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Telecare that works: lessons on integrating digital technologies in elder care from Indian transnational families

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ABSTRACT

In recent decades, policy makers around the world have been working on implementing various technologies into healthcare, and the Covid19 pandemic fueled this process. The specialized technological solutions for telecare – the use of technologies for care at a distance – are often adopted by users in different ways than intended, or are abandoned if the users cannot find applications that are meaningful to them. However, beyond specialized healthcare technologies, people are incorporating mundane digital technologies into their (health)care practices. In this paper, we draw on ethnographic research on the use of everyday digital technologies in Indian families where migrating children who are professional nurses care for their aging parents at a distance. Our findings show that 1) remote elder care is enacted through frequent calling which further fosters trust, necessary to provide healthcare remotely; 2) the motivation for older adults to engage with digital technologies is grounded in the value of family and affect which is consequential also for health; 3) technologies, too, require care-work in the form of everyday maintenance; and 4) in-person visits from children remain important, indicating that hybrid interaction is optimal for good care at a distance. We conclude that taking these findings into account may contribute to a more successful implementation of formal telecare systems.

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Introduction

The use of information and communication technologies (ICTs) – or digital technologies for remote provision of healthcare is not a new phenomenon; this practice has a history of over 80 years, including a wide range of technologies from the telegraph and landline telephones to the Internet and smartphones (Greene 2022; Cartwright 2000). Since the late 1990s, ‘e-health’ has emerged as an umbrella term to describe a broad set of ICTs used for

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healthcare at a distance. E-health encompasses several more specific terms such as ‘tele-medicine’, referring to the exchange of health information among healthcare professionals and organizations across distance, and ‘m-health’, describing the use of health-related applications on mobile phones (Oh et al. 2005; Lang, this issue). In the last couple of decades, the incorporation of ICTs in remote healthcare has intensified significantly with the support of national and international policies and funding around the world (e.g. European Commission (EC) 2012; World Health Organization (WHO) 2013; Wahl et al. 2018; Kickbusch et al. 2021). The Covid19 pandemic further stimulated the global push for digital technologies such as smartphones and artificial intelligence (AI) tools in both the global North and South for the purposes of remote screening for infections, tracing those at risk, and ensuring social distancing (WHO 2021; Bajpai and Wadhwa 2020; Schwalbe and Wahl 2020).

The trend of introducing digital technologies to support (health)care in the context of aging populations includes ‘telecare’ and ‘telemonitoring’, or the use of technical devices and professional practices for remote health monitoring and provision of long-term care. In this paper, we focus on informal elder (health)care in the context of transnational families to explore how everyday digital technologies may support such care. We draw on ethnographic fieldwork with families of migrating nurses from Kerala, South India, who provide care to their aging parents at a distance. Ethnographic studies of ICT-mediated healthcare in lower income countries of the global South, particularly in Africa, have highlighted the importance of such bottom-up research to uncover local digital health innovation practices (Neumark and Prince 2021; Neumark 2023). In this paper, we ask how do people creatively use common digital technologies for informal healthcare outside of formal initiatives and large-scale policy investments?.

Material semiotic approach to technologies

Technology-supported remote healthcare has been closely linked with the promises of improving health equity and efficiency, reducing costs and providing a solution for the insufficient numbers of healthcare workers, in developed countries (Greene 2022; Pols 2012) and in low-to-middle-income countries like India, where the data for this paper was collected. Already in 2009, India launched the Pan-African e-Network (PAN), a digital infrastructure that would connect doctors and patients across Africa with Indian tertiary care hospitals (Duclos 2021). In 2017, the Indian government adopted the National Digital Health Mission (NDHM), aiming for a national digital health infrastructure, and established an AI Task Force and Strategy for several sectors, including healthcare (Government of India 2018). This policy was planned as a route to transforming health care, to reach remote regions, address complex health problems and help with the paucity of human resources in health care.

