
# Advancing relational primary healthcare: Four triadic components of the digital face-to-face professional service encounter

European Management Journal 44 (2026) 87–98

Contents lists available at ScienceDirect

European Management Journal

journal homepage: www.elsevier.com/locate/emj

# Advancing relational primary healthcare: Four triadic components of the digital face-to-face professional service encounter

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ARTICLE INFO

*Keywords:*
Primary healthcare
Professional healthcare services
Digitalization
Relational approach
Interactive research
Concept mapping
Professional service encounter

ABSTRACT

*Purpose:* Primary healthcare service delivery prioritizes person-centricity and relational values such as equality and continuity. The emergence of technology has enabled digital face-to-face (D–F2F) service encounters between patients as end-users and physicians as professional care providers, which calls for a renewed understanding of relational approaches. To that end, the study investigated the perceptions of three groups of actors—patients, physicians, and first-line managers—of D–F2F service encounters in order to capture key aspects that can enhance relational primary healthcare in the era of digitalization.
*Design/methodology/approach:* We adopted an interactive research design following a multi-actor approach and conducted conceptually and empirically informed concept mapping of the key actors in the primary healthcare service triad: patients with chronic, long-term needs, physicians, and first-line managers.
*Findings:* From seven clusters capturing what D–F2F service encounters between patients and physicians mean, we derived four triadic perspectives that capture how relational primary healthcare can be advanced: "continuity," "person-centered," "interaction quality," and "developability."
*Research limitations/implications:* Despite high volumes and heterogeneity of end-users, primary healthcare requires a relational, person-centered perspective when it comes to healthcare delivery. Other sectors such as energy and automotive that are undergoing digital transformation and pursue an end-user's perspective can draw on the relational principles developed in our study. Our findings also raise questions about potential conflicts between end-users' service co-creation and providers' professional boundaries.
*Originality:* This paper presents a relational, multi-actor approach to the digitalization of a professional service encounter in primary healthcare. We propose a set of conditions conducive to taking a relational approach to D–F2F relationships.

## 1. Introduction

Digitally infused service advancement of primary healthcare delivery is driving a transformative shift from conventional face-to-face service encounters toward digital modes of healthcare delivery such as telehealth (Go Jefferies et al., (2019), virtual consultations (Campbell et al., 2023), and even patient-initiated AI-based solutions (Neves et al., 2024). Traditionally, primary healthcare has involved a decentralized mode of care delivery, which is highly reliant on close interactions between professional physicians (providers) and patients (as end-users). As an interface between these two actors, the service encounter has predominantly been an intensely interpersonal, people-intensive process. The emergence of digital care delivery interfaces has resulted in significant shifts in boundaries that define patient–physician service interactions (Gummerus et al., 2021; Johnsen et al., 2021). The present paper explores these changes from a relational perspective, focusing on the emerging modes that integrate digital face-to-face (D-F2F) modes in primary healthcare service encounters.

The growing role of technology and digitalization in enhancing service offerings is widely recognized. Service innovation literature (Kowalkowski et al., 2024; Vargo et al., 2024) has conceptualized the digital-service innovation intersection and suggested future directions, albeit with limited sector-specific implications. Recent studies on the servitization of industrial manufacturing (Matt et al., 2023; Vandermerwe & Erixon, 2023) and public sectors such as healthcare (Breen et al., 2020; Kraus et al., 2021) have highlighted relevant managerial

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https://doi.org/10.1016/j.emj.2024.11.009
Received 26 October 2023; Received in revised form 28 November 2024; Accepted 29 November 2024
Available online 30 November 2024

implications of the technical development. Specifically, Matt et al. (2023) advocated more "conceptual nuances," where the complexity of healthcare provides an interesting empirical context for theorization. A variety of digital technologies are increasingly being in primary healthcare, ranging from medical imaging and electronic medical records to portable devices and telemedicine (Marques & Ferreira, 2020). The COVID-19 pandemic accelerated the adoption of online healthcare services, based on greater use and faster uptake of telemedicine and patient-initiated digital services (Neves et al., 2024). For certain medical conditions, virtual consultations are even regarded as equally as or more effective than the traditional face-to-face service encounters (Campbell et al., 2023). Furthermore, digital transformation in healthcare has distinct implications for management and organization, calling for more research into factors ranging from the provider's operational efficiency, organizational factors, and workforce practices to more patient-centered approaches to wider socio-economic aspects (Kraus et al., 2021).

Although the uptake of digital technology such as digital consultations, telemedicine, and e-health has accelerated significantly since the beginning of the COVID-19 pandemic (Johnsen et al., 2021), empirical insights into and conceptual understandings of relationships that combine digital and F2F remain limited. One area that requires further attention is how digital technology will have long-term impact on the future delivery of primary care (Salisbury et al., 2020), especially how it *changes the way professional healthcare services are delivered* (Bavfa and Terwiesch, 2019): that is, the service encounter as an *interface* between physicians and patients. Another issue of concern is how the people-insensitive relational approach is being challenged by digital and connected technology, *which is expected to reduce the F2F, synchronous interaction* between patients and physicians (KC et al., 2020). While this development can reduce waiting time for primary care service, its impact on clinical safety and increased inequality of care asses is not well understood (Campbell et al., 2023). Yet another hindrance is *the limitation of digital modes, which leads to transactional rather than relational interaction* in the service encounter. Experience from digitalization in Sweden has shown that criticism of digital primary care services is *focused primarily on simple ailments that are well-suited for self-care.* However, efficiency gains and the possibility of increased patient-centricity afforded by digital–physical healthcare are probably greater for patients with complex needs and with a greater need for continuity than the general patient population (SOU, 2019, p. 42). This divergence between digital interfaces and personal interaction is further fueled by healthcare policies. Internationally, the World Health Organization (WHO, 2018) highlights *continuity* of healthcare and relationships of healthcare professionals with patients as being pivotal to achieving integration people-centered health services, as well as building strong primary healthcare systems. The use of different forms of telemedicine is mentioned as an enabler, without detailing how. Similarly, in Sweden, the empirical context for this study, national healthcare policies have emphasized various shifts, in which a key enabler for the transition is combining digital and physical, in-person service encounters (Westerlund & Marklund, 2020). Previous studies on primary healthcare and digital transformation have focused strongly on a single-actor perspective and primarily addressed the use and suitability of digital technology. In this respect, we follow the call in the literature on digital service innovation (Vargo et al., 2024) and digitalization of healthcare services (Hvidt et al., 2021; Kraus et al., 2021) for a better understanding of the perspective of multiple actors engaged in digital transformation in healthcare. Given that advancement of services is not only bound to the immediate actors of the service encounter, a provider and end-user, we use the logic of service triads (Wynstra et al., 2015) to extend predominant conceptual boundaries to include managers also. Digitalization of professional services and interactions between actors is an emerging phenomenon (KC et al., 2020). First-line managers in primary healthcare are service providers responsible for ensuring that digitalization creates favorable conditions for physician–patient interactions. Against this background, this we present a relational approach to the digitalization of professional services and their delivery in primary healthcare. Our aim was to investigate the perceptions of three groups of actors—patients, physicians, and first-line managers—of D–F2F in order to capture key aspects that can enhance relational primary healthcare in the era of digitalization. The underlying research question is forward-looking: What does a well-developed digital and physical service encounter entail for you?

