapped to case study area boundaries

Figure 1: Urban/rural classification of current participant workplaces

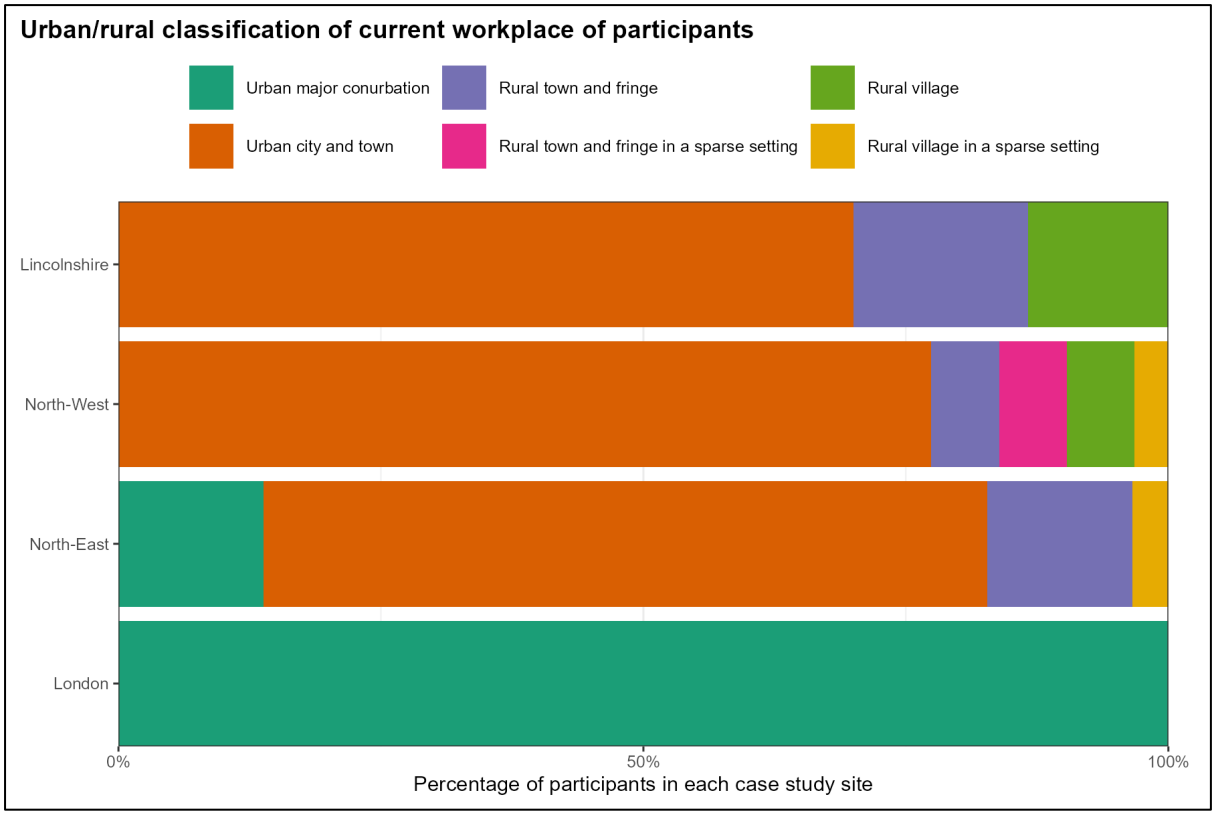
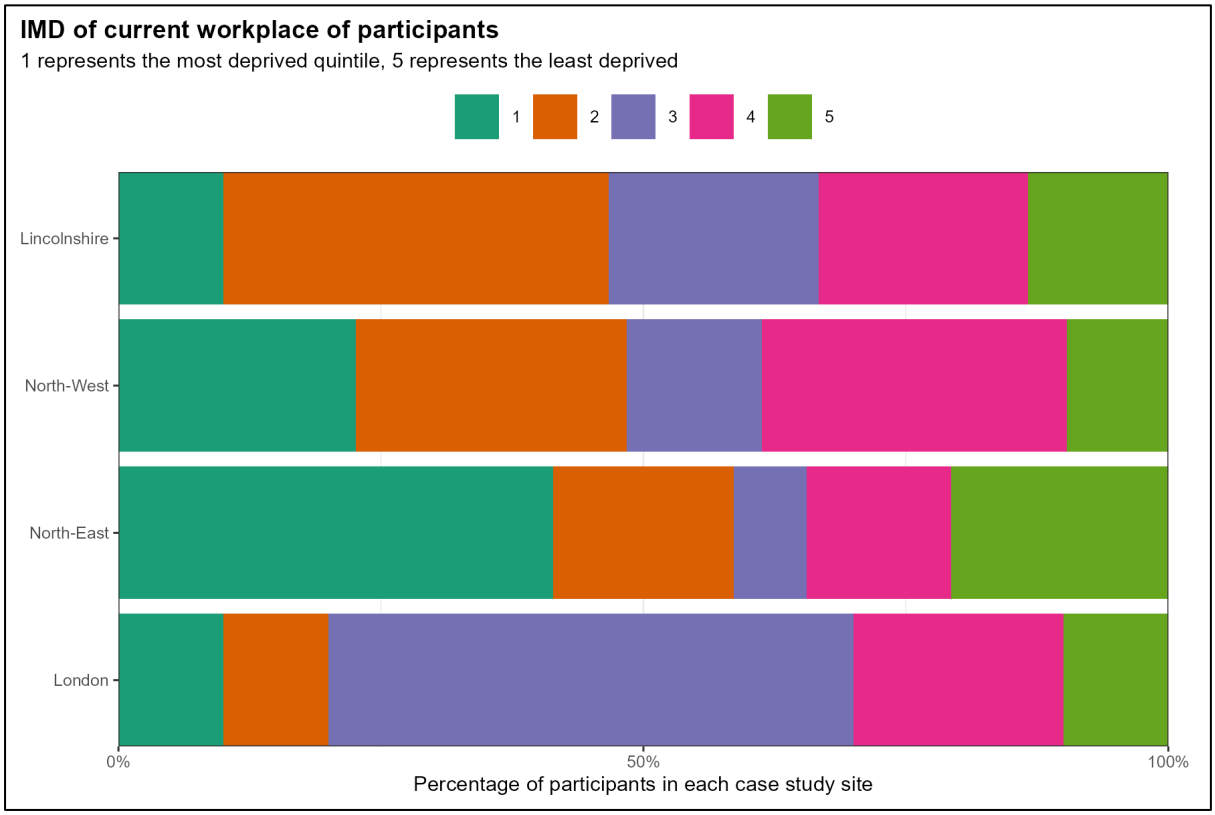


