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AI and Big Data for Ageing Populations: Reimagining Digital Health Ecosystems in the Global South

Abstract

The COVID-19 pandemic accelerated the integration of digital health technologies, repositioning telehealth from a supplementary tool to a primary mode of healthcare delivery. While high-income nations leveraged robust infrastructure and AI-driven platforms, the Global South exposed persistent inequities that disproportionately marginalized older adults. This chapter critically examines these disparities through the lens of AI and Big Data in healthcare diagnostics, focusing on how computational intelligence can transform ageing and care in resource-variable contexts. Emerging technologies, such as artificial intelligence for predictive diagnostics, natural language processing for multilingual consultations, Internet of Medical Things (IoMT) for continuous monitoring, and blockchain for secure data governance, are analyzed for their potential to mitigate systemic gaps. Drawing upon policy frameworks, empirical studies, and grey literature, the chapter identifies structural barriers such as digital illiteracy, infrastructural fragility, and cultural resistance, while highlighting opportunities for creating intelligent, equity-focused healthcare ecosystems. The argument advances a transition from pandemic-driven emergency adoption to sustainable, AI-powered systems that embed sociocultural realities of older adults in the Global South. By situating ageing at the intersection of health sciences, technology, and social equity, the chapter outlines pathways for building inclusive, ethical, and resilient digital health ecosystems for future populations.

Keywords: Artificial Intelligence in Healthcare, Big Data, Telehealth, Ageing, IoMT, Global South

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