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Making the invisible visible: nurses' stealth work to legitimize their telemedicine coordination role

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ABSTRACT

When new digital technologies are implemented, nurses are usually delegated several new organizing tasks and responsibilities. This accumulation of tasks does not always translate into improved roles for nurses, especially when their organizing work remains invisible to, and underestimated by, physicians. We explore what nurses might do to legitimize their organizing work to physicians. Empirically, we conducted a longitudinal case study of a new telemedicine system in Italy, where nurses appropriated coordination responsibilities. We discovered how nurses enacted 'stealth work' to successfully upgrade their role. Their stealth work included: (i) appropriating organizing tasks when these were understood as scut work by physicians, thus avoiding jurisdictional conflicts; (ii) gatekeeping the organizing domain to develop unique expertise that others could not replicate or replace; and (iii) upgrading 'scut work' into 'heart-sink' work to claim epistemic legitimacy. Our findings contribute to the 'ecological' debate in the sociology of professions, explaining how lower-status professionals can legitimize their 'invisible work' and improve their role in care processes. Stealth work is an affordable relational work for nurses: they can exploit the initial invisibility to appropriate new tasks, gatekeep the jurisdiction, develop unique expert knowledge, and use this as an effective resource for negotiation with higher-status professionals. Our findings also contribute to the 'epistemic injustice' debate in the literature, explaining how nurses can transform physicians' perception of organizing work from 'scut work' (requiring non-expert knowledge) to 'heart-sink work' (i.e., requiring expert knowledge that physicians are 'too late' or 'too busy' to develop).

1. Introduction

Telemedicine implementations tend to broaden nurses' role in care processes (e.g., Bulto, 2024; Bůřilová et al., 2022; Clement David-Olawade et al., 2024), especially when significant medical and organizational tasks are delegated to them (e.g., Capulli et al., 2025; Lehoux et al., 2002; Mort et al., 2003; Nicolini, 2006, 2007; Oudshoorn, 2008, 2009). More specifically, nurses might take on medical tasks previously carried out by physicians, such as in tele-triaging, where nurses are expected to handle the majority of cases and to refer to doctors only in the exceptional ones (Nicolini, 2006). Nurses' appropriation of new medical tasks might, however, challenge traditional professional hierarchies once physicians lose core jurisdictions where they express their clinical authority in favor of nurses, considered to be lower-status, less expert and subordinate professionals (Abbott, 1988; DiBenigno, 2020; Kellogg, 2019; Lindberg et al., 2017). In response to this, physicians might: (i) protect medical tasks and delegate to nurses mainly organizational tasks, such as scheduling appointments, coordinating digitally-mediated interactions between physicians and resolving technical issues (Lüchau et al., 2024); (ii) preserve elements of physical proximity to ensure nurses remain in close contact with them (Nicolini, 2006).

The delegation of organizational tasks to nurses has both advantages and disadvantages. On the one hand, it represents an opportunity for nurses to acquire new competencies, extending beyond the domain of clinical work to encompass technical, ethical, and legal knowledge as well as skills (Nittari et al., 2020). This allows nurses to build a unique knowledge base that physicians cannot (or do not desire to) replicate. Nurses can use this unique expertise to increase their influence in the organization and gain bargaining power, i.e., to further professionalize

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(cf. von Nordenflycht, 2010). Moreover, while nurses accumulate tasks that are essential for ensuring the effective functioning of telemedicine (Oudshoorn, 2009), their effort might be overlooked or even lead to further professional subordination to physicians (cf. Knop et al., 2024; Lüchau et al., 2024; Petrakaki et al., 2025). Past research, in this regard, notes that nurses carry out extensive organizational work that remains largely unrecognized and 'invisible' to physicians and patients (Allen, 1997, 2014, 2018), even when related to activities such as coordinating patient care, mobilizing different professionals, overseeing bed utilization and assembling the necessary resources for care delivery. Several studies note that high-status professionals, such as physicians, might delegate tasks that they consider as 'scut work' or 'heart-sink work' to others. Thus, delegation reinforces their perception that other professional groups (e.g., nurses, junior doctors) are subordinated to them (cf. Huising, 2015; Kellogg, 2012). Elsewhere, digital health technologies may alter professional boundaries, but also trigger jurisdictional disputes with physicians (Agreli et al., 2021; Frennert et al., 2023; Liberati, 2017; Nickelsen, 2019; Oudshoorn, 2008), generating administrative burdens, workplace routines and symbolic boundaries that blunt nurses control and autonomy (Kroezen et al., 2014; Nickelsen, 2019; Liberati, 2017; Vaughan et al., 2024).

Overall, this evidence suggests that the accumulation of new tasks is not sufficient for nurses to raise their professional profile, especially when the new tasks are not appropriated directly by them, but selected and delegated by physicians. Therefore, nurses need to engage with additional forms of relational work that makes their new tasks 'visible' to others and assert their professional role. The nature of this relational work remains unclear. Yet, better knowledge of this work is vital to help nurses achieve better professional gains from the delegation of telemedicine tasks. Following this, we ask: *which relational actions can nurses perform to make their telemedicine work more 'visible' to physicians?*

Empirically, we addressed this question through a longitudinal, abductive case study of a cardiology unit that introduced a telemedicine solution during and after the COVID-19 pandemic. Our analysis combined: (i) Allen's account of nurses invisible organizing work, focused on the epistemic barriers that render nurses' work invisible to higher-status professionals (Allen, 1997, 2014, 2018; cf. also Doing, 2004; Fricker, 2007; Kuijper et al., 2024), with (ii) an 'ecological' perspective in the sociology of professions (Abbott, 1988; Huising and Pakarinen, 2025), focused on how professionals overcome these barriers and negotiate jurisdictional gains in their organization (Currie and White, 2012; Huising, 2015; Kellogg, 2019; Schou and Nesheim, 2024). We lay out these resources in the next section and return to them abductively in the analysis.

2. Background

2.1. Nurses and their invisible work

Over the past two decades, nurses have taken on broader responsibilities, including managerial tasks, coordination of care across multiple actors and quality assurance, especially in response to rising patient turnover and the expansion of community-based care (Charles-Jones et al., 2003; Cherry and Jacob, 2016; Crevacore et al., 2023; Latimer, 2000). This coordinating function is well documented across diverse healthcare contexts, including emergency units, triage systems and primary care (Karam et al., 2021).

