

Association of Home Falls and Accidents (HOME FAST) with Older People's Quality of Life (OPQOL-35) in Community Dwelling Elderly Population

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Abstract

Background: Falls occurring within the home are among the leading causes of injury, disability, and loss of independence in older adults. As the ageing population continues to increase worldwide, home-related falls have become an important public health concern. Environmental hazards within the home, together with age-related physiological changes, contribute substantially to fall risk and may adversely influence the quality of life of community-dwelling elderly individuals.

Objective: To determine the association between home falls and accidents, assessed using the Home Falls and Accidents Screening Tool (HOME FAST), and quality of life measured using the Older People's Quality of Life Questionnaire (OPQOL-35) among community-dwelling elderly individuals.

Methodology: A cross-sectional survey-based study was conducted among 150 community-dwelling elderly individuals aged 65 years and above using convenient sampling. Home environmental hazards were assessed through direct home visits using the HOME FAST. Quality of life was evaluated using the OPQOL-35 questionnaire. Descriptive statistics were calculated, and Pearson's correlation coefficient was used to determine the association between HOME FAST and OPQOL scores, with statistical significance set at $p < 0.05$.

Results: A statistically significant moderate negative correlation was observed between HOME FAST and OPQOL scores ($r = -0.348$, $p = 0.0001$), indicating that increased home hazards were associated with poorer quality of life. Several individual environmental hazards—including slippery flooring, inadequate lighting, poor bathroom safety, inaccessible kitchen arrangements, and absence of supportive home modifications—were significantly associated with specific quality-of-life domains.

Conclusion: Home environmental hazards demonstrate a significant association with reduced quality of life among community-dwelling elderly individuals. Routine home hazard assessment and timely

environmental modification may contribute to fall prevention, improved independence, and enhanced quality of life in older adults.

Keywords: Home Falls, Elderly, Community-Dwelling Older Adults, Quality of Life, HOME FAST, OPQOL-35, Fall Risk, Home Environment

Introduction

A fall is defined as an unintentional loss of balance that results in a loss of postural stability. Falls pose significant health risks, severely threatening the functional capacities, participation, and overall well-being of older adults ^[1]. According to the World Health Organization (WHO) global report on falls prevention, people aged 65 years and above are reported to account for between 28% and 35% annually. The prevalence of falls in India, for those aged 60 years and above, is reported to range between 14% and 53% ^[2]. It is estimated that approximately 30% of the elderly aged 65 years and older have experienced a fall, and about half of them have experienced recurrent falls ^[3].

The internal factors include age, sex, living alone, frequent medicine use, multiple comorbidities, motor and gait impairment, nutritional deficiencies, dementia, vision deficits, and many others. As a result of these circumstances, one deals with lowered attention, orthostatic disorder (which is a common symptom of impaired blood pressure regulation, especially after assuming the upright position, which is related to the aging process), diseases (hypertension, diabetes, influence of medication, etc.) and symptoms of balance disorders, which in consequence lead to falls. The external factors consist of environmental hazards (poor lighting, slippery floors, uneven surfaces, living alone, etc.), inappropriate footwear or clothing, inappropriate walking aids or assistive devices, and architectural barriers ^[3]. Elderly individuals with impaired vision may struggle to detect obstacles in their path and may have difficulty maintaining balance through visual feedback—particularly in environments with reduced visual cues, such as low lighting or poor contrast. In addition, physical factors like urinary incontinence, insomnia, and general fatigue during the day can further increase the risk of accidents within the home ^[4]. Also being careless while performing daily life activities and walking in disorderly space or on stairs may lead to falls ^[3]. Studies have shown that extrinsic factors are more likely to be the cause of falls for the age group of 60 to 74 years, whereas intrinsic factors are more likely to be the cause for those aged 75 years and older ^[5]. A study in South Korea, reported that some hazards such as, a door sill, slippery floors in the bathroom, and poor night lights were all significant factors that caused a fall ^[6].

In terms of fall location, 65.43% of falls occurred indoors, while 34.57% happened outdoors. Within indoor settings, 50.75% of falls took place in the bathroom. Most (75%) of the falls at home occurred while carrying out daily activities like toileting, bathing, etc ^[2]. The extrinsic causes identified were slipping (55.9%) and tripping (44.1%) ^[7]. The kitchen is the most common locations for accidents in the home, followed by the bedroom and living room—areas where individuals typically spend the most time. Stairs are particularly hazardous, showing a high rate of accidents despite being used less frequently than other areas. Similarly, the bathroom presents a comparable level of risk due to its potential hazards ^[4]. Among frail elderly people, falls resulting in hip fractures are a major factor contributing to immobility and prolonged confinement. Even when there is no direct physical injury, the experience of falling may create a fear of spontaneous collapse and a loss of control. For elderly people, this leads to anxiety about self-sufficiency and independence ^[8]. A secondary issue affecting elderly individuals after a fall is the “post-fall syndrome characterized by a fear of falling again. This fear can result in reduced participation

in activities, limited motor activity, impairment of physical abilities and a decline in Quality of life. Overall, falls contribute to an increased risk of future falls, thereby impacting the QOL^[3]. Elderly individuals who are self-selected as housebound or suffer from mobility disorders may face a higher risk of falling than those who are bedridden. Moreover, psychological factors—such as anxiety and fear of falling—often lead older adults to restrict their own activities. These self-imposed limitations can, in turn, have a detrimental impact on their overall quality of life (QOL)^[8].

Quality of life (QOL) is defined as a subjective concept with multiple dimensions comprising physical, social, and environmental conditions. It is a broad, multidimensional concept that includes both positive and negative aspects of life and constitutes a major issue for older people^[9]. The majority of older people prefer to live in their own homes, where they have spent most of their lives. Home environment plays a remarkable role in elders' autonomy, health status, active ageing, and independence^[10]. In particular, fall injuries are becoming a significant socioeconomic issue for the elderly living alone. Similarly, the elderly living in single-detached houses tend to be more prone to falls due to poorer living conditions and lower incomes^[3].

The acute consequences of falls can lead to long-term deterioration of physical, psychosocial and functional abilities, resulting in severe implications for the quality of life of the elderly. This can manifest as prolonged hospitalization, institutionalization, and restriction of activities (disuse muscle atrophy, decreased aerobic capacity, altered balance, social isolation and depression) as well as impairments in mobility, balance and postural control. Additionally, social isolation, anxiety and depression can result from these conditions. These factors increase the risk of falling and further impact Quality of life.^[2,11] Appropriate design and decoration of living places may help older people to perform their daily living activities independently and perform social interactions effectively. Older people spend most of their daily time in a home usually designed for young people, which does not meet the needs of the aged population. The lack of compatibility between elders' homes and their needs, on the one hand, and the progressive decline in their physical function, on the other hand, may facilitate the risk factors for home accidents and injuries among the elderly population. Currently, the standards of physical environment for elders' homes, such as corridors, stairs, accessibility, and personal/shared rooms, have been considered as important determinants of QOL among older people^[10]. The increasing number of older adults living longer poses new challenges to health, long-term care and the welfare system. The rising costs of falls and associated injuries are of global concern, estimated at 1.5% of health care costs, both directly from the fall-related injuries and indirectly through loss of mobility, confidence and functional independence^[12].

