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'Mind the professional gap': exploring how doctors experience working in peripheral areas

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Abstract

Background The shortage of medical professionals in peripheral areas is an international challenge, not only in the developing world but also in developed countries. This jeopardises the quality and equity of care provision. Recent scholarship has started to investigate the factors that encourage doctors to practice in rural settings, but further research is required to address some shortcomings (Holloway et al., 2020). This exploratory study aims to expand current literature by specifically focusing on the professional and organizational factors that shape doctors working experience in peripheral areas.

Methods By adopting a qualitative research approach and drawing from the literature on medical professionalism, we aim to gain a deeper understanding of the multifaceted nature of professional drivers shaping at the individual level the experience of doctors working in peripheral areas, as well as the organizational factors supporting or hindering their motivation. We performed 22 interviews with professionals and managers in four Italian local health authorities managing small-sized hospitals in peripheral areas.

Results The findings from this study present intriguing insights that invite a reconsideration of the work experience of doctors in peripheral areas through the tenets of professionalism. The professional factors identified by the study unfold within a nuanced trade-off of ambiguity, wherein factors typically associated with preferences for urban working environments, like teaching hospitals and hubs, surprisingly unveil implications and advantageous prospects for peripheral work settings. This suggests the need to reconsider and broaden our understanding of the factors influencing professionals'work experience in peripheral healthcare settings, recognising that what may conventionally be seen as factors favouring complex and urban hospitals can present unique advantages when applied to peripheral contexts. Furthermore, the study identifies specific organizational factors that might support or hinder the individual perceptions of professional needs in peripheral areas.

Conclusions The paper provides intriguing opportunities for tailoring employment propositions for professionals. Our research shows that policymakers and public healthcare managers should acknowledge a more nuanced scenario and craft policies specifically tailored to peripheral organisations, carefully considering professional needs.

Keywords Healthcare professionals, Doctors, Peripheral areas, Medical desert, Medical shortage, Professionalism, Attractiveness

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Introduction

The shortage of healthcare workers, especially medical doctors, in rural and scarcely populated areas represents an international issue as it affects less developed, developing, and developed countries [1, 2]. In various national contexts, the institutional bodies entitled for the planning and management of healthcare services are responsible for areas where the population has insufficient access to healthcare services, one of the causes being the shortage of personnel [3]. In the Western world, this phenomenon is relevant not only in large countries with vast, remote areas (e.g., Canada or Australia), but also in more densely populated countries, as ensuring adequate workforce in healthcare facilities located in peripheral areas proves challenging due to the competition of more attractive large urban or metropolitan contexts [4]. Also, the increasing relevance of hospital networks, with health care services being progressively concentrated in hub centres, might further reduce the presence of specialized care in smaller hospitals, redefining professional power hierarchies [5].

This phenomenon is expected to worsen further, considering the structural dynamics characterising the supply of healthcare personnel due to the current demographic curve [6, 7], namely the ageing of healthcare workers, which will necessitate replacing a significant number of operators. Due to the shrinking professional labour supply in developed countries, a scarcity of human capital is expected [8]. This lack, in turn, will lead to increased competition among employers for skilled workers.

Health policy scholars have identified several interconnected factors contributing to healthcare staff shortages in rural areas, which can be categorised into infrastructural, professional, educational, socio-cultural, economic, and political dimensions [9]. Recent literature in health policy and health services research has focused chiefly on listing the potential critical factors that encourage doctors to practice in non-metropolitan areas [10]. Nevertheless, current studies broadly focus on remote or rural areas in large territories with very low human density, such as Australia [11, 12] or Nordic countries [13]. However, there is scarce evidence of how these findings apply to medical doctors working in hospitals in peripheral areas. Although there is no univocal definition of peripheral areas in the health policy literature, we understand these to be characterised by poor accessibility and lower population density than metropolitan or large urban areas [14]. Professionally, these contexts stay at the margins as high-quality care is increasingly concentrated in metropolitan areas [4]. By adopting an exploratory qualitative research approach and drawing from the literature on medical professionalism, this study aims to gain a deeper understanding of the professional drivers shaping at the individual level the experience of doctors working in hospitals in peripheral areas, as well as the organizational factors supporting or hindering their motivation. In doing so, we enrich existing scholarship, mainly concentrated on remote and rural areas, by studying these dynamics within peripheral regions in developed countries.

Therefore, this paper focuses on the Italian context and aims to answer the following research questions: *how do doctors experience professional work in peripheral areas? Which organisational conditions, if any, impact their motivation and working experience?*

In the next paragraph, we present the theoretical background, bridging health policy literature on doctors working in peripheral areas with literature on professional work. After illustrating the study setting and methodology, we present and discuss the results and provide implications for healthcare management and future research.

Background

Work experience of doctors in peripheral areas

Securing equitable access to health services for rural populations continues to challenge governments and policymakers worldwide. This issue is particularly complex when it comes to recruiting skilled health workers who are willing to work in peripheral areas [2]. From a health policy perspective, it is generally understood that doctors are often reluctant to work in these contexts. However, evidence regarding effective strategies to boost rural healthcare staffing has historically been scarce [15]. To bridge this gap, recent studies have begun to investigate the factors that encourage doctors to practice in rural settings, with some attempts to systematize drivers and barriers to the recruitment and retention of doctors in non-metropolitan areas, including those in high-income countries [10]. Despite divergent taxonomies proposed by various authors, some commonalities emerge. Notably, numerous studies highlight *personal* attributes as pivotal determinants for doctors working in remote areas, such as a rural background and exposure to rural-centric educational experiences [13]. Furthermore, *contextual* factors are identified as influential drivers for doctors to opt serving in non-metropolitan areas, such as support for partners and family, and opportunity to be socially integrated into the community [10, 16]. *Organizational* interventions—like human resource systems, workplace culture, and training and career opportunities—have also been investigated as factors contributing to shape doctors' working experience [17]. Eventually, research reveals the potential influence of *professional* dimensions, such as autonomy, professional identity, and specialization [17]. Existing scholarship highlights several professional issues in rural contexts, such as practitioner

isolation and organisational alienation [18] due to less opportunities for career and educational advancement, lower status associated with working in a less prestigious institution [19], poor working conditions, lack of supervision, inadequate equipment and infrastructure [18].

However, the current state of scholarly evidence presents important room for extension. First, these studies often refer to locations classified as remote and rural, whereas more evidence is needed on medical doctors working in peripheral areas within developed countries. Second, a significant portion of the studies focus on Australia or other English-speaking countries, with limited attention to other contexts. Third, recent contributions suggest a wide variety of factors that potentially influence doctors' working experience, at the risk of failing to grasp the nuances of factors related to each dimension.

This study builds upon recent scholarship but delves into an underexplored context, such as the Italian healthcare system, with a specific focus on peripheral areas. In doing so, the study adopts the lenses of professionalism and unfolds it via a twofold perspective: understanding the professional drivers of medical work experience, and the organizational interventions that might either support or hinder the emergence of professional motivations.

The individual perspective: professionals' motivational drivers

Doctors, as professionals, exhibit distinctive prevailing work motivation– as 'the internal desires or preferences that incite action' [20]– compared to other types of workers. In the words of Noordegraaf [21], professionalism is a matter of *controlled content*, underscoring the centrality of specialised knowledge content that delineates the boundaries of the profession and the profession's self-exercised control over those boundaries. The distinctive nature of the medical profession as a knowledge-intensive occupation suggests that the behaviour of its members is steered by specific drivers, linked mainly to the application, development, and recognition of the body of knowledge serving as the foundation for professional practice. The peculiar nature of the work-related needs of doctors as professionals can be deciphered through theories of human motivation, such as self-determination theory (SDT). SDT [22] is a theory of psychological needs describing why individuals spend time and effort in certain activities, and it proposes a spectrum of motivational types based on whether the drive originates from within oneself (intrinsic) or from outside influences (extrinsic). In other words, aside from the extreme form of amotivation (lacking the intention to act), individuals tend to act responding to drivers that have a more external or internal locus of causality, along with a corresponding way of regulating their behaviour [22]: for instance, externally-driven behaviours involve complying with rules and responding to rewards or punishments, while internally-driven ones stem from interest and enjoyment in the task itself.

