Original

Risk of Falling and Associated Factors in Older Adults in a Tertiary Center in Nigeria

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Abstract

Background: Falls in elderly persons are often neglected in routine clinical practice both by the clinicians and the caregivers. Understanding the risk factors associated with falls shall enable clinicians to have a higher index suspicion and mitigate the burden of falls in the elderly population.

Aim: To determine the prevalence, risk factors and relationship of falls among the elderly patients attending the General Outpatient Clinics of University of Nigeria Teaching Hospital Enugu, with a view to stemming the morbidity and mortality associated with falls in elderly.

Methods: A hospital-based cross-sectional analytical study was done with 282 elderly patients aged 60 years and above, using a systematic random sampling technique for recruitment of participants. Chi-square tests, and multivariate logistic regression were used for the analysis.

Results: The prevalence of fall was 33% (95% CI: 27.5% - 38.8%) and the highest fall occurred among the 60 - 74 years. People with high risk of fall were three times more likely to fall when compared to people with low risk. According to the logistic regression analysis, solitary lifestyle and monogamy increased the risk of fall, whereas lower levels of education were significant protective factors for falls in elderly persons

Conclusion: Falls are associated with a rise in morbidity and mortality in the elderly population. Routine screening for risk factors of falls and early intervention are important preventive measures in primary care.

Keywords: Falls, risk factors, older adult, prevention

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Introduction

Globally among the elderly population, falls are a major public health problem. An estimated 37.3 million falls annually are severe enough to require medical attention, making it the second leading cause of death by unintentional injury, after road traffic injuries.[1] Specifically, falls and unintentional injuries are rising concerns, causing an increase in morbidity and mortality in elderly persons with consequent high costs of care. Even in the absence of injury, potential consequences on quality of life due to falls include fear of falling and restricted activity to avoid falling again, and psychological effects such as little confidence to get out of the house.[2]

There may be a cultural reluctance to admit to falling, leading the elderly patients to under-report such incidents. Consequently, when seeking medical attention, they often describe specific symptoms without disclosing the underlying falls. This suggests that the prevalence and impact of falls in the elderly population may have been underestimated. There arises a need to truly quantify falls and to also look for the risk factors as red flags or warning signs for potential falls. Recognizing the impact of falls on daily functioning is crucial for developing intervention policies that effectively address the genuine burden of falls in the elderly population.

Normal ageing inevitably brings physical, cognitive, and affective changes that may contribute to the risk of falls, including sensory, musculoskeletal, neurological, and metabolic changes. However, it is not age per se that increases the risk of falls – it is the co-morbidity of ageing that raises the chances.[3] Gender is also a key factor as women tend to fall more often than men and sustain more injuries when they fall.[4] Other documented risk factors for falls in elderly persons include increasing medication use, low educational status and environmental conditions.[5]

The Missouri Alliance for Home Care developed a concise validated tool for Fall Risk Assessment in elderly persons (MAHC-10).). It has an acceptable construct validity demonstrated by a sensitivity of 96.9%.[6] It incorporates the common risk factors in elderly persons to determine a person considered at risk for falling. Components of this tool include age above 60 years, three or more co-morbidities, incontinence, visual problems, fall history in the last three months, environmental hazards, poly pharmacy, impaired functional mobility, pain affecting level of function and cognitive impairment.

The Timed Up and Go (TUG) test is a validated screening test used to assess fall risk as well as balance and mobility.[7] It has a Cronbach's alpha of 0.81. It has been employed in many studies to give an insight to the functional ability of an elderly person to move a short distance unassisted without falling.[5,8] It assesses the time a person stands unassisted from an armchair, walks a distance of three metres on a flat surface, turns around, walks back to the chair and sits down. Though there are varied opinions on the usefulness of this tool in its ability to predict falls, [9,10] the performance nature of the tool gives an objective assessment of its makeup.

