International Journal of Health Sciences and Research
DOI: https://doi.org/10.52403/ijhsr.20210809
Vol.11; Issue: 8; August 2021
Website: www.ijhsr.org
Original Research Article *ISSN: 2249-9571*

Prevalence of High Risk of Falls among Elderly in Old Age Homes of Aurangabad, Maharashtra, India

Shagun S. Kamble[1], Gaurav C. Mhaske[2]

[1,2]MGM Institute of Physiotherapy, Aurangabad -431001 Maharashtra

Corresponding Author: Shagun S. Kamble

ABSTRACT

Background - Falls are one of the measure concerns in geriatric population resulting in unintentional coming to rest on the ground. Majority of falls are multifactorial which commonly results in morbidity and mortality in rare cases. The aim of our study was to estimate the prevalence of high risk of falls in elderly in old age homes.
Method -An observational study involving 140 participants in old age homes of Aurangabad, Maharashtra, India were selected by convenient sampling and prevalence was assessed by using TUG test, 30 second chair stand test, 4-stage balance test.
Result – prevalence of high fall risk which impacted the physical capabilities and quality of life of elderly were 52.85%, 47.85%,55.71% according to TUG test, 30 second chair stand test, and 4 stage balance Test.
Conclusion – Falls are major concern among elderly living in old age homes of Aurangabad. Our findings may assist the geriatric healthcare system to take early measures for elderly to prevent falls and spread awareness.

Key words – Prevalence, Risk of fall, elderly, old age homes, TUG, 30 sec chair stand test, 4 stage balance Test, Aurangabad

INTRODUCTION

Elderly population is a fast-growing age bracket worldwide[1.] Falls are one of the measure concerns in the geriatrics. They can result from various factors which are responsible for hampering physical capabilities of elderly population which may also lead to morbidities in most of the cases with mortalities in some rare cases. Falls are one of the giants of geriatric medicine, according to the journal of American society defines falls as" unintentional coming to rest on the ground, floor or other lower level"[2] or" An unexpected loss of balance resulting in coming to rest on floor, the ground or an object below knee level"[3]

Majority of the falls are multifactorial and results from a complex interplay of predisposing and precipitating factors. Various intrinsic risk factors contributing to falls are impaired balance, gait abnormality, visual impairment such as glaucoma macular degeneration, retinopathy, cognitive problems such as dementia, cardiovascular causes include orthostatic hypotension, carotid sinus syndrome, age related decline in the vestibular system due to cellular loss in vestibular end organs.[4]

Various musculoskeletal conditions like muscle weakness, fracture, joint deformities contribute to these factors. Extrinsic factors include poor lighting stairs, lack of equipment and improper footwear, rugs, improper use of assistive devices by elderly population[4.]

Dizziness and imbalance, muscle weakness are common amongst elderly and are growing public health concerns since they put older people at significant risk of

falling. They are well recognized problems among older people. Imbalance can be caused by changes in any factors associated with balance system, be they of sensory, visual, vestibular, neurologic and muscular origin. Function of all these components deteriorates with age.[5]

Falls are the second leading causes of the accidental or unintentional injuries, deaths worldwide of those who fall 20% to 30% suffers moderate to severe injuries[6-7] that reduce mobility and independence and increase the risk of premature deaths.[8-11]

MATERIAL AND METHODS

A study was conducted over the duration of 6 months on 140 subjects using convenient sampling technique in old age homes of Aurangabad. Elderly population between 65-80 years of age was included who experienced falls in day-to-day activities. They were informed in detail about the purpose and need of the study and were included in the study with their voluntary participation and consent. Inclusion criteria included elderly individuals who experienced imbalance since last one year while exclusion criteria included elderly with any conditions which may hamper physical as well as mental wellbeing along with tobacco and alcohol consumers. first elderly were subjected to TUG test which indicates impaired gait and fall risk that helped to categorize them into mild, moderate and low[T-3] fall risk distribution then secondly 30 second chair stand test was conducted to check strength and balance which further helped to categorize them on the basis of their value ranges into below average, average, above average[T-5,6]. At last they were subjected to 4 stage balance test which sorted them into fallers and non- fallers[T-4].