Since falls at home are the most frequent accidents among senior citizens, the purpose of this study is to evaluate home hazards and investigate their relationship to the community-dwelling older population's quality of life. Assessing factors in the home environment that may contribute to fall occurrence can help address such factors. Given that this home environment-focused approach should be based on regional and cultural characteristics, there is a need for tools that can assess the risk of falls in homes. The Home Falls and Accidents Screening Tool (HOME FAST), originally developed for English-speaking regions, is a tool for evaluating environmental factors related to the risk of falls. The HOME FAST is easily applicable in community settings, as it contains only 25 items, allowing quick assessment of home environments^[13]. Each item is scored dichotomously to identify a hazard, and a not-applicable rating means the feature of the home does not exist, e.g., there are no stairs in the home. A “not applicable” rating does not mean that the older person does not use the home feature, e.g. lives in one room. All home features that exist need to be rated in terms of the older person's capacity to use them^[14]. Falling generates influences on elderly

people's quality of life (QoL), which can harm them physically, mentally and emotionally, due to the consequences of a fall or even the fear of falling ^[15]. To evaluate QoL with falls, OPQOL is a new 32- to 35-item QoL measure. It has 5-point Likert scales from Strongly Agree to Strongly Disagree, with 32 or 35 items. The subheadings are: Life overall, Health, Social Relationship, Independence, Control over life, Freedom, Home and neighbour, Psychological and emotional well-being, Financial Circumstances, Leisure Activities ^[16]. Since falls at home are the most frequent accidents among senior citizens, the purpose of this study is to evaluate home hazards and investigate their relationship to the community-dwelling older population's quality of life.

Need for study

Falls are a major concern among community-dwelling elderly, with 30–50% experiencing at least one fall annually, many occurring inside the home. Bathrooms, kitchens, and stairways are particularly high-risk due to hazards like slippery floors, poor lighting, and architectural barriers ^[5, 17].

In India, where many older adults live in resource-constrained and culturally diverse settings, home hazards interact with age-related factors (e.g., reduced vision, musculoskeletal decline, medication use) to elevate fall risk. The consequences extend beyond physical injuries—fear of falling, reduced mobility, and loss of independence negatively impact mental health, social participation, and overall QOL ^[8,18].

Evidence from tools such as OPQOL-35 highlights strong links between falls and reduced physical, emotional, and social well-being ^[16]. However, research specifically exploring how home-based falls affect QOL in Indian elderly populations remains limited.

Addressing this gap by combining fall risk assessments (e.g., HOME FAST) with culturally sensitive QOL measures can guide policies and interventions that make Indian homes safer, reduce fall incidence, and promote healthy, independent ageing.

Aims and objectives

Aim - To study the association of Home Falls and Accidents (HOME FAST) with Quality of Life (QOL) in a community-dwelling elderly population.

Objectives -

1. To assess the risk of falls within the home in the elderly population living in the community using HOME FAST Scale
2. To evaluate the quality of life of the elderly population living in the community using OPQOL-35 Scale
3. To correlate falls and Accidents within the home with the quality of Life in community-dwelling elders

Hypothesis

Null Hypothesis - "There is no significant association between home falls and accidents and the quality of life in community-dwelling elderly individuals."

Alternate Hypothesis - "There is a significant association of home falls and accidents with the quality of life in community-dwelling elderly individuals."

Methodology and materials

Methodology:

Type of study: Cross-sectional study

Study design: Survey-based study
Sampling Technique: Convenient sampling
Study Setting: Community-dwelling elderly population
Sample Size: 150 subjects
Outcome measures: 1) Home FAST Scale
2) OPQOL 35

Sample size

$$n = \frac{Z^2 (1-\alpha/2)^2 \times PQ}{d^2}$$

d2

$Z(1-\alpha/2)$ = Type 1 error = 1.96 (at 95% confidence interval)

P = Prevalence of fall = 25% (Pitachai P et al).

d = Absolute precision/error = 7%

$Q = 1 - P(1 - 0.25) = 75\% (0.75)$

$$n = \frac{1.96^2 \times 0.25 \times 0.75}{0.07^2} = 141$$

0.0720.0049 (5% additional sample for non-response /errors) = 7

Overall sample size = 141 + 7 = 148. Estimated by prevalence of 25%, the sample size of 148 would yield a 95% confidence level with 5% of type 1 error and a precision of 7%.

Inclusion criteria ^[19]

1. Age 65 years or older, both males and females
2. Participants must reside in a home setting (e.g., house, apartment).
3. Participants who have experienced at least one fall or accident at home
4. Subjects who are literate and able to understand and self-fill the questionnaires.

Exclusion criteria ^[19, 20]

1. Terminal illness or severe co-morbidities (e.g., late-stage cancer, severe heart failure, etc.) and completely bedridden.
2. Subjects with severe cognitive deficit.
3. Subjects with visual impairment.
4. Subjects with a history of hospitalization for psychiatric disorders.

Procedure

Institutional Ethical Committee clearance was obtained prior to the commencement of the study. Subjects who satisfied the inclusion criteria were selected and invited to participate. A total of 150 participants fitting the criteria were approached. Before participation, each subject was provided with a detailed explanation of the purpose, procedure, and significance of the study, following which written informed consent was obtained. Each participant's home was personally visited by the therapist to ensure an accurate assessment of the home environment. During this visit, an evaluation sheet was provided to the participants to record demographic details (age, gender, occupation, etc.), relevant comorbidities, and history of falls, including number and location. This sheet ensured comprehensive documentation of background and clinical information. Following this, the Home Falls and Accidents Screening Tool (Home FAST) was administered. A clear explanation of the Home FAST scale was given, and each room or space in the home

was systematically assessed by the therapist for potential environmental hazards. Simultaneously, the participant was asked about their interaction with household items and daily activities. Scoring was completed by the therapist, and participants were informed of the hazards identified, along with advice on how these factors could potentially increase fall risk and strategies to minimize them. Subsequently, the Older People's Quality of Life Questionnaire (OPQOL-35) was administered. The purpose of the questionnaire and its significance in measuring quality of life were explained. Each domain was described in detail, and participants were instructed to complete the questionnaire according to their personal daily experiences. Scoring was carried out by the therapist upon completion.

Statistical analysis

Data was analyzed using the statistical package **SPSS 26.0** (SPSS Inc., Chicago, IL), and the level of significance was set at **$p < 0.05$** . **Descriptive statistics** were performed to assess the mean and standard deviation of the respective groups. **Inferential statistics** to find out the difference were done using the **Pearson correlation** test.

Results

Participant Characteristics

A total of 150 community-dwelling older adults participated in the study, with an equal representation of females ($n = 75$, 50.0%) and males ($n = 75$, 50.0%).

