

Digital health's impact on the patient-doctor relationship in a primary healthcare setting: A qualitative study

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Dear Editor,

The integration of digital health is reshaping the patient-doctor relationship in primary care by challenging its core principles of trust, knowledge, regards, empathy and care continuity. While digital health improves access and empowers patients, it also destabilises the delicate nature of this relationship. Our qualitative study—conducted in 6 public primary care clinics in central and north Singapore on 21 doctor and patient participants over 15 months across 2023 and 2024—explores these paradoxical effects of digital health and offers insights into how we can mitigate them. Our findings are summarised into 4 major themes.

Digital health heralds a paradigm shift in the patient-doctor dynamic. It has empowered patients with tools for self-monitoring and increased their self-efficacy. Through wearable devices, shared medical records and mobile health application portals, patients now have greater visibility and timely feedback on their health status. This empowerment has transitioned the doctor's role from "a sage on the stage"—a sole authority dispensing knowledge—to a "guide on a side". Now, doctors often help patients curate information to facilitate informed decision-making. Doctors who are slow to embrace the insidious shift may feel challenged by the new power acquired by patients.

With easy access to online health resources, patients frequently approach consultations armed with unverified information, compelling doctors to address misinformation while preserving professional credibility. One doctor from our study remarked, "There's a lot of information out there, but if the patient has no insight on the right information, it can lead to more harm." This phenomenon reflects tensions introduced by digital health into the patient-doctor relationship, eroding trust in doctors. The onus is now on the doctor to keep up with "Dr Google" and adapt generic online information into personalised advice for patients.

Remote consultation via video consultation poses another threat to relational trust. Video consultation

has enhanced accessibility to care. These tools have enabled timely care for minor ailments and psychological support, bringing convenience to patients, and increasing healthcare reach and care continuation for healthcare providers. Unfortunately, such convenience is a double-edged sword that has led to potential abuse of healthcare encounter, such as the unwarranted issuance of medical certificates.

The delicate patient-doctor relationship has always been threatened by external forces such as healthcare financing, organisation efficiency and data-centric health informatics design. Despite these challenges, patients and doctors have intuitively known what is most important in the healthcare system—that of a strong patient-doctor relationship, which is based upon trust, knowledge, regard and empathy. Digital health, though empowering, paradoxically endangers the humanistic qualities essential in care. A patient reflected, "Sometimes, the doctor seems more focused on the screen than on me, and that makes me feel like I'm not really being listened to." Therefore, digital health's promise must be carefully balanced with strategies that sustain empathetic engagement.

Finally, our study uncovered critical insights regarding the digital divide. Both doctors and patients emphasised the need for equity in digital health, advocating inclusivity in adoption. One patient lamented, "For me, it's easy because I understand English, but my parents [...] won't understand the apps." Doctors echoed these concerns, emphasising the need for user-centric designs and tailored digital literacy programmes to ensure inclusivity. This disparity underscores the ethical imperative to bridge digital divide, and alienates those unable to engage with emerging technology, thereby exacerbating health inequities.

Based on these findings, our study team presents the following implications to harness the promises of digital health while safeguarding the core tenets of patient-doctor relationship:

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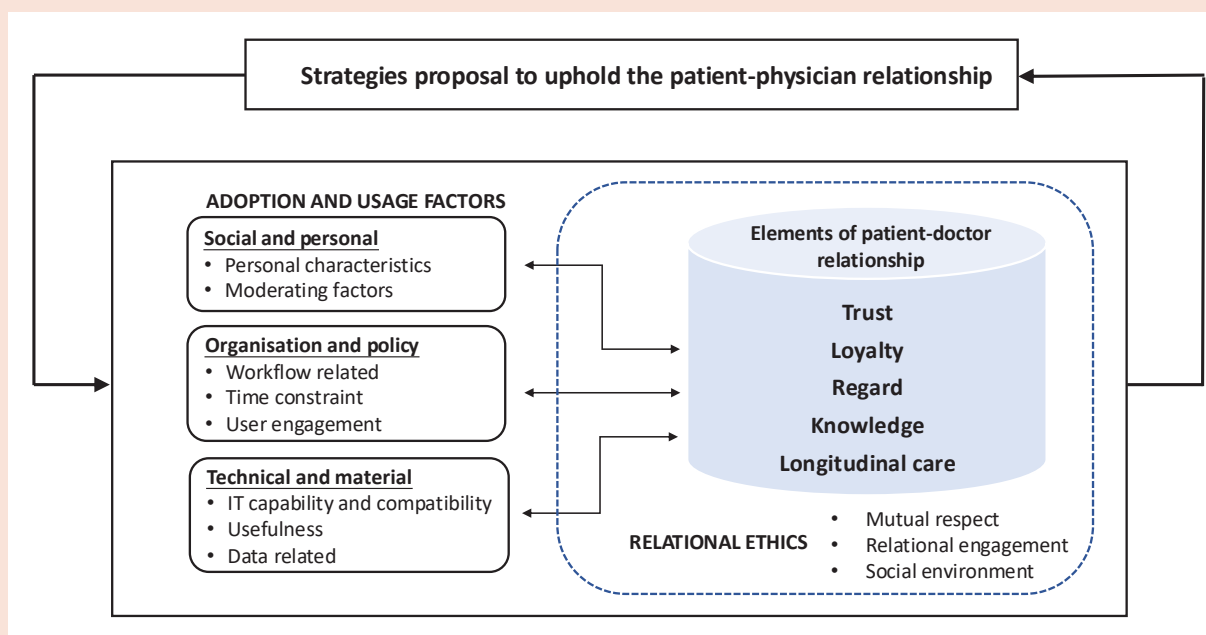
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Fig. 1. Strategies to uphold patient-doctor relationship.



Awareness in medical professional to maintain digital competency. Medical professionals are challenged by open-sourced medical information, accelerated use of digital health tools such as wearables, remote monitoring and AI-assisted technologies. While these tools augment doctors' capability, they have inherent limitations when used in different clinical contexts. Medical professionals must maintain digital competency to remain effective when facing a tech-savvy patient. Proficiency is critical for delivering quality care and maintaining patient trust. Resources should also be prioritised towards building healthcare workforce capability before large-scale digital health implementation.

Developing human-centric digital environment. Digital health applications complement, not replace, doctors' humanistic skills such as empathy, moral judgement and clinical reasoning. Doctors should be mindful of the potential for digital tools to depersonalise care and balance technological integration with genuine patient engagement. By providing doctors with a user-centric digital environment, allowing them to navigate seamlessly between the digital and lived space, and refocusing their attention to authentic connections with patients, a healthy patient-doctor relationship can be upheld.

Addressing the digital divide as a social determinant of health. Closing the digital literacy gap requires more than user-friendly tools. System-

wide digital inclusion programmes should support marginalised groups. Healthcare providers may consider introducing digital literacy as part of patient education, ensuring that patients are equipped to use these tools effectively. This may involve collaborating with community partners to tailor digital health education to the needs of older adults; or incorporating it into the care coaching model for patients. The design of universally accessible tools, such as using voice command or audio enhancements, can also help to mitigate disparities among older adults. Such initiatives are essential to uphold healthcare equity in the digital age, ensuring all patients benefit meaningfully from digital health. Without a sociopolitical commitment to inclusivity, digital health risks reinforcing health inequities for vulnerable populations.

Our findings highlighted both the positive and negative impact of digital health within Singapore's primary care ecosystem, illustrating how it has improved access to healthcare and accelerated patient empowerment while simultaneously destabilising patient-doctor relationship. Future research should focus on refining digital health tools to be equitable, relational and adaptable to diverse patient needs, ensuring these tools serve as enablers rather than disruptors of human-centred care. In the evolving landscape of digital healthcare, the integrity of the patient-doctor relationship must remain paramount, fortified by empathy, inclusivity and a commitment to enhance human potential.

Ethics statement

Ethics approval was obtained from National Healthcare Group Domain Specific Review Board (2021/01036), and the study was performed in accordance with the relevant guidelines and regulations laid by it. We used the Consolidated Criteria for Reporting Qualitative Research (COREQ) as our reporting framework. Written informed consent followed by sociodemographic information was obtained physically from the participants before commencing the interviews over Zoom calls. All participants were reimbursed with grocery store vouchers of SGD20 (USD15.50) as token of appreciation. There are individual quotes from qualitative interviews, but no personally identifiable information is designated to each quote.

Declaration

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