Figure 2: IMD quintile of participants' current workplaces in case study sites



Data collection

Data were collected using in-depth semi-structured interviews, which focused on sharing career narratives (54). The aim was to gather a place-based account of the stages in participants' pre-medical, then medical, lives, with questions focused on accounts of work, place, and wider life influences. Interviews were conducted with 100 doctors, sampled from across case study sites. We used the concept of information power (55) to structure our sample, reflecting on the aim of the study, depth of interview discussion as established in pilot interviews with clinicians, and proposed analysis. We calculated that 30 interviews per underdoctored case study would provide rich data, enabling us to fully understand the case study site context. We also conducted ten interviews in the oversubscribed case study site for comparison of narratives with our main case study sites. Interviews were conducted online via video calling software or by telephone. All interviews took place between December 2022 and March 2024, Individual interviews lasted around 60 minutes per interview, and were audio-recorded and fully transcribed.

We sampled purposively across a range of doctors working in primary and secondary care, at different career stages, and with a range of demographic characteristics (age, gender, ethnicity) (Table 2). We confirmed eligibility to participate using a demographic questionnaire that collected these details from potential participants, who were recruited through their

organisation (NHS trust or GP surgery). Ethical approval was granted by FHM Research Ethics Committee Lancaster University and Health Research Authority approval was granted.

Table 2: Participant characteristics

Category	Descriptor	N/% (total = 100)
Current Role	Doctors in training	30
	GP	42
	SAS and LE doctors*	7
	Specialist	21
ONS rural urban classification England/Wales (current workplace)	Rural town and fringe	11
	Rural town and fringe in a sparse setting	2
	Rural village	6
	Rural village in a sparse setting	2
	Urban city and town	65
	Urban major conurbation	14
Country of qualification	UK	80
	International	20
Index of multiple deprivation (quintile of current workplace)	1st (most deprived)	23
	2nd	25
	3rd	17
	4th	21
	5th (least deprived)	14
Gender	Female	49
	Male	48
	Other gender identity/ not recorded	3
Age Range	21-24	1
	25-34	31
	35-44	34
	45-54	24
	55-64	10
Ethnicity	Asian or Asian British	21
	Black or Black British	9
	Mixed	3
	White	61
	Other	5
	Not recorded	1

* SAS: Specialty and Associate Specialist; LE: Locally Employed (i.e. not on training pathway, not consultant specialists or GPs)

Data analysis

Analysis was facilitated using ATLAS.ti Web, which allowed for simultaneous coding by multiple researchers (56). Analysis was grounded in the data, using sensitising concepts including sense of place and affordances (57) and was conducted using an approach informed by situational analysis (57,58). For this paper, we focused on thematic subsets of codes: understanding place impressions and examining change and choices under a moving/staying/future model. This focus enabled us to classify participants into categories relating to reasons they ended up in an area, underlying themes around the impetus for moving/staying across the life course, and descriptions of drivers for moving, in line with our

aim to understand routes and drivers for movement, change over time, and the role of agency Analytical synthesis meetings were held regularly to bring together these thematic nodes, and develop theoretical insights. We use pseudonyms to maintain anonymity in the presentation of results and specific references to places at a more granular level have been redacted.

Findings

Participants saw place, career and wider life factors as interdependent, and many participants expressed compromises about where to work, what to specialise in and where to live. These compromises changed across the life-course. The way in which places were ‘a good fit for now’ were often related to necessary compromises; the affordances of places made these compromises ‘hold’ participants in place. Our analysis considered the routes by which participants arrived in an area, the drivers that facilitated those routes, the key stages in participants’ lives at which transitions and the agency – or lack of – that was involved in the choice to work in the area.

Although interdependent factors, participants’ prioritised either place, career or wider life when considering working in an underdoctored area, related to the affordances offered by the place. These three constituent parts were intertwined, but each time a doctor moved to a different location, each transition or shift was positioned as being led by one priority over another, with consequences and ramifications for the other aspects of work-life. Sometimes these moves were externally determined by being allocated to a place as part of the organisation of the medical training programme and sometimes moves had a more agential element (e.g. applying for a new job in a particular hospital/GP practice). We categorise these elements of decision making as ‘prioritising people’, ‘prioritising places’, and ‘prioritising career.’ Within all narratives, there was variation and change over time, but detailed analysis allowed us to explore the rationales presented for working in a chosen or assigned location. The life trajectories in the narratives often encompassed multiple areas and moves. Before exploring reasons for participants working in their current location, we outline some aspects of what it meant to work in an underdoctored area to contextualise the challenges these locations presented.

Working in an underdoctored area

While participants did not necessarily frame their understanding of their area as being ‘underdoctored,’ most of those interviewed identified with the narrative that the area in which they worked faced significant challenges in recruitment and retention, and identified issues in attracting people to work in their GP surgery or hospital. Asking questions about whether

their area was a popular one to work in encouraged reflections on what it meant to work there, combining place-impressions and reflections on the idea of medicine as a vocational profession. Participants sometimes reflected on wanting to work where there was a clinical or community need or significant health challenges that made the work satisfying. In general practice, this was framed in relation to the deprivation in the community, and the challenges presented by this high level of need.