Data was collected during January 2021with sample size of 140 with frequency and percentage were used to describe the statistical data. Consent was taken from all participants before the study and ethical approval was taken from the MGM Institute of physiotherapy Aurangabad.

RESULT

The study was conducted on 140 respondents aged between 65-80 years[T-2, C-2] (37)26.42% of them were male and (103)73.5% were female[T-1, C-1]. then subjects were administered to TUG test, 30 sec chair stand test 4-stage balance test for estimating the prevalence of high risk of falls among elderly in old age homes of Aurangabad. The total of individuals and percentage calculated according to the data and statistical analysis.

TABLE NO 1- shows distribution of elderly on the basis of their gender.

GENDER DISTRIBUTION	FREQUENCY	PERCENTAGE
male	37	26.42 %
female	103	73.57 %

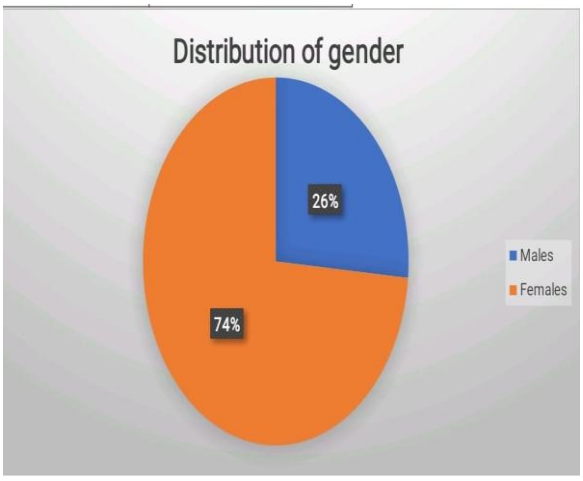


CHART NO 1

C-1. shows distribution of elderly individuals on the basis of gender in which males are 26.42 % and females 73.57 %.

TABLE NO 1 A

Outcomes	Gender	total	%
TUG TEST	Male	14	10
	female	60	42.85
30 sec chair stand	Male	10	7.14
test	female	26	18.57
4 stage balance	Male	13	9.28
test	female	51	36.42

Table no 1 A -showing distribution of elderly on the basis of their gender according to the outcome measures.

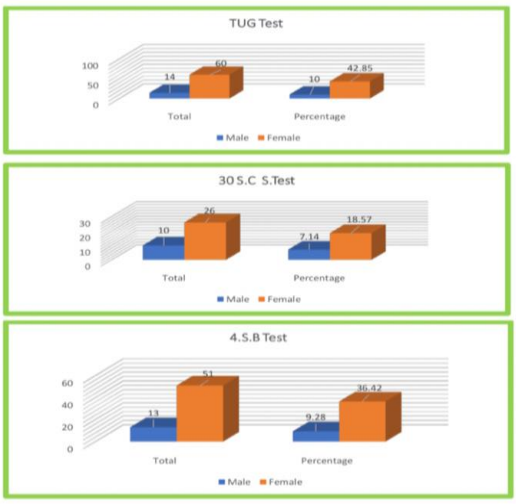


CHART NO 1. A

Chart no 1 A – showing the distribution of elderly on the basis of gender separately according to the TUG,30 SEC chair stand test and 4 stage balance Test

TABLE NO 2 – shows distribution of elderly on the basis of age group.