Table 1. Demographic Characteristics of Participants

Variable	Value
Sample size	150
Mean age (years)	70.51 ± 4.17
Age range (years)	63–85

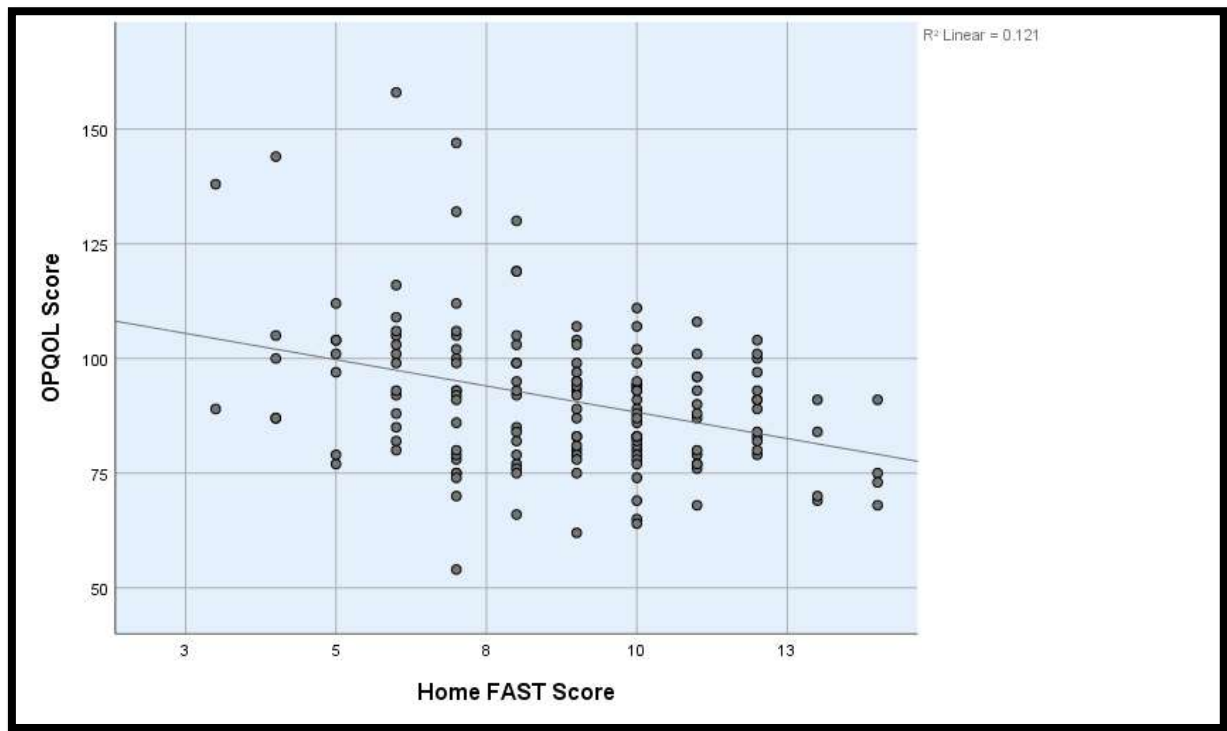
The study included 150 community-dwelling elderly participants with a mean age of 70.51 ± 4.17 years, ranging from 63 to 85 years.

Association between HOME FAST and OPQOL Scores

Table 2. Correlation between HOME FAST and OPQOL-35 Scores

Variable	r	p-value
HOME FAST vs OPQOL	-0.348	$< 0.001^*$

Pearson's correlation analysis demonstrated a moderate negative correlation between HOME FAST scores and OPQOL-35 scores ($r = -0.348$, $p < 0.001$), indicating that an increase in home environmental hazards was associated with poorer quality of life among community-dwelling older adults (Figure 1).



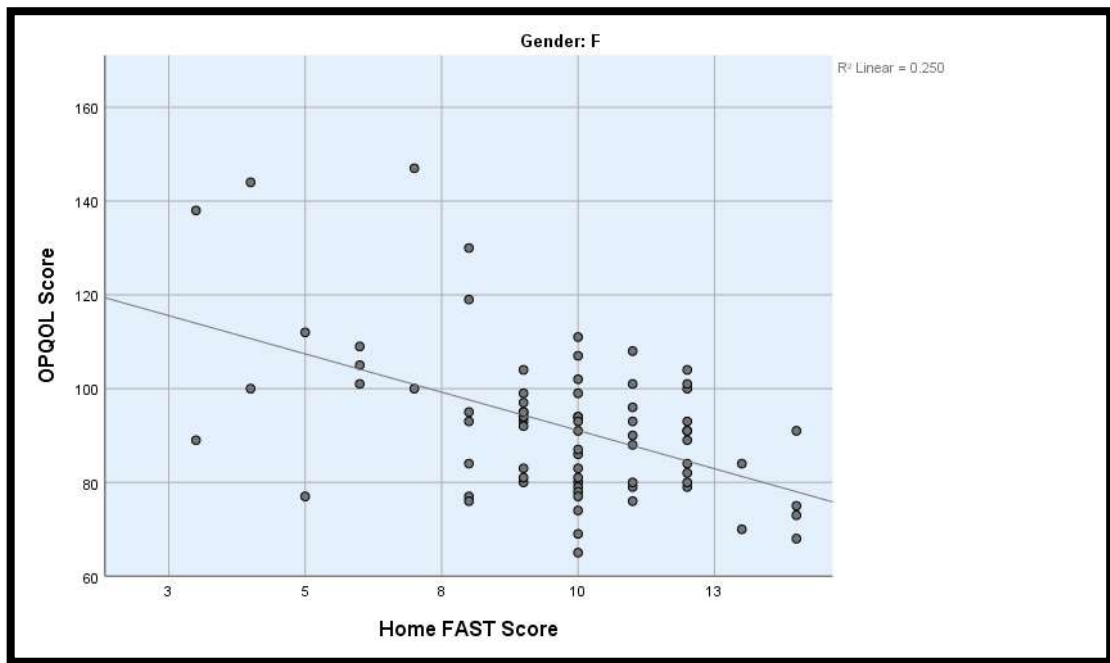
(Figure 1)

Table 3- Correlation between HOMEFAST score OPQOL score (Gender wise)

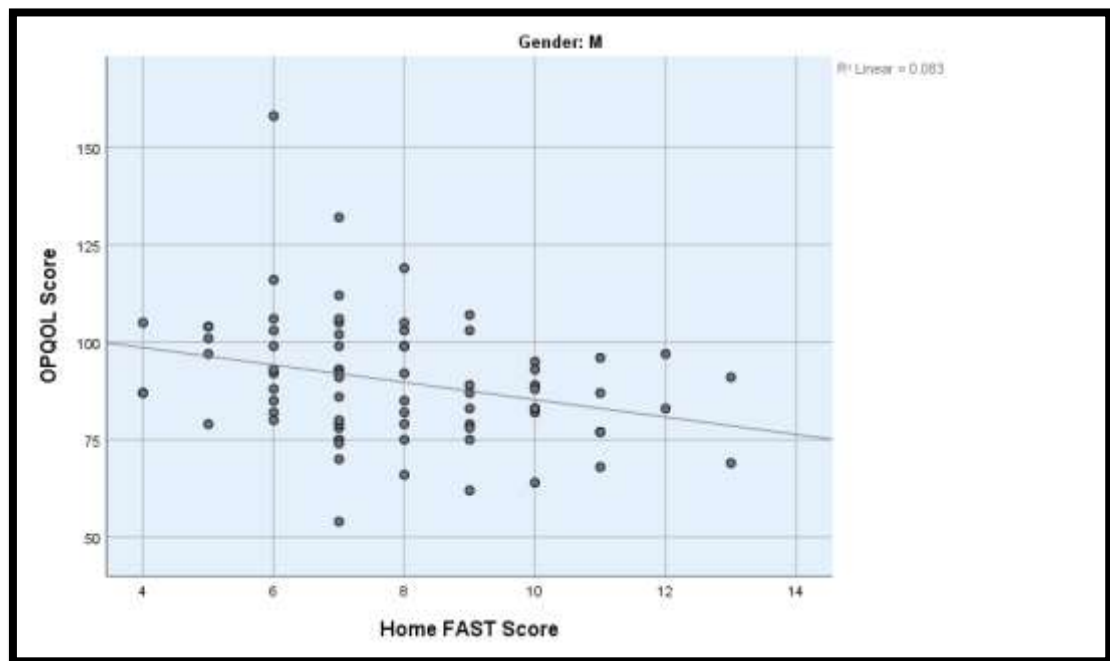
Gender			OPQOL Score
F	Home FAST Score	Pearson Correlation	-0.500**
		Sig. (2-tailed)	0.0001*
		N	75
M	Home FAST Score	Pearson Correlation	-0.289*
		Sig. (2-tailed)	0.012*
		N	75