However, public health experts argue that India has shifted too rapidly with ICTs from an experimentation phase to implementation through a top-down approach, with little consideration for the unequally distributed and maintained telecommunication and healthcare infrastructure and for the specific contexts of local communities (Rao 2022; Sen, Qadeer, and Missoni 2022). Importantly, in a country as large and diverse as India, digital literacy and welfare systems, including healthcare insurance, vary greatly by state, gender,

age, social class and caste (Rao 2022; Ahlin, Nichter, and Pillai 2016). This inevitably creates major challenges for large-scale technology-supported systems such as telecare.

As Kate Hampshire and colleagues (2015, 91) note in their work on mobile phones for informal healthcare among young people in Sub-Saharan Africa, ‘change is often driven largely by *practice* rather than top-down planning’. Yet research on digital technologies for elder people in medical anthropology and science and technology studies (STS) mainly explores top-down implemented projects of telemedicine, telecare and telemonitoring, and mainly in the global North (Mort, Roberts, and Callén 2013; Pols 2012; Lariviere et al. 2021; Moser and Thygesen 2015; Sánchez-Criado et al. 2014). This body of literature emphasizes a sociomaterial approach to technologies, which recognizes that people and technologies are ‘dialectically related: that each becomes altered in interaction with another’ (Hampshire et al. 2015, 91; Jeffrey and Doron 2013; Garvey and Miller 2021; Horst and Miller 2020). In this paper, we strengthen the study of ICTs in (health)care by employing the STS material semiotics approach to care (Pols 2023; Haraway 1991) and emphasizing the importance of affect in people’s engagement with technologies.

Within material semiotics, care is understood as being enacted through situated practices which involve heterogenous actors – people and technologies (Mol, Moser, and Pols 2010). Through their interactions and enactments, including of care and various values, these heterogenous entities shape each other and therefore their identity is not considered stable. Using this approach, we show how commonplace, generally available and popular everyday digital technologies such as landline phones, mobile phones, and smartphones contribute to and shape care through ‘transnational care collectives’ (Ahlin 2023). In short, transnational care collectives are global assemblages of people and digital technologies which jointly enact care through specific practices, such as frequent calling (Ahlin 2020). Established through daily ‘tinkering’ (Winance 2010), every collective has its own dynamic, based on which family members and which digital technologies participate regularly and which occasionally, who calls whom and how often, how are technologies taken care of and who beyond the parents-children dyad becomes involved at which moments in time. The collectives are also flexible and change depending on many factors, including people’s health conditions but also broader circumstances such as the Covid19 pandemic.

In this paper, we argue that telecare is most effective not as a separate, institutionally sanctioned domain involving highly specialized and innovative technologies, but as entangled with family relations through common digital technologies. What ‘pushes’ (Pols 2023, 35) people to engage with technologies is guided by family as a value and by the affective ties among significant others. These values and affective ties may consequently support health, care and wellbeing of older adults in substantial ways. In the digitalization age, functionality looms large, reinforcing the view of technology as a ‘magic bullet’ to overcome deficiencies in planning labour and infrastructure in healthcare (Panch, Mattie, and Celi 2019). Yet our work highlights the role of the interpersonal relations and affect, that ‘primal energy flowing between people and attaching us to each other, our institutions, and our relationships ... underpinning people’s emotions, behaviors and actions’ (McKay 2016). This aspect is largely missing from the current narratives and agendas on digital technologies for remote healthcare. Our research shows that everyday technologies support people’s health and wellbeing in significant ways, and should therefore be accounted for in health policy.

Study context

This paper is based on ethnographic fieldwork which the first author conducted intermittently between 2013 and 2022, with most intensive research periods in the South Indian state of Kerala and Oman in 2014 and 2015. Within India, Kerala represents an excellent case study for our topic because of substantial nurse migration giving rise to transnational families of professional carers. Hosting a large population of Syrian Christians, Kerala is renowned for educating large numbers of nurses who mostly come from this religious community; in 2011, more than 27,000 nurses were registered in Kerala, and as many as 80% of nurses in cities like Delhi came from Kerala (Kodoth and Jacob 2013). Among them, many migrate abroad for work; it has been estimated that 20 to 50% of Indian nursing graduates intend to seek employment opportunities abroad (Walton-Roberts et al. 2017). Most of nurses are female, although migration opportunities have started attracting men to this profession too (Johnson 2018; for an analysis of gender in this research, see Ahlin and Sen 2020). International labor migration has consequences for the migrants' families, including on the provision of care for their aging parents and in-laws (Nair 2012; George 2005; Percot 2014).