To identify conditions conducive to adopting a relational approach, we employed an interactive mixed-methods approach. Seven categories were analyzed to explore what D–F2F interactions between patients and physicians would mean for patients, physicians, and first-line managers in primary healthcare. Based on the empirical results and theoretical framework, we developed a set of four triadic perspectives on how relational primary healthcare can be advanced: continuity-centered, person-centered, interaction-quality-centered, and developability-centered. By extension, sectors undergoing digital transformation and pursuing an end-user perspective can draw upon the principles developed from our findings. Based on our results, this paper makes four major contributions. First, it conceptualizes healthcare as a professional service, where digitalization shapes provider operations and the patient–physician interaction and empowers the patient. Second, it offers insight into tensions in the relational approach for digital primary healthcare services. A distinction is made between *interface* (technological modes) and *interaction* (between people), and these are presented as a continuum rather than as distinct categories. Third, along those lines, our results question the coexistence of single-actor (physician) professional services with the multi-actor co-creation of such services if the goal is to advance D–F2F-based relational primary healthcare; in the digital and connected service system, the "professional" is a *multi-actor phenomenon*. Finally, our interactive research design, based on a multi-actor perspective with the triadic concept as an analytical construct and the analysis of empirical data from all actors, strengthens our claim that the *results have been co-created following a relational approach.* To this end, the traditional dyadic *service encounter is extended by the inclusion of first-line managers* who provide favorable conditions for the design and development of the digital professional service encounter.

In the following sections we review the literature on primary healthcare and digitalization as well as health service operations and the management of service relationships. We then describe our study's design and methodology, present our results, and discuss them. We conclude the paper by articulating the implications of the results.

## 2. Theoretical building blocks

Given the digital, relational, and transformational nature of this study, we follow Kraus et al.'s (2021, p. 557) view of healthcare as "all services that medical professionals deliver to preserve people's physical and mental wellbeing." The theoretical foundation of the present study is based on a broad view of public service improvement (Breen et al., 2020), and follows Vargo et al.'s (2024) view of digital service innovation as rooted in a "combinatorial evolution." This means that technical artefacts that provide, say, audio, video, and connectivity only become technology when they are institutionalized—that is, combined and re-combined through actors' collective and co-creative efforts—-which in turn enable new resource integration and co-creation processes.

The theoretical framework, which aids data analysis across the seven clusters and discussion of results, was developed from a structured review of the literature on digitalization in primary healthcare, which primarily offers a view of different modes of digital interfaces, including their benefits and drawbacks. We base our structured review of the literature on primary healthcare and digitalization on a search in PubMed for a combination of three keywords or their synonyms in the titles or abstracts of articles in the database: "primary care," "relationship," and "digital." Two members of the research team assessed and scored 260 articles dated from 1996 to 2024 regarding their relevance to

D–F2F interactions. Of those articles, 29 were especially relevant to our topic. To complement this search, the service marketing and management literature was reviewed to provide a theoretical underpinning on actors, their interactions, and how these are embedded in the organizational structure of a service encounter, which is extended by the triadic concept. Finally, we review the digital services literature, with particular focus on healthcare as context and innovation and development of services as a managerial challenge. For this study, the review is structured around the four theoretical building blocks shown in Fig. 1.

### 2.1. Primary healthcare services: professional, person-centric, relational, and accessible

To better understand the service offer that is under investigation, it must be understood with respect to key contingencies in the primary healthcare context. Three such distinctions are identified here.

*A professional service:* One development in the literature is the categorization of services as "professional." Among these, healthcare services are regarded as highly profession-dependent (Frangeskou et al., 2020), based on professional knowledge of the physician applied in a client relationship to a client's problem (Alvehus, 2021), and hence having high human labor intensity. This inter-personal and interactive feature is put into further perspective since new digital technology is regarded as an enabler of improvement of inter-personal interactions and paves the way for "connected healthcare" (KC et al., 2020), extending the way in which care is delivered. While the extant literature is built on digital modes of interaction, this is less understood with respect to highly specialized professionals, who in terms of knowledge-based power have an asymmetric relationship with their clients (Alvehus, 2021).

*A person-centric service:* Healthcare policies (such as those of WHO and national governments) emphasize the person-centricity of care offering. Despite calls for a better understanding of participatory service design that integrates the patient's perceptions and feedback into the decision-making process through services modes such as telemedicine (Go Jefferies et al., 2019), and for more patient-centric approaches (Kraus et al., 2021), the implications of digital technology that transforms healthcare are still predominantly provider-centric and concern "healthcare organizations" (Kraus et al., 2021).

*A relational and accessible service:* Access and continuity are core determinants of service delivery and have contributed to the health and performance of the health system (Kringos et al., 2010). Medical encounters are built on trust and responsibility, two features that also characterize relational continuity. In the present study we build on *relational continuity* (Salisbury et al., 2009), also called *interpersonal continuity* (Saultz, 2003), which concerns patient–physician relationships. Continuity has many definitions and has been conceptualized in different ways (Uijen et al., 2012). Saultz (2003) developed a hierarchical model in which interpersonal continuity is the highest level and presupposes an ongoing relationship between patient and provider, thus a relational continuity (Haggerty, 2003). Many studies have shown positive effects of continuity (Dyer et al., 2022), such as fewer hospitalizations, reduced healthcare costs, and patient satisfaction. Relational continuity presupposes a relationship, but continuity is not required for a relationship to exist. Thus, relational healthcare is broader than the concept of continuity. The present study answers what relational primary healthcare implies as healthcare becomes increasingly digital.

### 2.2. Digital services in healthcare organizations

In a relational provider–client setting, digitalization goes beyond the mere communication and exchange of information between service providers and customers such as end users (Kraus et al., 2021). Another potential area for the digitalization of services is the enhancement of cognitive–analytical skills, but at the cost of emotional and social skills (Wirtz et al., 2018). In a people-intensive service context such as healthcare, the service design must be human-centric to release the potential of integrated and technology-enabled customer offer (Patricio et al., 2020). While much digitalization of the service literature concerns service offering itself as the unit of analysis, the healthcare context lends itself to what Singh et al. (2023) called "organizational frontlines"—the intersections and interfaces that connect organizations and their customers. Below, we build on this as user *interface* in broad terms as the medium for contact between the customer and the organization.

*Digital modes:* Although service encounters rely heavily on human-to-human interactions and relational continuity, new digital technology provides new opportunities for the increased participation of end-users and the improved continuity of service provision (Wünderlich et al., 2013). The current literature takes a broad view of technology and what *digital* means, embracing the terms *video consultation*, *email*, *telephone*, *telemedicine*, *chats*, *telemedicine visits*, and *mobile health apps*, as well as *e-health* and *virtual care* (Hvidt et al., 2021). Marques and Ferreira

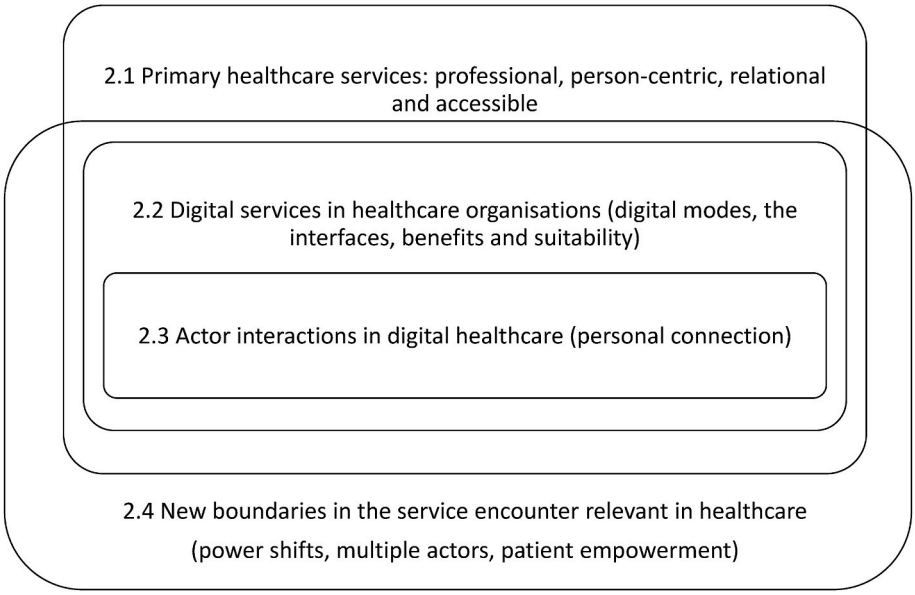


**Fig. 1.** Theoretical buildingblocks

(2020) reviewed 45 years of literature on digital technology in healthcare and found seven areas of research, ranging from provider-centric devices such as medical images and electronic records to more user-oriented features such as access to E-health, telemedicine, and portable devices. More recent studies have reported on similar modes, with some updates on more patient-oriented interfaces such as remote triage and patient-initiated services (Neves et al., 2024) and direct-to-consumer healthcare artificial intelligence apps (He et al., 2023). This development generally reflects a shift in focus from the actual technology used face to face to a transition to virtual care (He et al., 2023).