Table 3 presents the gender-wise correlation between HOMEFAST scores and OPQOL scores. Among females (n = 75), the Pearson correlation coefficient is -0.500, indicating a moderate to strong negative correlation between home safety risks and quality of life. This relationship is highly significant (p = 0.0001), suggesting that increased home hazards are strongly associated with lower perceived quality of life in older women.

For males (n = 75), the Pearson correlation coefficient is -0.289, indicating a weaker negative correlation compared to females. However, this correlation is still statistically significant (p = 0.012), implying that even among older men, a higher HOMEFAST score is associated with a decrease in quality of life, though to a lesser extent than in women. (Figure 2-3)



(Figure 2)



(Figure 3)

Association of Individual HOME FAST Items with Quality of Life

To better understand which environmental hazards influence quality of life, selected HOME FAST items were analyzed against individual OPQOL domains using independent sample t-tests.

Floor Surface Safety

Table 4. Association between Non-slip Floor Surfaces and Quality of Life

	Are floor surfaces non slip	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	45	10.90	3.527	0.526	-1.158	0.021*
Life overall	No	105	10.05	3.797	0.371	-1.158	0.021*
Health	Yes	45	8.51	2.735	0.408	-1.940	0.034*
Health	No	105	9.75	3.897	0.380	-1.940	0.034*
Social	Yes	45	10.27	3.608	0.538	0.207	0.836
Social	No	105	10.11	4.324	0.422	0.207	0.836
Independence	Yes	45	9.96	4.073	0.607	0.620	0.536
Independence	No	105	9.56	3.328	0.325	0.620	0.536
Home	Yes	45	10.60	2.250	0.335	3.182	0.031*
Home	No	105	8.15	2.070	0.202	3.182	0.031*
Psychological	Yes	45	10.76	2.870	0.428	-0.836	0.405
Psychological	No	105	11.25	3.472	0.339	-0.836	0.405
Financial Circumstances	Yes	45	11.44	4.132	0.616	-0.763	0.447
Financial Circumstances	No	105	12.04	4.466	0.436	-0.763	0.447
Leisure activities	Yes	45	20.07	5.793	0.864	-0.316	0.752
Leisure activities	No	105	20.41	6.211	0.606	-0.316	0.752

Significant differences were observed in

- Life Overall (p = 0.021)
- Health (p = 0.034)
- Home Environment (p = 0.031)

No significant differences were identified for

- Social Relationships
- Independence
- Psychological Well-being
- Financial Circumstances
- Leisure Activities

Participants living in homes with non-slip flooring demonstrated significantly better overall life satisfaction and perceived home safety.

Bed Accessibility

Table 5. Association between Ease of Getting In and Out of Bed and Quality of Life

	Can the person get in and out of the bed easily	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	75	11.11	3.755	0.434	0.770	0.443
Life overall	No	75	10.64	3.667	0.423	0.770	0.443
Health	Yes	75	10.19	2.976	0.344	-1.652	00.02*
Health	No	75	9.57	4.185	0.483	-1.652	00.02*
Social	Yes	75	10.68	4.671	0.539	1.557	0.122
Social	No	75	9.64	3.416	0.394	1.557	0.122
Independence	Yes	75	9.61	3.646	0.421	-0.229	0.819
Independence	No	75	9.75	3.492	0.403	-0.229	0.819
Home	Yes	75	9.16	2.194	0.253	-0.728	00.03*
Home	No	75	8.41	2.067	0.239	-0.728	00.03*
Psychological	Yes	75	11.08	3.237	0.374	-0.074	0.941
Psychological	No	75	11.12	3.385	0.391	-0.074	0.941
Financial Circumstances	Yes	75	12.81	4.834	0.558	2.734	0.007*
Financial Circumstances	No	75	10.91	3.621	0.418	2.734	0.007*
Leisure activities	Yes	75	20.36	6.060	0.700	0.107	0.915
Leisure activities	No	75	20.25	6.123	0.707	0.107	0.915

Significant associations were observed for

- Health ($p = 0.020$)
- Home Environment ($p = 0.030$)
- Financial Circumstances ($p = 0.007$)

No statistically significant differences were observed in the remaining quality-of-life domains.

These findings suggest that bed accessibility contributes positively to perceived health and independence within the home.

Lounge Chair Accessibility

Table 6. Association between Ability to Rise from a Lounge Chair and Quality of Life

	Can the person get up from their lounge chair easily	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	60	11.03	3.732	0.482	0.431	0.667
Life overall	No	90	10.77	3.706	0.391	0.431	0.667

Health	Yes	60	9.20	2.968	0.383	-0.495	0.621
Health	No	90	9.50	4.015	0.423	-0.495	0.621
Social	Yes	60	10.43	4.652	0.601	0.664	0.508
Social	No	90	9.98	3.724	0.392	0.664	0.508
Independence	Yes	60	9.65	3.768	0.486	-0.084	0.933
Independence	No	90	9.70	3.433	0.362	-0.084	0.933
Home	Yes	60	8.55	2.054	0.265	1.240	0.217
Home	No	90	8.11	2.169	0.229	1.240	0.217
Psychological	Yes	60	10.58	2.764	0.357	-1.573	0.118
Psychological	No	90	11.44	3.589	0.378	-1.573	0.118
Financial Circumstances	Yes	60	11.82	4.806	0.621	-0.099	0.921
Financial Circumstances	No	90	11.89	4.068	0.429	-0.099	0.921
Leisure activities	Yes	60	19.00	5.892	0.761	-2.179	0.031*
Leisure activities	No	90	21.18	6.064	0.639	-2.179	0.031*

Only the Leisure Activities domain demonstrated statistical significance ($p = 0.031$).

