

MOBILITY AND HEALTH CHALLENGES IN OLDER ADULTS

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Abstract: *The study examines mobility and health challenges among older adults in Kaduthuruthy Grama Panchayat, Kottayam District, Kerala, using a qualitative case study approach. Ten participants, aged 60 and above, were purposively selected from different wards, with in-depth interviews and observations conducted, spending one to two hours with each respondent. Findings revealed that chronic illnesses, multimorbidity, limited mobility, unsafe home environments, and social isolation substantially affect independence and quality of life. The study highlights the importance of routine functional screening, home modifications, accessible transport, social engagement, and integrated multi-domain interventions. Evidence underscores the need for locally adapted, community-based strategies involving government, civil society, and neighborhood initiatives to enhance health, mobility, and well-being, ensuring safe and dignified ageing in rural Kerala.*

Keywords: Mobility limitations, Older adults, Rural ageing, Health challenges, Community interventions

Introduction

India is undergoing a profound demographic transformation: the proportion and absolute number of older adults are rising rapidly, reshaping social, economic, and health priorities (IIPS & UNFPA, 2023). Improvements in life expectancy and falling fertility rates mean that the share of people aged 60 and above is projected to double later this century, intensifying demand for age-sensitive health services, long-term care and community support systems (IIPS & UNFPA, 2023). Historically, elder care in India relied heavily on extended family networks and informal community supports; however, increasing migration, changing family structures and economic pressures have weakened these safety nets, leaving many older persons more vulnerable to isolation and unmet health needs (Dey, 2012; IIPS & UNFPA, 2023).

Conceptually, healthy ageing has moved beyond disease absence toward preserving functional ability and enabling participation in valued activities (World Health Organization, 2015). Seminal frameworks of successful and active ageing emphasise maintained physical and cognitive function, minimal disability, and continued social engagement as core components of later-life wellbeing (Rowe & Kahn, 1997; World Health Organization, 2002). Within these frameworks, mobility emerges as a central domain: the capacity to move safely and independently underpins autonomy, access to services, and social participation. Mobility limitations therefore function both as outcomes of health decline and as determinants of further deterioration, increasing risks of falls, hospitalisation, dependency and reduced quality of life (Freiberger, 2020).

The clinical profile of ageing commonly includes multimorbidity coexisting chronic conditions such as hypertension, diabetes, arthritis, chronic pain and sensory impairments — which interact to undermine mobility and functional independence. National and regional data from India indicate high burdens of non-communicable disease among older adults and wide sub-national variation; for example, hypertension prevalence estimates range substantially across studies and states, with some Kerala cohorts reporting rates approaching half the adult population (Varghese et al., 2023; Saju et al., 2020). Multimorbidity complicates care pathways, heightens fall risk, and frequently necessitates caregiver support, while cognitive impairments further compromise safety and daily functioning (Das, 2017; Angrisani et al., 2024).

Environmental and infrastructural factors critically shape how health conditions translate into disability. Many rural homes and neighbourhoods were not designed for ageing residents: entrances with steps, narrow doorways, absence of handrails, poorly adapted bathrooms, uneven pathways and inadequate lighting all contribute to indoor and outdoor mobility barriers. Scoping and systematic reviews identify environmental, physical, cognitive and psychosocial determinants as key drivers of mobility limitations, and highlight the potential of low-cost home modifications and assistive technologies to reduce fall risk and preserve independence (Maresova et al., 2023; Yaw, 2025). Yet awareness, financing and implementation gaps mean such modifications are often absent in practice.

Social dimensions family support, social interaction, and neighbourhood networks strongly mediate ageing outcomes. Social isolation and loneliness correlate with poorer mental health, slower recovery from illness, and accelerated functional decline; conversely, active social engagement and reliable informal care can buffer clinical vulnerability (Mishra et al., 2023). Contemporary rural contexts in India reveal heterogeneous care arrangements: some older adults live with supportive families, while others are single, widowed, or dependent on distant relatives and paid caregivers, a variation that shapes daily mobility and access to services.