*The interfaces:* These interfaces offer one-way communication as well as more interactive methods of communication in which actors meet digitally. In another variant, technology is also available for non-real-time tasks such as collecting patients' information, such as remote triage (Neves et al., 2024); this is evidence of how digitalization extends person-centered care into self-services. Mirroring this in the digital service innovation literature and categories of enabling technologies therein (Kowalkowski et al., 2024), the Internet of Things and digital platforms have both already been used by the studies referred to here, as has, more recently, intelligent automation such as patient-initiated services. Digitization and connected health are expected to change clinical workflows and healthcare delivery in that F2F contact between physicians and patients will be reduced (KC et al., 2020). This does not mean reduced services, but rather a change in their interaction. By digital technology such as wearable devices, patients are empowered to become more active decision makers in actual service delivery (Kraus et al., 2021).

*Benefits and suitability*: Another observation on the state of current knowledge has been made by studies that examine patient experience of the use of digital technology and its suitability (Gomez et al., 2021; Hammersley et al., 2019; He et al., 2023; Johnsen et al., 2021; Thiyagarajan et al., 2020; Waschkau et al., 2020). Interactive digital technology such as video consultation and telemedicine visits, which allow two-way communication and user participation, are often used for standardized operations such as counseling and discussion (Gomez et al., 2021). Although such visits increase access, they may exclude groups of patients (Gomez et al., 2021) and are seen as being especially suitable for simple problems that do not require physical examination (Gomez et al., 2021; Hammersley et al., 2019). Thiyagarajan et al.'s (2020) findings indicate that both patients and providers prefer F2F visits due to the many drawbacks of care provided remotely. Due et al. (2021) investigate both relational and technical limitations and generate similar findings, particularly that video consultations are viewed as being suitable for a limited range of relatively simple tasks and targeted consultations, including check-ups for chronic disease, follow-ups about test results, and adjustments to medication, but without the opportunity to identify unmentioned symptoms.

### 2.3. Actor interactions in digital healthcare

Several studies have indicated that physicians need to maintain a strong sense of human touch in tech-mediated services, including those provided by apps (Daskalopoulou et al., 2019), which suggests that the connection is even stronger in healthcare. Another theoretical building block is interactions, which in the context of organizational frontline entail actions, communications, and processes in the contact between customer and the organization (Singh et al., 2023).

*Personal connection:* The literature strongly emphasizes a model based on F2F interactions and relational continuity (Johnsen et al., 2021), insofar as digital deliveries need to be built upon already established relationships and initial patient–provider interactions need to be F2F (Hiratsuka et al., 2013; Thiyagarajan et al., 2020). Further, for services to be effective, digital service delivery needs to be built upon pre-existing in-person relationships and prior knowledge of patients gained from in-person meetings (Javanparast et al., 2021; Mueller, 2020). Going even further, Hiratsuka (2013) identified two fundamental elements for creating an acceptable model of telemedicine: initial F2F visits and having the same provider at follow-up visits. Knowing patients beforehand is crucial for understanding urgency in video consultations (Due et al., 2021). Gomez (2021) even described a "loss of personal connections and touch" during telemedicine as bothering physicians—although personal contact has also formed the backbone of physician–patient relationships—and noted that general practitioners fear the dehumanization of relationships with the introduction of health apps (Sarradon-Eck, 2021). Concerns and uncertainties regarding healthcare services provided remotely have been identified, including uncertainty about changes in vital patient–physician relationships (Kelly & Gormley, 2020) and declining continuity (Bergman et al., 2020).

### 2.4. New boundaries in the service encounter relevant in healthcare

Digitalization shapes not only the interaction but also the boundaries between the actors in the service encounter through a shift in professional boundaries and the balance of power and empowerment of the patient. Three indicators of shifts are highlighted below.

*Power shifts:* From a service point of view, new technology extends value co-creation, which casts the firm or service provider in a new role in knowledge-intensive service systems (Breidbach et al., 2018). In that sense, actors' roles and identities are not static but co-evolve in service systems such as healthcare (Gummerus et al., 2021). An example of a shift in the power balance is through increased self-service, such as patients performing triage on themselves using mobile apps (Verzantvoort, 2018). One study even showed that telemedicine will change the relationship between physicians and patients (Waschkau, 2020).

*Considerations of multiple actors:* Service operations and delivery are inseparable from the relationship, or interaction, between the actors involved in their creation (Grönroos, 2011). For interactive service operations (Delene & Lyth, 1989), the service triad constitutes an organizational structure in which relationships and interactions are embedded (Wynstra et al., 2015). In the present study, the concept of the triad sets both conceptual and empirical boundaries for the data collection and analysis. Given the patient-centered focus of primary care, it has been suggested that the empirical context can benefit from a service logic, especially one that views co-creation as a process involving the dynamic integration of resources between actors (Ciasullo et al., 2017). Apart from a few contributions that have described both the patients' and the professionals' perspectives (e.g. Hiratsuka, 2013; Thiyagarajan et al., 2020; Atherton, 2018; Hammersley et al., 2019; Hvidt et al., 2021; Neves et al., 2024), the literature is dominated by a single-actor perspective, predominantly one in which physicians represent professional providers. Consequently, a micro-level, multi-actor perspective that includes others who interact with physicians and/or patients is largely absent. The present study extends this view by including first-line managers, who act as enablers of organizational development but are often invisible in dyadic service encounters. The concept of patient-centricity calls for the customization of the service offer, which is the responsibility of managers at the providers' end (Minvielle et al., 2014). Roy Chowdhury et al. (2014) argue that consumers' adoption of tech-facilitated services, including those in telemedicine, requires managers to ensure that employees in service-related jobs pursue both relational and task-oriented activities. That argument strengthens the reasoning that managers must participate actively in developing digital care in order to create the favorable conditions for the service encounter.

*Patient empowerment:* The described balance between human touch and tech-mediated service encounters also creates tensions. For instance, Davey and Grönroos (2019) have identified tensions within trends of patients' empowerment and stated that service providers need to recognize their expertise in patient care in terms of service literacy. In turn, they have proposed a managerial focus on incentivizing continuity and building relationships, rather than prioritizing patient throughput,

in order to achieve a shared understanding of health service literacy. More recently, Groven et al. (2021) described tensions between different actors in a transformative system, such that when all needs are met, balanced centricity arises. That view suggests that healthcare's digital transformation needs to involve providers that meet the psychological needs of all actors in order to achieve actor–network well-being. Managers play a central role in that transformation.

## 3. Method

The present study was set in the Swedish public primary healthcare system, whose decentralized structure includes local units close to patients that offer long-lasting contact with physicians. Policies stipulate person-centered healthcare, and service thinking is manifested in the patient's freedom to choose among providers (SFS, 2017:20). In the present study, following an interactive, participatory research design (Elg et al., 2020; Ellström et al., 2020) and research *with* rather than *on* participants, data collection and analysis were guided by concept mapping (McLinden, 2017; Vaughn & McLinden, 2015). Concept mapping is an interactive mixed-methods approach that elicits diverse perspectives and follows recommendations made based on the recent experience of a community, including those of healthcare workers (Hargett et al., 2017; Smith et al., 2019) and academics (Bäckstrand & Halldórsson, 2019). Here, "participatory" refers to active engagement of respondents further into the research process. Conventional qualitative research designs involve interacting with participants primarily via data collection (such as interviews) and, to some extent, the interpretation of perceptions (focus groups, for example). In contrast, in concept mapping participants actively engage in data analysis by sorting (corresponds to coding) responses, suggesting labels (that is, names of categories) of the groups they create, and reflecting upon the structured maps (clusters) generated.