It's about the population that you serve, so it's the [high] level of deprivation. […] It's hard work. […] The people are a heck of a lot more ill, there is a lot more illness, a lot more sickness than there are in any of the other places that I've worked. You see things that you just don't imagine that you'd see if you work elsewhere. Just the conditions that you see, there's so much cancer, so much chronic disease. (Una, GP, Northern)

One participant discussed their decision to work in a less popular specialty (in an underdoctored area) in terms of a vocational commitment, looking to improve outcomes for patients. This was reported to be frowned upon by colleagues, who somehow saw this commitment as misguided.

I remember a colleague saying to me, "Why do you want to do learning disabilities? You're good." As if learning disability was a really bad career choice. To which my response was, "Well, I'm going to go and improve things: rather than saying it's a bad specialty, I'm going to go and make it a good specialty". […] It definitely has that reputation [of being a bad specialty], but I think it's improving. When I took it on, it was like a backwater specialty. It was only the bad doctors who did it. There was definitely that reputation. (Benedict, consultant, Lincolnshire)

Another participant framed their commitment to the community they served as a sole-partner[1] GP surgery, and discussed the way it had impacted their family life.

I have to do it. There's no one else who can fulfil my job within the community: if I don't do the things I do, then no one does it, and everyone suffers. And I think that's a really difficult thing to sit with and to live with, and I know [my wife] has struggled with it, and I've struggled with it, but ultimately, that's the job, so I've got no choice in the way that we do it. (Hassan, GP, Lincolnshire)

Despite presenting the difficulties of being a sole-partner practice in a community that repeatedly failed to recruit another partner to join the practice, Hassan was positive about

[1] A sole partner practice is also known as a single-handed practice or one with one owner/manager. In this case, we have used sole partner rather than single-handed because the GP did have support from locum/salaried GP colleagues, rather than being the only GP as might be the case in a very remote community.

the opportunities presented in terms of making improvements. However, many participants saw the challenges associated with workforce recruitment and retention in their everyday work, and these were often framed as a disincentive to satisfying work, rather than seen as a reason to stay. These workforce issues were identified as directly impacted the experience of working in a place, and led to the continued issues with staffing services.

It's a self-perpetuating problem, because you don't get people that want to stay. […] There's a certainly an attitude of some people who aren't permanent staff that why should they put in the extra effort? And then that passes down to the people training, and then they don't want to stay, either. […] To be honest, basically everyone I work with does not want to stay. (Fahad, resident doctor, Lincolnshire)

For other participants, place impressions were recognised to be the driving factor in shaping workforce challenges.

It's not an attractive area at all to work in. People that have roots or ties here, I get that they might want to come here and work here. But if you've not heard of [northern town with significant deprivation], there is nothing there that you would look on paper that would actually interest you in this. (Imran, GP, North West)

The idea that an area was 'not attractive' was one that was repeated across the case study sites. Attractiveness was framed in terms of the natural environment, access to housing, services and leisure facilities, and connectivity to other areas of the UK (i.e. transport links). Participants often discussed the balance between the benefits and drawbacks of a place (e.g. remote but beautiful), and regarded their location in terms of a trade-off. Expanding on this, we now turn to explanatory accounts presented by participants when asked what led them to work in their area.

Prioritising people

For many participants, the driving factor in where they lived and worked was guided by those around them (e.g. family, partners, friends). The affordances of these places were both affective (e.g. sense of belonging, familiarity, family ties) and practical (e.g. convenience of childcare). These participants can be grouped into geographical patterns, including those who chose to stay near their original home location, those who moved back to their home location, and those who moved to a different area for family reasons (often to the home location of a partner's family). For the first two groups (stayers and returners), familiarity with the area was a key factor. Knowledge of the benefits of a place was an incentive to wanting to stay in it, providing affordances around cultural or personal fit to the area.

