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A Critical Incident Study of Fall Events in Older Adults from a Fall Prevention Program in Kerala, India

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Abstract

Introduction: Falls and near-falls among older adults contribute substantially to injury, functional decline, and reduced quality of life. Evidence on the context, determinants, and consequences of these events in India remains limited. This qualitative study explored critical fall and near-fall events among older adults enrolled in a community-based fall prevention program in Thiruvananthapuram, Kerala.

Methods: This qualitative descriptive study was conducted as a substudy of a 12-month randomised controlled trial evaluating a multicomponent fall prevention intervention in Thiruvananthapuram district. Falls and near-falls were prospectively identified through regular follow-up. Participants experiencing such events were purposively sampled for critical incident interviews. Data were collected using a semi-structured guide, audio-recorded, transcribed, and analysed thematically using Braun and Clarke's approach.

Results: Fall and near-fall events were embedded in routine daily activities and shaped by interacting environmental, health-related, gender-related, and behavioural factors. Participants described unsafe home and community environments, including slippery floors, poor lighting, cluttered pathways, and uneven outdoor surfaces, as immediate antecedents. Chronic conditions, dizziness, muscle weakness, and medication use heightened vulnerability. Gendered roles influenced risk, with women reporting falls during household tasks and men during outdoor mobility and work-related activities. Consequences included fear of falling, reduced confidence, functional dependence, and restricted social participation. Participants adopted behavioural adaptations such as increased caution, assistive device use, environmental modifications, and regular exercise to improve strength and confidence.

Discussion: The findings underscore the need for integrated, culturally responsive, and gender-sensitive fall prevention strategies combining environmental modification, chronic disease management, behavioural support, and sustained physical activity for older adults.

INTRODUCTION

Individual risk factors for falls among older adults, including balance impairments, chronic illness, polypharmacy, visual deficits, and muscle weakness, have been well established in the literature[1, 2]. However, much less attention has been paid to the contextual and culturally mediated environments in which falls and near falls occur, particularly in lower-income and middle-income countries. Household environmental hazards, gendered patterns of daily activities, behavioural adaptations to perceived risks, and the subjective experience of ageing may play important parts in fall prevention but remain inadequately studied.[3]

In India, the incidence of falls among older adults is projected to raise with demographic ageing.[4] According to the Longitudinal Ageing Study in India, 23% of adults aged 60 years and older reported experiencing falls. Gender disparities are evident, with 27% of older women reporting fall-related injuries compared with their male counterparts. The prevalence of falls is higher among vulnerable subgroups,

including widowed individuals (28%) and those living alone (29%), highlighting the compounded risks associated with social isolation and lack of support systems. Fall injuries in India are associated with multiple risk factors, including poor vision, vertigo, imbalance, fear of falling, history of falls, osteoarthritis, and depression. [5, 6] Older adults in India often perceive falls as an inevitable part of ageing, attributing them to physical decline and environmental hazards.[3]

Kerala has the highest proportion of older adults at 16.5% in India.[7] Key risk factors for fall and subsequent hospitalisation in Kerala include comorbid conditions, previous falls, lack of formal education, living without a spouse, and environmental hazards such as thresholds and slippery floors. [8,9] A recent study from the rural Thiruvananthapuram district of Kerala found that 26.7% of older adults living in the community experienced falls, which were often linked to weakness, carelessness, and chance, with many feeling the need to be constantly alert to avoid falling. The study also noted gendered perceptions of fall risk, with women's physical weakness and repetitive domestic roles being implicated.[10]

Most existing studies on falls among older adults in India have relied on quantitative designs to identify individual-level biomedical and functional risk factors and to estimate fall prevalence and injury outcomes. Although these studies have established important predictors of falls, they provide limited insight into the circumstances and processes through which falls and near falls occur in everyeday life. In particular, few data exists on context-specific fall circumstances and consequences in this population.

In this study, a critical incident (CI) was defined as a fall or near-fall event that the participant perceived as significant due to its circumstances, consequences, or emotional impact.

This qualitative substudy, embedded within a fall prevention trial in Thiruvananthapuram district, Kerala, aimed to examine the immediate triggers, underlying risk factors, behavioural contributors, environmental hazards, consequences of falls, and behavioural adaptations to inform actionable recommendations for fall prevention.