Additionally, Kerala has the highest rates of literacy and is at the forefront in terms of ICT use and initiatives. This state has the highest mobile phone penetration (about 90%) and internet penetration, with 20% of households being connected through broadband and another 15% of the population being connected through mobile phones (Mathews 2018). Over the past several years, the use of WhatsApp has increased significantly, earning India the nickname of 'the WhatsApp nation' (Sengupta 2021). According to *The Telegraph India*, a daily newspaper in English, 400 million people in India have downloaded WhatsApp by 2021 (Sengupta 2021). Such engagement with digital technologies makes Kerala a relevant place for studying the impact of digital technologies on family care.

Oman was chosen as one of the major destination countries for nurses from Kerala (Percot 2006). Using the method of 'following the people' (Marcus 1995), the first author spent five months in India and three in Oman in total. Additionally, this study included nurses who had migrated to other countries than Oman. These nurses, based in the United Arab Emirates, Saudi Arabia, United States of America, United Kingdom, Canada Australia, New Zealand, Germany, the Maldives and Guyana, were interviewed while they were visiting Kerala or remotely *via* phone and Skype or WhatsApp video calls and text messages (see also Ahlin and Li 2019).

In finding relevant families for this study, the main criterion was that the family had one or more children working abroad as a nurse, regardless of where the children lived and for how long they were abroad. Interviews and participant observation were carried out among members of 33 such families, in most cases only with the adult children-nurses, and in other cases with multiple family members, or only with the parents or parents-in-law. In all families, every adult used some digital devices, from landline phones or simple mobile phones to smartphones, laptops, tablets, and personal computers. They had various levels of knowledge, skills, and abilities regarding digital technologies and used these devices accordingly.

In preparing this paper, the first author gathered the data, conducted analysis and wrote the first draft and the final revision; the second author was involved in the analysis and

writing of the second draft, and the third author participated in the revision and editing. Some of the described ethnographic material has appeared in previously published work (Ahlin 2018, 2020, 2023). The ethics approval for this study was granted by the University of Amsterdam in November 2013.

Staying close through daily calls

Transnational family scholars have long established that family members who are spread around the world defy the often-unfavorable national migration policies by keeping in touch *via* digital technologies and through regular in-person visits (Bryceson 2019; Mazzucato et al. 2015). Families become transnational when family members live in different countries yet maintain a ‘feeling of collective welfare and unity, i.e. ‘familyhood’, even across national borders’ (Bryceson and Vuorela 2002, 3). Considering the role of ICTs in the making of transnational life, social science scholars have challenged the idea that care without physical proximity is impossible (Baldassar and Merla 2014; Baldassar et al. 2016). Digital technologies have transpired as significant in sustaining family ties across geographic distance.

In India, care practices such as living together and sharing food are at the core of what is perceived as good care for aging people (Ahlin 2023; Lamb 2000). This is especially so when the aging person’s physical and mental health increasingly declines, such as through conditions like dementia and Parkinson’s disease or health crises such as accidents and strokes (Brijnath 2014). In Kerala, physical proximity represents such an important part of good elder care that migrating children may be considered as abandoning their parents (Ahlin 2023). However, for these families, labor migration has become understood as a care practice as it is closely tied to remittances which the migrants send to their relatives in India (Ahlin 2023; see also Singh, Cabral and Robertson 2010; Lamb 2009). Additionally, our study shows that when family members become separated by physical distance, people do not necessarily care less because they cannot provide in-person care. Rather, they learn how to care differently, through forming transnational care collectives that include various kin and non-kin members and digital technologies.