As *controlled content* defines professions, the motivational profile of professionals is anticipated to be particularly skewed towards the need to ensure intrinsic regulation of their actions, compared to non-professional populations. In Freidson's [23] words, one of the ideologies of professionalism is a work commitment based on the satisfaction gained in performing the work well rather than on extrinsic rewards. Several studies empirically substantiate this assumption [24, 25], suggesting a strong preference for self-determined forms of motivation (e.g., tied to competence and its development) among medical professionals. Internalized motivation is also related to the service dimension of professional work, as professionals claim the custody of the value of health [23] and this infuses a higher goal in their daily work.

Moreover, in its original conceptualisation, professionalism garners authority from *expertise* [26], especially from specialised knowledge, professional conduct, and control over practice [27]. This implies that the higher the expertise that is required for practicing a specific type of medical activity, the higher the authority associated with the professional or group who practices it, with the associated prestige. This determines the presence of prestige hierarchies among medical specialties and type of diseases [28]. Expertise is acquired through specialization, and the ideological core of professionalism is its claim to a discretionary specialization [23]. However, trends of increasing specialisation in the medical field pose a risk of diluting overarching professional identities, prioritising technical expertise over broader humanistic dimensions. Specialisation may also result in intensifying the focus on specific domains and potentially leading to a fragmented approach to patient care [29].

Furthermore, if professionalism is a matter of *controlled content*, constraints in the autonomy provided to professionals restrict the expression of traditional professional values, potentially causing misalignment and processes like de-professionalisation or commodification of work [30]. This is why doctors tend to resist forms of control such as guidelines, standardization of clinical practice or reporting tools deriving from working in organized settings, especially where managerialization has taken place [31].

Professional drivers have a vital role in understanding how doctors experience their work context. However, the picture appears multifaceted, as many features of professional work are contradictory. In particular, while specialization is necessary to achieve expertise, over-specialization compromises the human and service dimension of care. And work contexts characterized by specialization require more hierarchy and coordination efforts which contradict professionals' claim for autonomy. Therefore,

which actual organisational configurations and features of a work context allow doctors to balance professional values is open to debate. Beyond what has been argued by the majority of health policy literature mentioned above, it is interesting to explore whether or not working in a more specialized urban hospital is perceived as professionally more motivating than working in a peripheral one.

The organizational perspective: support mechanisms for professional work

Besides individual professional factors, doctors work perceptions might also result from the organisational ability to respond to the needs underlying those factors [32], for instance by establishing fair relationships among individuals, and with the organisation, as well as providing job design arrangements that are in line with their expectations [33]. In this sense, Sumathi and colleagues [34] identified formal support mechanisms stemming from human resource practices and the physical work environment, alongside informal social support derived from supervisors and colleagues within the workplace, as relevant organisational factors supporting healthcare professionals'retention [35].

More recently, some studies have focused on the specific organisational variables affecting the work of healthcare professionals in peripheral hospitals. Within this context, Abelsen and colleagues [36] have identified nine essential strategic elements, including, for instance, collaborating with the community to create initiatives that offer support to the spouses and families of healthcare professionals, thereby enhancing their commitment to the organisation. Wieland, Ayton, and Abernethy [37] provide an overview of various factors that characterize working in remote areas, including some professional drivers, such as peer support, mentorship, and ongoing skill development, but without deepening into these aspects.

Therefore, the factors that healthcare organisations can offer to medical professionals in peripheral areas relate to their relationship with the external community, the organisation, and other organisational members, as well as human resource practices and job conditions designed to benefit healthcare workers and their families. However, in this case, most studies have concentrated on non-professional support tools, such as economic incentives and childcare facilities. This highlights the need to better understand those organisational conditions impacting the professional drivers contributing to doctors'motivation to work in peripheral areas.

Furthermore, also in this case, the literature has predominantly focused on studying remote or rural areas within less developed countries [38]. For this reason, we aim to investigate organisational conditions that influence doctors' perceptions on working in peripheral hospitals within developed countries.

Methods

Context of the study

The context of the study is the Italian National Health Service (NHS). It is characterised by multilevel governance where the national level sets the standard and the general policies for the sector, whereas 21 regional or provincial systems carry out the service delivery choices. Local Health Authorities (LHAs) and independent hospitals deliver services within each regional system. The former are usually responsible for territorial care and for managing smaller healthcare facilities [39, 40]. Within this system, human resource management is driven both by national and regional policies [41]. Physicians are usually employed with permanent contracts, and their salaries are fixed, even if they can additionally practice in the private market. In each discipline, the unit head coordinates the work of his or her peers and oversees budget and resources.

Data is drawn from employees of peripheral hospitals in four Italian LHAs located in different regions: 'ASL Alessandria' in Piedmont, 'ASL Latina' in Latium, 'ASST Sette Laghi' in Lombardy, and 'ULSS Pedemontana' in Veneto. They all share some key characteristics relevant to this study. Firstly, as we pinpointed earlier, we have identified small-to-medium-sized facilities in peripheral areas, namely those that the Italian Institute for Statistics (ISTAT) defines as suburban. Although there is no univocal definition of rural areas in the health policy literature, the characteristics of these territories mainly include low population density and poor accessibility [14] due to orographic or other geographical conditions and the lack of communication routes. Compared to others in large urban or metropolitan areas, the analysed hospitals are placed in municipalities with an average of less than 20,000 inhabitants and can thus be defined as peripheral within a developed and densely populated country such as Italy. Table 1 highlights the main characteristics related to the physicians in these LHAs.

They are in four different Regions to increase the study's representativeness and ensure diversity. Similarly, the chosen LHAs are located in regions that are more densely populated, have relatively more inhabitants, and have a higher standard of living in comparison to the remaining regions [42] to avoid our analyses being influenced by poor regional attractiveness.

Within these hospitals, we interacted with the management and physicians from two disciplines: orthopaedics and cardiology. These specialities were chosen as medical and surgical disciplines widely present in hospitals, even in peripheral ones.[1] We decided to interview also LHAs'

[1] In 2019, according to the Italian Ministry of Health (2021 —https://www.dati.salute.gov.it/dati/dettaglioDataset.jsp?menu=dati&idPag=96), there were 410 public hospitals (excluding big autonomous and university-based public hospitals). Among those, 394 had at least one bed in orthopaedics, and 301 had at least one in cardiology. No hospital lacked both.

Table 1 Overview of physicians characteristics in the LHAs (2021)

LHA	Employed physicians	Share of physicians below 40 years old	Share of physicians above 54 years old	Physicians hired as a share of permanently employed physicians	Physicians leaving the job as a share of permanently employed physicians	Physician hires to leavers ratio in the last four years (2018–2021)
ASL Alessandria	455	17%	47%	13%	15%	70%
ASL Latina	596	19%	48%	7%	12%	180%
ASST dei Sette Laghi	799	31%	29%	14%	7%	157%
ULSS Pedemontana	474	25%	34%	12%	12%	78%

managers in order to collect their perspectives on the organizational factors improving physicians'perception of work in peripheral areas and to further explore physicians'perspectives.

Methodology

Thanks to the Observatory on Italian Healthcare Organisations (OASI) within the Centre for Research on Health and Social Care Management (CERGAS) at SDA Bocconi School of Management, we obtained access to the sites. Data was collected in 2023 through semi-structured interviews. The contact person in each organisation was the Chief Executive Officer (CEO), who indicated the contacts of a senior manager and one or more cardiologists and orthopaedists working in peripheral hospitals. Subsequently, the selection of respondents took place with a snowball strategy.

Overall, we conducted 22 interviews (Table 2). We included one administrator in each LHA, i.e., the CEO, the medical director, or the senior manager the CEO identified; eleven cardiologists and seven orthopaedists, among which were nine speciality unit directors and nine frontline professionals. In each LHA, we performed between a minimum of 4 and a maximum of 7 interviews. Interviews were conducted with anonymity guarantees, lasted between 30 and 60 min, and were recorded and transcribed. They were complemented by notes taken during the interviews to capture the interviewers' impressions and feelings. Interviews were conducted online by at least two researchers, reducing data collection variability.