Despite this shift, nursing's organizing work remains largely invisible within healthcare institutions. Allen (1997, 2014, 2018) notes that nurses perform key roles, functioning as 'obligatory passage points' in healthcare networks through whom every focal actor and care activity must pass. Positioned at critical interfaces, nurses perform 'translational mobilization', i.e., a constellation of practices that brings together diverse socio-material elements required for patient care while managing their complex interrelationships (Allen, 2014). Though constituting a substantial portion of nursing activity, this organizing work remains largely unrecognized in formal job descriptions and performance metrics, reflecting its institutionally invisible status (Allen, 2018).

Nursing's work is material, emotional and discursive. Yet its visibility and legitimacy depend on epistemic work, which is the capacity to articulate and have accepted the knowledge embedded in these practices (cf. also Cook and Brown, 1999; Orlikowski, 2002). From this perspective, nurses suffer from epistemic injustice that renders their work less visible to others. Institutional hierarchies, professional boundaries and gendered assumptions about care work combine to obscure the extensive coordination that nurses perform to ensure healthcare delivery. Dominant representations continue to reduce nursing to caregiving functions, neglecting the extensive 'organizing work' that nurses perform to ensure continuity, coherence, and responsiveness in patient care (Allen, 2014). Nurses suffer from two forms of epistemic injustice: (i) testimonial, which occurs when the credibility of their situated knowledge is systematically discounted because organizing work falls outside formal roles and metrics, causing their accounts to carry less weight in clinical deliberations; (ii) hermeneutical, which emerges from the absence of shared categories and measures that would allow nurses to articulate their organizing expertise in institutionally recognized terms (cf. Fricker, 2007).

The struggle for recognition of nurses' organizing work, thus, takes the form of what Kuijper et al. (2024) term 'epistemic politics', i.e., the processes through which knowledge and expertise are constructed, challenged and legitimized in practice. These politics involve not merely debates about knowledge production, but "*who has legitimate authority and control over (future) actions and learning*" (Kuijper et al., 2024, p. 3). Allen's invisible organizing work becomes a site of epistemic contestation, where nurses' efforts to gain visibility and legitimacy for their coordination practices encounter institutional hierarchies that privilege certain forms of knowledge over others.

Recent ethnographic and organizational studies have provided a more fine-grained understanding of how this invisible work is structured and negotiated. Liberati (2017), for instance, shows that the medical-nursing boundary is not fixed but enacted differently across clinical settings – depending on levels of acuity, epistemic proximity and local power relations. Even where formal role expansion occurs, as in nurse prescribing, workplace dynamics often dilute its impact. Kroezen et al. (2014) document how legal authority does not necessarily translate into jurisdictional control. Instead, nurses operate within protocols shaped by physicians, and their autonomy is bounded by informal hierarchies and symbolic boundaries around "prestigious" patients. Thus, organizing work, particularly in relation to clinical decision-making, remains stratified and conditional. Nurses' epistemic agency depends both on formal authorizations and informal negotiations over whose interpretations 'count', which links epistemic injustice to the everyday struggle for professional legitimacy.

2.2. Nurses' (invisible) work and telemedicine

Digital health technologies introduce complex opportunities and risks to nursing. Bergey et al. (2019) show how systems like computerized physician order entry and electronic medication administration record reconfigure team roles, intensify administrative burdens and shift coordination tasks to nurses, without corresponding recognitions or redefinitions of their role. This delegation is often downward, reallocating responsibilities to less visible actors, such as unit clerks. In this way, invisibility is redistributed across the care team. Nurses become mediators of technological misalignments, assembling socio-material and informational elements to repair gaps in care processes (Cook and Brown, 1999; Orlikowski, 2002), shaping which signals, data and narratives reach other professionals.

Studies on telemedicine implementation present similar findings. Unlike co-located clinical teams, telemedicine distributes responsibilities across remote professionals working at different locations

Table 1
Interviews and informants.

Role	Number of Interviews	Details
Managers	4	- Director General (I1) - Senior Project Manager (I5) - Junior Project Manager (I9) - Joint Interview (I13)
Cardiologists	16	- Clinical Head of CardioCare (I2, I12, I21) - Cardiologist A (I4, I14, I33) - Cardiologist B (I6, I16) - Cardiologist C (I8, I18, I29) - Cardiologist D (I10, I20) - Cardiologist E (I22, I26, I37)
Nursing Staff	18	- Head Nurse (I3, I7, I11, I15, I19, I23) - Nurse 1 (I17, I25, I30, I34) - Nurse 2 ('PhD Student Nurse') (I24, I28, I32, I36) - Nurse 3 (I27, I31, I35, I38)

Note: "I" stands for "Interview", which are enumerated in chronological order.

and schedules. While clinical tasks are delegated to nurses, these typically inherit greater workload and accountability without a corresponding improvement in authority. Furthermore, their involvement remains uneven over time, across both sites and designations (Vaughan et al., 2024). However, where telemedicine implementation explicitly recognizes and resources nurses' coordinating roles (e.g., through clear protocols, dedicated training, ready physician collaboration and formal coordination mandates), it can consolidate nursing leadership and improve their professional status (e.g., Leenen et al., 2024; Lundereng et al., 2023; Ma et al., 2025).

Telemedicine also introduces a set of 'organizational' (rather than strictly clinical) tasks (e.g., setting up technologies for consultations). Some of this work mediates information that is relevant for clinical decision-making (e.g., data from telemonitoring) (Lüchau et al., 2024). Yet, even in the case of telemedicine, the relevance of these tasks is not recognized and formalized, so this work remains invisible and does not contribute to the professionalization of nurses (c.f. Anderson et al., 2024; Nickelsen, 2019).

2.3. How professionals seek to enhance their status in organizations

The 'ecological lane' in the sociology of professions (Huising and Pakarinen, 2025) interprets nurses as one of several professional groups working to claim new task jurisdictions. Organizations are conceptualized "*as an ecology carved up through jurisdictional contests, professions are interdependent as competitors and collaborators. Task jurisdictions emerge out of negotiations among professions over a dynamic landscape of tasks. The landscape of tasks changes exogenously through technological, economic, and social change at a societal level but also endogenously as professions engage in cultural work to reframe tasks as socially important and as best suited to their knowledge and skills*" (p. 12). In this perspective, different professional groups compete for jurisdiction over specific tasks and knowledge domains, separated by hierarchical relationships (where some occupy higher status positions than others), or negotiate new arrangements when they are linked by shared interests and task interdependencies.