Regardless of their age, older adults whom the first author met during fieldwork did not make much use of new, innovative, specialized digital technologies created for the purpose of improving health such as health-focused smartphone applications. Instead, they relied on the most easily available, affordable, and accessible digital technologies. Within the transnational care collectives that these generic devices supported, a major goal of people’s interaction was not an exchange of some specific information. Instead, the most important aim was enacting care through the practice of calling. As one of the nurses, Anthony, shared in a conversation that took place in January 2014:

‘I *call* (original emphasis) them every day ... I speak to my parents every day on the phone. I ring them and we talk for 10-15 min or even more than that ... When my brother is there, then he would take the (Skype) call. This happens only once in 3-4 months.’

Technologies have thus helped to re-shape care to fit the transnational context: calling became a new care practice, and for such care to be considered good, calling had to be frequent enough (Ahlin 2018, 2020). Not calling regularly, or not frequently enough, could be considered as neglect by the aging parents. As one nurse living in Oman shared in

October 2014, anytime her father felt she was not calling enough, he would jokingly remind her of this by saying ‘Have you changed your mind, you are only calling us weekly now?’ Calling thus became a new filial obligation which was established in each collective differently through tinkering with people’s expectations. The goal of consistent and frequent interaction was to keep relationships going by ‘sharing everydayness’ on the phone and ‘spending time together’ *via* webcam (Ahlin 2020).

Maintaining continuous familiarity with each other through daily calls was crucial for parents’ health. This became clear in Teresa’s family, for example. Teresa was a nurse working in the US, while her parents Achamma and Pathrose lived by themselves in Kerala. Teresa had one sister working as a nurse in the Gulf and another sister who was married and lived near their parents. Despite being geographically the furthest away among the siblings, Teresa felt she was relationally the closest to their parents. According to her, such an intimate relationship was a direct consequence of her adamant calling, twice every day. ‘In this way, I am always there for them, it makes it possible for me to find out if they have any problems and then to call others around them in case they need any help’, Teresa explained in March 2014.

Daily calling was important because her father Pathrose had Parkinson’s disease and other chronic conditions, like skin rash, which Teresa monitored remotely. Achamma took care of Pathrose practically, by taking him for laboratory tests for example, but Teresa was deeply involved in enacting healthcare for her parents. Her support through the phone was very pragmatic as it involved organizing people, reading laboratory tests at a distance, and giving concrete instructions on which steps to take next:

Today also my mom was saying my dad has some skin problem on his lower legs, and I told her, ‘Give him some massage so he will have more circulation to that part. That’s all, don’t take him to any hospital, they will put him there, and he will get lots of antibiotics, and I don’t want him to go for that.’ I always tell them what to do, which kind of blood test they should do. Then I ask about the report, and I give them directions on how to proceed.

By making healthcare at a distance possible, the phone shaped Teresa’s transnational care collective in several ways. Through daily updates about the smallest details concerning her father’s state, Teresa monitored his chronic illnesses explicitly through her mother’s descriptions or implicitly through nuances of her father’s voice. The phone, which affords only the transmission of sound, required that Teresa sharpened her listening skills to be able to read her father’s voice. Attentive listening was necessary on the phone to discern nuances in the voice and to interpret the meanings of silence (Bryceson and Vuorela 2002, 3). While the phone did not afford the transmission of visual images, it allowed for visualization, as Teresa explained:

I ask my mother, ‘Morning, how is dad, where is he sitting?’ So I know if he is sitting, where he is sitting, and what he is saying; I know his mood. I ask my mom, ‘Is there any sign of skin infection on his leg? Is he fine moving the lower leg? How is the temperature? What is the color of the skin?’ I always ask my mom all these questions. Then I ask her about the site of the wound. How often is it getting worse? Then I have a picture, oh, that is that. OK. It’s that same chronic condition.