### 3.1. Empirical scope and context

Empirically, we followed WHO's (2016) view on primary care concerning "first-contact, accessible, continuous, comprehensive and coordinated person-focused care," where the patient meets professionals in general medicine (general medical practitioners) for "medical examinations, care and treatment of most common conditions and illness" (Socialstyrelsen, 2020). Compared with other professionals who provide or support care services, such as pharmacies, community providers, and the third sector supporting social care, our focus was on the professionals who meet WHO's criteria and have the greatest responsibility and highest level of authority for medical examination and assessment. To this end, the community examined was the triad of patients, physicians (general medical practitioners), and the physicians' first-line managers.

Following our interactive research design, we purposively selected respondents in Närhälsan in Region Västra Götaland, an organization at which one of the authors of this paper was a second-line primary healthcare manager for 12 primary healthcare centers. This collaborative approach allowed recurrent interactions and joint learning between the researchers and practitioners (Ellström et al., 2020).

The Swedish Health Care Act stipulates that everyone who is covered by the region's responsibility for healthcare can choose the provider of their healthcare services and choose and have access to a permanent doctor. This is known as the healthcare choice system. The organization investigated here, Närhälsan, is a public service provider in the Region Västra Götaland and holds a 55% market share of the region's 1.8 million inhabitants. Närhälsan is Sweden's largest public primary healthcare organization and continually strives to develop and integrate digital and physical healthcare within its operations. With 5780 employees, including 850 physicians, 400 of whom are specialists in family medicine, Närhälsan runs 188 healthcare units, including rehabilitation units. In 2023, Närhälsan had 3,196,000 visits, of which 1,100,000 million were doctor's visits. Of these, 123,553 (23,892 in 2019) were video consultations, out of which 66,056 (19,689 in 2019) were carried out by physicians (Årsredovisning 2023 för Närhälsan).

### 3.2. Sampling

The literature demonstrates a rather polarized view on the benefits and drawbacks of digitalizing primary care and, in turn, a rather limited understanding of what they imply for the relationships between the key actors involved. Moreover, in their conceptual and empirical frameworks, most contemporary studies have taken a single-actor perspective—namely, that of healthcare providers, usually physicians. In response, and in line with the relational nature of the triad under study, in sampling we required a high level of experience (Van de Ven, 2007) among respondents by applying various inclusion criteria of a track record of experience for each of the three categories of actors. Taking a multi-actor perspective and providing empirical evidence from each group is critical for an understanding of *how* digital technologies can be used to improve quality of care (Kraus et al., 2021).

First, patients ($n = 11$) had to have chronic, long-term illnesses, be at least 18 years old, be digitally literate (that is, have used digital solutions while interacting with physicians), and perceive themselves to have had long-term contact with the staff at their respective healthcare centers. In addition, to be considered eligible for the study, the patients should have had three physical visits and at least one digital healthcare contact (as a minimum, using a visual device such as a video visit) during the 12 months prior to the study. The patients were expected to have a continuous rather than transactional exchange with the provider. Second, physicians ($n = 8$) had to have relevant experience with working with patients through digital means. Finally, first-line managers ($n = 8$) at primary healthcare centers (in the present study, all of them were heads of their care centers) had to have already extended formal processes for healthcare professions into digital interactions with patients. For all respondents, these inclusion criteria were verified by telephone by a member of the research team prior to data collection, including information about the study and ethical guidelines.

### 3.3. Data collection

Physicians and first-line managers were initially contacted informally by mail or phone, asked to participate, and, if willing, sent a formal follow-up invitation. Patients were asked by their physicians to participate and, if they agreed, also received a formal follow-up invitation from us. Data were collected using an online survey, where respondents provided multiple answers to the following prompt: "From my perspective, advanced digital and physical (face-to-face) contact in primary healthcare would mean …" The prompt, which was designed to capture the perspective of each of the three groups of actors, was developed based on a structured literature review and encouraged respondents to be candid and express their personal perspectives. Beyond that, by including the word "advanced," the prompt was forward-looking and encouraged respondents to consider not only the care provided at present as a point of reference but also the ideal conditions for D–F2F service encounters in primary healthcare. To understand how each type of actor would interpret the prompt, data collection was preceded by testing four versions of the prompt with a researcher experienced in using concept mapping in the context of healthcare. Based on the results, one prompt was selected, reworded, and subsequently issued to a small group of respondents (two physicians, two patients, and one first-line manager). Based on the answers provided to the prompt, as well as requested feedback, the above-quoted prompt was chosen and the background information provided with the prompt was modified.

The responses to the prompt resulted in 111 statements that complete the prompt, for example "… facilitating home visits that are difficult" and "… the patient gains more trust in the doctor when they

meet the doctor F2F than when they meet digitally." Following Trochim (1989), and Rosas and Kane (2012), the statements were reviewed, prepared for sorting and cluster analysis, and reduced to 59 unique statements. We did not take into account how many times the respondents raised the same idea, and similar answers were eliminated to produce unique statements that answered the prompt. This afforded breadth within the topic studied and precluded our having to evaluate the strength of the various statements.

### 3.4. Analysis

The following steps were taken to conduct the data analyses. First, all 59 statements were entered into an online tool called OptimalSort; research participants could follow a unique link to start with the same data and individually sort statements into any number of groups and label each group. Second, sorting entailed each individual respondent to digitally drag-and-drop each of the 59 statements into groups as they deemed appropriate. To this end, the sorting corresponds to coding but the actual grouping of statements *and* labeling categories is in the hands of respondents. These data analysis steps were performed by all respondents (patients, physicians, managers) who contributed answers to the prompt. Each respondent could see and was expected to relate both to their own answers, and also to statements made by other respondents. In this way, the method shares similarities with focus groups in that respondents not only provide data but also can relate to input from other respondents. Third, all individual sorting was extracted from the online tool (.xls format) and consolidated using quantitative multidimensional scaling and hierarchical cluster analysis in R (Trochim & Kane, 2005), which ultimately yielded a structured map of the primary data from the respondents and their answers to the prompt. Fourth, in determining the number of clusters, the output was a range of between 5 and 15 cluster formations (that is, 11 versions of the diagram in Fig. 2), which was analyzed by the research group to determine the number of clusters to be presented as grounding for further analysis and discussion. The decision to have seven clusters was made because eight would have meant two separate clusters encompassing a variety of negative aspects, while six would have meant combining statements concerning time efficiency and convenience with statements of safety and security of both patient and physician, referred to here as psychological safety. Fewer clusters would have meant conflating the systemic and individual levels more than necessary. Fifth, in labeling clusters, we followed Boyatzis' (1998) steps for defining and naming each cluster in thematic analysis, so that the heading of each cluster was inductively derived from the underlying statements or respondents' own suggestions for the headings of clusters provided during sorting. Thus, the seven chosen clusters provided distinct themes that were analyzed in light of the theoretical framework.

At a late stage of the analysis, non-participatory observations were used to gain further depth and an external view of the patient–physician service encounter. An academic member of the research team followed a physician during seven physical F2F visits (that is, being present in the room with the physician and the patient during consultation) and three digital consultations with patients. These data, which were followed by brief interviews after each consultation, not only validated the pattern in the cluster analysis but also helped give meaning to specific interpersonal aspects such as phycological safety expressed both verbally and in body language; these are aspects that can get lost in the "digital shadow."