An extensive body of research has shown tactics used by professionals to negotiate status and control through everyday practice, and not just macro-level jurisdictional struggles (Huising and Pakarinen, 2025). We identify two broad strands relevant to our study.

First, professionals engage with various forms of relational work aimed at gaining visibility and trust among higher-status groups. DiBenigno (2020) provides a model of 'rapid relationality' characterized by: (i) pre-empting higher-status professionals' concerns of being intruded (e.g. by actively affirming their authority) (ii) making generous gestures to win trust (e.g., 'grand gestures', 'scut work'); (iii) accumulating evidence and leveraging 'small wins' to gain visibility. These results have been frequently noted in professional studies, within and outside healthcare organizations (e.g., Huising, 2015; Kellogg, 2019; Reay et al., 2006).

Second, professionals engage with epistemic work aimed at legitimizing their knowledge base as unique and desirable to others. This work is typical of any professional group as they simultaneously render their knowledge: (i) desirable for others by providing evidence of organizational and medical success (e.g., Reay et al., 2006); (ii) 'opaque' to others by hoarding details on how they achieved these outcomes (cf. von Nordenflycht, 2010). Several studies have noted effort of various (if not 'any') professional group to keep their knowledge tacit, to leverage on it for quick gains in the organization, and to associate the tacit/opaque nature of their knowledge to trusteeship norms towards the clients (e.g., Currie and White, 2012; Ernst and Tatli, 2022; Wright et al., 2021).

3. Methodology

Cognizant of the barriers that nurses must overcome and of the possible actions to overcome them, we investigated how nurses work to enhance their status throughout the deployment of a telemedicine solution. We employed a qualitative, longitudinal methodology, combining different sources of data to an abductive approach. This design allowed us to move back and forth between empirical evidence and theoretical elements, progressively referring to the literature presented above as it best fitted the interpretation of findings. In this sense, the theoretical framing was not defined a priori but developed iteratively to make sense of the data and to refine our understanding of nurses' 'stealth work'.

3.1. Empirical setting

The empirical setting for our study is a cardiology unit ("CardioCare") within a large regional hospital located in a northern Italian region. Like many healthcare institutions, CardioCare faced significant challenges at the onset of the COVID-19 pandemic, in early 2020. This crisis required a rapid transformation in healthcare delivery to ensure continuity of care while minimizing the risk of virus transmission – especially for patients with chronic conditions, such as heart failure.

Initially, CardioCare implemented a 'rudimentary' telemedicine service, grounded on basic communication tools like phone calls and video conferencing applications. The aim was to maintain patient-clinician interactions and remotely monitor health conditions. CardioCare, comprising a head cardiologist, five cardiologists, a head nurse, and a team of three specialized nurses, was abruptly involved in this process. All these actors had to quickly adapt to a new normal characterized by teleconsultations and remote monitoring in order to support chronic heart failure patients spread across the region. By the end of 2020, 314 patients were managed through this service.

Recognizing the potential of these initial efforts, in November 2020, the management of CardioCare hospital decided to formalize and expand its telemedicine services. This led to the development of a comprehensive platform – CardioCareConnect – featuring a clinical dashboard accessible to healthcare providers and a mobile application for patients. The platform enabled the delivery of teleconsultation and telemonitoring services, allowing periodic measurement of vital signs and the completion of health-related questionnaires.

In the early stages, CardioCareConnect allowed for basic functionalities, such as scheduling teleconsultations through a dedicated calendar. Patients were instructed by nurses to use home monitoring devices to measure their blood pressure, heart rate and other vital signs. This data was then manually entered into the platform's mobile application. The clinical dashboard enabled healthcare providers to analyze data, thereby improving clinical decision-making. It also facilitated the

identification of any anomalies and helped in prioritizing patient visits.

Throughout 2021, CardioCareConnect underwent continuous refinement based on feedback from both patients and healthcare providers. One significant improvement was the integration of wearable devices and implantable medical technologies. Finally, the platform's capabilities were extended to include telemonitoring for additional chronic conditions, like diabetes and respiratory diseases. By the end of 2021, 734 patients were managed through CardioCareConnect.

3.2. Data collection

We contacted CardioCare staff in March 2020. Data collection spanned from April 2020 to December 2021. We mainly relied on 38 in-depth interviews, as depicted in Table 1, and ethnographic data.

Regarding the interviews, we selected informants by comparing data across them, analyzing the findings and identifying new informants based on emerging insights (cf. Melo Brito, 1999). In the very beginning, managers and doctors were considered the main informants. However, we soon realized that nurses were key actors as well. Interviews were conducted in person or remotely. We focused on informants' roles within the telemedicine processes, their tasks and perception, as well as the changes implemented since CardioCareConnect inception. We took care to incorporate a historical perspective by having informants recount their background, their experiences before the implementation of telemedicine, and the evolution of their roles during and after the changes. Interviews lasted on average 45 min (min. 25 and max. 70) and were recorded and transcribed verbatim, except for two cases where only notes were taken.

We also collected ethnographic data for three 8-h sessions. These observations were conducted starting from the second half of 2020, after the initial COVID-19 lockdowns were lifted (1st in October 2020, 2nd in May 2021, and 3rd in September 2021). Due to privacy and ethical concerns, we were unable to observe patient consultations directly. Instead, we focused on internal meetings and day-to-day operations within CardioCare. This allowed us to observe the interactions among healthcare providers, the use of the telemedicine platform and the operational workflows supporting telemedicine services. During these ethnographic sessions, two researchers were present and they were shadowing an external scientific advisor within the organization (Czarniawska-Joerges, 2007), with no actual involvement whatsoever in the advisory process itself. One researcher was responsible for taking detailed notes on the conversations and activities observed, while the other focused on the overall context (Emerson et al., 2011). After each ethnographic session, the researchers confronted their notes to ensure consistency and completeness, discussing their observations to corroborate and complement their data (Emerson et al., 2011).

We also gained access to four key strategy documents outlining the telemedicine implementation steps, as well as organizational and operational details. Additionally, the head nurse, who pursued a PhD in digital health, provided us with her thesis, which was related to her experience within the project.