No significant associations were identified for

- Life Overall
- Health
- Social Relationships
- Independence
- Home Environment
- Psychological Well-being
- Financial Circumstances
- Lighting Adequacy

Table 7. Association between Adequate Home Lighting and Quality of Life

	Are all the lights bright enough for the person to see clearly	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	53	11.06	3.376	0.464	0.446	0.656
Life overall	No	97	10.77	3.888	0.395	0.446	0.656
Health	Yes	53	10.04	4.233	0.582	1.652	0.101
Health	No	97	9.02	3.211	0.326	1.652	0.101
Social	Yes	53	10.57	4.130	0.567	0.894	0.373
Social	No	97	9.94	4.105	0.417	0.894	0.373
Independence	Yes	53	9.36	2.795	0.384	-0.817	0.415
Independence	No	97	9.86	3.916	0.398	-0.817	0.415
Home	Yes	53	10.32	1.718	0.236	2.145	0.02*

Home	No	97	8.27	2.330	0.237	2.145	0.02*
Psychological	Yes	53	11.45	3.079	0.423	0.967	0.335
Psychological	No	97	10.91	3.416	0.347	0.967	0.335
Financial Circumstances	Yes	53	12.17	3.361	0.462	0.642	0.522
Financial Circumstances	No	97	11.69	4.831	0.491	0.642	0.522
Leisure activities	Yes	53	20.49	5.810	0.798	0.273	0.785
Leisure activities	No	97	20.21	6.237	0.633	0.273	0.785

Adequate household lighting was significantly associated with

Home Environment ($p = 0.020$)

No statistically significant differences were observed across the remaining OPQOL domains.

Accessibility of Bedside Lighting

Table 8. Association between the Ability to Switch on a Bedside Light and Quality of Life

	Can the person switch a light on easily from the bed	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	50	11.22	3.442	0.487	0.809	0.420
Life overall	No	100	10.70	3.836	0.384	0.809	0.420
Health	Yes	50	11.20	2.921	0.413	-0.429	0.01*
Health	No	100	9.47	3.940	0.394	-0.429	0.01*
Social	Yes	50	10.14	3.714	0.525	-0.042	0.967
Social	No	100	10.17	4.314	0.431	-0.042	0.967
Independence	Yes	50	9.88	3.526	0.499	0.486	0.628
Independence	No	100	9.58	3.588	0.359	0.486	0.628
Home	Yes	50	10.52	2.557	0.362	2.94	0.002*
Home	No	100	8.17	1.881	0.188	2.94	0.002*
Psychological	Yes	50	12.00	3.580	0.506	2.399	0.018*
Psychological	No	100	10.65	3.073	0.307	2.399	0.018*
Financial Circumstances	Yes	50	11.46	3.903	0.552	-0.793	0.429
Financial Circumstances	No	100	12.06	4.581	0.458	-0.793	0.429
Leisure activities	Yes	50	20.58	5.817	0.823	0.389	0.683
Leisure activities	No	100	20.17	6.218	0.622	0.389	0.683

Participants able to easily switch on a light while in bed reported significantly higher scores in

- Health ($p = 0.010$)
- Home Environment ($p = 0.002$)

- Psychological Well-being ($p = 0.018$)

No significant differences were observed in the remaining domains.

Bathroom Safety

Table 9. Association between Use of Slip-resistant Bathroom Mats and Quality of Life

	Are slip resistant mats/ strips used in the bath/bathroom/shower recess	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	35	10.77	3.858	0.652	-0.185	0.853
Life overall	No	115	10.90	3.675	0.343	-0.185	0.853
Health	Yes	35	11.14	2.871	0.485	-2.441	0.01*
Health	No	115	9.45	3.833	0.357	-2.441	0.01*
Social	Yes	35	8.83	2.925	0.494	-2.217	0.028*
Social	No	115	10.57	4.339	0.405	-2.217	0.028*
Independence	Yes	35	8.91	2.490	0.421	-1.459	0.147
Independence	No	115	9.91	3.803	0.355	-1.459	0.147
Home	Yes	35	9.91	1.772	0.299	-2.184	0.03*
Home	No	115	8.40	2.220	0.207	-2.184	0.03*
Psychological	Yes	35	10.34	2.388	0.404	-1.557	0.122
Psychological	No	115	11.33	3.509	0.327	-1.557	0.122
Financial Circumstances	Yes	35	11.86	3.344	0.565	-0.004	0.996
Financial Circumstances	No	115	11.86	4.641	0.433	-0.004	0.996
Leisure activities	Yes	35	19.34	6.310	1.067	-1.073	0.285
Leisure activities	No	115	20.60	5.994	0.559	-1.073	0.285

Significant differences were identified in

- Health ($p = 0.010$)
- Social Relationships ($p = 0.028$)
- Home Environment ($p = 0.030$)

Participants using slip-resistant mats reported better perceived health and home environment.

Kitchen Accessibility

Table 10. Association between Ability to Reach Frequently Used Kitchen Items and Quality of Life

	Can the person easily reach items in the kitchen that are used regularly without climbing bending or upsetting his or her balance	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	65	11.55	2.979	0.370	1.986	0.049*

Life overall	No	85	10.35	4.119	0.447	1.986	0.049*
Health	Yes	65	9.55	3.226	0.400	0.512	0.609
Health	No	85	9.25	3.915	0.425	0.512	0.609
Social	Yes	65	9.71	3.583	0.444	-1.180	0.240
Social	No	85	10.51	4.463	0.484	-1.180	0.240
Independence	Yes	65	9.35	3.028	0.376	-0.982	0.328
Independence	No	85	9.93	3.915	0.425	-0.982	0.328
Home	Yes	65	8.45	1.786	0.221	0.802	0.424
Home	No	85	8.16	2.360	0.256	0.802	0.424
Psychological	Yes	65	11.43	2.872	0.356	1.074	0.285
Psychological	No	85	10.85	3.591	0.389	1.074	0.285
Financial Circumstances	Yes	65	12.43	4.191	0.520	1.406	0.162
Financial Circumstances	No	85	11.42	4.465	0.484	1.406	0.162
Leisure activities	Yes	65	20.54	5.932	0.736	0.408	0.684
Leisure activities	No	85	20.13	6.204	0.673	0.408	0.684

Only Overall Quality of Life showed a statistically significant association ($p = 0.049$).

No significant differences were observed for the remaining OPQOL domains.

Carrying Meals Safely

Table 11. Association between Ability to Carry Meals Safely and Quality of Life

	Can the person carry meals easily and safely from the kitchen	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	80	10.53	3.554	0.397	-1.233	0.220
Life overall	No	70	11.27	3.860	0.461	-1.233	0.220
Health	Yes	80	9.50	4.337	0.485	0.432	0.666
Health	No	70	9.24	2.607	0.312	0.432	0.666
Social	Yes	80	9.75	4.089	0.457	-1.309	0.193
Social	No	70	10.63	4.115	0.492	-1.309	0.193
Independence	Yes	80	11.25	3.518	0.393	-2.477	0.03*
Independence	No	70	9.83	3.623	0.433	-2.477	0.03*
Home	Yes	80	7.99	2.253	0.252	-1.856	0.045*
Home	No	70	8.63	1.935	0.231	-1.856	0.045*
Psychological	Yes	80	11.33	3.628	0.406	0.892	0.374
Psychological	No	70	10.84	2.887	0.345	0.892	0.374

Financial Circumstances	Yes	80	12.14	4.924	0.551	0.832	0.407
Financial Circumstances	No	70	11.54	3.626	0.433	0.832	0.407
Leisure activities	Yes	80	20.35	6.424	0.718	0.093	0.926
Leisure activities	No	70	20.26	5.687	0.680	0.093	0.926

Significant differences were observed in

- Independence ($p = 0.030$)
- Home Environment ($p = 0.045$)

No significant associations were identified for the remaining quality-of-life domains.