I can't imagine me leaving. Personally, because I'm from this area, live in this area, my family are in this area, I wouldn't be planning to move anywhere else. (Tegan, consultant, North West)

Alongside knowing the area, the places often offered affordances that made returning home attractive. This often occurred after having children and needing support with childcare, or having caring responsibilities as parents aged. The area, therefore, offered some kind of convenience, and was seen to be a better place to support family life than where they were previously.

We had talked about our long-term plan likely being to move back to [region where the interviewee came from], to get the family support and, again, for house prices, and also for the schools. […] We thought it would be a few more years before we came back. When the opportunities arise – he had a job opportunity, I did – we thought, "Let's just do it." (Gaynor, SAS/LED, Lincolnshire)

These decisions were generally presented as agential, with the participant choosing to move home, though on some occasions there was discussion of the more reluctant compromise needed in order to manage family commitments.

So my mum isn't very well, and I was needed for caring duties. I wanted to be closer to her and to support family here, so that was a bit of a driver to move up the road an hour or so. (Lauren, resident doctor, North West)

For other participants, a different trade-off was visible in the narratives: these doctors had moved for family reasons, to an underdoctored area that was not their home area. Those in this position sometimes expressed more reluctant acceptance to move, tolerating the characteristics of the area for other benefits such as staying with partners. New priorities were recognised as people established their own families and needed to take account of partners' families.

My relationship changed it, because if […] that relationship hadn't worked out, I would have gone back [home] or closer to home. So it was him, really, that kept me here. And then the life I'd built. All of a sudden I'd made this new network of new family, and I'd felt like here is home now. (Olivia, resident doctor, Northern)

These were imperfect compromises, in which participants accepted the shortcomings of the place because it enabled further opportunities. For example, one participant moved to an underdoctored area for her relationship, but then found it difficult to manage when personal circumstances changed.

When we got married and we moved here […] to where he lived […] the plan was to stay. That plan has completely gone wrong and that's not the case now! […] We had a baby and it's all gone wrong! […] It wasn't long before he had to go away [for work] again. Then we have this new dynamic, which is suddenly I don't have any family [here], I'm not working, I'm on maternity leave, my husband's away, and I have this gorgeous baby who is the most wonderful, loved thing in the whole world, and– I just cannot cope with this baby. […explains experience of post-natal depression...] Suddenly this two-and-a-half-hour distance between my mum and dad and me is a lot more difficult. (Zoe, GP, Lincolnshire)

In both Olivia and Zoe's narratives, creation of a new home or family structure were prioritised over career and place-characteristics, but sat alongside them. In Zoe's narrative, the affordances of the place were no longer compatible with her circumstances as a new mum, and she was planning to leave the area. The physical affordances of the place (e.g. transport links to family) had to support the acceptability of the compromise to maintain it longer term.

Prioritising place

While those 'prioritising people' represented a significant proportion of participants, a smaller number expressed their decision-making as being driven by the place itself. This more unusual narrative was explained by participants choosing a medical specialty or a job in order to be able to move to a particular place.

I was looking for location at the time more than speciality, and [choosing between] between psychiatry and general practice. So I applied for both, and GP job I got, but not in the location I wanted, and the psychiatry I got the location I wanted, so I thought, "That's fine, we'll just do that.." (Agatha, resident doctor, Lincolnshire)

Perhaps obviously, these participants depicted their chosen place positively, and career choices were altered depending on what it was feasible to do in terms of work in the chosen place. Sometimes these non-work aspects were framed in terms of scenery, or access to activities (climbing, sailing etc).

We both wanted to be somewhere more rural. And I took a locum job in Cumbria, and we ended up staying here. […] West Cumbria is an environment all of its own, so a lot of poverty, a lot of needs. It was challenging but on the doorstep of some of the world's most stunning scenery. (Yasmin, GP, Northern)

In Yasmin's narrative, the affordances of the natural environment were prioritised ahead of considerations of work life and positioned as more important than the potential challenges in

increased workload. Brody, another participant also presented an account that centred the quality of life afforded by a particular location over other priorities.