The interview protocol was structured in two parts: (a) which elements, if any, motivate a professional working in peripheral hospitals; (b) which factors were influential (or could be effective in the future) for working in peripheral hospitals. We asked interviewees to provide concrete examples and illustrations to increase the credibility of the data, which also contributed to our reliance on the trustworthiness of respondents' statements [43]. Given the intertwining of data gathering and analysis, we focused and fine-tuned the questions based on the emerging themes.

Table 2 Number and distribution of interviews

	Cardiologists	Orthopaedists	Administrators
Managers	5	4	4
Frontline professionals	6	3	
Total	11	7	4

Firstly, data were analysed by carefully reading the transcripts. Coding was then performed by two of the authors in multiple waves. Whenever possible, we developed a first-order analysis of transcripts using in vivo coding [44] to give voice to informants' words and the expressions they used to illustrate and make sense of individual experiences. We then looked for patterns among respondents, going back and forth from data, emerging theory, and literature, identifying emerging themes and testing their appropriateness [45, 46]. We then increased the level of theoretical abstraction by aggregating connected themes into broader explanatory categories. Our empirical analysis found that respondents identified four elements of professional work in peripheral hospitals: autonomy, competence, purpose, and visibility. These elements embedded both negative and positive dimensions. For instance, narratives related to professionals' perception of becoming a generalist were associated with the theme 'deprofessionalising.' This theme and 'seeing fewer cases' were consolidated in the category 'competence', with a negative dimension. While passages where interviewees referred to the opportunity to have hands-on training were associated with 'learning by real practice'. The latter and 'developing one's niche' were also condensed in the category 'competence', but this time with a positive dimension. At the same time, we identified the organisational factors that hindered or supported professional work in peripheral hospitals. Therefore, the conceptual framework presented in this paper derives from analytic generalisation [47]. After performing this inductive analysis, SDT emerged as a significant lens to make sense of qualitative data and this is reflected in the discussions. Appendix A provides the details of the data structure.

Results

In the following paragraph, we illustrate our findings on the professional factors explaining the work perception of doctors working in peripheral hospitals. Four main

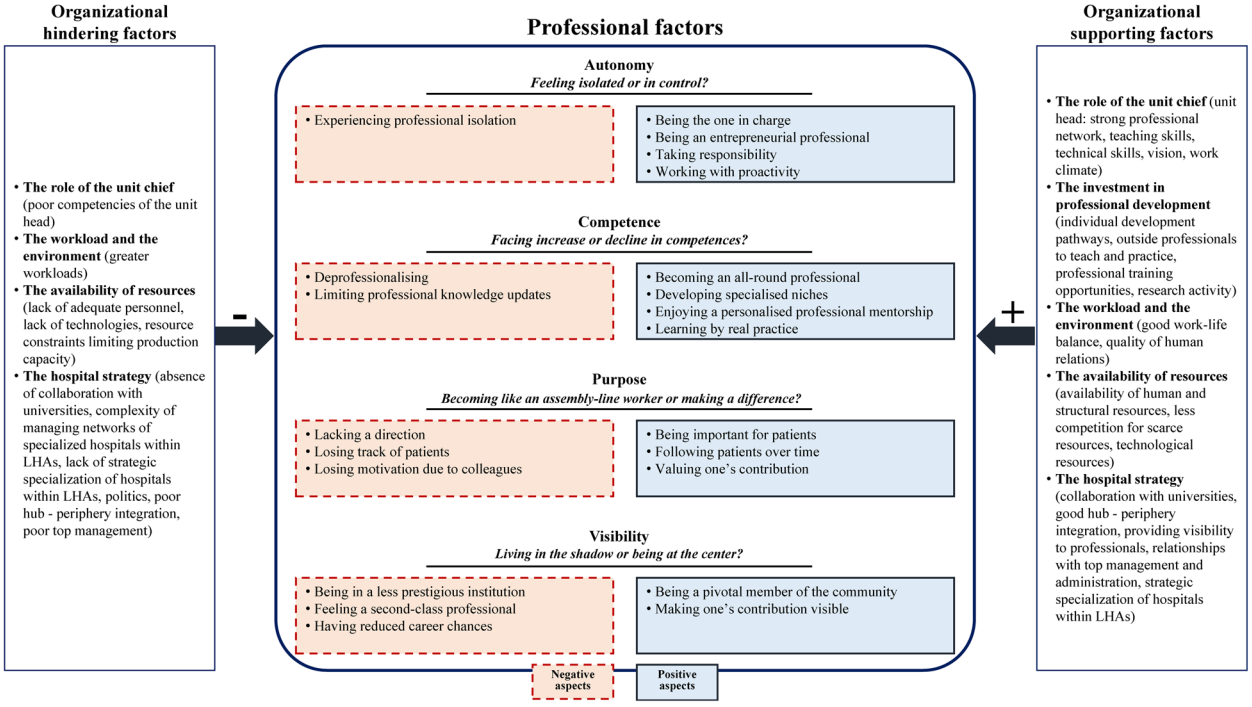

Fig. 1 Representation of professional and organisational factors

elements emerged, each characterised by a combination of negative and positive components that affect doctors' view of professional work in peripheral hospitals. At the same time, we identified those organizational factors that contribute to an unfavourable judgement vis à vis those that support an optimistic view. Figure 1 depicts a graphic representation of the results.

Perhaps unsurprisingly, only minor differences were found between respondents of the two disciplines. Seemingly, negative and positive views were equally present across interviewees of the four LHAs. On the contrary, some differences emerged between age groups, which will be reported later.

Professional factors

Autonomy: feeling isolated or in control?

'The work in a small hospital is more complex than in a large one. If you are in the hub... you have one thousand consultants, and you always have the cardiologist, which makes the difference. While here, from a professional point of view, the problem is that you lack colleagues to confront with' #2, orthopaedist

'In [a city hospital], I had the vascular surgeon, the urologist, the ENT doctor, and the neurologist, who are very useful in emergencies. You must know how to do many more things in a small hospital. It's a challenge and also certainly a greater risk.' #18, cardiologist

Firstly, professional work in peripheral hospitals is characterised by a relevant autonomy, which many doctors experience in negative terms as professional isolation. They cannot ask for advice from more experienced colleagues and a network of consultants from other specialities, which are especially necessary in complex or comorbid cases. This implies taking more risks and often determines the necessity to transfer more complex cases to larger hospitals. Also, isolation makes it more complicated to set up ambitious professional projects requiring the involvement of various colleagues or internal stakeholders.

'While in [city hospital] you have colleagues you can ask for advice, you are much more alone here. But in my opinion, it is positive because it helps you grow professionally and take on responsibilities.' #5, cardiologist

'Realisation is the greatest motivating factor... [here you can] make a name for yourself, and the patient looks for you... In metropolitan hospital, you will spend ten years in the shadow of some big professor. Here, you can paint a blank canvas.' #3, orthopaedist

At the same time, being alone is also considered a positive element, as it empowers professionals by taking responsibility for cases and exercising clinical judgment with full professional autonomy. Also, in big units, the need to respect professional hierarchies limits the space

for individual action, and a doctor can end up being just one who 'goes with the flow' of a well-organised department. Instead, it is easier in smaller hospitals to become the organisational point of reference for some pathologies or procedures, with the possibility to make decisions and govern resources independently. Having fewer constraints, doctors can build their professional careers according to their preferences, like 'painting on a white canvas'. In these contexts, initiative produces results and allows proactive and entrepreneurial individuals to emerge, positively impacting the perception of personal realisation and satisfaction.

Competence: facing increase or decline in competences?

> *'[In smaller hospitals] professionals end up doing just night shifts and outpatient care and operations of femurs and minor traumatology.' #7, orthopaedist*

> *'Here I found people who are very capable of working but have lost all contact with the University and have remained clearly hospitalist, who do not publish, do not go to conferences.' #11, cardiologist*

> *'Without stimuli... cardiologists end up becoming internists!' #12, cardiologist*

> *'Here… you do everything [that is needed]' #8, manager*

Work in smaller hospitals is characterised by fewer complex cases, narrowing the potential for professional specialisation and knowledge acquisition. In some cases, doctors risk being relegated to unattractive, ordinary activities like minor surgery or outpatient visits or being employed as substitutes for internists in the treatment of older patients. Furthermore, the culture of smaller hospitals often does not value innovation, research, or high-standard professional updates.