AGE GROUP (YRS)	FREQUENCY	%
65-70	69	49.28
71-75	38	27.14
76-80	31	22.14

TABLE NO 3-Shows distribution of elderly according to TUG test

CLASSIFICATION	FREQUENCY	PERCENTAGE
Mild	74	52.85
Moderate	66	47
Low	66	47

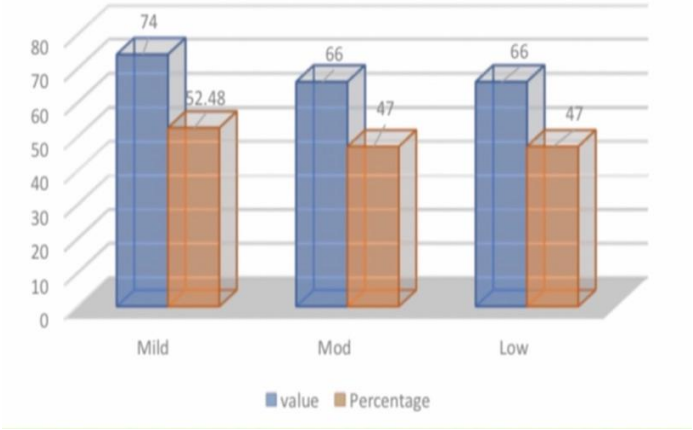


CHART NO 3 –

Chart no 3- showing distribution of elderly according to TUG classification in mild, moderate and low ranges and their corresponding percentages are 52.48%, 47%, 47% respectively.

TABLE NO 4-Showing distribution of elderly on the basis of 4 stage balance test.

CLASSIFICATION	FREQUENCY	%
Non fallers	70	50
fallers	70	50

CHART NO.4 – showing distribution of elderly on the basis of 4 stage balance test classified into fallers and Non fallers which are 50-50% respectively.

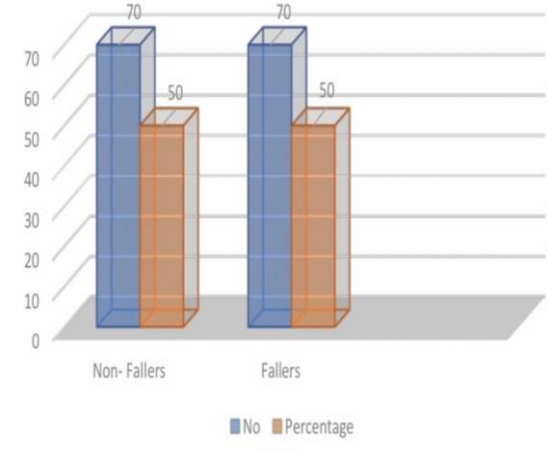


CHART NO 4-

TABLE NO 5- showing distribution of elderly women according to 30 sec chair stand test as per the value ranges given by CDC.

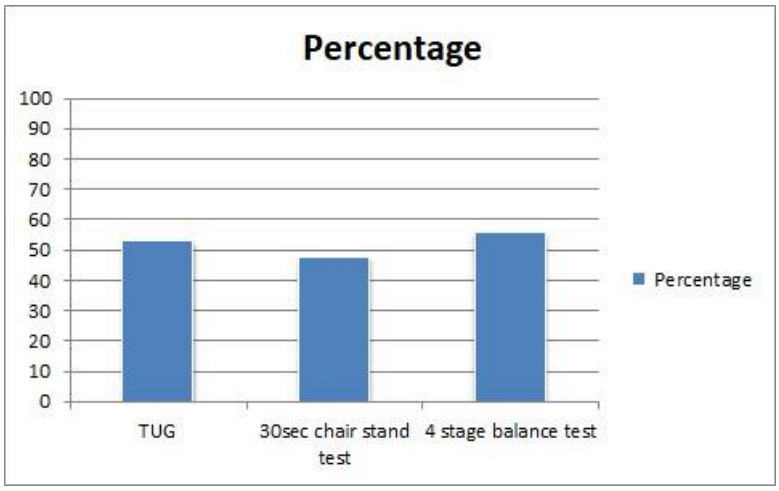
AGE	BELOW AVERAGE		AVERAGE		ABOVE AVERAGE	
	range	frequency	range	frequency	range	frequency
65-69	<11	9	11-16	39	>16	3
70-74	<10	8	10-15	23	>15	3
75-79	<10	5	10-15	13	>15	0
80-84	<9	0	9-14	0	>14	0
85-89	<8	0	8-13	0	>13	0

TABLE NO 6- showing distribution of elderly men according to the 30 sec chair stand test.