Access to health, rehabilitative and preventive services remains uneven. Routine functional screening (ADL/IADL, gait and balance, vision, cognition) and access to physiotherapy, vision correction, and assistive devices are essential to detect early decline and prevent progression, but such services are limited or under-utilised in many primary care settings (Nagarkar & Kulkarni, 2022). Transportation barriers — reliance on informal hires, infrequent escorts, and poor public transport, further impede clinic attendance and continuity of care, exacerbating untreated chronic conditions and missed opportunities for rehabilitation (Krasniuk & Crizzle, 2023).

Given these intersecting clinical, environmental and social drivers, qualitative case studies provide indispensable insight into lived experience: they illuminate how conditions, home design, family dynamics and service access combine to shape individual trajectories of mobility and health. Rich narrative data complement population surveys by revealing context-specific barriers, coping strategies, and feasible points of intervention that aggregated statistics cannot capture. The study therefore adopted a qualitative case-study approach in Kaduthuruthy Grama Panchayat, Kottayam District, Kerala to evaluate and understand the various health challenges faced by older residents.

Review of Literature

A review of literature is an essential part of any research as it provides a strong theoretical and empirical foundation for the study. It helps identify research gaps, understand past findings, and establish a conceptual framework for further inquiry. By synthesizing existing studies, the review enables researchers to assess methodological trends, compare results, and draw meaningful conclusions that guide future research directions and policy implications.

The review of existing literature reveals extensive studies focusing on the health, mobility, and dependency of older adults globally and in India. Montero-Odasso et al. (2022) emphasized that falls among older adults represent a significant health concern, contributing to morbidity, mortality, and healthcare costs. Through a modified Delphi process, the researchers developed global evidence-based recommendations promoting early case identification, co-designed interventions, and integration of e-health approaches adaptable to diverse income settings. Similarly, Freiburger et al. (2020) noted that mobility in older adults determines health and independence, with one-third of people over 70 and most over 85 facing mobility limitations. Their findings highlighted the multi-dimensional aspects of mobility, including neuro-muscular and psychological factors, and the necessity for future research to fill gaps in assessment and intervention strategies. In line with this, Maresova et al. (2023) conducted a PRISMA-based scoping review of 52 studies, identifying environmental, cognitive, psychosocial, and technological determinants of mobility among older adults. They concluded that smart home technologies and assistive devices could enhance mobility, provided economic barriers are addressed. Further, Yaw et al. (2025) underscored that indoor mobility often neglected in gerontological studies is crucial for aging in place. Their review of nine studies involving 1,833 participants identified fatigue, poor balance, and environmental barriers as primary constraints, particularly in rural and low-resource households, advocating for targeted home modifications and holistic interventions.

Several Indian studies have contributed to understanding aging, dependency, and fall risk among older adults. Nagarkar and Kulkarni (2022), using data from 31,477 participants in the Longitudinal Aging Study in India, found that difficulties in Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) significantly increased the risk of falls, even after adjusting for demographic and physical variables. Their findings suggest incorporating functional screening into primary care to prevent falls effectively. Similarly, Prithiba et al. (2023) reported a 30.7% prevalence of physical dependence among 352 elderly residents in Athirampuzha Panchayat, with age, sensory loss, diabetes, and coronary artery disease emerging as strong predictors. Das et al. (2017) also examined functional limitations among rural older adults in Kerala, revealing that 89.2% had at least one morbidity, commonly hypertension and joint pain. About 9% exhibited moderate to severe functional limitations, indicating a clear link between multimorbidity and reduced independence. These findings stress the urgent need for localized interventions to manage multimorbidity and enhance mobility in rural elderly populations. Complementing these perspectives, Angrisani et al. (2024) found that modifiable factors such as lack of education, vision impairment, and physical inactivity accounted for nearly 70% of dementia

cases among 4,096 Indian older adults. They emphasized India-specific strategies for dementia prevention, rather than relying on Western frameworks. Collectively, these studies underline the intersection of functional decline, chronic diseases, and cognitive impairments in influencing aging outcomes.

