


Chapter 5

Digital Competency's Role in Promoting Equity in the Digital Healthcare Ecosystem: An Overview

Mussa Saidi Abubakari

 <https://orcid.org/0000-0003-3782-281X>

Universiti Brunei Darussalam, Brunei & Dig Connectivity Research Laboratory (DCRLab), Uganda

Lawal Abdulwahab Olamilekan

 <https://orcid.org/0000-0003-4955-244X>

Accord University, Mogadishu, Somalia

ABSTRACT

The rapid digitalisation of healthcare systems has introduced innovative solutions for improved access, efficiency, and patient outcomes. However, without equitable digital competency, these advancements risk exacerbating existing health disparities. This chapter explores the critical role of digital competency in promoting equity within the digital healthcare ecosystem. It examines how varying levels of digital skills among patients, providers, and institutions influence access to and utilisation of digital health services. Through conceptual analysis, global case studies, and policy reflections, the chapter highlights structural barriers, digital divides, and strategies to foster inclusive digital health practices. Emphasising the intersectionality of digital exclusion, the chapter advocates for targeted interventions and capacity-building initiatives that prioritise marginalised populations. Ultimately, it positions digital competency as a foundational pillar for ensuring equity and inclusion in the evolving landscape of digital healthcare.

1. INTRODUCTION

Digital Transformation in Healthcare and the Importance of Digital Competency

The accelerated integration of digital technologies into healthcare delivery has transformed the landscape of global health services. From electronic health records and telemedicine to mobile health

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applications and artificial intelligence-driven diagnostics, the digital healthcare ecosystem is rapidly expanding (K. K. Kim & Backonja, 2025; Mukhtar et al., 2025). While these innovations promise improved healthcare accessibility, efficiency, and patient outcomes, they also pose a significant risk: deepening existing inequalities for populations with limited digital access or low digital competency (Badr et al., 2024). The mission of this chapter is to critically examine the role of digital competency in promoting equity within this evolving ecosystem and to highlight how targeted interventions in digital literacy and skill-building can foster inclusive digital healthcare systems.

While digital health solutions are often framed as inherently progressive and inclusive, the chapter interrogates this assumption. A key concern addressed is that many digital health initiatives assume a baseline level of digital access and capability that does not reflect reality for a significant portion of the global population (Girmay, 2024; Whitehead et al., 2023). Populations such as older adults, people with disabilities, ethnic minorities, low-income communities, and residents of rural or underserved areas are disproportionately affected by low digital competency (Ausserhofer et al., 2024; Tso et al., 2022). This limits their ability to navigate patient portals, participate in virtual consultations, understand digital health information, or engage with wearable health technologies, leading to missed diagnoses, delayed treatments, and poorer health outcomes.

Another concern is that healthcare professionals themselves are often insufficiently trained in digital tools and platforms. Without adequate digital skills and understanding, providers may fail to deliver patient-centred digital care or to recognise the digital literacy needs of their patients. This digital competency gap among providers not only undermines the quality of digital service delivery but also further disenfranchises already marginalised patient populations (Girmay, 2024; Mukhtar et al., 2025). Finally, the chapter is concerned with policy and system-level oversights. Current digital health policies and strategies may not fully account for the disparities in digital competency across populations or incorporate digital inclusion as a core principle. As such, they risk perpetuating structural inequalities by designing and implementing digital health interventions that are out of reach for many of the people they are intended to serve.

Therefore, at the heart of this chapter lies a central concern: digital technologies, if not implemented thoughtfully and inclusively, can exacerbate health disparities rather than resolve them. Equity in healthcare is fundamentally about ensuring that all individuals, regardless of their socioeconomic status, age, gender, disability, or geographic location, can access and benefit from quality healthcare services (Girmay, 2024; Lyles et al., 2022). However, the digital divide—the gap between those with access to digital technologies and those without—mirrors, and in some cases intensifies, existing health inequalities (Girmay, 2024). This divide is not merely technological but deeply intertwined with individual and systemic levels of digital competency. The chapter, therefore, positions digital competency as a critical enabler—or barrier (if lacking)—to equitable health outcomes in digitally mediated healthcare environments.

By drawing from interdisciplinary literature in public health, digital literacy, education, and health informatics, this chapter synthesises theoretical and empirical insights to develop a comprehensive framework that situates digital competency as a linchpin of equitable digital healthcare systems. It examines how gaps in digital skills manifest among patients and healthcare providers alike and how these gaps can systematically exclude vulnerable groups from the benefits of digital health innovations.

Chapter Objectives, Methodology, and Organisation

The overarching aim of this chapter is threefold:

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