Fear of falling is a major risk factor seen especially in patients who have had a previous fall. A fear of falling (FOF) is defined as a cautious concern with falling which ultimately results in a restriction of activities associated with daily life. FOF is strongly related to incidence of fall as demonstrated by numerous studies. [11.12] Assessment of patients at risk of fall should include a routine evaluation for fear of falling and its associated factors.[12] The aim of the present study therefore was to determine the prevalence, risk factors and relationship of falls among the elderly patients attending the General Outpatient Clinics of University of Nigeria Teaching Hospital Enugu, with a view to stemming the morbidity and mortality associated with falls in elderly persons

Materials and Methods

A cross-sectional study was performed involving a systematic random sample of 282 elderly patients presenting at the general outpatient of university of Nigeria Teaching Hospital, Enugu between November 2022 and March 2023.

We recruited elderly patients who voluntarily agreed to take part in the study and met the inclusion criteria, namely age ≥ 60 who could communicate freely in Igbo, English language or pidgin English and non-institutionalized.

Elderly patients who were not mentally stable (severe dementia or psychosis) or unable to communicate were excluded and also patients whose falls were due to epilepsy, assault, or road traffic accidents as these were considered to have external factors. Those with disabilities who were unable to stand or walk unaided to perform the Timed Up and Go test.

The minimum sample size was determined using the sample size determination formula for analytical cross-sectional study. [13]

The questionnaire was divided into sections including sociodemographic characteristics, fall history, type of injury, falls risk assessment tool [14,6], functional assessment using Katz Index of Independence in

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activities of daily living [14], Modified Falls Efficacy Scale.[15]

A Proforma was used to extract data on weight, height, BMI, blood glucose level, visual acuity, pulse rate, blood pressure (BP), motor function and Timed Up and Go (TUG) Test.[7] Falls risk assessment adapted from the Missouri Alliance for Home Care was used, it is a 10-point scoring tool where a score of 4 or more indicates a fall risk. Variables checked and scored in the assessment include age (65 and above), diagnosis (3 or more comorbidities), prior history of fall within 3 months, incontinence. visual impairment, impaired functional mobility, environmental hazards, polypharmacy, pain affecting level of function and cognitive impairment.

The questionnaire was pretested in the General Outpatient Clinic of Park Lane Hospital Enugu which is a state tertiary hospital with a similar GOPC setting as UNTH Enugu. It was administered to about 15 people to detect any hitches or difficulties in filling the questionnaire. The observed corrections were adjusted in the questionnaires before administering to the group to ensure face and content validity.

The data collection was done by the researcher and two research assistants who were rigorously trained on the data collection tools as well as the concepts of the study including the ethical precepts.

Data was analyzed using International Business Machine-Statistical Package Social Sciences (IBM-SPSS, Armonk, NY, USA) version 23. Data was coded into the software and thereafter cleaned. The main estimates were presented with a level of statistical significance $p \leq 0.05$.

We performed a univariate statistical analysis and a bivariate analysis (Chi-square and independent t-test). Binary logistic regression was applied to examine independent variables significantly associated with risk of falling.

Ethical approval for the study was obtained from the Health Research Ethics Committee (HREC) of UNTH, Enugu with reference number NHREC/5/01/2008B/FWA00002458-1RB00002323.

Results

A total of 282 participants (155 women and 127men) took part in this study. The sociodemographic details of the study participants are displayed in table1.The participants' ages ranged from 60 to 95 years old, with a mean age of 70.74(SD ± 6.92). Participants had a female to male ratio of 1.2:1, with the majority being the youngest-old 207 (71.3%). The majority 263 (93.3%) were married in a monogamous family setting, 270 (95.7%) live with a family member, 76(27.0%) are retired and about 72% had less than or equal to six years of education. Our 12-month prevalence of recurrent falls was 93(33.3%), with over 60% of our population expressing a fear of falling. Over three quarters of our participants said that they had experienced negative consequences post-fall, with just over 50% seeking medical assistance.