### 3.5. Research quality

The research design was considered to be well suited to the multi-actor perspective taken in primary healthcare service delivery and was approved by the Ethics Review Board of Sweden. The research quality of our interactive research design (Elg et al., 2020) was further enhanced by meeting the criteria for quality outlined by Herr and Anderson (2005). In terms of validity, *dialogic validity* was first ensured by conducting the research as a collaborative inquiry on a practitioner–researcher team, including an insider specialist in family medicine that currently acts as a manager in primary healthcare and two academics as outsiders. Second, *catalytic validity* was ensured by using an iterative process to determine the number of clusters and interpret their meaning; this was done by balancing practitioners' insider perspective and researchers' outsider perspective and recording actions and changes within protocols. Third, *process validity* was first strengthened by testing the data collection method in advance. This was done by testing the prompt with an outsider researcher and the survey and prompt with all three types of actors (that is, two physicians, two patients, and one manager), all of whom provided valuable input, meaning that the design of the prompt and its introductory text to participants were done in stages. In addition, and also in line with dialogic validity, the results of the four triadic configurations were presented to a group of 25 physicians and managers working with the digitalization of healthcare in various forms. This setting provided direct feedback and also enhanced the transferability (Miles et al., 2020) of the results into wider parts of healthcare. Fourth, *democratic validity* was taken into account, using an iterative process that engaged all three types of key actors in both data

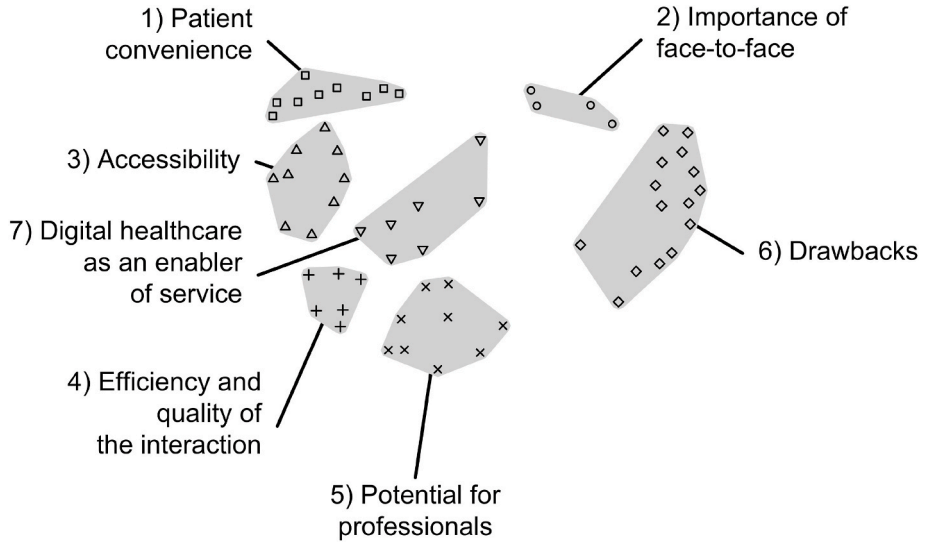


**Fig. 2.** Seven clusters.

collection and data analysis. To further enhance this, six healthcare managers were presented with the clusters, which generated valuable comments on both digital and physical working methods. Fifth, *outcome validity* was considered in the final analysis and discussion, in which the research question was reframed and discussed in the overall context being studied, which generated important insights for practitioners and raised research questions for future research. Catalytic and democratic validity were both strengthened by the fact that each respondent was allowed to give several answers to the prompt, which enhanced the depth and richness of the data collected. During sorting, all participating actors also had to consider everyone else's answers, which further strengthened the data's richness and depth and may have contributed to a shared understanding of the studied topic between the actors involved.

## 4. Results

The sorting and cluster analysis of the 59 statements made by the three types of actors were carried out, resulting in seven distinct clusters, the shapes of which are depicted in Fig. 2.

The clusters on the left-hand side of Fig. 2 are distinguished by their positive nature, the number of distinct clusters contained, and the difference in their systemic levels. Four clusters at the outer left boundary denote the perceived positive outcomes or potential of advanced D–F2F relational primary healthcare: "Patients' convenience" (Cluster 1), "Accessibility" (Cluster 3), "Efficiency and quality of interactions" (Cluster 4), and "Potential for professionals" (Cluster 5). A comparison of the left- and right-hand sides reveals polarization of positive views and opportunities (left) vis-à-vis a broad range of drawbacks and challenges (right). In the negatively charged Cluster 6, some statements indicate that D–F2F service encounters challenge professional roles in relation to the importance of physical contact.

The two clusters near the upper middle of the figure are "Importance of face-to-face" (Cluster 2) and "Digital healthcare as an enabler of service" (Cluster 7). Whereas the left- and right-hand boundaries of the figure concern one or more actors, the two central clusters are relationally oriented, as is also reflected in the content of the nearest cluster, "Patients' convenience," and the upper part of "Drawbacks" (Cluster 6). Furthermore, the two relational clusters (Clusters 2 and 7) are somewhat related (Cluster 2 provides conditions for the content in Cluster 7), which implies that F2F contact is a prerequisite for high-quality service encounters. Whereas the statements and clusters on each side converge, scrutiny of the individual statements across Fig. 2, from left to right, reveals divergence or even tension. For example, on the left, "Extended digital accessibility" implies that patients impeded by a lack of digital literacy (that is, on the right) will experience more limited access to care services due to a displacement effect leading to unequal care. The data structure and the content within each cluster are detailed in Table 1 and the following subsections.

Cluster 1, "Patients' convenience," concerns one specific actor and embraces the perspective of patients as initiators with a distinct direction toward primary healthcare organization and of physicians as professionals. In validating their descriptions, the respondents' labels included the perspective of patients, "Positive," and patient satisfaction, adapted to the specific patient's needs, with respect to both healthcare and digital competence. Together, the responses assigned to the cluster reflect convenience and security and can be summarized in two dimensions supplemented by a few quoted statements. First, being person- or individual-centered was perceived as entailing care services adapted to patients' needs, symptoms, or illnesses, digital competence, and time savings (such as avoiding personal transport or "… not taking leave from work" for an appointment), achieved through D–F2F primary healthcare for the benefit of patients. Patients can expect that "The patient knows that someone is there when needed" and that "The patient has a greater possibility to bring another person (caregiver, relative, support person) to a digital healthcare encounter." Second, personal continuity was perceived to involve "Meeting the same doctor both digitally and F2F gives the patient greater security and continuity …"; that is, the digital and physical channels are not viewed as discrete structures.

**Table 1**
– Seven clusters: Dominant actor and characteristics.

| Cluster (number, name, position in Fig. 1) | Actor (interpreted from the data) | Illustrative cluster characteristics (interpreted from the data) |
|---|---|---|
| *1.Patient Convenience (left)* | Patient | • "Positive", "Patient satisfaction"<br>•Convenience and security<br>•"Person/individual centered" (patient as an initiator, adapted to their needs)<br>•"Personal continuity" (digital and physical are not separate structures) |
| *3.Accessibility (left)* | Physician | •Conditions at the provider/care end<br>•"Accessibility", "Convenience"<br>•Flexibility as a prerequisite for the patient's contact |
| *4. Efficiency and quality of the interaction (left)* | Patient<br>Physician<br>Manager | •Relationally oriented<br>•Long term efficiency of resources/ healthcare on equal terms<br>•Larger goals can be achieved with advanced D-F2F service encounters (effectiveness)<br>•High systemic level |
| *5. Potential for professionals (left)* | Physician | •Benefits for the professionals as individuals<br>•Better work environment<br>•Simultaneous existence of continuous development (learning) and utilization<br>•Forward-looking |
| *2. Importance of face-to-face (middle)* | Patient<br>Physician | •High-lights relationship<br>•Face-to-face helps building trust<br>•Allows the physicians to use all their skills/all senses<br>•Healing dimension of care |
| *7. Digital healthcare as an enabler of service (middle)* | Patient<br>Physician<br>Manager | •Possibilities according to technical development as extending the scope of the service encounter more than scaling it up<br>•Forward-looking |
| *6. Drawbacks (right)* | Patient<br>Physician<br>Manager | •"Disadvantages", "Negative", "Challenges"<br>•Change in boundaries of the professional role (reduced utilization of physicians' knowledge/the profession's competence in medical assessment gets lost)<br>•Poor resource utilization of human resources<br>•Inequality in healthcare<br>•Do not catch complex healthcare needs |