This case study has been anonymized to protect the privacy of the individuals and the organization involved. Names and specific identifying details have been omitted to ensure confidentiality. This approach was also adopted as part of our research design to enhance the reliability of our findings.

3.3. Data analysis

We performed a thematic analysis informed by Braun and Clarke (2006). Initially, we started with a broad research question, aiming to understand the coordination mechanisms enacted within telemedicine services during the COVID-19 pandemic.

We finished a first round of manual informant-centric coding on interviews, interview notes and two strategic documents at the end of 2020. We grouped codes into higher-level categories, searching for consolidated meaning in data (Saldana, 2015), through the identification of patterns and relationships among codes. Microsoft Excel was utilized in this phase to assist with the process through the application of filters and pivot tables.

As we analyzed the collected materials, it became clear that the data pointed elsewhere with respect to the initial research question. In particular, we noticed that new forms of interdependencies arose after the introduction of telemedicine, which led to new forms of coordination. We also understood that some form of negotiation was taking place among nurses and doctors.

From the first coding cycle, abstraction was leading toward theoretical premises that we had not initially considered. Therefore, we abductively went back and forth between the literature on coordination and on the sociology of professions (Dubois and Gadde, 2002). Subsequently, we refocused the research question, gathered further data throughout 2021, and performed a second coding round. We then performed a third cycle of analysis, which was necessary to find a consistent link with existing theories while ensuring that we had a robust and grounded data structure, consistent with abductive reasoning.

Furthermore, in our analysis, we present doctors and nurses each as cohesive groups to focus on the broader professional negotiations between these two groups. However, we acknowledge that, within each group, individual actors varied in how they perceived and engaged with the technological changes. We chose to approach data by recognizing internal divergences with the identification of emerging patterns of intra-group alignment. Specifically, we assessed the degree of internal cohesion within each group through two main strategies. First, we examined the language used by interviewees, identifying instances where actors spoke in collective terms (e.g., "*we nurses*" or "*doctors do not want to deal with*") as opposed to moments where individual perspectives diverged. Second, we observed interactions during meetings and daily activities to assess how certain positions were reinforced or contested within each group. Although IT staff were mentioned in interviews, usually in reference to their role in enabling the platform's infrastructure, they did not take part in operational workflows or clinical decision-making in any way. For this reason, our analysis centers on nurse–doctor relationships and situates IT within the broader managerial and infrastructural context shaped 'from above' by hospital leadership.

The final data structure is available in Fig. 1.

4. Results

Before the transition to telemedicine, heart failure consultations at CardioCare were primarily overseen by clinicians. The traditional consultation process was highly standardized and routinized, reflecting well-established professional hierarchies. The nurse would welcome patients and prepare them for consultation, the doctor would conduct the anamnesis, review exam results, formulate a diagnosis (for patients who were not diagnosed before), prescribe or confirm therapies, and write prescriptions.

Physicians, nurses and healthcare assistants coordinated their work based on established procedures (which turned, as a matter of fact, into routine practices), proximity and visibility, as they worked closely with one another. Nurses played a supporting role, particularly in managing the patient's journey within the outpatient setting. However, they were never physically present during consultations. Our observations in the outpatient unit highlighted how spatial configurations reinforced these professional boundaries. Nurses moved efficiently among the front desk,

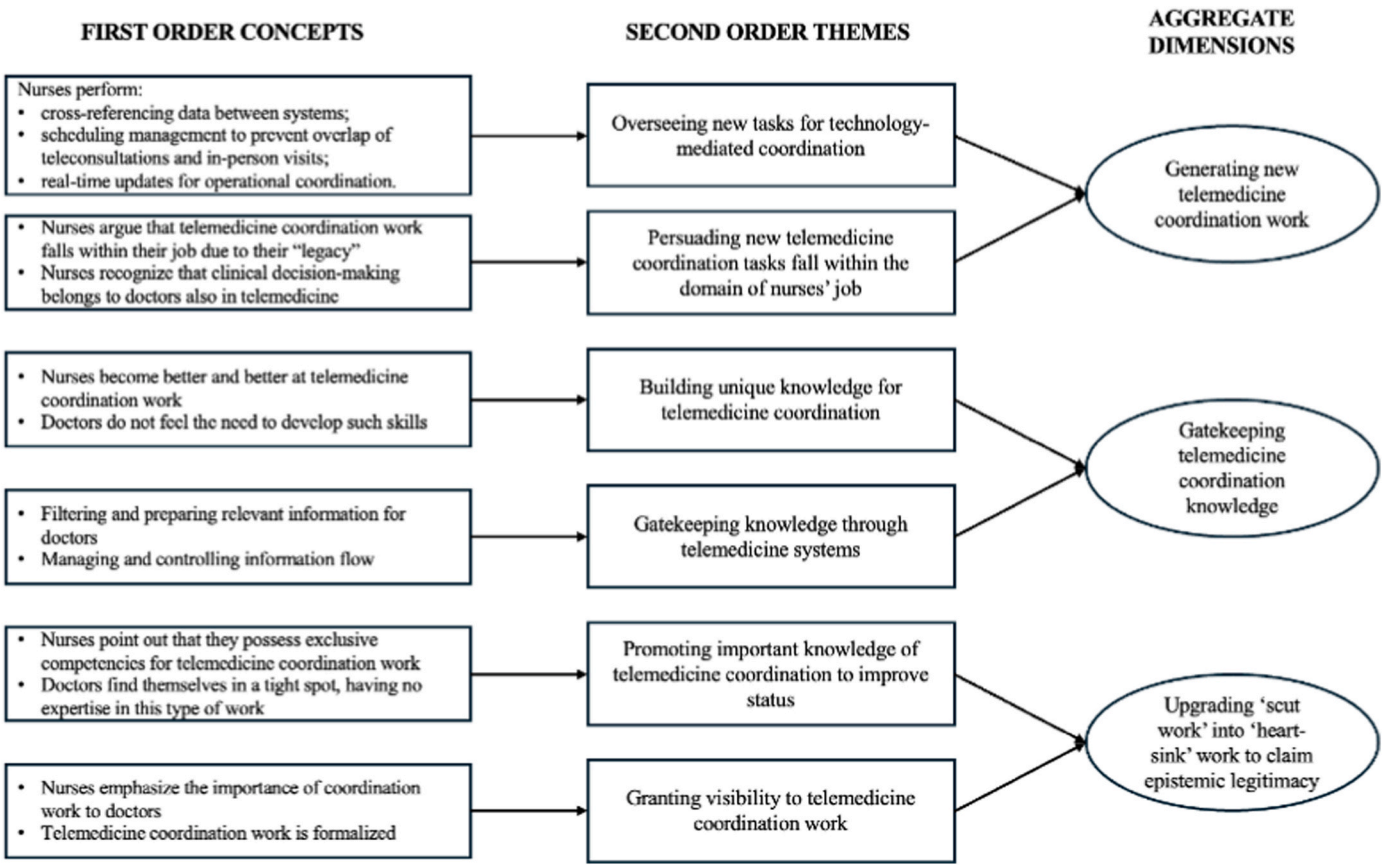

Fig. 1. Data structure.