Further studies explored psychological and social dimensions of aging, particularly the roles of isolation, loneliness, and healthcare access. Mishra et al. (2023) revealed that social isolation and loneliness significantly reduce psychological well-being among institutionalized older adults, with gender and education shaping well-being levels. Marital status played a partial protective role, suggesting the importance of social bonds in later life. Similarly, Krasniuk and Crizzle (2023) investigated healthcare accessibility among rural older adults in Saskatchewan, finding transportation barriers to be a major cause of missed medical appointments and poor health outcomes. About 10.6% of older adults reported cancelling medical visits due to lack of transportation, emphasizing the need for affordable, community-based solutions. Collectively, these studies reveal that while international and Indian research has deepened understanding of physical, social, and environmental determinants of aging, there remains a gap in exploring individual lived experiences, particularly within rural Indian contexts. Hence, the present study, conducted in rural Kottayam district, aims to provide an in-depth understanding of older adults' mobility and health challenges in community settings, enriching the existing body of gerontological research through localized insights and experiential perspectives.

Research Gap

Although numerous national and international studies have examined aging, mobility decline, and chronic health conditions among older adults, there remains a significant gap in understanding their lived health challenges within rural community settings. Most research focuses on quantitative assessments of disease prevalence and functional decline but neglects the environmental, social, and infrastructural factors influencing daily life. Specifically, in Kerala's rural areas, little is known about how housing design, healthcare accessibility, and limited family support collectively impact elderly health and well-being. The study addresses these overlooked dimensions through localized, case-based exploration.

Objectives of the Study

1. To evaluate/understand the various health challenges faced by the respondents
2. To suggest effective community-based interventions and policy measures for enhancing elderly health, mobility, and well-being.

Methodology

The study adopted a **qualitative case study design**, enabling an in-depth exploration of elderly individuals' real-life health challenges, living conditions, and social environments within Kaduthuruthy Grama Panchayat, Kottayam District, Kerala. The case study approach provided a comprehensive understanding of individual experiences, offering detailed insights into the physical, social, and psychological aspects of aging within a rural community context.

Sampling Procedure: The study used a **purposive sampling technique** to select ten older adults (aged 60 years and above) residing in different wards of Kaduthuruthy Grama Panchayat. The

participants were chosen based on criteria such as age, living arrangement, health condition, and willingness to participate. The ensured representation of varied health and social circumstances among the elderly population.

Data Collection: Primary data were collected through **in-depth interviews and direct observation**. Each respondent was visited personally at their residence, and the researcher spent sufficient time (approximately one to two hours) with each participant to develop trust and obtain accurate information about their health conditions, daily routines, mobility, social interaction, and access to healthcare facilities. Field notes were maintained to record non-verbal expressions, home environment, and living arrangements that influenced their health experiences.

Ethical Considerations: Prior to data collection, **informed consent** was obtained from all participants. The confidentiality of personal information was strictly maintained, and participation was entirely voluntary. The respondents were assured that their identities would remain anonymous in the research report.

Data Analysis: The collected qualitative data were analyzed using **thematic analysis**, focusing on recurring patterns related to health challenges, mobility constraints, and social isolation. Emerging themes were organized and interpreted to understand the broader implications for elderly care in rural communities.

Case Studies

A case study is a qualitative research method that provides an in-depth understanding of individuals' real-life experiences within their social and environmental contexts. It allows researchers to explore complex health, social, and psychological challenges that quantitative data alone cannot capture. To evaluate and understand the various health challenges faced by the respondents, research was conducted in Kaduthuruthy Grama Panchayat, located in Kottayam District, Kerala. The following ten case studies present detailed narratives of older adults from different wards of the panchayat, highlighting their health conditions, living environments, and social circumstances.