Table 1: Sociodemographic characteristics of the participants

Variables	Frequency (%)	Mean ± SD
Age (years)	282	70.74 ± 6.92 Range: 60.00 – 95.00 years
Age Group		
Youngest-Old (60-74)	201 (71.3)	
Middle-Old (75-84)	73 (25.9)	
Oldest Old (> 85)	8 (2.8)	
Total	**282 (100.0)**	
Gender		
Male	127 (45.0)	
Female	155 (55.0)	
Total	**282 (100.0)**	
Marital Status		
Married	186 (66.0)	
Separated/Widow/Widower	95 (33.7)	
Single	1 (0.4)	
Total	**282 (100.0)**	
Family Setting		
Monogamous	263 (93.3)	
Polygamous	19 (6.7)	
Total	**282 (100.0)**	
Education		
No formal	83 (29.4)	
Primary	120 (42.6)	
Secondary	46 (16.3)	
Tertiary	33 (11.7)	
Total	**282 (100.0)**	
Living Arrangement		
Living alone	12 (4.3)	
Living with family	270 (95.7)	

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Variables	Frequency (%)	Mean ± SD
Total	**282 (100.0)**	
Occupation		
Retired	76 (27.0)	
Trading	68 (24.1)	
Farming	105 (37.2)	
Formal employment	33 (11.7)	
Total	**282 (100.0)**	

SD=Standard Deviation

Risk of Fall Among the Participants

Missouri Alliance for Home Care-10 (MAHC-10) Falls Risk Assessment Tool and TUG test

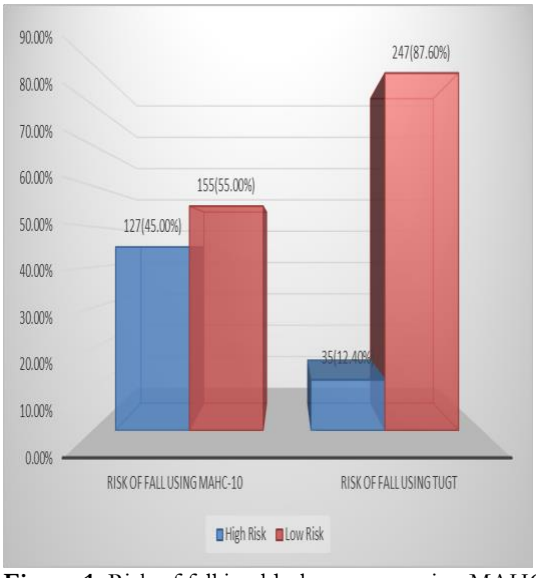

Figure 1: Risk of fall in elderly persons using MAHC-10 and TUG test

Association Between the Risk of Fall and Actual Fall

Table 2 displays the association between the risk of falls and actual falls. According to the MAHC-10 criterion, the table demonstrates that 64.5% of participants at high risk of falling actually fell, as opposed to 35.4% of individuals at high risk of falling who did not actually fall. This distinction was statistically significant ($\chi^2 = 21.27$, $p < 0.001$). In other words, participants with high risk of fall were about three times more likely to fall when compared with those with low risk [COR (95% CI): 3.3 (1.9 – 5.6)].

The TUG test criterion did not show a statistical significance in the association.

Table 2: Association between the risk of fall and actual fall

Table 2: Association between the risk of fall and actual fall
N=282

	Prevalence of Falls in the Past 12-Month				COR
	Present	Absent			95 CI
Variables	**n (%)**	**n (%)**	χ^2	**p-value**	
Risk of fall (MAHC-10 Criteria)			21.27	**<0.001**	
Low Risk	33 (35.5)	122 (64.6)			
High Risk	60 (64.5)	67 (35.4)			**3.3 (1.9-5.6)**
Risk of fall (TUG test Criteria)			0.89	0.34	
Low Risk	79 (84.9)	168 (88.9)			
High Risk	14 (15.1)	21 (11.1)			

NB: COR = Crude Odd Ratio, CI = Confidence Interval

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Table 3: Association between specific risk factors in MAHC-10 and prevalence of fall in elderly persons