METHODS

Study design and participants

This qualitative study was conducted as a substudy of a hospital-based randomised controlled trial (RCT) evaluating a multicomponent fall prevention program among older adults in Kerala, India (CTRI/2024/04/066448, Date: 27/04/2024). This qualitative substudy employed the Critical Incident Technique (CIT), focusing on collecting and analysing participants' detailed accounts of specific fall or near-fall events they experienced.[11] The research team served as observers, identifying potential CIs through systematic surveillance of adverse events during the parent trial period. The intervention arm received structured exercise regimes, medication and diet reviews, an information and education booklet, a homefall hazard assessment, and environmental adaptation recommendations. The control

arm received usual care. Follow-up was for 12 months. The parent RCT included adults aged 60 years and above with a medium- to high-risk of falls based on standardised clinical and functional assessments. Critical fall and near-fall incidents were monitored as adverse events and formed the focus of this substudy.

For this substudy, inclusion criteria were enrolment in either arm of the parent trial and a report of at least one fall or near-fall experience during the intervention phase. No additional exclusion criteria were applied.

A qualitative descriptive design was employed. Thematic analysis followed the framework of Braun and Clarke.[12] All participants were contacted to enquire about any health-related events, including falls, near-fall experiences, injuries, and hospitalisation, fortnightly for 6 months and then monthly for 6 months. Those who reported falls or near-falls were included in this substudy, and purposive sampling was used to select them for CI interviews. Patient and public involvement was not conducted.

Study setting

The study was carried out in two government hospitals in the Thiruvananthapuram district, Kerala: the District Hospital in Nedumangad (intervention site) and the General Hospital in Thiruvananthapuram city (control site). Parent trial participants were recruited from the catchment area of these hospitals: 100 wards of the Thiruvananthapuram corporation for the General hospital and 39 wards of the Nedumangad Municipality for the District hospital. Substudy participants were drawn from the parent trial cohort.

Study procedure

A semi-structured interview guide was developed to explore event descriptions. Triggers, early warning signs, post-fall trajectory (pain, fear, functional decline), and prevention strategies. The guide was pilot-tested with 2 older adults who reported falls in the hospital outpatient department but were not enrolled in the parent trail. Minor modifications were made for clarity and cultural appropriateness. For an incident to be considered critical, it had to meet the following criteria: the participants perceived fall or near-fall as significant due to its circumstances, consequences, or emotional impact; the event was sufficiently complete in itself to permit analysis; and the participant could provide a factual account of what happened. Interviews were conducted face-to-face at the hospitals or by telephone, according to participant preference, in the local language (Malayalam). Face-to-face interviews took place in a private hospital room; telephonic interviews from a private research office room, with no others present. All interviews were audio-recorded and lasted 30 to 40 minutes.

A total of 18 participants were purposively sampled for maximum variation across age, gender, living arrangements, fall frequency, and fall locations. Recruitment continued till thematic saturation was reached, assessed after each interview; no new themes appeared after the 15th interview, confirmed by 3 additional interviews.

Data analysis

Audio recordings were transcribed verbatim and translated into English by the interviewers (DR, KS). A subset of 5 transcripts was independently translated by the third researcher (BAC) for verification.

Transcripts were read repeatedly for familiarisation. Researchers (DR, PMG, BAC, TNS) independently coded transcripts manually. Inductive open coding was performed line by line. The researchers met regularly to resolve discrepancies through consensus with the principal investigator (RMR). Codes were grouped into categories and developed into themes. The final thematic structure was reviewed by the principal investigator.

Rigour and Trustworthiness of data

This study adheres to the Consolidated Criteria for Reporting Qualitative Research (COREQ). Credibility was enhanced through prolonged engagement with the participants and member checking, in which preliminary findings were presented to 4 participants who confirmed accuracy. Transferability was supported by including participants from diverse socioeconomic backgrounds, living arrangements, and rural and urban settings. Confirmability was maintained through independent coding and an audit trail documenting all stages of the research process.

Researcher characteristics and reflexivity

The interviews were conducted by two female researchers (DR and KS), both holding master's degrees in public health. Neither had clinical training in geriatric medicine. Both had established rapport with participants through the parent trial, during which they met participants every two weeks for the first six months and maintained monthly telephone follow-ups for the remaining six months.

The co-principal investigator (BAC), a male public health researcher, was known to participants as the team leader in the field and had regular contact with them throughout the study period. Although BAC did not conduct interviews, participants were aware of his leadership role, which may have influenced their willingness to disclose certain information to the female interviewers.