AGE	BELOW AVERAGE		AVERAGE		ABOVE AVERAGE	
	range	frequency	range	frequency	range	frequency
65-69	<12	2	12-18	16	>18	0
70-74	<12	5	12-17	14	>17	0
75-79	<11	3	11-17	0	>17	0
80-84	<10	1	10-15	1	>15	0

TABLE NO 7- showing distribution of elderly for prevalence of high risk of falls on the basis of TUG test, 30 sec chair stand test, 4 stage balance Test among 140 subjects.

OUTCOME MEASURES	FREQUENCY	PERCENTAGE
TUG	74	52.85
30 SEC CHAIR STAND TEST	67	47.85
4 STAGE BALANCE TEST	78	55.71



DISCUSSION

We conducted a study whose primary purpose was to find out prevalence of high risk fall among elderly in old age home Aurangabad city that depicted fall among 140 participants. According to TUG were 52.85 %, 30 sec chair stand Test were 47.85 %, and 4 stage balance Test were 55.71 % out of which 26.42 % were male and 73.57% female.

As the elderly with high prevalence of fall and fear try often avoid mobility tasks. According to the research done by Hasanain Faisal ghazi et al on prevalence of falls and its associated factors among elderly living in old folk home in Malaysia. This study found out there is significant prevalence of risk of falls.[12] fall represents one of the public health problems among elderly living in old folk home in Malaysia with 30% prevalence among respondents. Our study is in concurrence with this research as it also depicts the high risk of falls in elderly. The fall results of 27.3%were also found by Rizawati and Mas Ayu in home environmental setting among elderly.[13]

The risk of falling increases progressively with the increased severity of functional impairment this research by Henry- Sanchez et al[14] goes with our study as well. Elderly of more than 75years old showed highest percentage of fall compared to other age groups a study done by Azidah et al on prevalence of falls and its associated factors among elderly diabetes in tertiary centers[15], this goes against our study which did not find age as a significant determinant.

We found women who experienced fall more than men during study similar to the research done by Bekibele and Gureje which concluded women are more likely to experience fall rather than men.[16] The observation that trips and slips were the most prevalence cause of fall.[17] goes in accordance with our study as well.

A variety of pre-disposing factors also includes distractions and attention. There are some age-related changes that are responsible for trip induced falls during

swing phase of gait[18] were also observed during our research. We found that functional status of elderly did play a role towards fall similar to the study done by Sibley et al which concluded prevalence of falling increased in individuals with comorbidities.[19]

While conducting the study we faced few limitations like convenient sample size due to the pandemic (novel corona), also the numbers of women respondents were way more than that of men was observed and with this by the end of sixth month we concluded our study.

CONCLUSION

In this present study we found prevalence of high risk of fall among elderly in old age homes of Aurangabad as 52.85%, 47.85%, 55.71% on the basis of TUG test, 30-second chair stand test, 4-stage balance stage. Falls were seen more in females than in males. Various predisposing factors including intrinsic as well as extrinsic factors eventually led to falls. Effective fall prevention and awareness programs should be developed for elderly population of Aurangabad, Maharashtra, India.

Acknowledgment

We would like to thank MGM institute of physiotherapy, Aurangabad for this study and ethical committee, committee members and reviewers for their support, approval and feedback.