> *'Ours is a surgical speciality... and you have to learn manual skills, like a craftsman, and deal with tension and stress during the operation... here you can do things unimaginable in a large hospital.' #16, orthopaedist*

> *'Here a young person has the opportunity to come to the OR, to put the hands inside... If there is an invasive procedure and you... make yourself available, and you can do it yourself. In my opinion, these are the great opportunities we have on the periphery. In this way, you can learn the profession of cardiologist.' #4, cardiologist*

However, as shown in the quotes above, working in less specialised units allows more opportunities for learning thanks to the practice of a broad spectrum of activities, which contributes to bringing up all-round professionals. Furthermore, fewer colleagues mean less competition for hands-on activities that represent an essential training element, especially in surgery, where competence is directly linked with time in the operating theatre. Also, the speed in developing technical skills and the relative absence of competition allows professionals to identify small niches of specialisation based on personal preferences, in which they can soon become highly qualified.

Purpose: becoming like an assembly-line worker or making a difference?

> *'A 'teleological' vision of your path is necessary. Otherwise, you really become the assembly line worker who carries out the visit,… and so on... This has become a big problem in the peripheral hospitals over the years.' #4, cardiologist*

> *'We have to send the patient out often because we can't do everything here... you follow the patient in a somewhat fragmented way.' #1, cardiologist*

In peripheral hospitals where professionals are required to perform less specialised activities, the risk is routine work focusing only on quantity rather than quality of care. This, in turn, may determine the perception of a lack of meaning and purpose without a professional direction giving sense to one's daily efforts, making these work environments unattractive for young and talented professionals. Also, some doctors may have trouble building a loyalty relationship with patients due to the need to send patients to the hub hospitals for more complex examinations or treatments.

> *'The first thing we have always said… is 'the patient is not a number.' He has his dignity. But the same applies to a professional: he is not a number. He must feel important for a purpose.' #12, cardiologist*

> *'Here there is less confusion in comparison to the large hospital... and you can dedicate more time to the patient's needs... From the point of view of the doctor-patient relationship, a small hospital is certainly much better.' #5, cardiologist*

However, doctors also appreciate that in smaller hospitals, everyone's contribution is valued, and it is easier to feel important and see that you are making a difference for the unit and the patients. This is also facilitated by relationships with patients being more human. Also, due

to the larger span of pathologies that the specialist of a peripheral hospital can address, patients develop stronger loyalty ties, which can be maintained over the years.

Visibility: living in the shadow or being at the centre?

> *'The impression is that many colleagues in the hub feel elected... that they hold the truth, and therefore command.' #2, orthopaedist*

> *'Peripheral hospitals feel distant from the centre, and a cardiologist who works there feels second-class because he is considered a second-class [by colleagues].' #6, cardiologist*

Peripheral hospitals are less attractive because they are less prestigious institutions. Moreover, doctors working there tend to be considered second class, not only among colleagues of the same LHAs but also within the professional community in general, for instance, when they talk at conferences. Accordingly, working in a peripheral hospital is potentially harmful for professionals willing to make a quick career.

> *'In metropolitan hospital, ten [physicians] do this [same] thing, while it is easy to become a point of reference here. I feel very fulfilled by having the possibility of making a name for myself for that type of pathology much quicker... and in my opinion, this thing is priceless.... people start talking about you, ' #3, orthopaedist*

> *'When I go to the post office or the cafe, [the patients] are there; they greet me. I mean, I don't know how to say, people appreciate me... in hubs, there is a more aseptic, impersonal relationship, which for me also tends to give less professional satisfaction… and here there is word of mouth... one comes because his friend who owns the butcher's shop told him that you are good. #2, orthopaedist*

However, as shown in these quotes, many professionals find it remarkably motivating not to be one among many but rather have the opportunity to become a point of reference for several patients, much earlier than what would have happened in large centres. Of course, this visibility also generates wider opportunities for lucrative private practice. Also, many appreciate the possibility of building status and becoming a pivotal member of the local community, where people they meet daily manifest respect, appreciation, and gratitude. Furthermore, this is also particularly relevant for those interested in actively participating in local politics.

Organisational supporting or hindering factors

At the organizational level, several factors influence the individual professional elements illustrated above. In peripheral hospitals, conditions that positively shape the workplace are often absent or insufficient. However, when some essential elements are present, peripheral hospitals'professional potential can be fully unleashed. As shown in Fig. 1 and the Appendix, respondents highlighted antecedents with positive effects and the absence of such antecedents as having a negative impact. Therefore, in the following sections we will address together the factors that could alternatively support or hinder professional experience of working in peripheral areas. For the sake of representation and differently from the following sections, these factors are divided according to their positive or negative influence in Fig. 1.

The role of the unit chief

> *'I came here with a project. Three residents and two specialists decided to move here because they knew I was coming, and they followed me.' #10, orthopaedist*

> *'Attractiveness is made by the people... You can have the smallest hospital in the world, but if you create an environment of respect, then it's easier for the young professionals to decide to move here.' #10, orthopaedist*

The interviewees highlighted that the role of the speciality unit head physician is crucial to build an environment in which professionals can thrive. The physicians have mainly focused their discourses on the characteristics of the unit chief. Firstly, the technical skills of the unit head are often cited as a pivotal characteristic that attracts other professionals. Also, they attract effectively if they have a vision, a qualitatively adequate project for the unit.

Furthermore, it is very relevant when the unit's head can create a positive work environment of mutual respect and trust, allowing young professionals' growth and autonomy. The unit chief must also have good teaching skills since these enable young professionals to learn and develop. Indeed, teaching skills are also related to the professional network chiefs must have outside the peripheral hospital to allow young professionals to interact with competent colleagues, expanding the potential learning domain.

The investment in professionals' development

> *'Something needs to be offered to people. Initially, you need to understand each person's expectations and areas of expertise and offer pathways to enhance them for what they feel motivated to do.*

For example, we send a young cardiologist to a large hospital two days a week for hemodynamic procedures.' #12, cardiologist

'Conferences, reports, scientific production... The periphery needs to find a space for cultural growth and use the big production numbers in something that gratifies. Trivially, if you do 500 heart failure interventions, you need to collect data and see whether you have improved survival rates or you have reduced recurrences' #4, cardiologist

Unit chiefs and hospital management can also offer professionals a broader range of educational opportunities, counterbalancing the harmful effects of being in the periphery. The first possibility is building new opportunities for tailor-made individual development pathways, including hospital rotation programs, conferences, and courses offered abroad. Also, research activity, autonomously and in partnership with larger hub centres, motivates professionals while keeping them updated and involved in the broader scientific community.

The workload and the environment

'Here, I have all Saturdays and Sundays free and don't even do nights. So even from a familiar management standpoint - I have two young children aged 4 and 1 - it helps me a lot.' #5, cardiologist

In peripheral areas, on the one hand, the number of people bearing the workload is thinner, while on the other hand, these duties are often less burdensome. The lower workload especially appealed to professionals in advanced career stages looking for more work-life balance.

The availability of resources

'We do not have other strong surgical disciplines [in this hospital], so we do not have much competition for the rooms.' #3, orthopaedist

Small, peripheral hospitals in Italy face a persistent lack of resources, namely personnel, operating rooms, technologies, and other hospital infrastructure. In such a context, professionals compete with one another over scarce capacity, making it harder to have a sustainable and consistent path of improvement for their professionals.

However, other disciplines might be less equipped for this competition in peripheral hospitals, leaving space for action. Among the various resources, most interviewees have underscored that technologies are crucial to making a peripheral hospital a good place to work for medical professionals.

The hospital strategy

'Everyone has to have a role and has to be important for their role within a larger network... you have to identify micro specialities that then justify the presence of professionals'#12, cardiologist

'The real problem is that the peripheral hospital does not have fast, linear, collaborative relationships with the hub. When I arrived [in the peripheral hospital] after a short time, I was considered practically as Holy Mary,... just because I had a privileged relationship with the hub. It was so easy for me to pick up the phone to solve any problem that, from my point of view, was trivial, but from the periphery's point of view, it was unsolvable drama. ' #6, cardiologist

Peripheral, fully generalist hospitals are less attractive for professionals as complex activity is concentrated in large centres. On the contrary, the presence of a network strategy for peripheral hospitals– designed and enforced by the LHA executives—allowing the specialisation of different centres appeared fundamental to guarantee the development of professional projects and niches at the local level. One possible solution is to adopt a cross-hospital equipe model that can address specialisation needs without requiring professionals to be entirely based in a single smaller hospital.