Participants knew that the interviewers were part of the research team but not involved in delivering the fall prevention intervention. The researchers' prior relationship with participants may have enhanced trust and willingness to disclose sensitive information. However, it also carried the potential for social desirability bias, as participants might have wished to report experiences they believed the research team wanted to hear. To mitigate this issue, interviewers emphasised that there were no right or wrong answers and that responses would not affect participants' ongoing care. Field notes were maintained throughout data collection to document reflections, assumptions, and potential biases. The research team met regularly to discuss how their own experiences and perspectives on ageing and falls might have influenced data interpretation.

Ethical considerations

The protocol was approved by the IEC committee, State Health Systems Resource Centre- Kerala (SHSRC-K/IEC No. 11/2022). Written informed consent was obtained separately for this substudy. Participants were informed of audio recording, withdrawal rights without care affectation, and use of anonymised quotes. For telephonic interviews, verbal consent for recording was obtained and documented. Transcripts were anonymised. Audio recordings are password-protected, accessible only to the research team, and will be retained for 5 years as per the Indian Council of Medical Research (ICMR) National Ethical Guidelines. We followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines for reporting qualitative studies. The COREQ checklist is provided as Related files.

RESULTS

The following quantitative data describes the parent trial cohort from which the qualitative sample was drawn. Qualitative findings are based on CI interviews with 18 purposively sampled participants.

Participant characteristics

In the parent RCT, 212 participants were recruited (control site: n = 109; intervention site: n = 103). Systematic surveillance documented 143 CIs among 103 participants. Falls and near-falls accounted for 128 incidents (89.5%), involving 94 participants, 34 from the control site and 60 from the intervention site. Of the 94 participants who experienced falls or near-falls, 18 were purposively sampled for CI interviews (Table 1).

The 94 fall-affected participants were older adults aged 60 to 90 years (mean 68.4 years, SD 6.6), with 71.3% in the 60–70 age group. Women constituted 75.5% of the sample. Marital status distribution showed 53.2% currently married and 42.6% widowed. Most participants lived with immediate family (76.6%), while 14.9% lived alone. Educational levels varied; 55.3% had elementary education, 28.7% high school, 12.8% no formal education, and 3.2% held a diploma or degree. Occupationally, 34.0% were homemakers, 51.06% non-working, 4.3% retired, and 10.6% employed; 80.85% were below the poverty line.

Table 1
Characteristics of the 18 interviewed participants

ID	Age	Gender	Residence	Type of Fall/Event
P1	62	Female	Rural	Slip or trip, indoor
P2	60	Female	Rural	Near-fall, indoor
P3	69	Female	Urban	Slip, outdoor
P4	66	Female	Rural	Slip, indoor
P5	76	Female	Urban	Trip or near-fall, indoor
P6	74	Male	Rural	Fall due to dizziness, indoor
P7	72	Female	Urban	Fainting or sudden fall
P8	64	Female	Rural	Fall during domestic chores
P9	64	Male	Rural	Single fall during domestic chores
P10	64	Male	Urban	Outdoor fall from bike
P11	73	Male	Rural	Fall due to dizziness
P12	63	Female	Rural	Near-fall due to indoor clutter
P13	67	Female	Rural	Multiple falls, indoor
P14	81	Male	Rural	Multiple falls, indoor
P15	60	Male	Urban	Single fall attributed to weakness or ageing
P16	69	Female	Urban	Fracture from indoor fall
P17	64	Male	Urban	Post-accident mobility impairment
P18	75	Female	Rural	Fear of falling, assistive device use

Pattern and mechanisms of falls

Among the 94 participants experiencing falls, 71.3% reported a single fall, 26.6% had recurrent falls, and 7.5% had near-fall incidents only. Falls were reported more among women (71, 75.5%) than men (23, 24.5%). Table 2 presents the primary mechanism for falls.

Table 2
Pattern of fall mechanisms

Mechanism	n (%)
Slip	43 (33.6)
Trip	33 (25.8)
Others (dizziness, muscle weakness, syncope, accidents)	52 (40.6)

Thematic findings from interviews

Five themes emerged from the analysis of 18 CI interviews.

1) Built Environment

Participants consistently identified environmental conditions as immediate triggers for falls and near-falls. Falls were embedded within routine movement through familiar living spaces, where inadequate infrastructure interacted with daily activities. The environmental context in which older people navigate their daily living emerged as a substantially influential contributor to falls, with participants describing a range of indoor and outdoor hazards that compromised safety and mobility.