In this way, Teresa was using her mother’s eyes to form a mental image of the body she was examining remotely. In doing so, she built on her professional knowledge and on the intimate familiarity she cultivated with her parents. Teresa thus used her multi-layered

knowledge of her parents, including their health histories, personalities and the relation between them, to set a diagnosis and ‘direct’ them in treatment at a distance.

Beyond staying updated with everyday life and learning about changes in their physical and mental health, daily calling allowed Teresa to maintain her parents’ trust, which she deemed crucial to ensure that they follow her health-related advice: ‘Trust is the main thing, they must trust you to do what you are telling them to do’. She contrasted her situation with that of her younger sister who lived in Kuwait. Teresa had an impression their parents did not take her sister’s health advice as seriously as they took hers: ‘I’m not sure whether they will do what my younger sister is telling them to do ... We both are nurses, but they do everything what I am telling them to do, it’s different’, she laughed. ‘I don’t know, there is some difference’. After a moment of consideration, she added: ‘I know my father very well. I know each word that is going to come out of his mouth, when it means something. And I know what is going on between my parents. That’s the way this is working out here, otherwise it would not’.

To carry out remote healthcare successfully, then, frequent calling was key to maintain the trust and the intimate knowledge of Pathrose’s illness, and of the relationship between him and Achamma who was the primary hands-on caregiver within this collective. Trust significantly shapes family care practices and also health decisions (Rodrigues 2016). In the context of healthcare, trust is particularly important as ‘a means of bridging the vulnerability, uncertainty and unpredictability inherent to the provision of healthcare’ (Kane, Calnan, and Radkar 2015). As the data from our research shows, technologies *can* be used purposefully to foster trusting relationships, which supports the provision of good care at a distance. Frequent calling and sharing the details of everyday life through seemingly casual chatting is therefore far from trivial. Such practices serve to establish specific digitally supported types of caring relations that are efficient when there is mutual trust. When successful, such relationships are crucial for health and wellbeing of those concerned.

Improving digital literacy

To enable remote care, certain material conditions must be fulfilled. To start with, a functioning telecommunications infrastructure must be established. Problems with internet connectivity and system-wide crashes are an issue that is often not taken into consideration for the introduction of advanced (health)care systems (Kumar et al. 2022; Pype 2018). According to the Indian national census (2017-18), internet penetration is 42% in urban areas and only 15% in rural areas, while more recent data suggests that average internet penetration is at around 43% of the total population. Only 4.4% of households own a computer in rural areas, compared to 23.4% in urban areas (Ganesan 2022, OXFAM India 2022). A wide gap between rural and urban areas reflects poor investments in rural infrastructure that has reinforced disparities. Conflict areas are particularly affected, for example in the north of India such as in the states of Kashmir, and in the East-Meghalaya and Assam where internet shutdowns occur regularly (Ganesan 2022).

Technologies such as smartphones, laptops and tablets are often available and affordable to people at large. In the families that the first author encountered, migrating children commonly bought digital devices for their relatives in India. ICTs are less accessible to people in certain areas which have poor telecommunications infrastructure, and also to those who struggle with using ICTs for a variety of reasons, from their physical condition (i.e. poor

hearing or eyesight) to low digital literacy. In India, on average 38% of the total population is digitally literate, again with a wide split between rural and urban areas (Ganesan 2022). Rapid technological development means both that people continuously need to require new digital skills, but also that some technologies become easier to use. For the older adults in this study, new communication platforms like Whatsapp have brought a significant change because of their accessibility. In follow up fieldwork in 2021–2022, the children shared with the first author that their parents had switched from simple mobile phones to smartphones and that they commonly engaged with each other through video calls on Whatsapp. ‘Skype is a thing of the past’, one interlocutor said in a conversation already in 2018. This technological advancement was the main development in comparison with the initial fieldwork in 2014–2015; digital technologies became more accessible because their use was simplified and free of charge, although it still required a good internet connection.