Similarly to Cluster 1, Cluster 2 ("Importance of face-to-face") concerns the perspective of patients, but it also highlights the importance of F2F meetings in the patient–professional relationship. Validating their descriptions, the respondents' labels generally indicated that personal contact is essential, as reflected in their repetition of phrases such as "physical contact", "gives more trust," and "physical visit." On one hand, the proximity of F2F contact helps foster trust between patients and physicians because, for instance, patients find it "easier for her/him to explain" their feelings and needs in such settings. On the other, the physical meeting and space allow physicians to use more of their senses than in digital meetings, capturing an extra dimension that strengthens the contact compared with digital contact. For example, using smell or touching patients on the shoulder in physical meetings can be regarded as a healing dimension of care that is universal in primary care.

The statements in Cluster 3 ("Accessibility") are largely uniform. Compared with Clusters 1 and 2, accessibility concerns conditions created at the healthcare provider's end; among these, channels of

communication are perceived as a prerequisite for patients' capacity to contact healthcare providers. Validating their descriptions, the respondents' labels included the words "accessibility," "convenience," and "flexibility"; for example, "Easier and more efficient for individuals, if a F2F visit is not needed." Regarding flexibility, they add "Healthcare staff can offer the patient various opportunities to contact the care provider and get help with specific needs, ranging from self-monitoring in the case of chronic illness to quick, short visits" and "Patients who for various reasons find it difficult to visit the healthcare center physically have the option of a video visit (more personal than a phone call)."

Cluster 4 ("Efficiency and quality of the interaction") is not embedded in a specific type of actor; it is more relationally oriented, given its relevance to the exchange or interaction between the two major actors in primary healthcare: physicians and patients. More specifically, it concerns how those exchanges and interactions can help each actor to achieve broader goals that benefit the entire healthcare system. Compared with Clusters 1–3, Cluster 4 operates at a high systemic level and is concerned with the quality of exchanges—that is, the favorable outcomes that they can lead to—including a focus on the long-term efficiency of resources and care on equal terms and the quality of exchange on the systemic level. Our empirical results reveal that the actors highlighted in that context are first-line managers as representatives of the system, with physicians playing a secondary role. Validating their descriptions, the respondents' labels referred to "efficiency," and their statements included "A more efficient way of meeting"; "Possible for healthcare employees who, for example, need to stay at home for infectious reasons, to actually be able to work"; "Improved time efficiency, which can increase the amount of services that the healthcare center can provide"; and "Improved follow-up of patients (video contact instead of telephone contact)." Notably, the reference here to efficiency does not concern the costs or economic efficiency of the exchange but, instead, what larger goals can be achieved with advanced D–F2F service encounters; hence the use of "effectiveness" instead of "efficiency."

Like Cluster 1, Cluster 5, "Potential for professionals," is specific to one actor, referring to physicians' perceptions of potential for professionals. Validating their descriptions, the respondents' labels mentioned benefits for the professionals as individuals as well as their work environments, both as results of advanced D–F2F primary healthcare services. Moreover, the dimensions in the cluster capture the coexistence of the potential for continued development (for example, learning) and the utilization of resources and increased patient throughput. The statements ranged from "Increased job satisfaction as a doctor since variety creates well-being, and digital encounters are a nice element of an otherwise traditional day at work"; "If the patient can digitally triage/sort and prioritize his/her order of healthcare, you can get an enormous reduction of workload on the healthcare organization"; and "Improved work environment" to "That both healthcare professionals and patients have the courage to try new digital solutions to find out what works well and less well and thereby contribute to development" and "the physicians' advantage of not appearing as conservative and old-fashioned." Thus, Cluster 5 is forward-looking in that it concerns advanced healthcare as a particular state or condition and also invites a perspective on learning and development that helps professionals and their organizations reach that state or condition.

Cluster 6, "Drawbacks," representing the perspectives of all three types of actors, refers to drawbacks either initiated from one actor to another or directed toward a specific actor. Validating their descriptions, the respondents' labels included "Disadvantages," "Negative," and "Challenges," and those negative aspects can be summarized in three dimensions. First, the professional role shifts as the reduced number of physical examinations of patients leads to reduced training and utilization of physicians' knowledge. This leads to professional competence in medical assessment becoming somewhat lost. The statements in that dimension included "The greater the proportion of the physician's work time that is digital, the more that the doctor loses the intuitive flair or instinct needed to make assessments in relatively difficult cases during physical visits, where the doctor's judgment really matters" and "waste of the physician's knowledge." Second, human resources are poorly utilized when people with simple ailments use the limited amount of professional time available at the expense of patients who truly need medical assessment. In that dimension, the statements from the respondents included "the least sick patients get better care at the expense of the severely ill, and that is completely against the Health Care Act and medical ethics"; "Not everything can be handled digitally; do we exclude some patient groups?" and "Economic impoverishment of public healthcare." Third, the technical challenges associated with D–F2F healthcare services risk excluding some patients because digital illiteracy leads to inequality. Digital development also caters to simple ailments but not complex healthcare needs; this connects to the second and third dimensions, as illustrated by the above statements, as well as "It should not be difficult for either caregivers or patients to access [digital] systems."

Finally, Cluster 7 ("Digital healthcare as an enabler of service") refers to the opportunities afforded by digital development and pertains to all three types of actors. Such opportunities arise more from extending the scope of the service encounter than from scaling it up, as illustrated by the following statements: "Possibility for patient to use chat function"; "Self-monitoring provides a better basis"; and "Opportunity to work with preventive care". Validating their descriptions, the respondents' labels varied but included the label "Possibilities." In that sense, Cluster 7 is forward-looking, like Cluster 5.

Overall, the data suggest that the meaning of D–F2F healthcare service encounters encompasses all modes of communication, not only those between front-line actors such as patients and physicians. Concerns with benefits and drawbacks are both relational but can also be viewed as being actor-led or relating to a specific type of actor's situation. The results also reveal that a relational approach cannot take a static view on the actor's role or position. In contrast, shifting professional boundaries between physicians' work and the self-management of patients call for a dynamic, situational view on the advancement of D–F2F patient–professional relations.

## 5. Discussion

The digitalization of primary healthcare services requires a better understanding of the provider's interaction with users during service delivery. To that end, we set out to investigate what D–F2F service encounters mean to the three actors in the primary healthcare service triad: patients, physicians, and first-line managers. Based on our analysis of the seven clusters of empirical results and the theoretical framework, we propose a set of four triadic perspectives that capture how relational primary healthcare can be advanced: continuity, person-centered, interaction quality, and developability (Fig. 3). Together, these perspectives set the conceptual foundation for a digital/face-to-face professional service encounter, the purpose of which is to advance relational primary healthcare. Interestingly, the data do not assign the manager a particular role. While some recent studies have suggested a multi-actor perspective, they have not identified managers' potential venues of extension (Vargo et al., 2024).