'During the residency, you should be obligated -perhaps for the last two years- to do six months [in peripheral hospitals]. At that point, probably the person comes in, sees that there is a chance to do, to work,... You'll have a better chance later on... that that person maybe stays, or that you can get good word of mouth.' #12, cardiologist

Finally, a relevant issue is cooperating with universities to have residents work at peripheral hospitals, which allows young doctors to directly experience and appreciate the professional potential of these contexts. Providing accommodation to residents was also considered relevant in encouraging them to work in smaller centres.

Discussion

Competence, autonomy, purpose, and visibility are decisive professional factors shaping doctors' working experience in peripheral areas. Competence is associated with the high specialisation of professional work; autonomy relates to coordination through skills and norms rather than via hierarchies; purpose pertains to the values of quality of care and patient-centeredness that drive professionals; and visibility deals with the status associated with being an elite and knowledgeable category serving

society at large. These factors are usually expected to create a negative work experience for doctors in peripheral areas [48]. In the health policy literature, indeed, peripheral contexts are anticipated to provide fewer professional opportunities and a higher risk of isolation [9, 19, 49].

However, in such contexts, we found that the chance to develop skills is also associated with more significant opportunities to nurture autonomous motivation: the lower competition over available instrumental resources and service demand allows doctors to intervene directly in clinical cases, resulting in a faster learning curve. This aspect leads to opportunities for recognition and visibility in the local context. The study also reveals doctors'preference for contexts where they can directly witness the impact of their work, contrasting with larger and more complex settings. This shortens the service's production chain, making the purpose of their work more immediate. Therefore, professionals in peripheral contexts seem to find an unexpected space for practice in ways that are consistent with the fundamental values of medical professionalism. The elements mentioned all pertain to autonomous forms of motivation [35], albeit situated at various points along the extrinsic-intrinsic continuum [22]. The necessity of applying and cultivating professional expertise can be viewed as indicative of intrinsic or integrated regulation, contingent upon whether one's motivation primarily stems from professional enjoyment or professional belonging. Conversely, the need for both professional visibility and contributing to a greater purpose can signify the internalization of externally originated motivators (through processes of identification and integration, respectively). Unlike hospitals in metropolitan areas, where size leads to a pronounced division of professional work and subsequent hyper-specialization, the need to cover a broad spectrum of disciplinary practice in peripheral settings seems to be associated with a wider interpretation of the professional role, focused on the human dimension of the relationship between the professional, patients, and the community. Furthermore, processes of external regulation are exacerbated in metropolitan settings compared to peripheral ones, restricting the room for exercising professional expertise, compromising autonomy, reducing the opportunities of contact with patients, and ultimately shrinking professional prestige.

The intriguing findings from this study invite a more careful consideration of drivers for working in peripheral areas through the tenets of professionalism. The exploratory evidence collected unfolds within a nuanced trade-off or ambiguity, wherein factors typically associated with preferences for urban working environments [50, 51], like teaching hospitals and hubs, surprisingly unveil implications and advantageous prospects for peripheral work settings. This underscores the need to reconsider and broaden our understanding of the factors influencing professionals'working experience, recognising that what may conventionally be seen as factors favouring complex and urban hospitals can present unique advantages when applied to peripheral contexts. Qualitative methodologies allowed us to explore this ambiguity and shed a light on contradictions co-existing for motivating factors at the individual level.

Regarding the organisational support mechanisms, our study highlights those conditions that impact individual professional factors, developing the theoretical groundwork laid out by scholars who have previously discussed the interplay between individual- and organization-level factors [35, 52, 53]. At the outset, it is crucial to acknowledge the pivotal role played by unit head physicians in stimulating the motivation of doctors to choose peripheral hospitals. Their influence operates on multiple levels: professional credibility and recognition, communication of vision and strategy, and team leadership. According to our results, supervisors represent an independent source when employees recognise them as role models in professional, organisational, and relational domains.

Beyond the role of the unit head, our study hints at three relevant factors impacting the perceptions of doctors working in peripheral hospitals [37]: organisational commitment to professional development, adequate resources (including personnel, technologies, and hospital infrastructure), and a sustainable work-life balance. Our study unveils varying perceptions contingent on doctors'career stage regarding the latter condition, with senior professionals favouring reduced workloads, limited night shifts, and minimised emergency department rotations to achieve a better balance with family responsibilities. This underscores the organisation's need to customise employee support mechanisms, outlining diverse attraction and retention strategies tailored to their needs.

Concerning the relationship with the external environment, our study emphasises the necessity for an integrated network strategy for peripheral hospitals, defined at both the institutional and organisational levels. As doctors view the specialisation of peripheral hospitals as a vital prerequisite for their professional development, they value service models that can enable it. In line with prior research [37], it becomes apparent that LHAs need to collaborate with other stakeholders, such as universities, to engage young doctors in peripheral hospitals and local governments to provide accommodation and support to the families of healthcare professionals.

As the study does not unveil significant differences among various LHAs, it seems reasonable to interpret the observed results as applicable across diverse organisations in the public healthcare sector; however, extreme caution should be used in drawing generalisations, given the limited hospital sample. Additionally, during the data

observation period, all public LHAs in Italy faced challenging recruitment dynamics stemming from a combination of factors (e.g., scarcity of specialist doctors in specific disciplines and competition with the private sector in the professional job market).

Further insights into the variance of observed results in different contexts are discernible at the subject level. A primary analytical criterion pertains to the career phase when the analysed professional factors come into play. Across diverse contexts, the study highlighted varying attitudes and preferences for doctors in the early versus advanced stages of their careers in terms of both attraction and retention. This aspect warrants deeper investigation, as subsequent human resource management interventions could significantly differ for young doctors compared to their experienced colleagues.

Conclusion

Our research contributes to the healthcare management practice and policy debate regarding medical professionals in peripheral areas. First of all, at a policy level, it acknowledges the difficulties of retaining motivated professionals to peripheral settings. Even though economic aspects cannot be downplayed, our research suggests that a more complex picture should be understood and that policies directed towards peripheral organisations must provide them with tools to address professional needs. For instance, one could think of institutionalised programs of practice exchange between central and peripheral hospitals or dedicated funding for technologies and professional development.

At the organisational level, supervisors and managers need to consider the profound interplay between professional needs and organisational features. The professional ambiguity in peripheral settings, simultaneously less motivating and more motivating for professionals, seems a powerful tool for managers to build employment value propositions that are interesting for professionals. This study has also unveiled the critical role of the unit's head, both a professional and a manager. This leadership is professional, personal, and organisational, and each area is necessary to build an adequate environment that helps professionals thrive. Nonetheless, our study also highlights the absence of a robust human resource management practice within these organisations. The sub-units are frequently loosely connected to higher-level decision-making and often implement their own strategies.

Our study contributes to the health policy literature on professional work in peripheral areas drawing evidence from the experience of doctors and managers working in the public sector secondary care in a developed country. However, it has several limitations. A primary concern regards the limited number of respondents, the convenience sampling strategy, and the lack of data triangulation (e.g. document analysis, or observation) that would have enriched and strengthened our results. Another issue refers to generalizability. The study only looks at doctors and does not consider other healthcare professionals in these settings. The research was conducted by selecting only two groups of specialist doctors that can be regarded as representative of two major disciplinary groups (cardiologists for medicine and orthopaedists for surgery). Therefore, it does not fully address the richness of variation across medical disciplines. Furthermore, we focused on Italy, which has contextual and normative specificities. For instance, there is a shrinking number of doctors, and doctors working in the NHS are employees who receive a fixed salary. Therefore, it will be essential to develop comparative research involving other medical disciplines, professional groups, and countries. From a methodological standpoint, it is crucial to acknowledge that the observed sample, consisting of professionals who opted to work in the NHS, is inherently biased. This implies that the factors influencing career choices may have been shaped right from entering the job market. Hence, future research could explore the factors affecting the choice of employer between the public and private healthcare sectors in more detail. Additionally, we have focused on doctors working in peripheral hospitals, without contrasting their perceptions with those of doctors working in hub centres (or hospitals in metropolitan areas) or that moved away from peripheral settings: future studies could extend this approach by exploring the perspective of professionals working in non-peripheral settings, for instance to understand whether and how stereotypical views might shape doctors' professional choices.

