



PREVALENCE AND PATTERN OF FALL AMONG ELDERLY

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ABSTARCT

Falls are one of the major problems in the elderly and are considered to be one of the “Geriatric Giants”, result from a complex interplay of predisposing and precipitating factors in a person’s environment. The study was undertaken in the rural and urban field practice areas of Sri Guru Ram Das Institute of Medical Sciences and Research, Amritsar. A pretested semi-structured interview schedule was administered to 500 elderly from each area. Prevalence of fall was higher among the rural elderly (25.8%) as compared to 22.2% in urban elderly in last one year but statistically it was non-significant. The most frequent place of fall was bathroom followed by stairs in both the areas. Slip followed by losing balance was the frequent type of fall in both the areas of elderly. Various activities were reported while fall occurred, as such bathing and ambulation contributed to more number of fall among rural and urban elderly.

KEYWORDS: Fall, Elderly, place of fall.

INTRODUCTION

Ageing is generally defined as a process of deterioration in the functional capacity of an individual that results from structural changes, with advancement of age. The ageing process is growing at an unprecedented rate. India’s elderly population is also showing a dramatic increase in its elderly population in the past decades. There has been a steady increase in the share of elderly population over decades. It has risen from 5.6% in 1961 to 8.3% in 2014.^[1]

The problems faced by this segment of the population are numerous owing to the social and cultural changes that are taking place within the Indian society. The major area of concern is the health of the elderly with multiple medical and psychological problems. Falls are one of the major problems in the elderly and are considered one of the “Geriatric Giants”. Recurrent falls are an important cause of morbidity and mortality in the elderly and are a marker of poor physical and cognitive status. Indian studies report varied prevalence of fall 13% (Sharma PK et al. 2017^[2]) to 38% (D’souza SA et al, 2008^[3]).

MATERIALS AND METHODS

Quantitative approach with retrospective survey was considered appropriate for the study. Elderly were

interviewed for history of fall since last one year. The study was conducted at field practice areas of a tertiary care hospital and University of North India. Three urban areas covered by Urban health and training centre and 11 villages under rural health and training centre were chosen for the study. Sample size was calculated and by means of systematic random sampling 500 elderly were selected from each area, thereby constituting total sample of 1000. The data was collected by pretested, valid and reliable tools by interviewing. The study was approved by institutional ethical committee. The data was coded and analyzed by SPSS 20.0.

RESULTS AND DISCUSSION

The results of the study revealed that majority of the elderly in both areas were in the age group of 60-70 yrs, females and married. Nearly half in each area were living with their spouse and children and were homemakers. Regarding their present work status 63.8% and 68.4% were not working in rural and urban area respectively. Overall, rural and urban elderly were homogenous to each other except for their education and socio economic status.

Table 1 reveals the comparison of prevalence of fall among rural and urban elderly. Prevalence was found to

be more among rural elderly 25.8% (129) as compared to urban counterparts 22.2% (111). Chi Square was employed to determine statistical significance of fall with their habitat, which was found to be non-significant. Similarly odds ratio was 1.21 (0.91-1.63).

It infers that although prevalence of fall is higher in rural elderly than urban elderly but it was non-significant statistically.

Table 1: Showing comparative Prevalence of fall among Rural and Urban Elderly. N=1000

Fall in last one year	Rural N=500 f (%)	Urban n=500 f (%)	χ^2	Odd's ratio (CI)
Fall	129 (25.8)	111 (22.2)	1.77	1.21 (0.91-1.63)
No Fall	371 (74.2)	389 (77.8)		

NS : Not significant

$p = 0.18^{NS}$, $df = 1$

Table 2 reveals that majority i.e. 80.2% of the urban elderly had fall for once in last one year, while among rural elderly 68.2% had fall for once and 20.2% had two falls in last one year. Nearly half of the elderly in both area had last fall in last 1-6 months. The most frequent place of fall was bathroom followed by stairs and then kitchen in both the areas. More of the rural elderly (31%)

had fall in the evening hours and 38.7% of the urban elderly had fall in afternoon hours. Slip followed by losing balance was the frequent type of fall in both the areas of elderly. Various activities were reported while fall occurred, as such bathing and ambulation contributed to more number of fall among rural and urban elderly.