Adding innovative technologies into health and care practices involves an important question: how to motivate people – especially older adults – to acquire new skills and learn how to use digital technologies? In this research, a strong wish to interact with grandchildren was the greatest motivator for many older adults, especially grandmothers, to learn new digital skills, including navigating social media. In March 2014, the first author met several older women who attended computer classes at a local college specifically for this purpose. One of them, a widow in her 70s, shared her story about her struggle to overcome stigmatization as an older person and a woman when acquiring the Internet in her home: ‘I asked for the Internet to be installed in my house, and the men told me, ‘You’re an old woman, what do you need the Internet for? You don’t know what to do with it!’ When she finally obtained the internet from a private provider, she faced problems of disinterest and dismissal due to her age and gender when she was looking for someone to teach her how to use the computer. Yet her deep wish to be in touch with her grandchildren abroad motivated her to fight the prejudice. She proudly and skilfully showed the photos of her grandchildren on her iPad, saying ‘My son set up this cloud, and now I can see them whenever I want!’

Such experiences underline the importance of affect and the value of interpersonal relationships in ICT adoption. Indeed, STS studies have shown that medical or health devices are commonly perceived as ‘cold’ due to the ‘functional rationality’ on which they are designed; however, even such devices are more successful when people can form affective and social relations with and through them (Pols and Moser 2009). The values of efficiency, effectivity and predictability which are embedded into formal telecare systems and health technologies are less likely to translate into technology use in practice. Instead, people engage with technologies more easily when these devices bring something of value to them (Pols and Moser 2009, 166).

In our study, learning how to use mobile phones, tablets and smartphones was not primarily guided by older adults’ concern for health. They did not, for example, engage with any kind of health-related applications or self-tracking devices and they showed little interest in such technologies when asked about them. Rather, these older adults were most motivated to engage with digital technologies by their various emotions, such as love, concern and fear, and their wish to stay connected with their family members across distance; taking care of health was then a kind of ‘side effect’ of engaging in frequent technology-mediated interaction. The value of familyhood across geographic distance motivated people to acquire new skills that opened the door to the possibilities for transnational care collectives that also supported healthcare and, at times, turned general-purpose digital technologies into ‘health devices’.

Maintenance of technologies as care

Technologies not only support care, but also demand it for themselves; their functioning depends on specific infrastructures and maintenance. Including technologies in care therefore requires work and effort in the form of setting up the relevant infrastructures on the macro level and of everyday maintenance on the micro level. Ethnographic research of telecare in the Netherlands showed that technologies do not automatically increase efficiency and decrease the need for staff (Pols 2012). In that study, technologies changed nurses' routines, skills and knowledge required from them: instead of traveling to their patients to check on them, nurses had to learn how to take care of the technologies to keep them functioning, instruct their patients on how to use them, and deal with the data that these devices produced. When technologies are included in the (health)care process the workload does not decrease; instead, the technologies change the kind of work and skills needed for care to continue. Integrating digital technologies into (health)care can therefore be a costly endeavor, an issue that has not been sufficiently researched in countries such as India.

Within transnational care collectives, care for digital technologies in the form of regular maintenance – keeping the batteries and the credit full – is necessary work, which further requires financial resources to keep the collective functioning (see also Ahlin 2018). Pre-paid mobile phones, which were most used by older adults during fieldwork in 2014–2015, had to be constantly topped up with credit. In Kerala, this could be done at any small shop where the shopkeeper had the appropriate license. Such shops were common even outside towns and were usually situated only a short stroll from almost any house. Many older adults mentioned that they recharged their mobile phones themselves, although women often asked their husbands to do it for them. The process of credit re-charging was quick and uncomplicated. In many local shops where mobile phones were sold and the licence for charging was acquired, the shopkeeper recorded in a notebook the phone number to be recharged and the amount that the customer, most of whom were men, wished to upload; this was usually about 50–60 Rs, or less than US\$1 in 2014. After receiving the payment, the shopkeeper processed the request through their own mobile phone and the customers received a text message confirming a successful recharge.