I had to decide where life would take us. […] So my wife's family are from just outside [nearby northern English town]. That wasn't the main reason, but obviously we knew this area very well. We loved the outdoors and walking in the Lakes and the Dales. […] It seemed like a great potential place to live, very well-connected in terms of the whole UK, and we would be able to live in a lovely part of the world in the countryside if we wanted to, at a lot less cost than London. (Brody, consultant, North West)

For Brody, the affordances across the different dimensions of people/place/career worked together to reinforce a decision rather than necessitate compromise. The framing of his account firmly contrasted the potential of this area with life in an expensive city.

Our interviews also included participants who were part way through the process of deciding where they would end up longer term. In these accounts, compromise led by place was also present. One participant reflected how they had chosen a hospital widely regarded as unpopular to work in because of its location in relation to other places that were important to them – near enough to where they had friends on in one part of the country, and nearer to where they had family in another.

There was also the fact that [place] is somewhat in between Scotland and York. So it was always very painful having to travel for, oh, God, the four to six hours that it would take to get from Scotland to York, so if I'm then in [place], a bit closer to family, a bit easier to visit when I do have the time. (Felix, resident doctor, Northern)

However, these examples positioning place as most important, over career opportunities or people (partners/family), occurred less frequently in our data. A more common explanation for ending up working in an underdoctored area was because of career opportunities or other work-related attractions.

Prioritising career

For some participants, early enforced experiences of moving around for medical training led them to consider the potential opportunities this could enable throughout their ongoing careers, including following opportunities to specialise in a particular field. For others, there was little or no choice in job-based movement, as they were only offered a role in one location, or were forced to take up an undesired rotation in training. Location options could also be limited by the availability of training roles in their specialty or sub-specialty.

The reputation of the quality of the training or the facilities available in the working environment were also a potential draw into a place. One participant spoke at length about choosing a place based on potential career satisfaction despite having no other ties to the area.

I deliberately picked [deprived town in northern England], because I could tell that it would allow me to do as much as possible of what I had trained to do to as high a level as I possibly could. […] So, out of all the possible choices – and I had a few – I chose to come here […] No regrets about that. Yes, it's far away from where it all started, but I don't see that as a deal-breaker. […] When you've kind of invested that much time and attention, you want it to pay off in terms of continuing to offer you in your working life what you want to get, and I think that was the biggest driver. (Xavier, consultant, North West)

The narratives positioning career first were sometimes shared by those earlier in training, or who did not have other considerations (e.g. children), but emphasised how going to a less desirable place could still be seen as a positive step.

I ranked jobs based on the relevance to cardiology. […] I ranked the big cities first, so [northern English major cities] first, and then [smaller northern English city] was last on the list. I got into [smaller city], it was the lowest job rank that I was willing to accept. Quite pleased that I got into [smaller city], actually, in hindsight, but thought, "Oh, this is going to be depressing," because I had a friend who was from [smaller city] and kept saying, "Oh, it's a depressing place". So that's how I ranked them and that's how I ended up [here]. (Jasper, SAS/LED, North West)

The notion of 'putting up with' places temporarily was experienced in several ways. For many participants, there was an acceptance of being in a less-than-ideal place for a few months or even a few years if they knew it was temporary. However, in our data, there were also doctors who had made international moves for their career, coming from various countries to work in the UK. For these participants, although there was an important element of prioritising career within their narratives, what came out strongly was the relationship between career location and community. This level of community was often difficult to achieve in underdoctored areas in our case studies.