Table 2: Showing percentage and frequency distribution related to pattern of fall among Rural and Urban Elderly.

n=240

Pattern of Fall	Rural n=129 f (%)	Urban n=111 f (%)	χ^2	df	p
Frequency of fall (Last one year)					
Once	88 (68.2)	89 (80.2)	8.19	3	0.04*
Twice	26 (20.2)	19 (17.1)			
Thrice	09 (07.0)	01 (00.9)			
More than three times	06 (04.7)	02 (01.8)			
Time of last fall					
<1 month ago	21 (16.3)	19 (17.1)	3.09	2	0.21 ^{NS}
1-6 months	56 (43.4)	59 (53.2)			
7-12 months	52 (40.3)	33 (29.7)			
Place of fall					
Bed room	13 (10.1)	08 (07.2)	2.15	4	0.71 ^{NS}
Kitchen	16 (12.4)	15 (13.5)			
Stairs	27 (20.9)	28 (25.2)			
Bathroom	53 (41.1)	48 (43.2)			
Courtyard/Corridor	20 (15.5)	12 (01.8)			
Time of fall					
Morning	38 (29.5)	32 (28.8)	6.43	3	0.09 ^{NS}
Afternoon	38 (29.5)	43 (38.7)			
Evening	40 (31.0)	33 (29.7)			
Night	13 (10.1)	03 (02.7)			
Type of fall					
Tripped	15 (11.6)	10 (09.0)	3.11	4	0.54 ^{NS}
Slipped	54 (41.9)	59 (53.2)			
Lost balance	29 (22.5)	20 (18.0)			
Felt giddy/dizzy	26 (20.2)	18 (16.2)			
Can't say	05 (03.9)	04 (03.6)			
Activity while fall					
Ambulation	38 (29.5)	36 (32.4)	4.56	5	0.47 ^{NS}
Transfer from bed to Chair & vice versa	05 (03.9)	04 (03.6)			
Using stairs	23 (17.8)	20 (18.0)			
While bathing	40 (31.0)	40 (36.0)			
While using toilet	09 (07.0)	02 (01.8)			
Household work	14 (10.9)	09 (08.1)			

NS –Not Significant, *Significant

A review article on falls among Indian older adults states the prevalence of fall to range from 14% to 53% (Krishnaswamy).^[4] In a cross sectional study in Northern India, Joshi *et al.*, reported that 51.5% of the subjects had fallen (history of falls after 60 years of age), whereas study conducted by Sebastina Anita D'souza *et al.*^[2] (2008) in Manipal reported prevalence of fall as 38% in previous two years. A study done in rural Haryana^[5], the prevalence of fall in the past 12 months was found to be 36.6% (95% CI = 32.1–40). It is difficult to compare the magnitude of burden of fall between the various studies due to lack of uniformity in the operational definition of fall and time span to study the prevalence.

Regarding frequency of fall, Sirohi A *et al.*, (2015) reported that 77.2% of the participants had a single fall, 9.6% had two falls, while 13.2% reported more than two falls^[5], similarly in the present study, single fall was reported by 68.2% and 80.2% of the rural and urban elderly respectively.

Sebastina Anita D'souza *et al.* (2008) in Manipal reported the most common activity while fall occurred was ambulation (58.9%) followed by bathing (18.9%)^[2], study by Talbot *et al.* reported 31.5% falls while ambulating, 9.3% while transferring and 7.4% while on stairs/curbs.^[6] Chacko TV (2017) also reported that within the home premises 31.3% of falls occurred during ambulation around home like bathroom/toilet etc. and 22.2% occurred inside the various room like living room, bedroom etc.^[7] Similarly in the present study most frequently fall occurred while bathing (31% in rural and 36% in urban) followed by ambulation (29.5% in rural and 32.4% in urban).

In the present study, the highest percentage of fall occurred in the bathroom (41% in rural and 43% in urban). This suggests that bathroom is a location that is hazardous for elderly. Similar findings were reported by D'souza SA (2008).^[2] Patil Savitha S (2015).^[8] Most elderly do not live in a risk free home environment. The recognition and removal of environmental hazards is imperative to the well being of elderly. To prevent falls in the bathroom among the elderly mats, duckboards and handrails have been found to be useful (Kanda K).^[9] Indian elderly may also benefit with similar modifications in the bathroom and toilets to decrease fall risk.

Regarding specific time of fall, in Sebastina Anita study, most of the fall occurred in the morning (54.7%), 23.2% had fall in the evening and 21% fell in the afternoon, Chacko TV also reported morning hours as more vulnerable toward falls (39.1%) as compared to rest of the days.^[7] Similar findings were also documented by the present study as in both rural and urban area most of the fall occurred in morning (29.5% and 28.8%) and afternoon (29.5% and 38.7%) respectively. This is attributed to more of activity during morning and afternoon as compared to evening and night time Most of

the personal care and household tasks are done in the morning and evening is the time when older adults go out for leisure activities (Berg WP).^[10]

Type of fall in the present study depicts that most of the falls occurred as slips (41.9% in rural and 53.2% in urban) followed by losing balance (22.5% in rural and 18% in urban). Slips were also cited as most frequent type of fall in studies done by D'souza SA.^[3]

CONCLUSION

The findings of this study suggest that planning, scheduling and pacing daily activities throughout the day instead of completing them all in the morning may reduce hurrying and prevent falls. Fall education programs must sensitize elderly to this issue. There is also need for creating awareness, extensive education and communication programmes regarding fall events and preventive measures for the elderly in the community.

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