Chapter 7
Culturally Relevant AI Strategies for Geriatric Care in Low-Resource Settings

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ABSTRACT

This chapter explores culturally relevant AI strategies for geriatric care in low-resource settings. It focuses on how AI tools can be adapted to local health practices, social norms, and infrastructure limitations. The analysis includes case studies from underserved regions, highlighting the role of AI in extending primary care, supporting informal caregivers, and improving access to diagnostics and monitoring. It discusses the importance of inclusive data, local language processing, and trust-building through community-based models. The chapter also addresses the risks of digital colonialism, poor interoperability, and ethical concerns tied to algorithmic design in non-Western contexts. It concludes with policy recommendations for equitable AI deployment tailored to ageing populations in low-income and rural environments.

1. INTRODUCTION

Culturally relevant artificial intelligence (AI) strategies for geriatric care in low-resource settings provide the elderly with better access to healthcare and social services. Geriatric care addresses the medical needs of elders and offers support through social services. In low-resource settings, disabled elders face many barriers

DOI: 10.4018/979-8-3373-5462-0.ch007

when trying to access healthcare and social services. An assessment of the needs of the disabled elderly in a low-resource setting can identify gaps in the current healthcare situation and allow the development of AI solutions that are culturally relevant, closing the gap and allowing the elderly to access healthcare and social services.

AI is currently used in healthcare, but the lack of cultural relevance can aggregate the health disparity experienced by elders in low-resource settings and prevent the many benefits engineered solutions provide in supporting the disabled elderly in daily living activities. Cultural relevance improves service utilization and compliance to treatment and clinical advice (Harrington, C. N., et al., 2021). Cultural belief and sharing of personal information present major barriers to the need of elderly care in low-resource settings as it affects the reporting of health-related issues and the utilization of healthcare or social service (Kalusivalingam, A. K., et al., 2021).

Cultural belief dictates that health-related issues can only be expressed to the family and is a barrier to seeking professional care due to the stigma that a diagnosis can bring. Marital status may prevent the elder from sharing health-related issues that are considered inappropriate for and restricted within a marriage relationship. Hence, sharing of information needs to be within their trusted group when seeking help or support. The development of a chatbot for geriatric care using AI is a new and innovative idea. The chatbot should be culturally relevant by considering the needs, language, and beliefs of the elderly.

2. UNDERSTANDING GERIATRIC CARE

Geriatric care denotes a comprehensive approach to the physical, mental, functional, and social health needs of older adults. The population aged 65 and older is projected to reach 73 million by 2030 in the United States and 1.5 billion worldwide by 2050 (Jakovljevic, M., et al., 2023). Larger, more culturally diverse elderly populations in low-resource settings therefore indicate a greater need for culturally relevant approaches to care. Current-age geriatric healthcare models also largely evolved in resource-rich, urban settings, demanding reconsideration in lower-resource contexts. Robust culturally relevant AI can help address these challenges and bridge the prevailing geriatric care gap. Geriatric care is a multidisciplinary assessment that addresses the functional ability, physical health, and cognitive wellbeing of patients (Efthymiou, I.-P., 2024).

Multimorbidity, the concurrent presence of multiple chronic conditions, affects the majority of older adults and complicates this process. Assessments are further challenged by limited cognitive and physical capacities, while mental and physical health often deteriorate during hospital stays. Accordingly, many geriatric patients prefer community care and assisted living arrangements where support staff pro-