Within the home, bathrooms, kitchens, courtyards, and internal walkways were frequently described as high-risk spaces. Slippery floors, cluttered pathways, misplaced household items, floor colour, and inadequate lighting, particularly during early morning or night-time hours, were commonly reported.

"The floor was white, so I could not see the water on the tiles. Normally, I would notice and wipe it, but this time I didn't." - **(61-year-old woman, with walking aid)**

The outdoor environment posed a high risk due to the poorly maintained infrastructure. Participants commonly reported uneven road surfaces, gravel in walkways, and moss-covered walkways as contributing factors to falls and related injuries.

"There was a slight dip in the road, which I unexpectedly tripped over and fell, fracturing my bone. A person standing nearby helped me to stand, and he took me to a nearby house." - **(69-year-old woman, with fall due to slipping)**

Lack of supportive structures, such as handrails, adequate lighting, and non-slippery flooring, emerged as a recurring concern across both indoor and outdoor settings. These inadequacies created substantial barriers to safe navigation of living spaces, posing fall risk, particularly for transient environmental hazards

"I tripped on the toys that were there on the floor when I was coming outside the room after waking up from sleep in the morning. It was early in the morning, and there was no light inside." - **(62-year-old woman, with leg fracture)**

“I had a near-fall by tripping over footwear on the walkway. My grandchildren always leave their footwear there, and I keep arranging it whenever I can.” - **(60-year-old woman, with near-fall experience)**

In each case, the hazard was not unknown to the participant but became dangerous due to a combination of poor lighting, slippery surfaces, or misplaced objects at a particular moment.

2) Intrinsic Factors

Participant narratives highlighted how underlying health conditions fundamentally shaped experiences of falls and mobility. Chronic illnesses such as diabetes, hypertension, varicose veins, and arthritis were described as causing persistent challenges to physical stability, with symptoms manifesting in ways that disrupted daily movements. Common symptoms such as joint pain, muscle weakness, and impaired coordination limited participants' ability to navigate both domestic and community environments confidently.

“I already have knee joint issues and osteoporosis. I have difficulty in walking and sitting because of this. My knee joint and toes got flexed during the slip and fall. I had severe pain in my foot, especially over the toes, for two days." – **(66-year-old woman, with a fall due to slipping).**

“I had a near fall because of an unstable leg and shivering. Sometimes, my heart beat fast, and at that time, I felt tired, so I had to lie down.”- **(76-year-old woman, with a fall due to tripping)**

Episodes of dizziness, palpitations, and postural instability were frequently described, often attributed to ageing or medication effects.

“At my age, I will feel dizzy if I get up suddenly… Maybe from my blood pressure medicines… I fell on a teapoy, where we placed the papers and books. My nose and head got hit on the teapoy and fell off. As papers were kept, there was not much problem caused.” - **(74-year-old man, fall due to dizziness.)**

“I am falling without my knowledge. I have understood it happens very fast or all of a sudden; I fainted. I am not able to say exactly” - **(72-year-old woman, fainting caused multiple falls)**

Participants described their bodies as unpredictable; symptoms appeared suddenly, without warning, and often in the middle of routine activities.

3) Gendered Roles and Life-Course Experiences Influencing Fall Vulnerability

Gender-related patterns in fall exposure were evident. Women’s fall and near-fall experiences were predominantly linked to domestic activities such as cooking, washing clothes, and bathroom use, tasks often performed without assistance and on wet or slippery surfaces. These household responsibilities placed women in a vulnerable position, particularly in bathrooms and kitchens where floors are frequently wet, thereby increasing their risk of falls.

“Women have a higher risk of falling because they do all the household chores. If careless, we might fall while washing clothes or in the bathroom.”- **(64-year-old woman with vision problem)**

Additionally, participants also pointed to nutritional neglect among older women, as they often skipped meals and lacked sufficient rest.

“I think women are more likely to fall. They are doing most of the household work. They are starting their work in the early morning; even after completing the jobs, they are not having food properly.” - **(64-year-old man, with a single fall)**

In contrast, fall events among men were predominantly linked to outdoor activities, including travel and physical labour. The nature of their fall incidents and associated injuries reflected their frequent engagement in the public sphere.