Case Study 1: Living Alone with Limited Mobility

Aleyamma, a 70-year-old widow from Ward 1, lives alone in a rural area of Kottayam district with the help of a part-time servant. She suffers from osteoarthritis in both knees, hypertension, and mild gastrointestinal problems. Her house lacks essential safety features such as handrails, ramps, and wide doorways, making movement difficult. As her children live abroad, she receives minimal family support. Although a vehicle is available, she depends on others for transportation and frequently hires auto-rickshaws. Due to her ailments, she rarely leaves home and spends most of her time watching religious programs on television. Her poor mobility and fear of falling severely affect her independence and emotional well-being.

Case Study 2: Post-Stroke Immobility and Social Isolation

Claramma, aged 67, lives in Ward 2 with her husband in a small house located atop a hill. The home lacks facilities such as handrails and support bars. After suffering a stroke, she can barely walk and relies on her son's occasional visits for hospital check-ups. Her husband, a farmer, works in the fields daily, leaving her mostly alone. She also suffers from diabetes and hypertension,

requiring continuous medication. Her limited mobility and the home's poor accessibility make social participation nearly impossible, contributing to deep social isolation.

Case Study 3: Declining Health and Emotional Neglect

Cicily, 68 years old and unmarried, resides with her brother and family in Ward 3. The single-story house lacks attached bathrooms, ramps, and handrails. She suffers from a personality disorder and has been on long-term medication, which has weakened her physically. She now also experiences diabetes and poor vision. Although she wishes to take part in household activities, her health prevents active involvement. Her family interactions are limited, and she feels ignored and lonely. Regular medication for multiple conditions further contributes to her frailty.

Case Study 4: Emotional Neglect and Limited Family Interaction

Theyamma, a 78-year-old widow from Ward 4, lives with her son and his family in a two-story house in a rural setting. She occupies the ground floor, while her son's family lives upstairs. Even though proximity, communication is minimal. She suffers from hypertension and gastric problems, for which she takes medicines regularly. Without handrails or attached bathrooms, daily movement is difficult. She receives assistance from neighbors for groceries and basic needs. Although she can walk short distances and visit nearby homes, she often expresses sadness over her family's indifference.

Case Study 5: Schizophrenia and Restricted Social Interaction

Leelamma, 66 years old, lives in Ward 5 with her brother and family. She has suffered from schizophrenia since youth and now also deals with hypertension. Although, living in a large house with attached bathrooms and good family care, her mental health condition has restricted her social life. Long-term medication has affected her speech, and she rarely interacts outside her home. Although she can manage minor household tasks, she remains socially withdrawn and dependent on others for emotional support.

Case Study 6: Chronic Illness and Physical Dependence

Jessyamma, aged 62, lives in Ward 6 with her husband in a two-storied house. She suffers from multiple chronic conditions, including kidney failure, for which she undergoes dialysis twice weekly, and has undergone breast removal surgery due to cancer. Confined to a wheelchair, she moves around her home with limited assistance. A ramp was recently built to aid her mobility. On continuous medication for nearly 15 years, she faces fatigue and dependence but maintains hope through medical care and family support.

Case Study 7: Cognitive Decline and Elderly Care Needs

Annamma, an 89-year-old widow from Ward 7, lives with her son's family. She has Alzheimer's disease and hypertension. Although her house has an attached bathroom, it lacks safety features like ramps and handrails. Her son works abroad, and her daughter-in-law is her main caregiver. Once active and social, she now experiences memory loss and requires constant supervision. Even with her condition, she enjoys conversations with others and takes pleasure in small interactions, showing her desire for connection and care.

Case Study 8: Bedridden and Emotionally Frustrated

Omana, 70 years old and single, lives alone in Ward 8 in a small house without an attached bathroom. Bedridden with severe osteoarthritis and gastrointestinal issues, she is assisted by a full-time servant. She uses a commode and depends entirely on others for her daily needs. A relative visits her daily, but she often shows irritability and frustration. Her life is largely confined to her bed and television, and she expresses emotional distress over her limited independence.