Indoor Stair Safety

Table 12. Association between Indoor Grab Rails and Quality of Life

	Do the indoor steps/ stairs have an accessible/sturdy grab rail along full length of stairs	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	106	10.86	3.841	0.373	0.072	0.942
Life overall	No	42	10.81	3.337	0.515	0.072	0.942
Health	Yes	106	9.58	3.794	0.369	1.207	0.229
Health	No	42	8.79	3.174	0.490	1.207	0.229
Social	Yes	106	10.66	4.446	0.432	2.430	0.016*
Social	No	42	8.86	2.893	0.446	2.430	0.016*
Independence	Yes	106	9.98	3.864	0.375	1.518	0.131
Independence	No	42	9.00	2.547	0.393	1.518	0.131
Home	Yes	106	8.33	2.146	0.208	0.811	0.419
Home	No	42	8.02	1.867	0.288	0.811	0.419
Psychological	Yes	106	10.89	3.322	0.323	-1.171	0.243
Psychological	No	42	11.60	3.306	0.510	-1.171	0.243
Financial Circumstances	Yes	106	11.58	4.047	0.393	-0.971	0.333
Financial Circumstances	No	42	12.36	5.074	0.783	-0.971	0.333
Leisure activities	Yes	106	20.11	6.435	0.625	-0.391	0.696
Leisure activities	No	42	20.55	5.110	0.788	-0.391	0.696

Participants with accessible indoor grab rails reported significantly higher levels.

Social Relationship scores ($p = 0.016$)

No statistically significant differences were observed across the remaining domains.

Outdoor Stair Safety

Table 13. Association between Outdoor Grab Rails and Quality of Life

	Accessible/Sturdy Grab Rail Extending Along The Full Length Of Steps/Stairs	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	94	11.12	3.259	0.336	1.044	0.298
Life overall	No	56	10.46	4.357	0.582	1.044	0.298
Health	Yes	94	8.90	2.863	0.295	-2.107	0.037*
Health	No	56	10.18	4.549	0.608	-2.107	0.037*
Social	Yes	94	9.66	3.487	0.360	-1.950	0.053
Social	No	56	11.00	4.906	0.656	-1.950	0.053
Independence	Yes	94	9.33	2.996	0.309	-1.569	0.119
Independence	No	56	10.27	4.309	0.576	-1.569	0.119
Home	Yes	94	8.71	1.971	0.203	3.280	0.001*
Home	No	56	7.57	2.206	0.295	3.280	0.001*
Psychological	Yes	94	10.64	2.762	0.285	-2.249	0.026*
Psychological	No	56	11.88	3.955	0.528	-2.249	0.026*
Financial Circumstances	Yes	94	11.74	3.704	0.382	-0.418	0.676
Financial Circumstances	No	56	12.05	5.320	0.711	-0.418	0.676
Leisure activities	Yes	94	19.14	5.574	0.575	-3.143	0.002*
Leisure activities	No	56	22.27	6.409	0.856	-3.143	0.002*

Significant associations were identified for

- Health ($p = 0.037$)
- Home Environment ($p = 0.001$)
- Psychological Well-being ($p = 0.026$)
- Leisure Activities ($p = 0.002$)

No statistically significant differences were observed for Overall Life, Independence, Social Relationships, or Financial Circumstances.

The presence of outdoor grab rails appeared to reflect both improved environmental safety and underlying functional limitations among participants.

Ability to Safely Go Up and Down Stairs/Steps

Table 14. Association between the ability to safely go up and down stairs/steps and quality of life

	Can the person easily and safely go up and down the stairs/steps inside or outside the house	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	77	11.21	3.894	0.444	1.136	0.258

Life overall	No	73	10.52	3.489	0.408	1.136	0.258
Health	Yes	77	9.62	4.030	0.459	0.844	0.400
Health	No	73	9.12	3.149	0.369	0.844	0.400
Social	Yes	77	10.49	4.352	0.496	1.021	0.309
Social	No	73	9.81	3.839	0.449	1.021	0.309
Independence	Yes	77	10.05	3.873	0.441	1.318	0.190
Independence	No	73	9.29	3.173	0.371	1.318	0.190
Home	Yes	77	8.09	1.829	0.208	-1.158	0.249
Home	No	73	8.49	2.399	0.281	-1.158	0.249
Psychological	Yes	77	11.38	3.269	0.373	1.055	0.293
Psychological	No	73	10.81	3.332	0.390	1.055	0.293
Financial Circumstances	Yes	77	11.74	3.898	0.444	-0.344	0.731
Financial Circumstances	No	73	11.99	4.829	0.565	-0.344	0.731
Leisure activities	Yes	77	21.92	5.493	0.626	3.469	0.001*
Leisure activities	No	73	18.60	6.220	0.728	3.469	0.001*

Only the Leisure Activities domain demonstrated a statistically significant association ($p = 0.001$). No statistically significant differences were observed in the domains of Life Overall, Health, Social Relationships, Independence, Home Environment, Psychological Well-being, or Financial Circumstances. These findings suggest that the ability to safely negotiate stairs and steps may facilitate greater participation in leisure activities among community-dwelling older adults.

Entrance door accessibility

Table 15. Association between the ability to use entrance door(s) safely and easily and quality of life

	Can the person use the entrance door/s safely and easily	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	96	10.91	3.945	0.403	0.145	0.885
Life overall	No	54	10.81	3.274	0.446	0.145	0.885
Health	Yes	96	9.61	3.832	0.391	1.057	0.292
Health	No	54	8.96	3.215	0.438	1.057	0.292
Social	Yes	96	10.47	4.584	0.468	1.229	0.221
Social	No	54	9.61	3.062	0.417	1.229	0.221
Independence	Yes	96	9.72	3.936	0.402	0.177	0.860
Independence	No	54	9.61	2.798	0.381	0.177	0.860
Home	Yes	96	8.10	2.360	0.241	-1.405	0.162
Home	No	54	8.61	1.607	0.219	-1.405	0.162
Psychological	Yes	96	11.34	3.548	0.362	1.208	0.229

Psychological	No	54	10.67	2.788	0.379	1.208	0.229
Financial Circumstances	Yes	96	12.01	4.889	0.499	0.562	0.575
Financial Circumstances	No	54	11.59	3.248	0.442	0.562	0.575
Leisure activities	Yes	96	21.34	6.240	0.637	2.856	0.005*
Leisure activities	No	54	18.46	5.330	0.725	2.856	0.005*

Only the Leisure Activities domain demonstrated a statistically significant association ($p = 0.005$), with participants who were able to use entrance doors safely reporting higher leisure activity scores than those who could not. No statistically significant differences were observed in the domains of Life Overall, Health, Social Relationships, Independence, Home Environment, Psychological Well-being, or Financial Circumstances. These findings suggest that safe and easy access through entrance doors may support participation in leisure activities among community-dwelling older adults.