What happened if digital technologies were not properly taken care of? Sonia and Ajay, whose son was a nurse in Guyana, told me about the trouble they experienced if they neglected their landline and mobile phone. 'We can't call on the mobile when the balance is over', Ajay started. 'At least the landline doesn't stop working in the middle of the conversation.'

'With the landline, even if we fail to pay the bill on time, we can call', Sonia continued. 'With the mobile, if there is no balance, no matter how much we try to call we can't. I surely get angry if the connection breaks! Just as we are about to know about each other's well-being, the balance in the mobile is over and the connection cut abruptly. Wouldn't anyone get angry?'

Technologies like landline and mobile phones not only support care practices, but also demand specific kinds of care. This care is primarily about paying attention to their operational needs: mobile phones must be charged with credit and energy, landline phones must have all their lines in order, and in both cases, the telecommunication service must be paid and properly connected. The practical care for technologies was provided by the children

who sent money, and by the parents who paid the bills, plugged in the battery charger, contacted the phone company for repairs, and avoided breakage or other damage to the equipment. All these practices are care practices in themselves, as they are necessary to keep the transnational care collective functioning. Technology use may be motivated by affective values like friendship or fun (Pols and Moser 2009). But Sonia's comment about becoming angry if devices stopped functioning indicates that her motivation to take care of digital technologies stemmed from values placed on kin relations. Through caring for technologies, family members took care of their relationships.

When calling is not enough

The dynamic of transnational care collectives changes with time, including with the aging of its family members. Despite the possibilities offered by digital technologies to enact care remotely, declining physical and mental health in older adults makes such care increasingly challenging. For example, in February 2015, the first author talked to Ela, a nurse who lived in United Arab Emirates, but when she learnt of her mother's cancer, she instantly took emergency leave and was at home the same day. In the coming year, she travelled to Kerala three times for about ten to fifteen days – as much leave as she could obtain. When in Dubai, Ela talked to her mother on the phone every day, as she had done already before her diagnosis. When she passed away, Ela returned to Kerala for the funeral: 'It was most important for me to be there for the occasion. It was something I had to do, for her, but also for myself, to process the grief. I would find it impossible to do that from afar if I weren't able to travel'.

Similarly, caring for a parent with late-stage dementia was challenging for all siblings, those who lived in other countries and those who leaved nearby. Mercy, who was a nurse working in the US, and her four siblings had a challenging time to organize care for her mother, a widow in her 80s with dementia, as Mercy recounted in February 2014. One of Mercy's brothers cut all contact with the mother due to inheritance conflicts; the second brother lived in another Indian state; the third one lived in Europe. As Mercy herself was based in the US, her mother had little choice but to move in with her other married daughter, Rosa, who lived not far from the family's ancestral home. On the phone, Rosa, often complained to Mercy of the exhaustion of having to take care of a mother suffering from a progressive cognitive decline (see also Brijnath 2014). Mercy's brother in Europe offered financial help, but Rosa brushed his offer aside. 'Our mother needs somebody to feed her, by spoon, daily, and no amount of money could do that', Rosa reportedly told Mercy. This illuminates a particular morality of care whereby even an in-house carer is not a socially accepted option, even if they are paid through children's remittances.

From the US, Mercy used to call her mother regularly, but this was becoming increasingly difficult. How to talk on the phone with someone who had dementia and could not even remember having a daughter, let alone that she lived abroad? Mercy still called but ended up mostly talking to Rosa about their mother's condition. She had also taken their mother into her own house while visiting Kerala for a couple of months that winter. In this way, she was providing care not only for her mother, but also for Rosa, by offering her some respite from the caring tasks, if only for a short time.

Digital technologies cannot enable people to entirely replace in-person interaction. Yet in the times of health crisis, the transnational families relied on frequent phone calls and

in-person visits. The frequency of these visits depended on the possibilities of leave from work and international travel, both of which were impacted especially during the Covid19 pandemic. In January 2022, Aaron, an only child who lived in the UK, described his experience of the time when his father, a chronic lung patient, contracted Covid19:

‘I couldn’t travel because there were no flights operating at that time. It was a very hard time; I couldn’t do anything. I was absolutely stunned because I couldn’t even go and see what was happening at home. To return to the U.K. I would have to hotel quarantine for two weeks, which would cost around 2,000 pounds [USD 2,600], very expensive.’