Moreover, some hints in the interviews have highlighted that the professional factors shaping the work experience of doctors in peripheral areas are not necessarily the same as those that make it effective in retaining individuals throughout the later stages of their careers. This is another area for future research that should be noted as promising, as one might expect that the factors influencing workplace choice—or, put differently, the motivating factors in choosing an employer—could be significantly different for professionals starting their career compared to those who has already established themselves in the role.

Finally, given the exploratory nature of this study, we refrained from making any pre-conceived assumptions regarding the relationship between SDT and professionalism to understand physicians'labour choices. Instead, we employed an inductive approach to assess the plausibility of any potential connections based on the empirical evidence. Subsequent research, namely quantitative approaches, could thus employ these interpretive frameworks with increased assurance.

Appendix

Coding results and exemplary quotes

Professional Factors: Autonomy

2nd Order Category	1st Order Category	Exemplary Quotes
Experiencing professional isolation (-)	Suffering a lack of colleagues from other disciplines	'Here, you have to stop at a certain point, as you don't have a cardiac surgical backup… And there is a lack of professional figures in a small centre. In Ancona, I had the vascular surgeon, the urologist, the ENT doctor, and the neurologist, who are very useful in emergencies. In a small hospital, you have to know how to do many more things, and it's a challenge and a greater risk.'
Taking responsibility (+)	Being alone in solving problems	'This is a good gym to learn… if someone is a beginner… because there are many cases you can see. The emergency room is challenging from a professional point of view because it's you alone… you're the first to start assessing the patient, intervening, and seeing if you can stabilise him and keep him in the small hospital or if you have to transfer him… While in [the hub], you have colleagues you can ask for advice; you are much more alone here. Still, as far as I am concerned, it is positive because it helps you grow professionally and take on responsibilities.'
	Without you, the boat stops	'Being a large boat, it still moves forward a bit; little pushes are enough. Here, the smaller boat stops immediately if you don't push it, so you have to be active and proactive.'
Being the one in charge (+)	Being a key actor	'If you go to [large hospital in Milan]—but it could be any other place—you arrive, and you are one of the many, you can rarely do anything that gives satisfaction. What is the satisfaction there? Putting on the t-shirt and saying you're in the big centre…, ok, but here you are the contact person of, say, pulmonary hypertension or heart failure.'
	Finally, practicing what I had learned	'I had had the opportunity to learn electrostimulation, but I had difficulty implementing it in a larger hospital. So for me, working in [small hospital]… represented an advantage for the possibility of doing something I knew how to do. However, I hadn't reached a level of complete autonomy.'
Being an entrepreneurial professional (+)	White canvas	'If you go into a small reality, you have carte blanche and great possibilities for growth.'
Working with proactivity (+)	Enjoying less hierarchy among professionals	'In small towns, there is less hierarchy; if you want, you can learn more.'

Professional Factors: Competence

2nd Order Category	1st Order Category	Exemplary Quotes
Deprofessionalising (-)	Becoming only a generalist	'In small centres, you have to do more things, the workload is greater… and you can dedicate less time to the micro speciality that interests you.'
	Suffering absence of advanced competencies	'You have less opportunity to see more complex cases… we have the problem that we lack some services. For example, we do not have hemodynamic services.'
	Seeing less cases	'[In smaller hospitals] the caseload is smaller, and professionals risk doing even less. They end up doing night shifts and outpatient care and operations of femurs and minor traumatology.'
Limiting professional knowledge updates (-)	Scarce update of knowledge	'Here I found people who are very capable of working, but who have lost all contact with the University and have remained clearly hospitalist, do not publish, do not go to conferences less (or they go but not as speakers).'
Learning by real practice (+)	Experiencing real patients	'a cardiologist… cannot stand there and tremble in front of the patient.… he must be used to urgency.. it is here [in the small hospitals] where you find yourself face to face with the real patient.'
	Hands-on training	'We have the opportunity to truly grow because in our work is fundamental the manual activity, the practical activity in the operating room… compared to my colleagues of the same age in larger hospitals… I have the opportunity to be in the operating room almost every day, which is the daily bread and butter of our job, is what nourishes our passion.'
	Need to learn	'Having access to some courses or some types of procedures, having access to some professional upgrades which are compensation for my commitment.'
	Professionals want to learn	'A young person wants to learn, to feel part of a project… is ready to go abroad, not for the money.'
Becoming an all-round professional (+)	Experiencing a broader set of activities	'In a large hospital, there is hyperspecialisation,… In a smaller place, you can dedicate yourself to many things, to learn a little of everything.'
Developing specialised niches (+)	Choosing your pathology	'Each one chooses a pathology and takes a course abroad… on what interests him.'
	Creating a niche in territorial care	'Here, with technology, you can be the referent point of the territory for a niche and be appealing.'
	You can carve out a space for yourself	'What gratifies me most is having carved out a space for myself, keeping myself updated, bringing new things, and training others.'
Enjoying a personalised professional mentorship (+)	Having a 'personal trainer'	'The hub centre is a larger gym. I have more machines, but you need to understand if I have a personal trainer.'
	Learning the tricks of the trade	'go to the theatre together, to put the pacemaker together, working on the patient 1:1.… pass the tricks of the trade.'
	Not having a depersonalised development	'[in the teaching hospital] it ends up depersonalising, with 100 residents over four years.'

Professional Factors: Purpose

2nd Order Category	1st Crder Category	Exemplary Quotes
Lacking a direction (-)	Risk of assembly-line professional	'The 'teleological' vision of your path is necessary. Otherwise, you really become the assembly line worker who carries out the visits, the echography, and so on… This has become a big problem in peripheral hospitals over the years. I had a magnificent professor who taught me the profession, with whom I participated in much research… and it was very nice because it allowed you to see finalised your commitment, not just to a production number.'
Losing track of patients (-)	Difficulties in following patients	'We have to send the patient out often because he can't do everything here. For example, a patient with a heart attack: you can't treat him from time zero to discharge; you have to send him to Alessandria, they keep him for three or four days, and then they send him back to you. This continuity is missing. Alternatively, if you have to do a myocardial scan or a cardiac MRI… follow the patient in a somewhat fragmented way, in my opinion.'
Losing motivation due to colleagues (-)	Older colleagues who have no development perspective	'I see many colleagues, perhaps close to retirement, who come to the smallest place to do the bare minimum. Because certainly, the pressure compared to a big centre is less. And you can make a living like this while waiting for your retirement.'
Valuing one's contribution (+)	Feeling important	'Here I see colleagues who have a day off, but they come because they have to see those patients because they feel important.'
	The professional is not a number	'The first thing we have always said, and that we have always heard ourselves, is 'The patient is not a number'; he has his dignity. The same applies to a professional: he is not a number; he must feel important for a purpose.'
Being important for patients (+)	Appreciating a more direct relationship with patients	'Here, everything is much more at hand, and we can be more available to patients. In short, the human relationship is what gratifies me the most.'
	Devoting more time to patients	'Here there is less confusion compared to the large hospital… and you can dedicate more time to the patient's needs… try not to alarm the patient too much, even when the situation is more complex, proposing a whole series of solutions to his cardiological problem. From the point of view of the doctor-patient relationship, the small hospital is certainly much better than the large hospital.'
	Experiencing gratitude from patients	'You go to buy bread, you meet the patient who says, 'doctor, I'll pay for your coffee. And this is an added value.'
Following patients over time (+)	Taking charge of patients	'Even if we send patients to the hubs, the colleagues are happy and gratified by the follow-up.'