“I was going on my bike and gave way to a car. One of the tyres slipped under the edge of the unfinished concrete road, and I fell down. The vehicle fell on me, and my hand got hit. Now I can’t do anything with this hand.” - **(64-year-old man, with post-fall functional limitation)**

“I fell into a pit on the roadside while stepping on the edge of the road when I was riding my bike. ”- **(72-year-old man, with outdoor fall)**

These accounts illustrate how health conditions intersect with gendered roles and daily activity patterns to shape exposure to fall risk.

4) Immediate Consequences

Participants reflected on the functional and psycho-social consequences of falls. A recurring consequence of the fall reported among the participants was the substantial deterioration in functional capacity, leading to physical limitation and increased reliance on family caregivers. Participants reported progressive loss of autonomy in activities of daily living, with psychological distress stemming from both physical limitations and apprehension about future falls.

“After the fall, my son supported me with my daily activities. I bathed while sitting on a chair and continued to help with cooking whenever possible. I somehow got through that period.” - **(69-year-old woman with a bone fracture.)**

“After the fall, I had to sit on the floor for a while as I was unable to get up immediately. I managed to stand up only slowly.” **(61-year-old woman, with walking aid)**

After the fall, I need to hold onto something for support. I use the bedside for walking or call my daughter for help. I can’t bend my knees, and if I want to go outside, I take an auto.”- **(64-year-old woman with vision problem)**

Falls significantly impact an individual's independence and daily functioning. Many reported reduced mobility and social participation, avoiding events due to fear of falling.

“I won’t go to any function after the fall. My children are going to the wedding, the funeral, and all. ”- **(73-year-old man, with a fall due to dizziness)**

Fall-related disability extends beyond affected individuals to their familial support systems. Participants described how temporary or prolonged bed confinement created substantial caregiving demands, leading to intersecting financial and emotional strains within households.

“When an elder gets bedridden after a fall, it will affect the whole family. If the person is not able to go to the toilet, they need to clean it. Need assistance. It will be very difficult for them. They won't be able to appoint a person to take care of the elder. They will have financial problems." - **(64-year-old man, post-accident mobility impairment)**

These experiences heightened participants' awareness of vulnerability and reinforced cautious behaviour, shaping long-term attitudes towards mobility, independence, and fall prevention.

5) Behavioural and Perception Factors of Falls

Participants expressed diverse perspectives regarding falls, ranging from viewing them as an inevitable aspect of ageing to adopting proactive preventive measures. Many considered physical decline and instability to be natural consequences of ageing that predispose older individuals to falls. Others emphasised practical strategies for risk reduction, including heightened personal vigilance, environmental modifications, tailored self-care practices, and reliance on family support systems.

Participants emphasised self-directed approaches to mitigate fall risk, focusing on heightened situational awareness and behavioural adaptations. Many described implementing consistent cautious practices during daily activities to enhance safety.

“We need to pay attention while walking. We need to go slowly. Then only we can reduce fall. Other than that, we have nothing to do.” - **(73-year-old man, with a fall due to dizziness)**

“I need to be careful while walking. So, if there is any stool or chair, I will move it under the table to prevent a fall. When I wake up in the morning, I move all the things to the side of the pathway.” - **(63-year old woman, with near-fall experience)**

Participants described practical adaptations to mitigate fall risk, including the use of assistive devices and modified footwear, while emphasising caution in high-risk conditions.

“My son has made a stick for me…but it's difficult for me to walk with it, he got me chappals, but they slip during rain. I am getting adjusted to using it at home. I am afraid when it gets wet; I am extremely cautious."- **(75 year-old-woman, with assistive device)**

After that fall, I always need a stick while walking outside the house.”- **(74-year-old man, fall due to dizziness.)**

Engagement in structured physical activity through the fall prevention programme was perceived as a key protective factor. Participants reported improvements in muscle strength, mobility, and confidence, which they associated with reduced fall risk.

“My legs were completely swollen. I couldn't bend them at all, and walking was very difficult. I will always begin to fall. After I joined the programme and started doing the exercises, my muscles improved (strengthened), and I was able to walk.” - **(67-year-old woman, multiple falls)**

“To avoid falls, I try to stay healthy by doing exercises for hands and legs. I feel better, and now there is no problem.” - **(81-year-old man, with multiple falls)**

Some participants attributed their sense of weakness to ageing but emphasised mental resilience as key to feeling better.

“I do have weaknesses, which makes me feel frail…but it’s only part of ageing. Whenever I feel weak, I eat something or drink some water. Makes me feel better. I feel most weakness is in the mind; if your mind is fine, you will feel better. ”- **(60-year-old man, with a single fall)**

Some participants took active steps to reduce their fall risk, while others accepted falls as part of ageing. The fall prevention programme appeared to shift some towards proactive coping.