Variables	Fall in the past one year		χ^2	p-value
	Yes n (%)	No n (%)		
Age 60 years and above			FT	-
Yes	92 (98.9)	189 (100.0)		
No	0 (0.0)	0 (0.0)		
Diagnosis 3 or more			3.20	0.07
Yes	23 (24.7)	30 (15.9)		
No	70 (75.3)	159 (84.1)		
Prior history of fall within 3 months			48.00	**<0.001***
Yes				
No	25 (26.9)	2 (1.1)		
	68(73.1)	187(98.9)		
Incontinence			2.72	0.09
Yes	28 (30.1)	40 (21.2)		
No	65 (69.9)	149 (78.8)		
Visual impairment			0.37	0.54
Yes	62 (66.7)	119 (63.0)		
No	31 (33.3)	70 (37.0)		
Impaired functional mobility			1.32	0.25
Yes	54 (58.1)	96 (50.8)		
No	39 (41.9)	93 (49.2)		
Environmental hazards			11.77	**0.001***
Yes	15 (16.1)	8 (4.2)		
No	78 (83.)	181 (95.8)		
Polypharmacy			1.85	0.17
Yes	34 (36.6)	54 (28.6)		
No	59 (63.4)	135 (71.4)		
Pain affecting level of function			0.67	0.41
Yes	9 (9.7)	13 (6.9)		
No	84 (90.3)	176 (93.1)		
Cognitive impairment			0.96	0.32
Yes	24 (25.8)	39 (20.6)		
No	69 (74.2)	150 (79.4)		

*FT = Fisher's exact test, *significant p-value*

Association Between Socio-demographic and Lifestyle Factors and Prevalence of Falls in the Participants

Table 4 displays the association between socio-demographic characteristics, lifestyle factors, and the prevalence of falls in the individuals. Only 1.1% of individuals in polygamous families fell, as seen in the table, compared to 98.9% in monogamous families. This difference was significant ($\chi^2 = 7.08$, $p = 0.008$). In other words, older people who live in a monogamous environment are nearly ten times more likely to fall than those who live in a polygamous environment [COR, (95% CI): 9.7 (1.2 - 73.7)]. Similar to this, people who lived alone had a seven-fold higher risk of falling than those who lived with family [COR, (95% CI): 6.6 (1.8 - 25.2)]. Additionally, there is a strong association between educational level and recent falls ($\chi^2 = 10.78$, $p = 0.03$). Participants with primary education had a roughly 70-fold lower risk of falling than those with tertiary education [COR, (95% CI): 0.3 (0.1 - 0.6)]. Contrarily, alcohol usage was a trend ($p = 0.05$), while age groups, gender, marital status, occupation, body mass index, vitamin D and calcium supplementation were not significantly associated with the prevalence of falls.

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Table 4: Association between socio-demographic and lifestyle factors and prevalence of fall in elderly persons
N=282