patient waiting areas and consultation rooms, but their role was explicitly limited to logistical and preparatory tasks. Their engagement with patients was visible yet episodic, ending at the door to the doctor's office. Nurses frequently expressed frustration over this exclusion, particularly when it created inefficiencies in care coordination:

> "We would welcome the patients and sometimes even help them with preliminary questions, but once they were in the doctor's office, we had no idea what happened in there." [Nurse 2, I24][1]

This lack of involvement in the actual medical decision-making process sometimes led to frustration among the nursing staff:

> "We have healthcare assistants to handle the basic chores. Our training and expertise are wasted when we're kept out of the loop during consultations. We could do so much more if we were given the chance." [Nurse 3, I27]

This perception was not just a matter of 'pride', but it also had practical reasons behind it. Nurses often needed at least some medical information to coordinate follow-up care or additional appointments. This included knowing the patient's most recent vital parameters, the stability or progression of symptoms, adjustments in medication and any new recommendations about lifestyle or self-care. However, this information was frequently unavailable to them. As a result, nurses had to rely on patients to obtain this information, which was often provided in an incomplete or inaccurate manner:

> "We tried asking patients what the doctor said after the visit, but most of the time, they couldn't give us a clear answer. […] Of course, this made our work much harder, and we often felt like we were flying blind." [Nurse 2, I28]

It was clear that nurses recognized their capacity to contribute more meaningfully to patient care, particularly in follow-up coordination and managing the continuity of care. The introduction of telemedicine, described below, represented an opportunity for this potential to materialize, as it required new forms of coordination work that naturally aligned with nurses' existing skills and relational position within the unit.

The following sections illustrate how this process unfolded through three sequential mechanisms: generating new telemedicine coordination work (4.1); gatekeeping telemedicine coordination knowledge (4.2); upgrading 'scut work' into 'heart-sink' work to claim epistemic legitimacy (4.3). Taken together, these mechanisms helped render coordination work more visible and clarified nurses' responsibilities and authority over specific information flows within the unit.

4.1. *Generating new telemedicine coordination work*

When telemedicine was first introduced at CardioCare at the beginning of COVID-19, the transition was abrupt. Doctors and nurses reported uncertainty while adapting to the sudden shift to remote consultation. Not only did professionals have to switch to remote working, but they also had to deal with a very fragmented and improvised system of disconnected technologies. Nurses and doctors used instant messaging apps to share patient details, online calendars to schedule appointments, and separate video call software for consultations. This disjointed approach led to several coordination challenges:

> "We were juggling between different apps, trying to keep track of messages, appointments, and video calls. It was chaotic! And we were also very upset by coronavirus on those days." [Head Nurse, I3]

[1] Note: "I" stands for "Interview", which are numerated in chronological order.

This fragmented system created significant gaps, often resulting in information loss or miscommunication:

"Sometimes, I would miss crucial details about a patient's condition because the message got buried in a chat thread, or the patient would forget to mention it during the video call." [Cardiologist B, I6]

Moreover, working remotely, nurses often found themselves acting as intermediaries, selecting, interpreting and transferring information so that it remained accurate and useable between different platforms and providers:

"We had to make sure the doctors had all the information needed before a teleconsultation, and that wasn't always easy." [Nurse 3, I31]

The introduction of CardioCareConnect aimed to address these issues by providing a unified system for gathering and monitoring patient data (vital parameters and health-related questionnaires), scheduling and teleconsultations. This change streamlined processes and reduced the reliance on multiple technologies.

Initially, nurses had to double-check that the patient data entered into CardioCareConnect matched what was previously documented in other systems:

"We spent a lot of time cross-referencing data. It was essential to make sure nothing was lost in the transition." [Nurse 2, I9]

This cross-referencing was not purely clerical but involved resolving discrepancies and deciding which version of the information would be treated as valid for upcoming consultations.

Additionally, the platform's scheduling feature required time-consuming management. Doctors and nurses had to coordinate their schedules to ensure that teleconsultations did not overlap with in-person appointments, which were gradually restored after the initial pandemic months:

"We had to be very careful about our timing. If a teleconsultation ran over, it could delay in-person visits and vice versa." [Head Nurse, I10]

This planning also required anticipating the informational demands of each consultation and aligning them with available clinical and technical resources.

Communication remained a critical issue. The real-time updates provided by CardioCareConnect implied a new 'rhythm' to allow smooth operations in consultation performance while monitoring and managing patients' data:

"For time management, we had to stay on top of notifications and updates from the platform. There was no room for delays because it could have an impact on regular consultations." [Project Manager, I5]

The telemonitoring services were used for decision-making when patients asked for information about symptoms without the need (nor the time) to set a consultation. Moreover, this data was used to improve decision-making before, during and after consultations for triaging, therapy adjustment and follow-up or homecare.