DISCUSSION

This study explored multidimensional experiences and perceptions of falls among older adults participating in a fall prevention study. This substudy used the critical incident technique for event-specific accounts of falls or near-falls. Thematic analysis suggested interconnected, contextual, health conditions, physiological, and psycho-social factors influencing fall vulnerabilities.

Participants described various environmental factors, such as uneven roads, loose gravel, and moss on the outside, and in-home factors like Inadequate lighting and obstacles like firewood, toys, helmets, and slippery tiles that contributed to their fall events. Previous studies done in Kerala have also identified similar environmental factors that contributed to falls or other related incidents, which may be attributed to the region's prolonged and intense monsoon. [13, 14] Notably, many falls occurred indoors, highlighting the importance of home modifications. Studies identified adequate lighting, flooring, and furniture as preventive strategies. Home modification interventions were also known to be an effective strategy.[5]

Along with chronic illness, muscle pain and varicose veins, some participants also reported the side effects of medications, leading to dizziness and imbalance as an underlying cause. These findings were consistent with a study conducted in China, with a higher probability of falls with an increase in the number of chronic diseases.[6] Similarly, a study conducted in Kerala among older adults reported that

nearly 27% of them experienced falls, with a significant association between morbidities.[13] So, many studies have revealed the increased prevalence of falls associated with multi-morbidity, but the measures taken to prevent such falls are lacking.[15, 16] Studies should be done to test and understand various interventions or strategies for falls associated with these conditions. Also, it should be primarily community-based with a culturally appropriate model targeting both rural and urban settings.

In our study, falls were reported more among participants with an elementary level of education. This suggests that lower educational attainment may be linked with increased risk of falls. This observation aligns with the result from a cohort study among community-dwelling older adults, which reported a higher risk of falls among those with a lower education level (≤ 6 years).[17] A community-based study conducted in rural Kerala also suggests that individuals with no formal education are more likely to experience falls.[13] These insights show the need for targeted fall prevention interventions that are tailored to varying literacy levels and educational backgrounds, particularly in settings like Kerala with diverse socio-educational profiles.

The rural-urban differences found in the current study are in line with the findings of previous studies that have compared the patterns of falls among older people in different residential settings. Previous studies conducted in China and other developing countries have found that rural older people are more likely to have falls in or around the home environment, while urban older people are more likely to have falls in outdoor or public environments such as roads and paths.[18] Similarly, in the current study, falls at the rural site (intervention site) were primarily in or around the home environment and were mainly due to slippery or uneven surfaces and loss of balance, while falls at the urban site (control site) were more likely to be due to public environmental hazards.

The study showed a gendered perspective towards fall risk, with female participants reporting increased vulnerability for falls due to domestic work and ill health. This was particularly evident in women who continued to perform household work despite bodily limitations. In contrast, male participants described falls related to outdoor work and comorbidity. Similar patterns have been reported in a study from Kerala, where older where having a higher risk of falls and fall-related injuries due to persistent gendered roles, including household chores and exposure to indoor environmental hazards such as wet floors, which contribute to increased vulnerability among women. [19]

These findings align with Kelekar et al., with higher fall risk and associated emergency hospital visits among older women attributed to indoor falls.[8] The studies have identified that women participants with arthritis and other movement disorders, and who are left alone, have a higher risk of the occurrence of any CIs.[20, 9]A Kerala study identified a similar increased risk for falls among older women, with more injuries in nature. This may reflect physical, social, and cognitive factors and greater bone density loss than in men. [12, 21] It is suggested to understand these gender-specific patterns for household role and task distribution before targeting preventive strategies.[22, 23]

The consequence of the falls was another important factor. It extended beyond physical injury by significantly disrupting participants' functional capacity, social and emotional well-being, and autonomy. Bedridden days were reported for days or even weeks, and many required physical assistance for their Activities of Daily Living (ADL) such as bathing, toileting, etc. The findings were consistent in a study by Aarti Nagarkar and Snehal Kulkarni in 2022, representing the review of the Longitudinal Ageing Study in India (2017-18). The study reported a 30% difficulty in ADL after an experience of a fall.[24] Also, there was a dependency associated with physical and mental distress among most of the participants. Many reported reduced self-esteem and hesitancy in performing routine tasks independently following a fall. Studies suggest the history of multiple falls as a significant factor associated with decreased mobility due to a lack of confidence. [15, 16, 25]