Case Study 9: Vision Problems and Fear of Falling

Chinnamma, aged 65, lives with her husband and son in Ward 9. Their large house has attached bathrooms but is situated atop a hill, requiring her to climb multiple steps. Recently, she developed blurred vision, which has led to a fear of falling and reduced mobility. Although she is physically healthy otherwise, her vision problems prevent her from freely moving around or engaging in outdoor activities. Her growing sense of social isolation affects her happiness and overall well-being.

Case Study 10: Post-Surgery Pain and Loss of Independence

Mary, a 75-year-old widow from Ward 10, lives with her son and daughter-in-law. She has been living with diabetes for 15 years and suffers from severe knee pain despite undergoing surgery on both knees. She can only walk with the help of a stick inside the house and depends on family members for all major activities. Once active and independent, she now feels helpless and fears falling, which has diminished her confidence and quality of life.

Findings and Discussion

The present case-study findings from Kaduthuruthy Grama Panchayat align closely with existing international and Indian evidence showing that ageing is multi-dimensional, physical decline, chronic disease burden, environmental barriers, and social isolation interact to reduce independence and quality of life (Freiberger et al., 2020; Maresova et al., 2023). Clinical vulnerabilities observed across the ten cases, osteoarthritis, hypertension, diabetes, cognitive decline, sensory loss, and multimorbidity, mirror population-level patterns reported in India and elsewhere (Das et al., 2017; Nagarkar & Kulkarni, 2022; Prithiba et al., 2023). For instance, the high prevalence of mobility limitation, fear of falling, and ADL/IADL difficulties among Aleyamma, Mary and Chinnamma echo longitudinal evidence from India that ADL/IADL impairment is a strong predictor of falls and functional dependence (Nagarkar & Kulkarni, 2022). The concordance strengthens the external validity of the case narratives and supports calls for routine functional screening in primary care (Nagarkar & Kulkarni, 2022; Montero-Odasso et al., 2022).

Housing and built-environment deficits identified in the cases (lack of ramps, handrails, narrow doorways, steps) exemplify the environmental determinants emphasized in scoping reviews: physical infrastructure is a modifiable driver of indoor mobility and fall risk (Maresova et al., 2023; Yaw et al., 2025). Several cases (Aleyamma, Claramma, Jessyamma) show how absent or delayed home modifications amplify dependence and restrict access to care — a pattern consistent with systematic evidence calling for targeted home assessments and low-cost environmental adaptations to enable ageing in place (Yaw et al., 2025; Maresova et al., 2023). Moreover, Montero-Odasso et al.'s (2022) global recommendations for person-centred, co-designed, multi-

domain interventions find local resonance: simple, context-sensitive changes (handrails, non-slip flooring, community transport solutions) could have immediate, measurable benefits for several respondents.

The psychosocial dimension loneliness, perceived neglect, limited social participation surfaced repeatedly (Cicily, Theyamma, Leelamma, Omana). These qualitative patterns reflect quantitative findings that social isolation and loneliness substantially harm psychological well-being and can compound physical decline (Mishra et al., 2023). Marital status and family interaction emerged as protective or risk factors in both the literature and cases: respondents with minimal family contact reported greater loneliness and helplessness, matching Mishra et al.'s (2023) observation that social bonds buffer psychological distress. The Saskatchewan study's transportation barrier findings (Krasniuk & Crizzle, 2023) also map onto our rural context: reliance on hired autos, infrequent family escorts, and cancelled or delayed medical visits impede continuity of care and worsen outcomes.

Chronic disease clustering and multimorbidity hypertension, diabetes, cardiac disease, chronic pain, renal failure were prominent in the case series and reflect India-specific epidemiology (Das et al., 2017; Prithiba et al., 2023). Angrisani et al.'s (2024) finding that modifiable risk factors (vision impairment, physical inactivity, low education) account for a substantial share of dementia risk underscores the need for preventive, context-tailored strategies in rural Kerala. Cases such as Annamma (Alzheimer's) and Chinamma (vision impairment) illustrate how combined sensory, cognitive and mobility deficits accelerate dependency and limit access to preventive services reinforcing the importance of integrated screening and rehabilitation pathways at the community level.