Having your community, getting access to good food, or to your native food, is much easier [in the south of England]. If you go either to Wales or north England or Scotland or Northern Ireland, the possibilities keep reducing. You get these pockets of communities, but you don't get – for example, in [deprived coastal town], if I had to go out and get good Indian food, I can't. So that's why many of the international medical graduates, they don't want to come in [deprived coastal town]. Because it's a beautiful place, it's cheaper to live, but still the

majority of the people don't want to come and work there, because communities play a very important part. (Kajal, resident doctor, Northern)

Kajal's narrative, about a need for cultural resources and community, was a vital part of many accounts of doctors who joined the UK workforce from abroad. To join the workforce, an offer of employment and legal sponsorship for visa requirements was needed, and this sometimes meant that doctors from other countries found themselves recruited to an area with staffing shortages when they first arrived in the UK. However, they often moved on from these underdoctored areas, as the lack of community or cultural affinity they experienced in some of these locations was a compromise they were only prepared to make on a short term or temporary basis.

Discussion

The findings presented here explore how and why doctors work in locations that may be considered to be underdoctored. These locations, by definition those with ongoing issues in recruitment and retention of medical workforce, are diverse in some respects, but populations in them still require healthcare and understanding drivers for working in these locations is crucial for leveraging access to care in these locations. By examining routes into a location and the impact of different life stages, we have described some of the rationales for working in these areas, and reflected on how these decisions were often driven by compromises. While many other careers outside medicine (e.g. academia (59)) also require compromises in terms of balancing potentially competing demands around employment and place, we highlight that the rotational nature of training pathways in medical careers, and the tight control of training places, present an additional layer of complexity for doctors planning and organising their careers and life.

Working in an underdoctored area presented opportunities to make a difference to communities, but was also seen by many participants as a challenge, with place characteristics potentially contributing to workforce shortages. Doctors presented complex, intertwined accounts of their rationale for working in these areas, which encompassed elements of family life, career satisfaction and place-characteristics. Participants shared how they might wish to return to an area that they had grown up in, move to an area to be closer to their family or partner's family, often for practical reasons such as childcare or to fulfil caring responsibilities. Some participants were directly motivated by the potential of the place itself, often expressed in terms of providing a better quality of life. For others, working life was a key motivator, and opportunities presented for career advancement were prioritised over other considerations. Any choice based on one of these factors had potential

consequences for the others. For some participants, these intertwined factors were aligned, which enabled them to settle (or be 'held') in place, but for others, the factors were in conflict, and compromises had to be made. Our research highlights some of the patterns where particular types of choices are made, which may be useful for considering future workforce planning.

The strengths of this study are the large and diverse sample of participants, including doctors who worked across multiple locations in the UK, including reflections on locations in Scotland, Wales and Northern Ireland, outside of our case study sites in other areas of England, and internationally. The rich dataset, in which participants shared personal experiences about working lives in the NHS enabled us to interrogate place impressions and contextualise them in statistical place classifications. However, it is important to acknowledge that by collecting interview narratives, we may have encountered some post-hoc rationalisation, in which people align their explanation of their actions with what happened to justify their behaviour to themselves and others. Accounts need to be understood with this potential post-hoc rationalisation in mind.

The recruitment of the sample can also be considered a potential weakness of the study, was we only included people who currently worked in an underdoctored area, not people who were previously employed. By design, we captured those more likely to be satisfied or driven to stay. Nevertheless, some participants were considering leaving their area, and we were able to reflect on this decision-making process with them. We also reviewed perspectives of those working in an oversubscribed area, again strengthening the study design by integrating these diverse perspectives. Another limitation is that we did not collect participant's current home postcode, which may have been significantly different in IMD decile (e.g. a doctor commuting to work in a deprived community, but living in a more affluent area), but we did consciously separate out work-place and home-location within the explanatory accounts presented by participants. International medical graduates make up a significant proportion of the UK workforce, which is not reflected in our sample. This was, in part, because we asked for a minimum of a year's experience studying or working in the NHS as a criteria for participation. Previous research has highlighted the longstanding contribution of these doctors, and the structural constraints upon their working practices (60).