Variables	Prevalence of Falls in the Past 12-Month				COR
	Present n (%)	Absent n (%)	χ^2	p-value	95% CI
Age Group			0.88	0.64	-
Youngest-Old	64 (68.8)	137 (72.5)			
Middle-Old	27 (29.0)	46 (24.3)			
Oldest-Odd	2 (2.2)	6 (3.2)			
Gender			0.53	0.46	-
Male	39 (41.9)	88 (46.6)			
Female	54 (58.1)	101 (53.4)			
Marital Status			FT	0.12	-
Married	55 (59.1)	131 (69.3)			
Separated/widowed	37 (39.8)	58 (30.7)			
Single	1 (1.1)	0 (0.0)			
Family Setting			7.08	**0.008***	
Monogamous	92 (98.9)	171 (90.5)			**9.7 (1.2 – 73.7)**
Polygamous	1 (1.1)	18 (9.5)			**-**
Education			10.78	**0.01***	
No formal	30 (32.3)	53 (28.0)			**0.5 (0.2 – 1.1)**
Primary	30 (32.3)	90 (47.6)			**0.3 (0.1 – 0.6)**
Secondary	15 (16.1)	31 (16.4)			**0.4 (0.2 – 1.0)**
Tertiary	18 (19.4)	15 (7.9)			**-**
Living Arrangement			FT	**0.003***	
Living alone	9 (9.7)	3 (1.6)			**6.6 (1.8 – 25.2)**
Living with family	84 (90.3)	186 (98.4)			
Occupation			0.77	0.86	
Retired	28 (30.1)	48 (25.4)			
Trading	21 (22.6)	47 (24.9)			
Farming	34 (36.6)	71 (37.6)			
Formal employment	10 (10.8)	23 (12.2)			
Use of Alcohol			3.55	0.05	
Yes	75 (80.6)	168 (88.9)			0.5 (0.2 – 1.0)
No	18 (19.4)	21 (11.1)			
Body mass index (BMI)			2.43	0.11	
Normal	23 (24.7)	64 (33.9)			
Abnormal	70 (75.3)	125 (66.1)			
Vitamin D/Calcium use			0.42	0.51	
Yes	9 (9.7)	14 (7.4)			
No	84 (90.3)	175 (92.6)			

**=p value is significant, FT=Fisher's Exact Test, COR=Crude Odds Ratio, Normal BMI = 18.5-24.9kg/m², abnormal BMI = <18.5 and >24.9 kg/m²*

Predictors / Risk Factors of Fall in Elderly Persons

The independent predictors of falls in elderly persons were identified using a multivariate logistic regression as shown in Table 5. Living alone and in a monogamous relationship have the highest odds ratios [AOR, (95% CI): 6.42 (1.58 - 26.06), p = 0.009 and 8.38 (1.09 - 64.66)] respectively, with all the independent variables taken into account. Conversely, lower levels of education were significant protective factors for fall in the elderly persons. For instance, people with no formal education [AOR, (95% CI): 0.36 (0.15 - 0.85), p = 0.02] had a lower risk of falling than those with tertiary education. . In a similar vein, those with primary [AOR, (95% CI): 0.27 (0.12 - 0.60), p = 0.002] and secondary education [AOR, (95% CI): 0.36 (0.14 - 0.92), p = 0.03] had lower fall rates than those with tertiary education.

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Table 5 Predictors of fall in elderly persons
N=282

Independent Variables	Predictor	Wald	Adjusted Odd Ratio (AOR)	95% Confidence Interval for AOR		p-value
				Lower	Upper	
Risk of Fall						
High		2.05	1.79	0.81	3.97	0.15
Low		1				
Family Setting						
Monogamous		4.15	8.38	1.09	64.66	0.04
Polygamous		1				
Living Arrangement						
Living Alone		6.76	6.42	1.58	26.06	0.009
Living with Family		1				
Alcohol Use						
Yes		3.62	2.07	0.98	4.36	0.05
No		1				
Education Status						
No Formal		5.35	0.36	0.15	0.85	0.02
Primary		10.00	0.27	0.12	0.60	0.002
Secondary		4.51	0.36	0.14	0.92	0.03
Tertiary		1				.

Dependent variable = History of fall (yes/no)

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Discussion

The one-year fall prevalence recorded in the current study (33%) falls within the range of previously reported figures in the literature. Akosile et al. [12] reported a similar prevalence of 37.6%, aligning closely with our findings. The study highlighted that living alone [COR, 95% CI: 6.6(1.8 – 25.2), p = 0.003] and being in a monogamous setting [COR, 95% CI: 9.7(1.2 – 73.7), p = 0.008] were primary risk factors for falls, whereas polygamy was found to be a protective factor, likely due to increased family support. This aligns with studies done by Lee et al. [16] and Appeadu& Bordoni [17] indicating higher fall rates among elderly who were widowed or living alone.
Interestingly, this study found that having primary level of education tends to be a protective factor against risk of fall [AOR, (95% CI): 0.36 (0.15 - 0.85), p = 0.02]. This finding is intriguing and somewhat counterintuitive, especially given the lack of substantial existing evidence to support this observation in the broader literature. However, this study suggests that a primary level of education specifically serves as a protective factor against falls. This might be attributed to several nuanced factors. Individuals with a primary level of education may engage more in routine physical activities, often involving moderate physical labour or active lifestyles. These activities can help maintain muscle strength, balance, and coordination, reducing the risk of falls. This contrasts with those with higher educational attainment who might have more sedentary lifestyles due to office-based or intellectual professions.