Moreover, nurses had to ensure that patients were adequately prepared for their teleconsultations, which included educating them on how using the telemedicine platform, troubleshooting technical issues and, sometimes, even managing their anxiety about the new technology:

"We spent a lot of time on the phone with patients before their appointments, helping them set up the app and making sure they were comfortable using it" [Nurse 1, I17]

Nurses also found themselves being the first contact point for patients experiencing technical difficulties. This support was essential to ensure that technical problems could not significantly undermine the scheduling of consultations or lead to missing data, which could compromise the quality and completeness of the information available for clinical decisions:

"I felt like a tech support agent sometimes. Patients would call us with issues logging into the system, and we had to help them before they could even think about their health concerns." [Nurse 3, I27]

One doctor described the new workflow:

"Before a teleconsultation, the nurse would review the patient's data, check for any updates or new information, and then brief me before the call. This way, I could go into the consultation fully prepared." [Cardiologist C, I8]

At this stage, nurses reviewed a concise set of indicators from the telemonitoring system, such as recent blood pressure and heart rate values, weight variations, and brief notes on symptom changes, like increased breathlessness or swelling. They combined these with essential updates on treatment adherence or any reported side effects. This ensured that physicians received a focused summary of the patient's status in relation to heart failure management, allowing them to enter the consultation with a clear picture of potential issues. In turn, this new workflow also meant that nurses gained direct access to patients' clinical status, which had previously remained largely beyond their reach.

4.2. Gatekeeping of telemedicine coordination knowledge

As telemedicine consultations became more embedded in daily operations, nurses began exercising control over critical coordination tasks, creating new dependencies between doctors and nurses. Physicians remained responsible for diagnosis and clinical decisions. However, they increasingly relied on nurses to curate and shape the knowledge base for those decisions by filtering, prioritizing and assembling relevant information before consultations. In internal meetings, we observed how nurses framed this shift as a logical extension of their role:

"Doctors substantially keep doing what they did before … behind the screen. That hasn't changed. 'Someone' needs to manage all that comes with telemedicine through […] I mean, very much happens before and after consultations now" [Nurse 2, I24]

Therefore, nurses distinguished between core professional tasks that were still going to be performed by doctors and coordination tasks:

"We started managing the schedules, setting up video calls, and making sure all patient data was entered correctly. This way, doctors can focus on the clinical aspects without worrying about the other stuff." [Nurse 3, I31]

Nurses also realized that controlling the technical and organizational interfaces of telemedicine gave them leverage over the flow, timing and framing of information. By handling the technical aspects related to the coordination processes of telemedicine, they could ensure that doctors received only the most relevant data for their consultations:

"We filter the information and present what is necessary for the consultation. This way, everything ran smoothly, and we avoid overwhelming the doctors with too much data." [Nurse 2, I28]

In practice, this involved selecting, synthesizing and sequencing the data streams produced by the telemonitoring system and other sources. Nurses drew attention to recent measurements of blood pressure, heart rate and weight, as well as to changes in symptoms such as breathlessness or swelling. These elements were combined with short updates on medication use, reported side effects and practical issues mentioned by patients (e.g., difficulties in following dietary recommendations or in operating monitoring devices). The resulting summary was then communicated to the physician before the consultation, thereby establishing the informational frame within which clinical decisions would be made.

They systematically left out (i) raw device logs and transient artifacts (e.g., short-lived disconnections or single-point spikes in weight or blood pressure): unless they recurred or were cross-validated by another measure; (ii) measurements recorded outside pre-agreed time windows or near-duplicates with negligible variation within the same day; (iii) contextual remarks that were not actionable for clinical planning unless they bore directly on adherence, device handling, or symptom reporting.

Conversely, the brief prioritized synthesized trends and deviations from a patient's baseline, pairing biomedical indicators with care-related observations (e.g., sustained difficulty operating the scale leading to missing weights).

This "filter" on information allowed nurses to perform activities that were at the boundaries of what was typically in doctors' domain of control:

> "We sometimes suggest follow-ups or additional checks based on what we saw in the data,". […] It's not about stepping on the doctors' toes, but about making sure the patients get the best care possible." [Head Nurse]

> "By handling the setup and data management, we were always in the loop. We knew exactly what was happening with each patient, and we could prepare everything the doctors needed." [Head Nurse, I19]

Physicians, in turn, became increasingly detached from the technical aspects of telemedicine coordination and, therefore, from the initial work of preparing cases for consultation. In one informal exchange, a doctor admitted:

> "I'm not very good at these things [using digital tools]. I mean, [Nurses' names] set it all up anyway, for me it's enough to manage my email and they will do the rest with the system" [Cardiologist D, I20]

This detachment extended beyond technology. In observed coordination meetings, nurses were the ones raising concerns about teleconsultation scheduling conflicts, data accuracy and workflow efficiency, while physicians remained largely silent unless directly prompted. One notable instance occurred when a nurse raised concerns about potential overlapping consultations due to inconsistencies in scheduling, prompting a brief but revealing exchange:

> "If we don't double-check the scheduling, we risk overlapping appointments again. We need to ensure this is aligned before tomorrow's sessions." [Nurse 1, I17] "Oh … yeah, that makes sense. Just let me know what works best."[Cardiologist D, I20]

This exchange reflected a broader pattern where nurses assumed responsibility for ensuring operational continuity and for structuring the knowledge environment in which telemedicine operated, while physicians distanced themselves from coordination-related tasks.

4.3. Upgrading 'scut work' into 'heart-sink' work to claim epistemic legitimacy

With the introduction of CardioCareConnect, telemedicine was no longer perceived by the hospital unit as a temporary solution associated with the pandemic, but as a permanent change in health services provision. Moreover, the introduction of hospital-level policies legitimized the provision of telemedicine services by explicitly assigning a regionally defined reimbursement system.

This legitimization of the digital technology was accompanied by a gradual formalization of telemedicine processes within CardioCare, which took place in ad-hoc meetings where project managers, doctors and nurses were present. During the first meeting that was attended by us, the Head Nurse explicitly noted:

> "I mean, it's reasonable that [Nurse1], [Nurse2] and [Nurse3] keep doing this … at the end of the day, it's what we always do, anyway. It doesn't change much if there's a platform in between." [Head Nurse, I3]

At this point, they started laying out the cards and making it explicit to doctors that their work was essential in the previous months, even if they did not realize it:

> "We have always been the ones making sure the data is accurate and up-to-date before the consultations. The plate was served already cooked to you [meaning that doctors had everything set up by nurses without even realizing] […] Without us, managing the schedules and data, the system wouldn't run as smoothly." [Nurse 1, I30]

The emphasis here was that this preparation had long been taken for granted. Once surfaced, it counted as a contribution that set the starting point for the clinical exchange.