Professional Factors: Visibility

2nd Order Category	1st Order Category	Exemplary Quotes
Feeling a second-class professional (-)	Experiencing poor consideration from colleagues	'The impression is that many colleagues in the hub feel elected… that they hold the truth, and therefore command.'
	Lower league professional	'When I'm out at conferences, and I talk to colleagues, there's always the feeling that they think 'well, but that's a small hospital' as if it were the second category.'
Being in a less prestigious institution (-)	Suffering less hospital prestige	'A larger hospital is a source of prestige.'
Having reduced career chances (-)	Slowing professional development	'If you want to have an aggressive or rampant career, a suburban hospital like this won't allow it.'
Being a pivotal member of the community (+)	Being greeted at the local cafè	'When I leave here and go to the post office or to the bar, [the patients] are there; they greet me. I don't know how to say people appreciate me. In hubs, there is a more aseptic, impersonal relationship, which for me also tends to give less professional satisfaction.'
	Being part of the community	'The relationship with patients is something that gratifies me. They are people I know, people and surnames I know, a language I know, a dialect that is mine.'
	Enjoying loyalty of patients	'There is word of mouth… one comes because his friend who owns the butcher's shop told him that they are good… there is a more personal dimension, a loyalty [of the patient].'
	Everybody knows you	'If you're good, everyone in a small town knows you straight away. If you are good, many people come to you.'
	Opportunity for local visibility	'There is one who is very well known in the small town, is introduced to the area, has always busy with politics.… for some people, the peripheral is an opportunity.'
Making one's contribution visible (+)	Having less competition	'There is less competition precisely because there are fewer of you; your skills are noticed sooner.'
	Not being one among many	'In metropolitan hospital, ten do this thing, while it is easy to become a point of reference here. I feel very accomplished to have the possibility of making a name for myself for that type of pathology much quicker… there is the possibility of self-affirmation… and in my opinion, this thing is priceless… you know that you're working well, people start talking about you, everyone takes you as a point of reference, and you… can expand your user base.'

Organisational Antecedents: Supporting Factors

2nd Order Category	1st Order Category	Exemplary Quotes
Availability of resources	More scheduled activity instead of urgent cases	'We have fewer urgent cases, so the operating room is rarely unavailable.'
Collaboration with universities	Guesthouse for residents	'We have created a guesthouse [for young professionals].'
	Peripheral hospital hosting residents	'During the residency, you should be obligated -perhaps for the last two years- compulsorily to do six months [in peripheral hospitals]. At that point, the person probably comes in and sees there is a chance to do, to work,… [to feel a professional]. You'll have a better chance later on… that that person may stay, or you can get good word of mouth.'
Good hub—periphery integration	Good collaboration with hub	'the collaboration with [the hub's] cardiology is utmost… they give wide availability… if I try to send a patient, they do their best to treat him, and once they are discharged, they send them back [to the spoke].'
	Not being left alone	'The main point is that we should not leave them [the physicians in a spoke] alone in the periphery, but we should make sure every now and then to bring them here, to bring them into the reality of the hub, because that way they can feel a little more inside the system and less alone.'
Good work-life balance	Absence of night shifts	'Here, I have all Saturdays and Sundays free and don't even do nights. So even from a familiar management standpoint—I have two young children aged 4 and 1—it greatly helps me.'
	Fewer ED shifts	'I was tired of being a trauma in [the hub] and working nights and weekends.'
	Less night shifts	'The workload is less than in the big hospitals because you don't have active guards. We're just on call.'
	Fewer shifts	'You have to keep them, meaning [not only] you have to be attractive [but also] motivate them to stay there where they are. In what way? Clearly, by rewarding them from a professional point of view, trying to manage shifts better…. in the big centre, they have two days a month off; here, they have 9 or 10. By managing the shifts a little bit, you can manage them better.'
Individual development pathways	Encourage participation in conferences	'You can put a young person, for instance, in the field of preventive care. So, he talks to other colleagues who are involved in preventive care. For example, next week there is the National Congress, so you bring two or three to speak, and they feel gratified.'
	Individual growth pathways	'I have already directed them on a pathway; they are all doing trauma, and I have told each one to choose a pathology, and, on that pathology, I am making them do courses abroad on what they are interested in, cadaver Labs, etc. We cannot train everyone by ourselves. It is necessary to go and see what others are doing.'
	Individualised development pathways	'Something needs to be offered to people. Already at the entrance, you need to understand each person's expectations and areas of expertise and offer pathways that can enhance them for what they feel compelled to do. For example, we had a colleague who wanted to do hemodynamics, and we arranged for her to work in *** and then go to *** two days a week for hemodynamics procedures. This was, for example, a new opportunity that we created, a new pathway.'
	Indulging their needs	'You have to be better at engaging them, to go along with their needs and desires… this must make you change your attitude towards them.'

	job rotation	'To try to do some kind of job rotation or at least to establish a pathway for doctors who work in the periphery that greatly reduces the distance from the hub centre… I designed for [a physician in a spoke] in agreement with the top management, a pathway that involved spending part of her time in the peripheral hospital and part directly in the hub centre.'
	Organisation's flexibility with young professionals	'[We must have] the ability to derogate a bit with young people'
	Understanding what gratifies each one	'When [the young professionals] first arrive, I normally say, 'What do you do? What would you like to do?.' [And they might reply] 'I really like imaging.' 'Okay, in imaging, I already have several others; however, there are various facets in imaging. Do you want to do a type of stress imaging?.' It is necessary to try, in a somewhat psychological way as well, to talk to the colleague, [and understand] where he feels most gratified.'
Less competition for scarce resources	Less competition with other units	'We were lucky that we did not have other strong surgical disciplines, so we did not have competition for the rooms.'
Outside professionals to teach and practice	Collaboration with expert doctors	'I called Dr.*** here, who is the best in Veneto, and I had him come here twice, and he showed the [young professionals] how [that kind of surgery] is done
	Collaboration with private-sector doctors	'The private sector does not perform expensive surgeries. So, good professionals working in the private sector are willing to come [to the public hospital] and do major surgeries in the NHS. And they also do training. They are… high-level mentors.'
Professional training opportunities	Opportunity for courses and training abroad	'Transparently and clearly, I make a professional investment: I send him elsewhere on a project to learn a method,… for three months… after learning the necessary skills, because I can't send a shop boy out one year.'
	Tailor-made development programs	'There is a difficulty in the public healthcare sector, namely motivating young people and giving them opportunities for training and growth. The same difficulties in hubs and spokes. Any medium-sized spoke hospital can give orthopaedic responses (but large trauma and complex paediatric surgeries).'
Providing visibility to professionals	Communicating excellence	'We try to have a public communication highlighting the excellent work done here (with the website, social media, etc.).'
Quality of human relations	Deeper relationships with other professionals	'You also establish a deeper relationship with colleagues and nurses. It is important to get along, and in a smaller centre, it is easier. In the larger centre, there can be more internal competition (but it also depends a lot on the individual).'
Relationships with top management and administration	Easier collaboration with the top management	'[We have] a streamlined relationship with the administration: it is smaller, I have a direct relationship with the director, we can change things more quickly.'
	Strategic alignment with top management	'For [a hospital to be attractive], there also needs to be a good climate between the unit head and the top management, there needs to be leadership that gives confidence, and there needs to be alignment between business and professional strategies.'
	Trust and collaboration with the top management	'It also depends a lot on the organisational environment of the health facility, the administrative part, that is, if you have a good feeling with the chief medical director, then everything is facilitated… Having a health director that supports you helps you accomplish something.'