Triad 1 (*Continuity*) entails the temporal dimension of primary healthcare services and outlines the longitudinal reciprocity of a relational approach to D–F2F service. Our analysis suggests that continuity is primarily apparent in the traditional scope of a service encounter, namely the physician–patient dyad, with the manager being left out in this respect. Here, continuity comprises at least three dimensions. The first is promotion of the professional responsibility and psychological safety of physicians (that is, unilateral and concerning physicians). The second is patients' psychological safety due to knowing not only that healthcare professionals can be contacted when needed but, more importantly, that such contact can be made with the same physician that they have seen previously (that is, unilateral and concerning patients). These first two dimensions—psychological safety due to physicians'

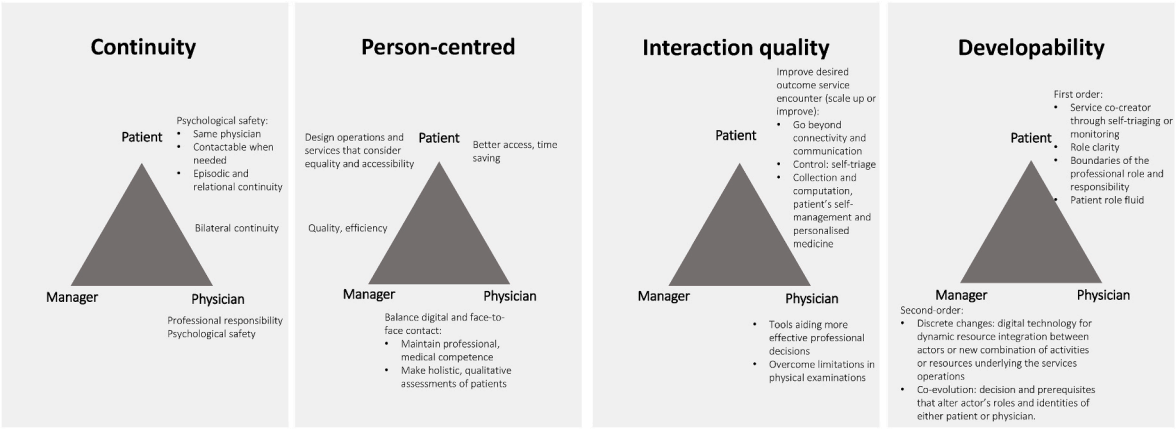


**Fig. 3.** Four triadic perspectives.

availability and meeting with the same physician as before—resonate with episodic continuity (Johnsen et al., 2021). Interestingly, attributes that are so closely related to the individual in the service encounter are very rarely addressed in the service literature. The patient is objectified as a "healthcare consumer" who acts as a "co-producer" or "partial employee" who needs to be involved in managing his or her own health (Kraus et al., 2021). The empirical evidence in this study sheds a light on an emotional dimension of a service encounter. Technology may offer many opportunities with respect to cognitive and analytical ability (Wirtz et al., 2018). This requires a high level of emotional and social presence in the service encounter, which is labeled in this study as psychological safety (Fukami, 2023).

Moreover, the results indicate that follow-ups and examinations are easier if F2F contact precedes digital interaction, suggesting that F2F-first, relational continuity is indeed important (Johnsen et al., 2021). That possibility is further enhanced by the third dimension: that, over time, face-to-face service encounters must occur at regular intervals, complementary to digital interactions, in order to maintain the perception of continuity. This idea corresponds well to concerns raised in the literature that digitalization precipitates the loss of personal connection (Gomez et al., 2021) and the "dehumanization of relationships" (Sarradon-Eck et al., 2021). In contrast to this rather pessimistic view, what also emerges from the empirical evidence, and is common in the service literature (Delene & Lyth, 1989; Ciasullo et al., 2017; Wynstra et al., 2015), but surfaces less in the healthcare literature, is the idea that achieving continuity must be seen as a bilateral process. For example, the goal of having the same physician in both virtual and F2F meetings attends not only to the needs of the patient but also to the physician's sense of being able to take on professional responsibility by observing unnoticed symptoms. In combination, the episodic, relational, and bilateral nature of continuity relates to sustaining access over time, so that relationships create stability in, for example, psychological safety. However, the results also reveal a dynamic, evolutionary aspect of that nature that can disrupt and/or enhance continuity; for example, changing actors' roles (Breidbach, 2018), the service ecosystem (Gummerus et al., 2021), or extension of technological modes, or interfaces (Singh et al., 2023), from being provider-centric to being a digital technology that empowers patients (Kowalkowski et al., 2024; Neves et al., 2024).

Triad 2, *Person-Centered*, indicates that advanced D–F2F service encounters focus on people; this aligns with the WHO (2016) on integrated, people-centered health services. In contrast to continuity, here all three actors are identified, highlighting the manager's role to include the development of relational care (Roy Chowdury et al., 2014; Minvielle et al., 2014). Our results build on the views from all three types of actors in the triad. Analysis of the seven clusters suggests that *person-centricity* not only refers to each of the three actors but also is perhaps best understood as a set of three dyads embedded in the triad, suggesting an extension of the conventional service encounter to also include managers. First, in the *patient–physician* dyad, a number of benefits are enjoyed by patients (such as access and time savings) or the healthcare system in broad terms, including quality and efficiency (e.g. Due et al., 2021; Gomez et al., 2021; He et al., 2023).

Second, in the *patient–manager* dyad, the manager translates the requirements of equality and accessibility of the service encounter into operations that in turn serve as prerequisites to fit medical needs to suitability of service offerings (Due et al., 2021; Gomez et al., 2021).This dyad has not been addressed systematically in the literature, apart from work addressing the role of managers in translating patient centricity through customization (Minvielle et al., 2014). On the other hand, from a professional service development (Alvehus, 2021) point of view, the development of "professional" is not reserved to physicians, their power position, or their unique competence. Rather, it implies the emergence of new roles in the service system that are extending self-service (Verzantvoort, 2018; Neves et al., 2024) into more distributed responsibility for quality of delivery and design.

Third, in the *physician–manager* dyad, the digitalization of the service encounter means that the physician expects the manager to create good prerequisites for person-centered work, such as maintaining F2F service encounters even if some interactions and operations are digital, maintaining professional medical competence, and making holistic, qualitative assessments of patients. In that context, managers are responsible for creating the conditions necessary for physicians to meet patients' expectations and observe healthcare policies. This responsibility is somewhat limited to operational efficiency Kraus et al., 2021) at the provider end, not reflecting the emerging and broad range of digital healthcare technologies (Marques & Ferreira, 2020) and their applications at the patient's end or in the service encounter (He et al., 2023; Neves et al., 2024).

In Triad 3, *Interaction Quality*, the quality and mode of interaction concern the ability of the D–F2F relationship to help physicians and/or patients to improve the interactions underlying service encounters (that is, scale up or improve current activity), either remotely or in person. To understand this concept, it may be useful to follow Singh et al.'s (2023) distinction between interface and interaction. The *interface* relates to the interaction quality through the technical medium of contact between the actors. This can be understood as a continuum ranging from a traditional F2F visit to a consultation mediated by technology, through virtual consultation (Campbell et al., 2023), connected healthcare (KC et al., 2020), and patients' self-management through self-triage (Neves et al., 2024), to a "direct-to-consumer" service offer to the patient through artificial intelligence (He et al., 2023). Each of these modes stipulates different types of *interactions* (Singh et al., 2023). Beginning at the same end of the continuum as above, medical assessment and informing

patients relate well to the F2F and digital format. In that way, the quality of interaction helps physicians make on-the-spot decisions regarding, for example, targeted consultations, check-ups for chronic disease, and follow-ups for test results (Due et al., 2021). Judgments and assessments are conducted more efficiently and with better quality and/or increased options with respect to assessment. This follows the traditional view of the physician as being the professional; that is, medical assessment has been seen as inseparable from the physician (Alvehus, 2021). However, as observed in the literature, actor roles can shift as a consequence of digitalization of services (Gummerus et al., 2021). The items listed in Fig. 3 may entail that a tension will arise, as a consequence of shifts toward a more empowered patient (Davey & Grönroos, 2019). A more balanced interpretation would regard self-management and personalized medicine (Boers et al., 2020) as ways of overcoming the limitations of digitalization and helping physicians process data. In that light, digitalization means not only better communication or connectivity, but also better control and even better data collection (Breidbach et al., 2016) as a result of the patient's self-triage (Verzantvoort, 2018). Another feature is involving patients more actively in decision-making (Go Jefferies et al., 2019) rather than leaving decisions to them.