Initially, discussions about telemedicine coordination largely revolved around technical integration and procedural alignment but, over time, nurses steered these conversations toward the formalization of their role in managing coordination work. Nurses transformed the nature of this coordination work by integrating medical judgment into data management, moving beyond simple administrative tasks to include interpretation of telemonitoring patterns and identification of patients requiring urgent attention. They did so by repeatedly showing how they assembled concise consultation inputs, selecting relevant indicators, checking consistency across sources, and adding brief contextual notes. This evolution entailed a kind of coordination work that required specialized knowledge about heart failure management and patient monitoring, expertise that could not be easily replicated or acquired quickly or easily.

In planning meetings, we observed repeated instances where nurses subtly reinforced their expertise by providing detailed insights into scheduling efficiency, patient adherence to telemonitoring and the integration of teleconsultations into broader care pathways. A hospital administrator, responding to one of these exchanges, acknowledged:

> "It's clear that the telemedicine process is being shaped by those who use it daily. We need to recognize that nurses have become the operational backbone of this system." [Administrator, I12]

In one observed planning session, a debate arose regarding the allocation of new resources for telemedicine expansion. Physicians initially suggested that IT staff should take on a more significant role in managing patient data entry. However, a group of nurses quickly opposed this proposal, arguing that keeping oversight close to care would preserve the accuracy and clinical relevance of what reached the consultation:

> "We're the ones ensuring that the data is correct and clinically useful. If we pass this off to IT, we'll have to double-check everything anyway. It makes more sense for us to maintain oversight." [Nurse 2, I24]

The proposal was quietly set aside, with the idea that this preparatory work was merely administrative. As the sophistication of nurses' coordination work became apparent, physicians began expressing a different perspective on these responsibilities. Rather than viewing coordination as mundane administrative work, they began recognizing it as requiring specialized expertise that they themselves lacked the time to develop. In informal conversations afterwards, physicians suggested a more layered reading of this redistribution of tasks. Several physicians admitted that the coordination now demanded specialized expertise beyond what they had initially anticipated or developed. One cardiologist reflected:

> "I have to admit, what they're doing with the data integration and patient monitoring … it's become quite sophisticated. I wouldn't even know where to start if I had to take this over myself. They've [referring to nurses] developed a whole system of knowledge around this that would take me months to understand, and frankly, I don't

have that kind of time to invest in learning it now." [Cardiologist A, I33]

Others described the nurses' briefs as useful starting points, while mentioning that they sometimes reviewed the underlying data when something seemed inconsistent. A few physicians expressed that they had arrived too late to develop this type of expertise, with one noting that nurses had become so proficient that any attempt to redistribute the work would likely result in reduced quality and efficiency.

Nurses' assertion culminated in an official designation: nurses were formally recognized as case managers within the telemedicine program, responsible for scheduling teleconsultations, managing telemonitoring data, establishing priority for consultation and, sometimes, whether the consultation should be held in person or remotely:

> "This way, cardiologists can focus solely on clinical activities, and they will not lose human contact with patients, because they will come to the hospital at least once a year." [Project Manager, I5]

> "I would not say that I can see more patients this way [i.e., through telemedicine], but I can say that patients like these services and that I can do a better job with them. It's just a few of us [cardiologists], so we cannot use so much time in bureaucracy" [Cardiologist E, I22]

This case manager role evolved to encompass both the digital platform activities and the traditional ward coordination, with no clear boundary between the two. As the service matured, what initially appeared as separate 'online' telemedicine tasks became fully integrated into the daily workflow of the unit.

As part of these tasks, nurses prepared what information to be entered into the consultation space. The data they assembled combined indicators linked to the biomedical management of heart failure, for instance, variations in vital signs or symptom patterns, with elements that reflected the patient's capacity to manage their condition in daily life – such as medication-taking practices, difficulties with monitoring equipment or the presence of family support.

Bringing these elements together as a short brief meant that consultations started from a shared picture rather than from raw entries. By bringing these 'care' observations alongside 'cure'-oriented clinical measures into the same preparatory workflow, nurses widened what counted as relevant input for the encounter and influenced the way treatment trajectories were shaped in a domain that, in the pre-telemedicine setting, had been almost entirely defined by physicians' in-person assessments.

The formal 'case manager' label also gave a name and a place to work that had previously remained unnamed, helping move it from something assumed to something recognized.

5. Discussion

This study presents how nurses can leverage the appropriation of new coordination tasks in a telemedicine system to improve their visibility and status. Through Allen's (1997, 2014, 2018) concept of invisible organizing work, we argued that nurses do not necessarily improve their visibility and status by appropriating new essential tasks for healthcare delivery. Disadvantageous epistemic politics might render this new work invisible and unrecognized, with even a potential for status loss (Doing, 2004; Kuijper et al., 2024). Hence, nurses need to enact relational and/or epistemic work to legitimize themselves through the new work. Our findings suggest that nurses, in our case, engaged in a form of *stealth work* (Schou and Nesheim, 2024).

The concept of 'stealth work' indicates a peculiar form of relational work that professional groups enact to advance their influence in processes of care, without entering any direct collaboration, negotiation or conflict with others, e.g., physicians (cf. Bharatan et al., 2022; Schou and Nesheim, 2024). Through stealth work, a lower-status professional group (e.g., nurses): (i) works 'in the shadows' to accumulate tasks without the intrusion of more powerful groups (e.g., physicians); (ii) reveals its jurisdictional claims when the more powerful groups are unprepared for negotiation. In our case, nurses worked stealthily by: (i) appropriating invisible tasks, i.e., when other professional groups regarded them as scut work; (ii) developing unique expertise through gatekeeping other professional groups; (iii) promoting their expertise once it became 'heart-sink knowledge' for physicians (i.e., expertise that physicians now wished to possess, but did not have time to).

Our findings resonate with, but also differentiate from, traditional claims in the sociology of professions. This literature frequently notes that any professional group needs to claim unique knowledge and buffer competing professional groups to expand their task jurisdictions (Abbott, 1988; von Nordenflycht, 2010). Our results resonate with this claim, as nurses worked to develop a unique expertise in the domain of telemedicine coordination, while gatekeeping others. However, this literature also notes that: (i) conflicts, negotiations and/or collaborations ensue when multiple professional groups (e.g., physicians, nurses) claim the same task jurisdiction (Huising and Pakarinen, 2025); (ii) a dominant group (such as physicians) uses their hierarchical influence to buffer other groups. Instead, our findings show how a lower-status professional group, such as nurses, could use stealth work to annul normal hierarchical relationships, at least temporarily. So, instead of simply inheriting additional tasks without corresponding authority (a pattern documented in previous studies of digital health implementation (e.g., Kroezen et al., 2014; Leenen et al., 2024; Lundereng et al., 2023; Nicolini, 2006; Vaughan et al., 2024), nurses curated, staged, and circulated evidence in ways that shaped the informational foundations of clinical decision-making and made their organizational knowledge consequential to care.