Fall perception was shaped by personal experience, cultural aspects, and health literacy. Participants expressed a wide range of fall-related beliefs, from attributing it to being natural as part of ageing to emphasising personal responsibility and the importance of modifying the risk factors associated with falls. Studies also reported that many participants were not able to identify the cause of their fall. [26, 16] Some perceived falls as unavoidable; others discussed specific measures such as using supportive devices and maintaining a clean environment. In India, older adults frequently believe that falls “just happen” or are simply parts of getting old.[27] Focus group discussions with elderly residents in Chandigarh explain age, physical weakness, uneven surfaces, and poor mental health as primary contributors to falls.[3] These varied perceptions indicate the complexity of fall prevention among the study population and the importance of addressing these factors while designing effective strategies.

Engaging in exercise to maintain physical strength and balance was also clearly acknowledged. Fear of falling again and its effect on independent mobility after an injury-associated fall were also cited by participants. Sherrington et al. in 2019 found that exercise programmes reduced the fall rate by 23%, particularly those involving the balance challenge activities.[28] A systematic review by Hopewell et al. showed that multifactorial intervention (home hazard management, physical activity, and vision assessment) reduced falls and risk factors.[29]

In this study, a clear variation in fall occurrence was observed during the intervention period: fewer events were reported during the first six months of supervised intervention and more during the home-based period. Supervised, structured exercise delivered in group or facility settings has been shown to significantly reduce fall incidence and improve key physical risk factors such as balance, strength, and functional mobility compared with nonsupervised or exercise-alone programmes. [30, 31] Lack of awareness and access to exercise space also contributed to falls. These findings from a slum-based study in Chennai reported a similar higher incidence of falls among older adults with abnormal gait, tremors, and other chronic conditions.[32] Home-based exercise interventions is effective but adherence and lack of professional guidance may moderate their impact.[33]

Hence, the findings of this study highlighted the multifactorial nature of fall and near-fall incidents, encompassing the environmental hazards, chronic medical conditions, functional impairments, gendered responsibilities, and individual perceptions. It emphasises the need for evidence-based fall prevention strategies that integrate home modifications, chronic disease management, and engagement in physical activity. Family caregivers need training and support, as they provide most post-fall care.

The study has several limitations. Purposive sampling may have introduced selection bias, though information saturation was achieved after 15 interviews (confirmed by 3 more). The study did not explore health system factors that may influence fall outcomes. Individuals with cognitive impairment were excluded, missing a high-risk population. Family caregivers were not interviewed, and their perspectives may differ.

Declarations

Contributors

DR (first author) and KS conducted interviews, transcribed and translated audio recordings, and coded the transcripts. PMG and TNS participated in coding. DR wrote the original manuscript draft. BAC (co-principal investigator) independently verified translation of five transcripts, participated in coding and consensus meetings, and led conceptualisation, project administration, and manuscript revision. RMR (principal investigator) led consensus meetings, reviewed the final thematic structure, supervised the study, and validated the findings. DR, BAC, and RMR directly accessed and verified the underlying data for accuracy. All authors had full access to the data and approved the final version for submission.

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Data Availability Statement: The data that support the findings of this study are not publicly available due to restrictions imposed by the Institutional Ethics Committee (SHSRC-K/IEC No. 11/2022), as they contain information that could compromise the privacy of research participants. Anonymised data may be available from the corresponding author upon reasonable request and with approval from the ethics committee. We followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines for reporting qualitative studies. The COREQ checklist is provided as Related files.

Ethical approval: The study received ethical clearance from the IEC committee, State Health Systems Resource Centre- Kerala (SHSRC-K/IEC No. 11/2022). All necessary permissions were obtained from authorities before the conduct of the study, and consent was taken from each participant before interviews. Care was taken to ensure no harm was done to the participants of the study.

Consent to participate: Written informed consent was obtained from all participants prior to data collection. In the consent, confidentiality and anonymity were assured, and they were informed that only aggregated or anonymised data would be used in reporting. All participants were informed of the voluntary nature of the study and their right to withdraw at any stage without consequence.

Consent to publish: All authors have read and approved the final version of the manuscript. They consent to its submission for publication in Discover Aging and affirm that the work is original, has not been published previously, and is not under consideration for publication elsewhere.

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