Finally, Triad 4, *Developability*, refers to both extending the scope of service encounters and changing the roles of actors and the professional boundaries of physicians (Boers, 2020; Alvehus, 2021). Here, we distinguish between first- and second-order developability.

First-order developability entails the primary actors in the service encounter (such as patients and/or physicians) and how change at one end can influence the other. For example, new service offerings that position patients as service co-creators through self-triaging or self-monitoring (Verzantvoort, 2018) can reduce the clarity of roles, the boundaries of professional roles and responsibilities shared between patients and physicians (Boers et al., 2020). Consequently, interactions in service encounters and the encounters themselves can vary from case to case. In contrast, second-order developability concerns managers' actions to alter service encounters. On one hand, managers make decisions or provide relevant prerequisites through digital technology for the dynamic integration of resources between actors (Ciasullo et al., 2017). On the other, the empirical evidence also reveals that managers make decisions and create prerequisites that may alter actors' roles and the identities of either patients or physicians, which makes all three actors active participants in the co-evolution of the service encounter (Gummerus et al., 2021). Although the literature on services has identified peer-to-peer interaction as a means of direct value co-creation (Breidbach et al., 2018), our results show no trace of such a direction apart from support from family or next of kin.

## 6. Conclusions and implications

This article has presented a relational approach to digitalizing professional service encounters in primary healthcare for patients with chronic, long-term needs. Concept mapping of patients, physicians, and first-line managers resulted in seven clusters outlining what D–F2F service encounters between patients and physicians would mean. From those results, we derived four triadic perspectives that capture how relational primary healthcare can be advanced.

1. Continuity is primarily dyadic, consists of episodic, relational, and bilateral elements, and assumes a high degree of psychological safety for both patients and physicians.
2. Person-centered involves not only distinct benefits for patients and physicians but also the first-line managers' decisions and actions that underlie those decisions (for example, offering a mixture of digital and F2F service encounters and supporting physicians in maintaining their professional roles when the surroundings are in flux), for an altogether bidirectional, person-centered way of working.
3. Interaction quality provides relational depth by going beyond traditional modes of communication and technological connectivity.
4. Developability concerns the duality between patients' co-creation of services and the blurring of the physicians' professional boundaries and responsibilities.

The last of these the four perspectives proposes a distinct role for professionals in both effecting discrete changes and co-evolving with the other actors in the triad. Overall, as implied in Triad 1, technology will not replace actions to satisfy fundamental, interpersonal needs, which makes interpersonal continuity a prerequisite for advanced digital–physical relational primary healthcare.

Our work makes three major contributions. First, we offer a multi-actor approach that underpins relational propositions built upon a set of three dyads between primary actors, not separate actors, all of whom are important for advancing digital–physical relational primary healthcare:; the physician as the professional, the patient as an end user, and finally, the manager who provides prerequisites for balancing continuity and exploiting benefits of the digital, connected technology. Our interactive research design has strengthened the multi-actor perspective with the service triad as an analytical construct and empirical data from all actors, which makes it possible to cross-fertilize our data by also involving all three groups in our analysis, all of which can relate to each other's statements. In that way, our results were co-created by following a relational approach.

Second, primary healthcare offers a decentralized context with a genuinely high volume of end-users combined with a person-centered perspective in service delivery away from the consolidated structures of hospitals. Combining what can be seen as two opposites—the increased use of digital end-user service encounters vis-à-vis strong relational and the people-intensity of primary healthcare services—requires an extension of the patient role as an enabling mechanism. In support, the question guiding data collection was also forward-looking, paving the way for prescriptive instead of descriptive results. Other sectors undergoing digital transformation and pursuing better and more direct interactions with end-users, which are often dispersed in time and space, can draw upon the principles developed in our study.

Third, we carve out space for a discussion of professional boundaries as not being static but in flux. Our results clearly indicate tension between the relational approach in primary healthcare services and the rapid development of different digital services. By advancing D–F2F relational primary healthcare, our results challenge the co-existence of a professional service, and thereby the professional boundaries of physicians, in relation to the multi-actor co-creation of services.

### 6.1. Managerial implications

D-F2F professional service encounters such as primary healthcare must be more able than they currently are to accommodate the needs of individual clients through a relational approach.

*Awareness of separated roles.* Managers need to understand the roles of the actors in the service triad. The studied context is unique in that the professional or the expert, and the manager, are roles held by two distinct actors in the provider organization. On one hand, the physician is the professional in the service encounter and the managers must trust him or her. On the other hand, the manager is not an expert but must create conditions that are favorable to a successful interaction between the physician and the patient. Another distinction in roles is that the professional medical assessment is in the hands of physicians, while the manager acts as the professional for designing and managing the professional service. Managers need to design and manage D-F2F service encounters for knowledge-intensive, professional services in a way that does not compromise medical observation and assessment but strengthens the relationships between physicians and patients.

*Role dynamics.* In addition to roles, managers need to be aware of and manage the role dynamics that take place at both the physician's end and the patient's end. Patients' self-service enabled by digital, connected technology (for example, self-monitoring chronic diseases) alters

the role of patients as well as the professional boundaries of physicians, and thus the balance of power in the service triad. Consequently, the further development of D-F2F service encounters requires managers to build on the perspectives of multiple actors in order to address the dualism of service co-creation that extends the patient's role versus protection of professional boundaries.

*Balance digital and face-to-face contacts.* Some aspects of contact (such as physical examination) in healthcare might arise only in F2F encounters between people. Such physical encounters contain deeply relational dimensions that can be difficult to achieve digitally. In relational primary healthcare, physical contact between physicians and patients, regardless of content, can be healing in itself. Managers must acknowledge this when allocating resources and tasks between the digital and F2F modes of interaction. Moreover, continuity relies upon professional–manager collaboration to ensure sufficient levels of F2F interactions to balance the "analytical" and "emotional." In our study, managers responsible for the resource efficiency of primary healthcare must align this with and trust the physicians' judgment to request F2F when appropriate.

*Managers must see themselves as active participants in the service triad.* Managers must broaden their view of "person-centered" services. Person-centeredness is not a one-way approach to the patient; it is also directed toward employees, in this case physicians. In this respect, their management task is both bilateral and multi-actor. A manager who does not strive for increased person-centeredness—toward his/her employees, between employees, and toward customers/patients—will find it difficult to retain his/her employees in the long run.

*Interaction quality must be manager-led.* The interaction triad shows that there is a good opportunity to maximize the results of communication with a developed D-F2F healthcare, which would mean more time-effective and higher-quality service. These benefits and this implication are not only managerial but also found at a societal level, with reduced transport time and reduced time off work for patients.

*D-F2F development must consider professional boundaries.* Finally, a managerial message, based on the fourth triad, is that developability and the development of D-F2F healthcare are likely to challenge professional boundaries, and decisions that are not anchored in the medical profession risks becoming paper products. This means the medical profession needs to be further involved in development toward an integrated D-F2F healthcare.

### 6.2. Limitations and directions for further research

First, our findings suggest a structure in which physicians, first-line managers, and patients with long-term, chronic needs interact, but also that, as the professional boundaries of physicians are changing, a deeper understanding of the relational dynamics is needed. Second, future research could also adopt a more focused managerial perspective and investigate the organization and styles of leadership for healthcare operations that pursue a distinct relational approach. Finally, future research could extend the scope to clarify the role of other actors in service settings, including patient groups or family members who support patients in service encounters. Another avenue is to extend the concept of the triad into peer-to-peer interactions among groups of patients and/or physicians.

## CRediT authorship contribution statement

**Henrietta Arwin:** Writing – review & editing, Writing – original draft, Visualization, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Árni Halldórsson:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Andreas Hellström:** Conceptualization.

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