Research in other contexts suggests that experiences that normalise high levels of mobility, e.g. medical, military/diplomatic life can lead to feelings of 'placelessness' (39). Instead, we found that for the doctors in our study, these expectations of mobility in early training often led to a desire to settle down in a place longer term. While we saw some evidence of doctors settling near where they went to medical school, as is noted in previous quantitative

analyses, this was not the case for many participants (47,61). Location of medical school did not seem to be a deciding factor unless there were other affordances offered by the place. Our findings are aligned with other healthcare workforce studies, which emphasise the need to take a holistic approach to understanding decisions around work location (25,62). Research on healthcare careers from Canada and Australia, as well as in the UK, highlights the role of partners and spouses in shaping choices around longer-term location, which we also saw in our data (20,63). Our findings align, to an extent, with Cutchin's theorisation of 'experiential place integration' for medical professionals in rural Kentucky (20), particularly around recognition of the importance of the relationship between person, situation and time. Our study adds an exploration of diverse doctors (gender, age, career stage, ethnicity), and deprived and marginalised places, complementing previous focus on remote and rural locations (22,26). It also highlights current UK-specific issues around training pathways and the ways in which they entrench geographic inequalities in access to care. Given recent concerns around medical workforce in the UK, our study speaks directly to these ongoing issues (64,65). The maldistribution of doctors – and the perceived desirability of some work locations over others – are not new phenomena, but this paper adds further insights to understanding why people end up working in areas that are not necessarily perceived as traditionally attractive (65,66) and thus can be considered to be underdoctored.

Accounts exploring both movement and attachment to place demonstrate that there can be deep-rooted meanings in places for people, despite high levels of geographic mobility (38). This scholarship is particularly relevant for considering medical careers, in which early training experiences can be transitory and were sometimes seen by participants in our study as disruptive. This was as true for the international medical graduates in our study as much as for the UK graduates. A key contribution of our paper is that the affordances of places change and meanings evolve over time. While a place impression might form quickly (an immediate sensory affordance), this then transforms over time as e.g. people meet partners, settle down, and become tied to social connections. This effect is broader than just an affective one, and can be seen as embodied and relational, which is not usually accounted for in discussion of medical careers.

Our analysis has accounted for the design of training programmes that are also rooted in the grounding architecture of the NHS – locations of hospitals, geographic boundaries of training regions – and examined how this shapes potential options for doctors at different points in their training. This particular attention to the geographic design of training programmes in the UK, and their impact on medical service provision in underserved areas is vital to considering the unintended impact on health in place. Taking a longitudinal approach to examining these meanings in places over time allowed us to review life-place trajectories

(39) and consider the relationships between sense of place and staying in place (retention), which has important implications for the provision of health services in underdoctored areas (31). It builds on previous work that highlights how structural factors constrain choices (29,67). In general practice, there have been efforts to improve working lives through specific recognition of the challenges of working in deprived communities, with an aim to reduce health inequalities and improve workforce retention (5,21). By exploring doctors' lives inside and outside of work, we have been able to build on these efforts to think about where further intervention may be appropriate.

The insights from this study are relevant to policymakers, workforce planners, and patients as they help account for some of the difficulties encountered in ensuring access to doctors and, thus, health services in some locations. These findings raise questions about what might shift perceptions of places, what meaningful work looks like alongside a good quality of life, and what might be altered to encourage more doctors to work in particular areas. They also highlight the particular challenges of workforce planning: it is not always possible to account for the diversity of pathways, changing motivations and priorities, and potential acceptability of compromises. Future research might examine this diversity in other geographical contexts, or consider focusing on particular cohorts of medical students, as there is anecdotal evidence of a generational shift, with medical students now joining the profession less willing to move around in rotational training programmes. The implications of this study suggest that there may need to be a wholescale shift in approach to understanding the role of place in improving recruitment and retention, and health service provision in these underdoctored areas.

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