Care for Pets Safely

Table 16. Association between the ability to care for pets safely and quality of life

	If there are pets-can the person care for them without bending or being at risk of falling over	N	Mean	Std. Deviation	Std. Error Mean	T Value	P Value
Life overall	Yes	92	10.97	3.411	0.356	0.390	0.697
Life overall	No	58	10.72	4.158	0.546	0.390	0.697
Health	Yes	92	9.33	3.231	0.337	-0.229	0.819
Health	No	58	9.47	4.202	0.552	-0.229	0.819
Social	Yes	92	9.28	3.215	0.335	-3.407	0.001*
Social	No	58	11.55	4.946	0.649	-3.407	0.001*
Independence	Yes	92	9.09	2.575	0.268	-2.621	0.010*
Independence	No	58	10.62	4.588	0.602	-2.621	0.010*
Home	Yes	92	8.26	1.863	0.194	-0.186	0.852
Home	No	58	8.33	2.509	0.329	-0.186	0.852
Psychological	Yes	92	10.95	2.966	0.309	-0.720	0.473
Psychological	No	58	11.34	3.786	0.497	-0.720	0.473
Financial Circumstances	Yes	92	11.43	3.775	0.394	-1.510	0.133
Financial Circumstances	No	58	12.53	5.124	0.673	-1.510	0.133
Leisure activities	Yes	92	19.07	5.913	0.616	-3.254	0.001*
Leisure activities	No	58	22.28	5.839	0.767	-3.254	0.001*

Significant differences were observed in:

- Social Relationships ($p = 0.001$)
- Independence ($p = 0.010$)
- Leisure Activities ($p = 0.001$)

No statistically significant differences were observed in the domains of Life Overall, Health, Home Environment, Psychological Well-being, or Financial Circumstances.

These findings suggest that the ability to safely care for pets may be associated with greater independence, enhanced social interaction, and increased participation in leisure activities among community-dwelling older adults.

Discussion

The present study, titled “Association of Home Falls and Accidents with Quality of Life in Community Dwelling Elderly Population,” aimed to explore the relationship between home hazards-induced risk of falls and the overall well-being of elderly individuals residing in the community. A total of 150 participants aged 63–85 years were included, with an equal representation of males (50%) and females (50%). The mean age of the study group was 70.51 years, which is consistent with other Indian and international studies where community-dwelling elderly populations often fall within the 60 years age group ^[2]. This demographic ensures that the findings are representative of the age group at highest risk of home-related falls.

The results demonstrated a statistically significant negative correlation between Home FAST scores and OPQOL scores ($r = -0.348$, $p = 0.0001$). This finding suggests that as the number of hazards in the home environment increases, the perceived quality of life decreases. These findings align with previous literature, which highlighted that environmental risks such as slippery floors, poor lighting, and uneven surfaces are key determinants of falls and directly influence functional independence and psychosocial health in older adults.

In the current study, significant contributors to home hazards that affect quality of life among older adults included unsafe floor conditions, poor lighting, and difficulty with basic mobility tasks. Specifically, non-slip floor surfaces were linked to better health, home environment, and overall life satisfaction; ease of getting in and out of bed was associated with improved health and home comfort; and the ability to switch on a light from bed enhanced health, home safety, and psychological well-being. Similarly, slip-resistant mats in bathrooms improved health and home safety, while the ability to carry meals safely contributed to greater independence and home satisfaction. Social and leisure domains were also influenced—for instance, safe pet care and ease of shower access impacted social engagement, while safe stair use and entrance door accessibility promoted leisure participation.

By contrast, several factors were found to have no significant impact on quality of life, including walkway clutter, floor covering condition, securely fixed loose mats, ease of getting up from a lounge chair, outdoor lighting at night, toilet accessibility, ease of bathing, grab rails in bathrooms, toilet proximity to bedroom, ease of reaching kitchen items, indoor grab rails, outdoor grab rails, stair edge visibility, and wearing well-fitting footwear. In 2017 Smith AA et al conducted a study on the Assessment of risk of falls in elderly living at home in which they found that extrinsic components like quality of flooring and lighting in the residences are related to high prevalence of falls which can have a serious consequence on the quality of life ^[11]. Another study conducted by Pilar Perez- Ros et al on Risk factors and Number of Falls as Determinants of Quality of Life Of Community Dwelling Older Adults in which he found that in older

adults, the psychological impact and effects related to the loss functional capacity are directly related to perceived QOL ^[9]. The present study thus reinforces the notion that safer home environments are strongly associated with better quality of life among the elderly.

Gender-wise analysis revealed interesting differences. Among female participants, the correlation between home hazards and quality of life was stronger ($r = -0.500$, $p = 0.0001$) compared to males ($r = -0.289$, $p = 0.012$). In 2021, Sung Min Lee conducted a study on the Falls associated with indoor and outdoor environmental hazards among community-dwelling older adults between Men and women, in which he concluded that the presence of indoor environmental hazards was an indicator of the fall risk for women but not for men, while the presence of outdoor environmental hazards was an indicator of the fall risk for men but not for women ^[21]. This indicates that elderly women are more vulnerable to the negative impact of unsafe home environments on their well-being. Studies suggest that older women may be at higher risk of fall-related consequences due to lower bone density, reduced muscle strength, and longer life expectancy, which can increase exposure to hazardous conditions. Furthermore, women often spend more time in indoor household spaces, thereby increasing their exposure to home hazards such as bathroom slips, poor stair design, or inadequate lighting. These factors may partly explain the stronger association observed in this study. Another study done by Ove Schroeder, MD et al (2021) conducted a study on the Effectiveness of autonomous home hazard reduction on fear of falling in community-dwelling older women, in which they found that Most of these falls occur at home. Women have a higher risk of falling than men due to physiological aging processes, and comorbidities can worsen the outcome of falls ⁽²²⁾.

In contrast, men, while still affected by home hazards, showed a weaker correlation between HOME FAST and OPQOL scores ⁵⁵ This could be due to gender differences in activity patterns, physical resilience, or coping mechanisms. Previous research has suggested that men may underreport declines in quality of life or adapt differently to home hazards ⁽²²⁾. Nevertheless, the statistically significant association observed in both groups underlines the universal importance of home safety in promoting quality of life among elderly populations.

The moderate but significant negative correlation found in the overall sample also reflects the multidimensional consequences of falls and accidents. Beyond physical injuries, falls often result in psychological fear of falling, social withdrawal, and loss of independence. Such factors are well-documented to negatively impact life satisfaction, emotional well-being, and overall health-related quality of life. A study conducted by Isha Biswas et al (2023) on Health consequences of Falls among Older Adults in India, in which they found that falls can harm physical health, psychological health and health-related quality of life, which can eventually lead to less social interaction and also economic consequences, including increased health and social care costs. Hence, our study supports this perspective by quantitatively demonstrating how higher fall risk scores correspond to lower OPQOL outcomes ⁽²³⁾.

Comparisons with existing literature further strengthen these findings. A study conducted by Pitchai et al. (2019) identified that most elderly falls occurred indoors, with slips being the most common cause, and this directly reduced functional independence ⁽²⁾. Similarly, Leszczyńska et al. (2016) highlighted that falls have long-term psychosocial implications, which reduce quality of life unless interventions such as structured exercise programs are introduced. The present study's results parallel these findings by showing that home safety risk scores are not only predictive of falls but also of diminished perceived well-being ⁽³⁾. The implications of this study are particularly important in the Indian context, where family structures, housing designs, and healthcare access vary widely. Identifying hazards through tools such as the Home FAST scale allows for targeted modifications—such as installing grab bars, improving lighting, or

reducing floor clutter—that could substantially reduce fall risks. Additionally, community-level awareness programs and physiotherapy-led interventions can promote safer environments and enhance elderly independence.