We can also frame our findings through the lenses of epistemic politics, i.e., nurses improved their role and visibility because they legitimized their knowledge, from appropriating 'scut work' to developing 'heart-sink work'. The term 'scut work' is typically associated with menial tasks that high-status professionals do not want to perform because it does not display their expert knowledge to patients (Huising, 2015). Coordination work is often framed as auxiliary to care (Allen, 2014; Huising, 2015), so the knowledge gained through this work is undervalued or overlooked by higher-status groups (Fricker, 2007). Nurses appropriating 'coordination' tasks are thus unlikely to gain respect from higher-status professionals, as the underlying knowledge required to perform these tasks is not properly respected. Hence, nurses made an essential move in making 'coordination' a heart-sink responsibility. The term 'heart-sink' is traditionally associated with patients, i.e., patients who "*exasperate, defeat and overwhelm their doctors by their behaviors*" (O'Dowd, 1988, p. 528). We regard coordination as a form of 'heart-sink' work, i.e. requiring knowledge and effort that would exasperate, defeat and overwhelm physicians, if they took primary responsibility for its enactment. Like scut work, 'heart-sink work' is not directly appealing to high-status professionals. Unlike scut work, 'heart-sink work' is understood as highly valuable and involving significant expertise. Hence, it is a kind of work that nurses can appropriate without triggering any conflict with physicians *and* it involves visible and respected knowledge. So, more than having a 'unique' knowledge base through gatekeeping, nurses made that knowledge base valuable in the eyes of the physicians. They did so by reconfiguring what counts as evidence, how it is formatted and sequenced and whose interpretations travel across decision points (Doing, 2004; Kuijper et al., 2024).

Overall, our case illustrates how nurses might need to combine a form of relational work, such as 'stealth work', to reduce the status gap when seeking legitimation, intertwined with a form of epistemic work, which renders the underlying organizational knowledge more visible and respected.

6. Conclusions

This study contributes to multiple streams of literature. First, it extends research on the relationship between nurses and physicians by

highlighting how the former can use telemedicine as leverage to expand their role beyond caregiving, and into formalized coordination work (Agreli et al., 2021; e.g., Allen, 2014, 2018; Frennert et al., 2023; Knop et al., 2024). Combining insights from the sociology of professions and from epistemic politics, we show how nurses enacted relational work (in the form of 'stealth work'), to reduce the status gap with physicians, and epistemic work, to legitimize the initial 'scut' knowledge into 'heart--sink' one. So, while prior studies have documented how nurses take on additional tasks related to digital health technologies (Agreli et al., 2021; Frennert et al., 2023; Nicolini, 2006; Oudshoorn, 2009), we illustrate how nurses worked to assert professional legitimacy in ways not previously documented. In contrast to much of the existing literature, where technology-enabled role changes for nurses have been portrayed as temporary, peripheral or even burdensome (Bergey et al., 2019), our case shows a sustained and institutionally recognized improvement in their professional position. Contextually, this reduced a 'credibility gap' around coordination in telemedicine processes that previously had little standing (Doing, 2004; Fricker, 2007). We also show that this coordination role enabled nurses to shape the informational basis of clinical decision-making, through the filtering and integration of data gathered via telemedicine.

More broadly, our study contributes to our understanding of how lower-status professionals in healthcare can improve their visibility to higher-status professionals without resorting to active contestation (cf. Abbott, 1988; DiBenigno, 2020; Kellogg, 2022; Langley et al., 2019). We show how these professionals can actively exploit their lower-status by appropriating work that others consider peripheral. The case of telemedicine illustrates how lower-status professionals can consolidate expertise not by 'directly' challenging professional hierarchies, but by embedding themselves in essential but neglected areas of digital work and by integrating their knowledge practices into organizational routines in ways that reconfigure informational boundaries, producing positive consequences for their status – an insight that may extend to other fields undergoing digital transformation (Huising, 2015; Schou and Nesheim, 2024).

Our research is methodologically supported by a longitudinal inquiry and a combination of interviews, ethnographic and archival data, which were fundamental to capturing the moments of change that characterized our case. However, we still face the typical concerns of qualitative studies pertaining to generalizability (Dubois and Gadde, 2002; Welch and Piekkari, 2017; cf. Bishop and Waring, 2019). This inherent limitation opens the possibility of challenging our findings by investigating other settings and exploring other tactics through which technology is exploited by lower-status professionals for jurisdictional claims.

Future research could also explore how such coordination-based epistemic contributions are valued, or remain invisible, in different institutional contexts, and how testimonial and interpretive asymmetries shape the ability of lower-status professionals to have their knowledge acted upon. The scope of future research could encompass different professional or occupational groups or even between occupational groups and non-human agents. This would also contribute to the debate on AI-induced 'task re-shuffling' and its implications for lower-status professionals. Moreover, it could be interesting for the current discourse to explore in more depth how the introduction of digital technologies (and, particularly, the newest algorithmic ones) differ with respect to other types of artifacts that were previously studied in the literature (e.g., Bechky, 2003) as opportunities for professional claims.

7. Ethics statement

The study adheres to the principles outlined in the Declaration of Helsinki and fulfilled the following research requirements: information, consent, confidentiality, and participant safety. Ethical approval for the research was not formally required under Italian law, as no personal or sensitive information was handled. Each participant received written information encompassing the study's objectives and inception, outlining their role in the study, clarifying the collection of exclusively anonymous data, and delineating the methods for data collection and storage. They were also informed about the voluntary nature of participation, confidentiality, and the option to withdraw their consent at any point, without the need for justification.

CRediT authorship contribution statement

Mattia Vincenzo Olive: Writing – original draft, Methodology, Investigation, Data curation, Conceptualization. **Luca Gastaldi:** Writing – review & editing, Supervision, Conceptualization. **Giovanni Radaelli:** Writing – review & editing, Supervision, Methodology.

Data availability

The data that has been used is confidential.

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