Instead of travelling, Aaron relied on very frequent video calls with his mother to coordinate care for his father and arrange a hospital stay for him in India: ‘My mom was calling me all the time, every ten minutes, even during my work time. So I couldn’t concentrate on my work, and I had to take a week of leave. After one week or so, my uncle started helping her, so things were better.’

Aaron’s example shows that the intensity of video calls – and the co-presence this produced – was such that he had to take a leave from work as he was afraid of making a professional mistake. Visual technologies such as webcams have indeed been considered as the type of technology that enables the most intimate kind of co-presence across distance (Nedelcu and Wyss 2016; Baldassar et al. 2016). Eventually, Aaron’s situation was eased as his father’s condition improved, but also Aaron’s uncle became involved in helping in person. In this way, a kin member ‘stood in’ for a missing family member to provide practical support. All these examples testify of the importance of in-person visits and hybrid interaction in times of worsening health conditions.

Conclusion

Remote healthcare systems are commonly implemented with a top-down approach, hence bypassing the values and needs of healthcare professionals, carers and patients who use these technologies. Studies are confirming the challenges of such implementation with an emphasis on functionality and efficiency (e.g. Hawkins, Awondo and Miller, forthcoming; Plunger et al. 2022). Among other factors to consider, such an approach runs the risk of undermining the trust between doctors and their patients that has traditionally relied upon personal contact, premised on relational dynamics (Kane and Calnan 2017). Scholars have called for a synergy of top-down and bottom-up approaches in the implementation of healthcare technologies (e.g. Nyame-Asiamah 2020; Austin, Van Dijk, and Drossaert 2020). In this paper, we have explored two aspects that have been hitherto little addressed in studies of technology-supported care: everyday digital technologies and informal care practices that importantly intertwine with healthcare.

Our study provides four main lessons. First, some kinds of remote (health)care are indeed possible, with care becoming re-shaped around practices that can be done across geographic distance. Enacting care on the phone becomes about frequent calling; sustaining frequent contact is important to foster trust which further impacts people’s wellbeing and how they act in case of an accident, health scare or worsening chronic illness. Second, older adults’ use of digital technologies is importantly influenced by affect and the values of interpersonal and kin relationships. In this study, older adults were interested in interacting with and

caring for their grandchildren, for example, and for this they could put considerable effort into improving their digital literacy. This may have significant positive consequences also for managing health conditions. Third, the introduction of technologies into caring relations does not necessarily and automatically translate into less work and reduce care workload; instead, the work in question becomes different. Keeping technologies functioning through telecommunication infrastructures and everyday maintenance becomes essential work for care to be enacted at a distance.

Finally, as the load of mental and physical decline of older people becomes heavier, the need for in-person visits increases. In such circumstances, a mostly remote interaction becomes increasingly replaced by hybrid interaction, involving both increased frequency of calls and travelling. Technologically mediated relationality is precisely that – it is mediated through technologies and therefore not precisely the same to face-to-face relationality (Ahlin 2023). Our analysis of digital technologies in transnational families demonstrates this, showing that technologies impact people's relations in ways that are not always foreseen but emerge through tinkering with different kinds of technologies and therefore constellations of care collectives. Enacting care through transnational care collectives is a welcome option when other options, such as living together or nearby, are not considered feasible for all involved. Despite the possibilities for constant remote care offered by digital technologies, (health)care for older people is best supported through hybrid interaction, even if temporal intervals between in-person contact are relatively long. Besides frequent calling, for care at a distance to function over time regular visits in-person are therefore essential. The relational dimension between those involved in technology-supported care is crucial, as this influences how people respond to health conditions, follow health-related advice, and consequently also what their health will look like.

Ethical approval

Ethical approval for this study was obtained from the University of Amsterdam.

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