The rate of fall in females (58.1%) was higher in this study than males (41.9%). This is consistent with majority of the literature across the globe as shown in studies by Atoyebi et al.[11], Zhang et al. [18], and Chen et al.[19] Gender disparities have frequently been linked to the risk of falls. Resnick et al. [20] in their compilation of different research reports on gender difference in function, stated that although certain reports suggest a higher likelihood of falls in males, others indicate no clear association between gender and falling.

Regarding lifestyle factors, the use of alcohol was a trend [COR, 95% CI: 0.5 (0.2 – 1.0), p = 0.05]. Though not significant, there is a potential from the p-value reported in the study that alcohol consumption may lead to a higher risk of fall. The near significance in the index study (p = 0.05) may be due to a possible underestimation of fall prevalence or due to the limited sample size. Alcohol intake can impair balance and coordination, increasing the likelihood of falls. [21] Excessive alcohol consumption is a known risk factor for falls, and the trend observed in the study aligns with existing literature from WHO Factsheet [22] which included alcohol and substance use as risk factors for fall. National Institute on Aging[21] stated that in older adults, excessive alcohol consumption can lead to balance problems and falls, often resulting in hip or arm fractures and other injuries.

From the present study, it appears there was a significant association between falls and environmental hazards [COR, 95% CI: 4.35 (1.77 – 10.68), p = 0.001]. This aligns with the study done by Clemson et al [23] on environmental interventions in preventing falls in older persons. The study posited that modifying the living environment can be a successful strategy in fall prevention, as it addresses the root causes of many accidents. Older adults who have experienced falls may have encountered environmental factors that contributed to their accidents, such as slippery floors, poorly lit areas, or uneven surfaces.[24]

The independent predictors of falls in elderly persons were identified using a multivariate logistic regression as shown in Table 4 Living alone and in a monogamous relationship have the highest odds ratios [AOR, (95% CI): 6.42 (1.58 - 26.06), p = 0.009 and 8.38 (1.09 - 64.66)] respectively, with all the independent variables taken into account. Conversely, lower levels of education were significant protective factors for fall in the elderly persons. For instance, people with no formal education [AOR, (95% CI): 0.36 (0.15 - 0.85), p = 0.02] had a lower risk of falling than those with tertiary education. In a similar vein, those with primary [AOR, (95% CI): 0.27 (0.12 - 0.60), p = 0.002] and secondary education [AOR, (95% CI): 0.36 (0.14 - 0.92), p = 0.03] had lower fall rates than those with tertiary education.

Evaluating the risk factors for falls using the MAHC-10, the proportion of participants who had a high risk of falling was 64.5%. This showed that those who had actual high risk of fall significantly fell 3 times more than those who had low risk [COR, 95% CI: 3.3 (1.9 – 5.6), p = <0.001]. This finding aligns with the study done by Alanazi& Salih[25] in Saudi Arabia which recorded 72.3% as the proportion of participants with high risk of fall using the MAHC-10.

Using the TUG test for risk assessment, the proportion of participants who had a high risk of falling was 15.1%. The TUG test did not show statistical significance in predicting the risk of falls in this study (p = 0.34]. However, it is important to note that this lack of significance does not diminish the validity of the tool, as it has demonstrated utility and effectiveness in various other studies.

