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The role of telehealth in improving health outcomes for older adults in Pakistan: a narrative review

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Abstract

Background: Pakistan's older adult population is rapidly increasing, with many experiencing mobility limitations and multiple chronic conditions that restrict access to healthcare. Approximately 8.9% of Pakistanis are aged 60 years and above, with rural populations facing greater healthcare barriers. Internet coverage in Pakistan is estimated at 78%, indicating a growing potential for telehealth services.

This narrative review evaluates evidence on telehealth interventions for older adults in Pakistan, focusing on healthcare accessibility, patient satisfaction, chronic disease management, reduction of travel burden, and caregiver involvement.

Materials and Methods: PubMed, Scopus, Google Scholar, the World Health Organization (WHO) publications, and local Pakistani journals were searched (2012-2023). Studies evaluating telehealth interventions for senior citizens were included. Low- and Middle-Income Countries (LMICs) were specifically considered to contextualize findings. Data on population demographics, disease type, intervention type, outcomes, barriers, facilitators, caregiver involvement, and socioeconomic status were extracted and thematically analyzed.

Results: telehealth improved patient satisfaction, reduced travel requirements, supported chronic disease management, and enhanced system efficiency. Barriers included limited digital literacy, infrastructure gaps, cost, cultural resistance, and privacy concerns. Facilitators included smartphone penetration, government initiatives, and public-private partnerships.

Conclusions: telehealth is a viable solution to healthcare gaps for older adults in Pakistan. Implementation requires investment in digital literacy, technology access, supportive policies, and training caregivers in telehealth use.

Key words: telehealth, older adults, Pakistan, digital health, chronic disease management, caregivers.

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Introduction

Globally, the elderly population is increasing alongside a rise in chronic diseases. Pakistan faces similar challenges, with approximately 8.9% of the population aged 60 years or above, projected to reach 12% by 2035. Older adults experience mobility limitations, multiple chronic conditions, and reliance on family caregivers.

Barriers to accessing healthcare in Pakistan include long travel distances, high transportation costs, limited availability of specialist care, and cultural and social constraints, particularly for women. Telehealth, defined as the remote delivery of healthcare using digital technologies, can reduce these barriers by enabling virtual consultations, remote monitoring, and patient education.

Currently, Pakistan has an internet penetration rate of approximately 78%, with smartphone adoption reaching 70% of the population. These digital resources create a favorable environment for telehealth, although disparities exist between urban and rural populations.

Materials and Methods

Search strategy

PubMed, Scopus, Google Scholar, World Health Organization (WHO) publications, government reports, and local journals (2012-2023) were searched using terms: telehealth, telemedicine, digital health, older adults, elderly care, Pakistan, and Low- and Middle-Income Countries (LMICs).

Definition of Low- and Middle-Income Countries

For conceptual clarity, the review uses the term LMICs to refer to Low- and Middle-Income Countries, as categorised by the World Bank, which includes Pakistan.

Inclusion and exclusion criteria

Inclusion criteria were: i) studies evaluating telehealth interventions for older adults, and ii) outcomes including healthcare access, patient satisfaction, chronic disease management, or system efficiency.

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Exclusion criteria were: i) non-empirical studies, ii) studies not focused on older adults and iii) non-English publications.

Data extraction and analysis

Extracted data included population demographics (age, gender), disease type (cardiovascular, diabetes, respiratory, neurological), socioeconomic status, caregiver involvement, intervention type, outcomes, barriers, and facilitators. Findings were thematically synthesized.

Contextual setting: Pakistan's health system

Pakistan's healthcare system is characterised by limited geriatric-specialised services, particularly outside major urban centres. Most elderly individuals rely on family caregiving rather than institutional or professional eldercare support. Digital literacy varies widely, with caregivers often acting as intermediaries between older adults and technology-based health services. These structural dynamics shape both the opportunities and constraints for telehealth adoption among senior citizens.[1-10]

Results

Accessibility

Telehealth reduced travel time, waiting periods, and logistical barriers. Older adults, particularly in rural areas, accessed consultations and follow-up care from home, improving engagement.

Chronic disease management

Remote monitoring enabled early detection of complications, adherence to treatment plans, and coordinated management of multiple chronic conditions, including diabetes, hypertension, and cardiovascular disease.

Patient satisfaction

Patients reported greater convenience, lower costs, shorter waiting times, and improved interactions with providers.

Health system efficiency

Telehealth reduced unnecessary hospital visits and alleviated overcrowding.