Conflict of Interest: None

Source of Funding: None

Ethical Approval: Approved

REFERENCES

1. Hashmi Z, Danish SH, Ahmad F, HashmiM. Falls in geriatric population-A cross sectional study for assessment of the risk factors. Journal of the Dow University of Health Sciences (JDUHS). 2013 Sep 3;7(3):94-100
2. Wolf SL, Barnhart HX, Kutner NG, McNeely E, Coogler C, Xu T, Atlanta FICSIT Group. Reducing frailty and falls in older persons: an investigation of Tai Chi and computerized balance training. Journal of the American Geriatrics Society. 1996 May;44(5):489-97.
3. Lach HW, Reed AT, Arfken CL, Miller JP, Paige GD, Birge SJ, Peck WA. Falls in the elderly: reliability of a classification system. Journal of the American Geriatrics Society. 1991 Feb;39(2):197-202.
4. Tucker S, Baldwin R, Hughes J, Benbow S, Barker A, Burns A, Challis D. Old age mental health services in England: implementing the National Service Framework for Older People. International Journal of Geriatric Psychiatry: A journal of the psychiatry of late life and allied sciences. 2007 Mar;22(3):211-7.
5. Iwasaki S ,YamasobaT. Dizziness and imbalance in the elderly: age-related decline in the vestibular system. Aging and disease. 2015 Feb;6(1):38.
6. Alexander BH, Rivara FP, Wolf ME. The cost and frequency of hospitalization for fall-related injuries in older adults. American journal of public health. 1992 Jul;82(7):1020-3.
7. Waller JA. Injury in aged. Clinical and epidemiological implications. New York state journal of medicine. 1974 Nov 1;74(12):2200-8.
8. Hindmarsh JJ, Estes EH Jr. Falls in older persons. Causes and interventions. Arch Intern Med. 1989 Oct;149(10):2217-22. PMID: 2679474.
9. Perry BC. Falls among the elderly: a review of the methods and conclusions of epidemiologic studies. Journal of the American Geriatrics Society. 1982 Jun;30(6):367-71.
10. Wild D, Nayak US, Isaacs B. Prognosis of falls in old people at home. Journal of Epidemiology & Community Health. 1981 Sep 1;35(3):200-4.
11. Mossey JM, Mutran E, Knott K, Craik R. Determinants of recovery 12 months after hip fracture: the importance of psychosocial factors. American journal of public health. 1989 Mar;79(3):279-86.
12. Ghazi HF, Elnajeh M, Abdalqader MA, Baobaid MF, Rosli NS, Syahiman N. The prevalence of falls and its associated factors among elderly living in old folks home in Kuala Lumpur, Malaysia. International

Journal of Community Medicine and Public Health. 2017 Oct;4(10):3524-9.
13. Rizawati M. Home environment and fall at home among the elderly in Masjid Tanah Province. Journal of Health and Translational Medicine. 2008 Dec 29;11(2):72-82.
14. Henry-Sánchez Jt, Kurichi Je, Xie D, Pan Q, Stineman Mg. Do Elderly People At More Severe Activity Of Daily Living Limitation Stages Fall More?. American Journal Of Physical Medicine & Rehabilitation/
15. Azidah AK, Hasniza H, Zunaina E. Prevalence of falls and its associated factors among elderly diabetes in a tertiary center, Malaysia. Current gerontology and geriatrics research. 2012 May 30;2012.2012 Jul;91(7):60
16. Bekibele CO, Gureje O. Fall incidence in a population of elderly persons in Nigeria. Gerontology. 2010;56(3):278-83.
17. Blake AJ, Morgan K, Bendall MJ, Dallosso H, Ebrahim SB, Arie TA, Fentem PH, Bassey EJ. Falls by elderly people at home: prevalence and associated factors. Age and ageing. 1988 Jan 1;17(6):365-72.
18. Gehlsen GM, Whaley MH. Falls in the elderly: Part I, Gait. Archives of physical medicine and rehabilitation. 1990 Sep 1;71(10):735-8.
19. Association Of Academic Physiatrists Sibley KM, Voth J, Munce SE, Straus SE, Jaglal SB. Chronic disease and falls in community-dwelling Canadians over 65 years old: a population-based study exploring associations with number and pattern of chronic conditions. BMC geriatrics. 2014 Dec;14(1):1-1.

How to cite this article: Kamble SS, Mhaske GC. Prevalence of high risk of falls among elderly in old age homes of Aurangabad, Maharashtra, India. *Int J Health Sci Res.* 2021; 11(8): 61-66. DOI: *https://doi.org/10.52403/ijhsr.20210809*

******