To conclude, the results demonstrate a clear and meaningful relationship between home hazard related increase risk of falls and quality of life in the community-dwelling elderly population. Addressing these risks through preventive strategies, environmental 56 modifications, and rehabilitation-focused programs can not only reduce the incidence of falls but also improve psychological and social well-being, thereby enhancing the overall quality of life.

Conclusion

The findings of this study clearly show that unsafe home environments are strongly linked with a decline in quality of life among community-dwelling elderly individuals. A significant negative correlation was observed between HOME FAST scores and OPQOL scores, meaning that as the number of home hazards increased, the overall well-being and life satisfaction of older adults decreased. Gender-wise analysis further highlighted that elderly women were more vulnerable to the negative effects of unsafe homes compared to men. These results underline the importance of addressing fall risks at the household level. Simple modifications such as improving lighting, removing floor clutter, installing grab bars, and making bathrooms safer can play a crucial role in preventing falls. By doing so, older adults can maintain independence, confidence, and a better quality of life.

Future Scope

- Future research should include a larger and more diverse population across different regions to strengthen the findings.
- Research can focus on how physiotherapy-based interventions (strengthening, balance training, home exercise programs) can directly improve both fall risk and quality of life.
- Given that women showed a stronger association between hazards and reduced quality of life, future work should develop tailored programs focusing on the unique needs of elderly women.
- A separate study can be conducted with deeper aspects of research on finding a correlation between individual home hazards and their relation with different domains of quality of life.
- Since living patterns and home designs differ across urban, semi-urban, and rural communities, future research can compare these settings to provide context-specific solutions.
- Future work could combine home hazard screening with other geriatric health assessments (vision, mobility, medication use) to provide a more holistic preventive care model.

References

1. Guccione AA, Avers D, Wong R. Geriatric physical therapy-ebook. Elsevier Health Sciences; 2011 Mar 7.
2. Pitchai P, Dedhia HB, Bhandari N, Krishnan D, D'Souza NR, Bellara JM. Prevalence, risk factors, circumstances for falls and level of functional independence among geriatric population: A descriptive study. *Indian journal of public health*. 2019 Jan 1;63(1):21-6.
3. Leszczyńska A, Daniszewska B, Pruszyńska M, Przedborska A, Hadała M, Raczkowski JW. Effects of a health improvement programme on quality of life in elderly people after falls. *Polish annals of medicine*. 2016 Jun 1;23(2):129-34.

4. Oladeji OS. HOME ACCIDENTS' EFFECTS ON THE PHYSICAL AND SOCIAL WELL-BEING OF THE AGED. *African Journal of Educational Management*. 2017;18(02).
5. Agarwalla R, Saikia AM, Pathak R, Islam F, Borah M, Parashar M. A cross-sectional study on assessment of falls in community-dwelling elderly of Assam. *Natl J Community Med*. 2016 May;7:368-71.
6. Alshammari SA, Alhassan AM, Aldawsari MA, Bazuhair FO, Alotaibi FK, Aldakhil AA, Abdulfattah FW. Falls among the elderly and their relation with their health problems and surrounding environmental factors in Riyadh. *Journal of family and community medicine*. 2018 Jan 1;25(1):29-34.
2. 7)Rekha MR, Mini GK, Kutty VR. Falls among older adults: A community-based study in Rural Kerala, India. *Global journal of health science*. 2017;9(10):165-.
1. Suzuki M, Ohyama N, Yamada K, Kanamori M. The relationship between fear of falling, activities of daily living and quality of life among elderly individuals. *Nursing & health sciences*. 2002 Dec;4(4):155-61.
2. Pérez-Ros P, Martínez-Arnau FM, Tarazona-Santabalbina FJ. Risk factors and number of falls as determinants of quality of life of community-dwelling older adults. *Journal of Geriatric Physical Therapy*. 2019 Apr 1;42(2):63-72.
3. Nakhodaezadeh M, Jafarabadi MA, Allahverdipour H, Matlabi H, Dehkordi FR. Home environment and its relation with the quality of life of older people. *Journal of Housing for the Elderly*. 2017 Jul 3;31(3):272-85.
4. Smith AD, Silva AO, Rodrigues RA, Moreira MA, Nogueira JD, Tura LF. Assessment of the risk of falls in the elderly living at home. *Revista latino-americana de Enfermagem*. 2017;25:e2754.
5. Bjerk M, Brovold T, Skelton DA, Bergland A. Associations between health-related quality of life, physical function and fear of falling in older fallers receiving home care. *BMC Geriatrics*. 2018 Oct 22;18(1):253.
6. Kim GS, Park MK, Kim L, Lee JJ, Kim N, Yang SB, Lee JY. Assessment of fall risk in the home environment of Korean older adults: revision and validation of the K-HOME FAST.
7. Mackenzie L. Evaluation of the clinical utility of the Home Falls and Accidents Screening Tool (HOME FAST). *Disability and rehabilitation*. 2017 Jul 17;39(15):1489-501.
8. Silva TL, Motta VV, Garcia WJ, Arreguy-Sena C, Pinto PF, Parreira PM, Paiva EP. Quality of life and falls in elderly people: a mixed-methods study. *Revista Brasileira de Enfermagem*. 2021 May 21;74:e20200400.
9. The Psychometric Properties of the Older People's Quality of Life Questionnaire, Compared with the CASP-19 and the WHOQOL-OLD
10. Pereira SG, Santos CB, Doring M, Portella MR. Prevalence of household falls in long-lived adults and association with extrinsic factors. *Revista latino-americana de Enfermagem*. 2017;25:e2900.
11. Noh JW, Kim KB, Lee JH, Lee BH, Kwon YD, Lee SH. The elderly and falls: Factors associated with quality of life. A cross-sectional study using large-scale national data in Korea. *Archives of gerontology and geriatrics*. 2017 Nov 1;73:279-83
12. Mortazavi H, Tabatabaeichehr M, Taherpour M, Masoumi M. Relationship between home safety and prevalence of falls and fear of falling among elderly people: a cross-sectional study. *Materia socio-medica*. 2018 Jun;30(2):103.
13. Susilowati IH, Nugraha S, Sabarinah S, Peltzer K, Pengpid S, Hasiholan BP. Prevalence and risk factors associated with falls among community-dwelling and institutionalized older adults in

- Indonesia. Malaysian Family Physician: The Official Journal of the Academy of Family Physicians of Malaysia. 2020 Mar 18;15(1):30
14. Lee S. Falls associated with indoor and outdoor environmental hazards among community-dwelling older adults between men and women. BMC Geriatrics. 2021 Oct 12;21(1):547.
 15. Schroeder O, Schroeder J, Fitschen-Oestern S, Besch L, Seekamp A. Effectiveness of autonomous home hazard reduction on fear of falling in community-dwelling older women. Journal of the American Geriatrics Society. 2022 Jun;70(6):1754-63
 16. Biswas I, Adebuseye B, Chattopadhyay K. Health consequences of falls among older adults in India: A systematic review and meta-analysis. Geriatrics. 2023 Apr 18;8(2):43.