Barriers and facilitators

Barriers included digital literacy, infrastructure limitations, cost, cultural resistance, and privacy concerns. Facilitators included smartphone penetration, government programs, and public-private partnerships. Caregivers played a critical role in supporting older adults with limited digital skills (Table 1, Figure 1).

Discussion

The findings of this review indicate that telehealth has the potential to significantly improve health service accessibility for older adults in Pakistan by reducing travel time, lowering direct and indirect healthcare costs, and enabling continuity of care for chronic conditions. These benefits are particularly relevant for elderly individuals with mobility limitations, multimorbidity, or residence in remote areas where specialist care is not geographically accessible.

However, effective utilization of telehealth services in Pakistan is strongly mediated by the role of caregivers, who often act as intermediaries between older adults and digital platforms. Since many elderly individuals have limited digital literacy, caregivers are frequently responsible for operating mobile applications, managing virtual consultations, and ensuring adherence to remote monitoring plans. This dynamic highlights the importance of caregiver readiness, which is shaped not only by digital competence but also by household economic resources, availability of time, and access to reliable internet connectivity.

Evidence suggests that countries with successful telehealth adoption among older adults have invested in caregiver-oriented training models, simplified user interfaces, and structured technical support systems. In Pakistan, similar approaches could help bridge the digital divide and facilitate long-term integration of telehealth into routine eldercare practices. Targeting caregivers alongside older adults is therefore essential in strengthening telehealth delivery within the Pakistani health system.

Conclusions

Telehealth presents a viable solution for addressing healthcare access barriers faced by older adults in Pakistan, particularly for the management of chronic diseases and continuity of care. Its effectiveness, however, depends not only on technological infrastructure but also on the availability of digitally capable caregivers

Table 1. Examples of telehealth interventions reported in the literature.

Study	Population	Intervention	Outcomes	Patient satisfaction	Caregiver role	Context
Smith *et al.*, 2020	Older adults with chronic diseases	Telehealth consultations and remote monitoring	Improved access to care and continuity of treatment	High	Caregivers often assisted with technology use	High-income settings
Almathami *et al.*, 2020	Older adults using telemedicine services	Real-time telemedicine consultations	Identified barriers including digital literacy and infrastructure	Moderate to high	Caregiver support improved service use	Global review including LMICs
Kruse *et al.*, 2017	Patients with chronic diseases including elderly	Telehealth monitoring systems	Reduced travel burden and improved disease management	High	Family assistance common among elderly patients	Mixed healthcare settings

LMICs, Low- and Middle-Income Countries.

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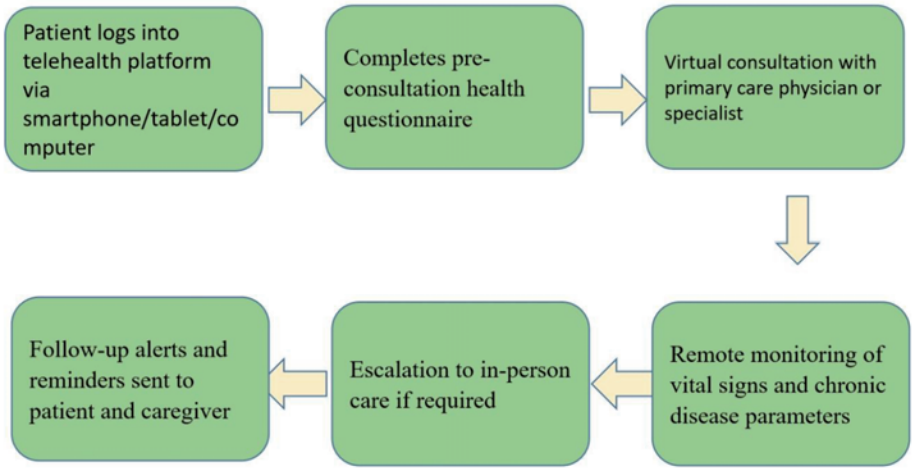

Figure 1. Telehealth workflow for older adults in Pakistan.

who can support elderly patients in navigating remote healthcare platforms.

To enhance adoption and sustainability, the following actions are recommended: i) develop caregiver-focused digital literacy programs to improve confidence and competence in using telehealth tools; ii) to expand subsidised access to smartphones and internet connectivity for elderly households, particularly in low-income communities; iii) to simplify user interfaces and integrate local languages to improve usability for senior citizens; iv) to build structured support systems, including telehealth helplines and community-based digital facilitators; and v) to encourage collaboration between government, private sector, and academic institutions to scale telehealth services for aging populations.

Strengthening caregiver capacity, alongside infrastructure and policy support, will be essential in expanding equitable telehealth access for Pakistan's growing elderly population.

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