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Limitations

A limitation of this study is the potential underestimation of prevalence due to its reliance solely on patients' self-reporting, which is susceptible to recall bias. A more robust estimation could have been achieved by incorporating both patients' and caregivers' reports. However, family members' reports were excluded because not all patients come to the hospital with a caregiver, leading to potential heterogeneity in reporting across the study population.

Furthermore, while a cross-sectional study serves as the gold standard for prevalence and is highly suitable for this research, its inherent nature constrains the ability to establish causal relationships. To overcome this limitation, there may be a need for prospective or longitudinal studies.

Implications of findings in this study.

By establishing that 33% of elderly patients experienced falls, this study adds to the global data pool on fall prevalence, particularly in Enugu, Nigeria and similar African contexts, where such data may be less frequently collected and reported. The identification that the highest incidence of falls occurs within the 60-74 age range provides valuable age-specific information that can guide targeted interventions for this vulnerable subgroup.This study identifies several critical risk factors for falls, including solitary lifestyle and monogamy, which significantly increase the risk of falling. These findings suggest the need for tailored prevention strategies that consider social and marital status.

Given the efficacy of the identified predictive tool MAHC-10, its integration into routine screenings and assessments for elderly individuals is recommended. This can facilitate early identification of those at heightened risk, enabling targeted interventions to mitigate the likelihood of falls.

Conclusion

This study has cast a spotlight on the intricate interplay of social factors, including education, alcohol intake, marital status, and family setting, in relation to falls among elderly persons. Notably, a solitary lifestyle, monogamy, previous history of fall and environmental hazards emerged as significant risk factors, heightening susceptibility to falls, while a lower level of education demonstrated a protective effect. These insights significantly contribute to the nuanced understanding of the multifaceted determinants of fall in elderly persons.

Declarations

Authors' Contribution: Chinyere Azifuaku conceptualized the study and collected the data. Bede Azudialu did most of the editorial work and is the corresponding author. Agada Owulo assisted in data collection. Nnaemeka Oguejiofor conducted the statistical analysis

Conflict of interest: There is no conflict of interest

References

1. Statista Research Department. Elderly Population in Nigeria 2018-2020. Available online at https://www.statista.com/statistics/1260772/elderly-population-in-nigeria/ Accessed on 30th July 2022.
2. Janakiraman B, Temesgen MH, Jember G, Gelaw AY, Gebremeskel BF, Ravichandran H et al. Falls among community-dwelling older adults in Ethiopia; A preliminary cross-sectional study. PLoS One. 2019;14(9):e0221875.
3. Kalula SZ, Ferreira M, Swingler GH, Badri M. Risk factors for falls in older adults in a South African Urban Community. BMC Geriatr. 2016; 16:51.
4. Abdulraheem IS. Prevalence and Risk Factors for Fall in Older Adults in a Nigerian Urban Community. Texila International Journal of Public Health. 2013; 8:1. Accessed on 2nd November 2021. Available @ https://www.texilajournal.com/public-health/article/1586-prevalence-and-risk.
5. Janakiraman B, Temesgen MH, Jember G, Gelaw AY, Gebremeskel BF, Ravichandran H et al. Falls among community-dwelling older adults in Ethiopia; A preliminary cross-sectional study. PLoS One. 2019;14(9):e0221875.
6. Calys M, Gagnon K, Jernigan S. A Validation Study of the Missouri Alliance for Home Care Fall Risk Assessment Tool. SAGE Publications. Home Health Care Management & Practice 2012;25(2) :39–44.
7. Montero-Odasso MM. Falls as a Geriatric Syndrome: Mechanisms and Risk Identification. Osteoporosis in Older Persons: Advances in Pathophysiology and Therapeutic Approaches. Springer International Publishing Switzerland 2016; 10:171-184.
8. Jeong S, Shin DW, Han K, Jung JH, Chun S, Jung H et al. Timed up-and-go test is a useful predictor of fracture incidence. Bone 2019; 127:474-481.
9. Beck Jepsen D, Robinson K, Ogliari G, Montero-Odasso M, Kamkar N, Ryg J et al. Predicting falls in older adults: an umbrella review of instruments assessing gait, balance, and functional mobility. BMC Geriatr. 2022;22(1):615.