Research activity	Give a cultural meaning to daily job	'One thing they very much like… is conferences, reports, scientific production. The periphery needs to find a space for cultural growth and use the big production numbers in something that gratifies. Trivially, if you do 500 heart failure interventions, you need to collect data and see whether you have improved survival rates or reduced recurrences; so a young person feels more involved. If, on the other hand, you do an outpatient clinic where you do your six hours and you come out, you know you've done well, but you can't give a cultural pathway to what you're doing, you probably feel a little diminished.'
	More opportunities for research	'There are research opportunities.'
	Show that cases allow to do research	'We are a territorial hospital [but] if the hub wants to do a study, I have the numbers… so starting with that assumption that it's not easy to understand and comprehend: it took me a long time even with my own [team] to explain this… you have the population, it is the 'money' that we have in the bank.'
	Space for research activity	'I wanted to join two studies because, in my opinion, a cardiology operating unit, even a hospital one, needs to have a scientific production that can gratify people. You need to find a space for research, for cultural growth.'
The strategic specialisation of hospitals within LHAs	Cross-hospital equips	'We have a single operating unit for smaller hospitals. This is because by the principles of communicating vessels, once you move the team, you move the patient… depending on the type of surgery, the type of roster, and the type of activity required if you cannot move the patient, you move the surgeon.'
	Departmental organisation favours mobility	'In the department we collaborated, I personally went, for example, to do clinics in [two other small hospitals]… The department really has to aim for that; there have to be figures, including young people, who can have the opportunity to explicate their best aptitudes, moving into different areas and positions.'
	Not overlapping activities	'You have to give a connotation for a larger provincial network…You don't have to repeat the same model on various places within the same territory. If someone does the same thing, they are competing with me because the patients are the same, and that's a serious mistake…. the fundamental thing is that everyone has to have a role and has to be important for their role within a larger network… the territory cannot be a generalist. However, you have to work in a network logic, identifying micro specialities that justify the presence of professionals
	Technologies are present	'Here we have at our disposal all the technology that is needed… The difference is obviously in cardiologic structural interventions. However, it is the next step for an interventionist in training… so let's say we are an intermediate step. However, they are attracted to the possibility of completing this intermediate training step
	Technology provides freedom of expression	'I don't have the instrumentation that maybe others may have…it's not like it can be a battle that lasts for months, for everything…if we had a suitable instrumentation, basically I could say 'what do you want to take care of?'…give that push, that motivation to the colleague who clearly says 'I have the opportunity here to express myself.''

Unit head: strong professional network	Network of the unit's head	'The training network doesn't have to be just in-house… I called Dr. ***, who is the most experienced here in the region. I had him come here twice; we did ankle replacements together, and the young professionals saw how it's done. There is a need for these exchanges; you can't know how to do everything, and you need someone better to come here and teach you. Even having the humility—something that is lacking—to say 'since I can't do it, I'll call a friend to come' because sometimes many people say 'no, I can do everything and I'm the best in the world'…you have to expand the network of knowledge between different specialists, one cannot stay locked inside a hospital, one has to go and meet others. So you can call I don't know Dr. *** from hand surgery and say, 'Look ***, I have a problem, what do you say we do'? You have to create more of a network of friendship that allows you to handle these situations.'
	Network with other professionals	'You need to broaden the network among different specialists.'
	Web of teaching colleagues	'You can get young people to come and work with you if you have something to teach and pass on.'
Unit head: teaching skills	Giving many opportunities	'You have to care for young people a lot to make them grow, give them all the opportunities, and give them much work. This is fundamental to the attractiveness of the centre.'
	Having a project	'The only reason a young professional commutes 200 kms is if there is a credible professional project.'
	Unit chiefs must have something to teach	'Addressing the challenges of people management. You need a unit chief who can train young people and seniors alike.'
Unit head: technical skills	Attracting strong professionals as a means of attraction	'We were able to bring in a gastroenterologist, a hepatic-pancreatic surgeon… attractiveness is done with these things.'
	Champion unit head	'A chief who is a star.'
	Unit head makes the difference	'Some people have chosen to become unit chiefs in a peripheral hospital and have made a difference just because of their personality. They have increased so much volume, and so they have also brought work for other cardiologists.'
Unit head: vision	Unit's head projects	'I came here with a project. Three residents and two specialists decided to move here because they knew I was coming, and they followed me. I already had a project, and I had spoken with them, saying, "If I arrive, we'll do this."
Unit head: work climate	Good direction of the unit	'Much credit goes to the unit head. Previously, the orthopaedic operative unit was in a downward phase. In other realities, directors are weak and do not attract. And it has to be someone open to young people, able to meet their preferences.'
	Good work environment	'Another important aspect is a good departmental climate. The moment there is a good climate, there is collaboration, a team, an exchange of ideas, and there is confrontation. Even the young person is accepted and has a chance to have a say. I think the young person feels important when he or she realises that he or she is part of a team, whereas, in many centres, young people are somewhat put aside. It happened to me, too, when I was a young resident. Then, the young person could not speak because a professor said everything. On the other hand, there is confrontation, and feeling firsthand on a team makes one feel important and gives professional satisfaction.'

Organisational Antecedents: Hindering Factors

2nd Order Category	1st Order Category	Exemplary Quotes
Absence of collaboration with universities	Absence of ties with universities	'There are no young professionals in training.'
Complexity of managing networks of specialised hospitals within LHAs	Limits of the cross-hospital unit chief	'If the unit chief must be able to train well and teach others… and has to be the director of [three different hospitals' operative units]… he doesn't even have time to get home anymore.'
Greater workloads	ED shifts	'If there are fewer people, you have to do ED on-calls, and overall your life worsens.'
	more shifts for a limited number of doctors	'If only a few of you are present, it is difficult: shifts have to be covered.'
	Pressure of routine work	'Sometimes you get too involved in the routine or running after performance numbers and can't understand the young person's expectations. This could be to the detriment of the periphery, where you definitely end up being involved in more routine stuff than a central hospital.'
Lack of adequate personnel	Lack of nurses and doctors	'Certainly, there is competition for rooms: there is a shortage of nurses and anesthesiologists.'
Lack of strategic specialisation of hospitals within LHAs	Too many organisational units	'You cannot have four orthopaedics operative units and five hospitals with ED open 24 h for seven days per week! There are orthopaedic operative units with a chief physician and no staff. You can keep, if anything, only small trauma (and there, the only leverage can be economical) but send all the rest of the caseload to specialised centres. And you need a single operative unit!'
Lack of technologies	Lack of technology makes you less appealing	'The resources available to these hospitals have dwindled in terms of technology (nowadays technology is one of the first factors of attractiveness, especially in surgical matters).'
Politics	Politics as a problem	'Having fewer hospitals would be a good solution, but politically, it is almost unworkable.'
Poor competencies of the unit head	Wrong direction of the unit	'You can see it the moment a chief executive leaves a place, and the place collapses because he didn't train anyone behind. Yet he has people, maybe 50 years old, who don't know how to do anything. This, to me, is not a good chief: if he goes away, the world collapses.'
Poor hub-periphery integration	Lack of collaboration with the hub	'When I arrived [in the peripheral hospital] after a short time, I was considered practically Holy Mary, in the sense that I solved problems, but not because I was so good, but just because I had a privileged relationship with the hub. I knew everyone in the hub, and… it was so easy for me to pick up the phone to solve any problem that, from my point of view, was trivial, but from the periphery's point of view, it was unsolvable drama. The real problem is that the peripheral hospital does not have fast, linear, collaborative relationships with the hub.'
	Monopoly of cases by hubs	'The big mistake about big centres like *** is to say [the small hospital] is our outbuilding, without giving them a possible future, treating them with superiority.'
Poor top management	Top managers as meteors	'Politicians appoint the top managers, so they are often people who do not know the local environment… they stay are sort of meteors, they hope to stay three years… it is less prestigious, and so clearly there is more turnover.'

Resource constraints limiting production capacity	Competition for OR time	'The ED operating rooms are shared with the other specialities… appendicitis cases have precedence, a caesarean section as well, whatever goes through first. Our patients, unfortunately, wait beyond reasonable limits. We need a dedicated operating room and more staff.'
	Lack of investment in the past	'[Because of less] structural investments, facilities have become increasingly less attractive, with less personnel, and more organisational disruptions.'
	Lack of supporting services	'[In the periphery] we lack some supporting services. For instance, we do not have a hemodynamic operative unit.'
	Presence of OR as a precondition	'People with professional skills need to be enabled to work in a peaceful environment with the availability of the things they want to use. Notoriously, surgeons want to be surgeons, they need operating rooms, they need anesthesiologists.'
	Scarcity of OR time	'The advantage is that there are few emergencies, so we can often use the room.'

Abbreviations

CEO Chief Executive Officer
LHA Local Health Authority
NHS National Health Service
OASI Observatory on Italian Healthcare Organisations

Supplementary Information

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Supplementary Material 1.

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Authors' contributions

All the authors contributed equally to the manuscript and approved its content. GG and FV contributed more broadly to the introduction and background of the study, while MS and CBS to the methods and results. All authors contributed to data collection, as well as to discussions and conclusions.

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Data availability

The datasets generated during the current study are not publicly available due to privacy reasons but are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

All methods followed the relevant guidelines and the Declaration of Helsinki. Since the article does not report the results of a healthcare intervention on human participants, the material used in the research did not require ethical approval under Italian law.

Competing interests

The authors declare no competing interests.

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