Policy and program implications flow directly from the synthesis. First, routine functional screening (ADL/IADL, gait/balance, vision, cognition) at primary health centres, linked to referral for physiotherapy, vision correction and home modification, would address several proximal drivers of dependence (Nagarkar & Kulkarni, 2022; Montero-Odasso et al., 2022). Second, community-based interventions age-friendly home modification grants, subsidised transport for medical visits, volunteer befriending programs can reduce isolation and improve care continuity (Maresova et al., 2023; Krasniuk & Crizzle, 2023). Third, co-designed, multi-domain interventions (medical, environmental, social) recommended by global guidelines should be adapted to local resource realities and include caregiver education and low-cost assistive technologies (Montero-Odasso et al., 2022; Maresova et al., 2023).

Limitations and research gaps remain. While the cases provide rich lived-experience data, they are not population representative; quantitative linkage (e.g., prevalence of specific deficits across the panchayat) would strengthen generalisability. Also, the literature highlights technological potential (smart homes, e-health) but warns about economic barriers (Maresova et al., 2023); feasibility studies on scalable, low-cost technological aids in rural India are lacking. Finally, longitudinal follow-up of case participants would clarify causal pathways between environmental change, social support interventions, and functional trajectories an area recommended for future research (Freiberger et al., 2020; Yaw et al., 2025).

Therefore, integrating the present case evidence with national and international literature shows convergent themes: multimorbidity, mobility limitations, unsafe domestic environments, and social isolation jointly drive dependence among older adults. Addressing these requires integrated, person-centred, and locally adapted interventions from routine functional screening and home modifications to strengthened social support and affordable transport to promote safe, dignified ageing in rural Kerala (Montero-Odasso et al., 2022; Nagarkar & Kulkarni, 2022; Maresova et al., 2023; Mishra et al., 2023).

Suggestions

To suggest effective community-based interventions and policy measures for enhancing elderly health, mobility, and well-being,” here are five suitable suggestions:

1. Routine functional screening should be conducted by the government and civil society at primary health centres, assessing ADL/IADL, gait, balance, vision, and cognition to identify functional decline early.
2. Age-friendly home modifications need to be promoted, including handrails, ramps, widened doorways, and non-slip flooring, to improve mobility and reduce fall risks in rural households.
3. Subsidized and community transport services must be established, enabling older adults to access healthcare, social services, and community activities safely and consistently.
4. Neighborhood initiatives should encourage social engagement, such as volunteer programs, befriending schemes, and communal activities, to reduce loneliness and strengthen psychological well-being.
5. Integrated multi-domain interventions are essential, combining medical care, home adaptations, caregiver training, and low-cost assistive technologies to support older adults with chronic illnesses and cognitive impairments effectively.

Scope of Future Research

Here are **three main scope areas for future research** is given below:

1. Future research could track older adults over time to examine how mobility limitations, chronic conditions, and environmental factors interact to influence health outcomes and independence.
2. Studies can assess the effectiveness and scalability of home modifications, assistive technologies, and neighborhood support programs in improving mobility, reducing isolation, and enhancing quality of life for rural older adults.
3. Research can explore feasibility, adoption, and impact of e-health solutions, telemedicine, and smart-home devices in addressing healthcare access, monitoring chronic conditions, and supporting safe ageing in resource-limited rural contexts.

Conclusion

Historically, India has experienced a demographic transition with a growing elderly population, many of whom face physical decline, chronic illnesses, and limited access to healthcare. The present study in Kaduthuruthy Grama Panchayat, Kerala, highlights that older adults encounter significant mobility and health challenges, unsafe home environments, and social isolation, reducing independence and well-being. Findings underline the need for routine functional screening, age-friendly home modifications, accessible transport, neighborhood-based

social engagement, and integrated multi-domain interventions. Looking ahead, locally adapted, community-focused strategies involving government, civil society, and neighborhoods can promote active, safe, and dignified ageing, ensuring holistic support for older adults in rural India.

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