Print ISSN: 0189-9287 Online ISSN: 2992-345X

10. Rodrigues F, Teixeira JE, Forte P. The Reliability of the Timed Up and Go Test among Portuguese Elderly. Healthcare (Basel). 2023;11(7):928.
11. Atoyebi OA, Elegbede O, Babatunde OA, Adewoye K, Durowade K, Parakoyi DB. Prevalence and risk factors for falls in urban and rural older adults in Ekiti State, Nigeria. Ghana Med J 2021; 55(4): 265-272
12. Akosile CO, Igwemmadu CK, Okoye EC, Odole AC, Mgbeojedo UG, Fabunmi AA et al. Physical activity level, fear of falling and quality of life: a comparison between community-dwelling and assisted-living older adults. BMC Geriatr 2021;21: 12.
13. Taofeek I. Sample size calculation. In: Research methodology and dissertation writing for health and allied health professionals. 1st edition. Abuja: Cross global link publishers; 2009;70-5.
14. Arik G, Varan HD, Yavuz BB, Karabulut E, Kara O, Kilic MK et al. Validation of Katz index of independence in activities of daily living in Turkish older adults. Arch GerontolGeriatr. 2015; 61(3): 344-50.
15. Akosile CO, Anukam GO, Johnson OE, Fabunmi AA, Okoye EC, Iheukwumere N et al. Fear of falling and quality of life of apparently-healthy elderly individuals from a Nigerian population. J Cross Cult Gerontol. 2014;29(2):201-9.
16. Lee YY, Chen CL, Lee IC, Lee IC, Chen NC. History of Falls, Dementia, Lower Education Levels, Mobility Limitations, and Aging Are Risk Factors for Falls among the Community-Dwelling Elderly: A Cohort Study. Int J Environ Res Public Health. 2021;18(17):9356.
17. Appeadu MK, Bordoni B. Falls and Fall Prevention in Older Adults. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing;2023 Available from: https://www.ncbi.nlm.nih.gov/books/NBK560761/
18 Zhang H, Zhao Y, Wei F, Han M, Chen J, Peng S et al. Prevalence and Risk Factors for Fall among Rural Elderly: A County-Based Cross-Sectional Survey. Int J Clin Pract. 2022; 2022:8042915.
19. Shan Ling DL. Comparative research on the feature of spatial distribution of aging population between China and Japan. Chinese Journal of Population Science. 2013(4):89–96.
20. Resnick B, Boltz M, Galik E, Holmes S, Fix S, Zhu S. Gender differences in function, physical activity, falls, medication use, and life satisfaction among residents in assisted living settings. Research in Gerontological Nursing, 2020;13(1): 31–40.
21. National Institute on Ageing. Facts about ageing and alcohol. 2022. [online] Available at https://www.nia.nih.gov/health/alcohol-misuse-or-alcohol-use-disorder/facts-about-aging-and-alcohol Accessed on August 12, 2022
22. World Health Organization. Factsheet on fall. 2021. Available at: https://www.who.int/news-room/fact-sheets/detail/falls. Accessed on 23rd December 2021.
23. Clemson L, Stark S, Pighills AC, Fairhall NJ, Lamb SE, Ali J, Sherrington C. Environmental interventions for preventing falls in older people living in the community. Cochrane Database of Systematic Reviews 2023, Issue 3. Art. No.: CD013258.
24. Adanusa M, Pobee SK, Zaabaar E, Mawuko V, Asiedu K, Amuzu SK et al. Prevalence and risk factors for Falls among older adults in a primary care facility in Ghana. Malawi Medical Journal 2022; 34 (4): 225-230
25. Alanazi A, Salih S. Fall Prevalence and Associated Risk Factors Among the Elderly Population in Tabuk City, Saudi Arabia: A Cross-Sectional Study. Cureus. 2023;15(9): e45317. doi:10.7759/cureus.45317

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