

Role of Environmental Hazards in fall of Community Dwelling Elderly

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ABSTRACT

Background: Evidence linking home hazards to falls has not been well established. Falls and fall injury are a major public health concern for the elderly. Fall of elderly is very much affected by environmental hazards. Falls are a major cause of morbidity and mortality in persons older than 60. There is a greater-than-linear increase in the rate of falls with environmental hazards. This cross section survey will not only lay the foundation for further study on this topic but also provide the basis for the development of preventive program of falls for the elders of Pakistan.

Objective: To explore the role of environmental hazards of fall in the community dwelling elders is the area which is lacking in research.

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Methods: This cross sectional study was conducted from October to December 2010 in Lahore & its peripheries and also the patients in hospital settings come after fractures or fall

injuries. The total number of people included was 100. Community dwelling Elders above 60 years having recent history of at least one fall were included regardless of gender. The data were entered and analyzed using SPSS 11.5.

Results: There were 71 people out of 100 who fell inside the home, 10 fell outside the home and 18 were not applicable to this question. There were 19% people, who fell repeatedly at one place, 31 people replied about hazard environment where fallen that contribute to fall. According to 24 people they had Safety checks of their home yard and/ or neighborhood which will assist to avoid future fall.

Conclusion: Most elderly persons live in a risky home setting. It is vital that environmental hazard be recognized and removed for wellbeing of elderly.

Key words: Fall Risk, Environmental hazards, elderly population, aged

Introduction:

Fall is an accidental loss of balance causing one to make sudden contact with the ground or floor. Falls/ fall injury are the major public health concern for the elderly. Falls are a major cause of morbidity and mortality in persons older than 65. They are the leading cause of death from injury, a rate that increases with advancing age. In persons older than 85, approximately two thirds of injury- related deaths are due to falls. It is estimated that 30% of Community-dwelling elders older than 65, 40% of those older than 80 years, and 66% of institutionalized elders fall each year. There is a greater-than-linear increase in the rate of falls between the ages of 60 to 65 and 80 to 85.¹ Because most falls do not result in injury requiring medical attention, it is likely that many falls go unreported and that fall rates are grossly underestimated.² Each year approximately 30 percent of person over the age of 65 fall.^{3,4}

percent of falls result in severe soft tissue injury and fractures. Mortality rate associated with falls is 6 percent. Falls are a factor in 40 percent of admissions to nursing homes.⁴

A fall is a terrible accident in the life of older people in which subject is hurt both physically and emotionally. Whatever be the cause of fall, it is totally preventable by simple low impact exercises and removing environmental hazards around the suspected elderly.⁵ In Pakistan we lack specialized fall prevention unit for elders. There is no literature addressing the needs of elders of Pakistan. We lack any research regarding the problems of elders. To explore the major risk factors of fall in the community dwelling elders is the area which is also lacking research. Fall is a major contributing factor of morbidity and mortality even in Pakistan. There is no institution offering fall prevention program in Pakistan. This is imperative to lay the foundation of geriatric rehabilitation in Pakistan. It is also worthwhile to provide a preventive program of falls for the elders of Pakistan. Proper implementation of fall prevention program can reduce the mortality and morbidity rate in Pakistan. The environmental hazards of fall are risky ladders/ stairs, sharp stairs, steep slopes, surfaces which are slippery, hindrances, unfit footwear, untidy areas, careless movements or running, improper manual handling, carrying large objects and busy hands that may not help to stop fall.⁶

The purpose of this study is to find out a relationship between the environmental layout and the risk of fall. How the environment can affect the fall rate in elderly our community.

Material & Methods:

A total of 100 Community dwelling Elders above 60 years having recent history of at least one fall in previous one year were included in this study regardless of their gender. Community dwelling Elders below 60 years and elderly who were Institutionalized were not included in this study. A self determined questionnaire was designed to conduct a cross sectional survey. Variable in the questionnaire were based on observations. There were two parts of questionnaire one showing the general questions about the history of fall and the other regarding the environmental hazards and telling which was the reason of their fall in environment. The questionnaire guided the

participants through their homes and instructed them to look for and record specific items, including the condition of the floors, the presence of tripping hazards, and the degree of lighting in the hallways and passageways; conditions that make it difficult or unsafe to use the kitchen (e.g., cabinets that are too high or too low); and the presence of grab bars and nonslip surfaces in the bathroom.

Analysis:

Outcome variables: Falls that occurred because of loss of consciousness (syncope or seizure) or sudden paralysis were excluded. First and second falls at home during follow-up were initially examined separately as outcome events, but the number of second falls was too small for meaningful interpretation. Therefore, the sole endpoint presented in this paper is first nonsyncopal falls at home and outside.

Environmental scales formation. Principal components analysis was used to examine intercorrelations between items on the home hazard checklist and to devise meaningful scales of home safety. SPSS 11.5 was used to enter and analysis of data.

Results:

The mean age of subjects in this study was 65.42 ± 7.188 with most frequent age of 65 years. The age range in this study was 30 years with minimum and maximum ages of 55 years and 85 years respectively. (Table # 1, Graph # 1) There 22 people who were 55-59 years of age, 25 each were 60-64 years and 65-69 years old, 10 people were 70-74 years of age, 12 were 75-79 years old, 5 were 80-84 years old and 1 person was 85-89 years old. (Table # 2) According to gender there were 66% of males and 34% of females. (Graph # 2)

Table # 1
Descriptive Statistics of Age (years)

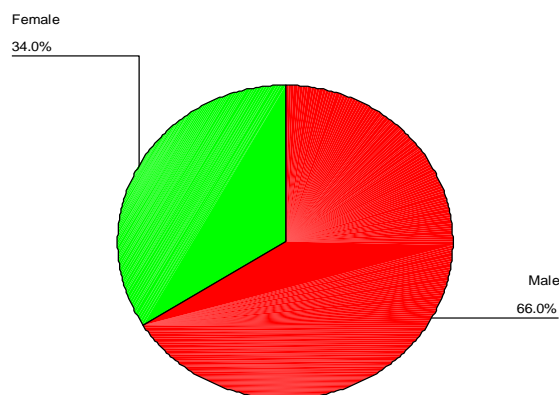
Age (years)	<i>Mean</i>	65.42
	<i>Mode</i>	65
	<i>Std. Deviation</i>	7.188
	<i>Range</i>	30
	<i>Minimum</i>	55
	<i>Maximum</i>	85

Graph # 1: Histogram of Age (years)

Table # 2
Frequency Distribution of Age group (Years)

Age groups in years	Frequency	Percent	Cumulative Percent
55-59	22	22.0	22.0
60-64	25	25.0	47.0
65-69	25	25.0	72.0
70-74	10	10.0	82.0
75-79	12	12.0	94.0
80-84	5	5.0	99.0
85-89	1	1.0	100.0
Total	100	100.0	

Graph # 2
Gender Distribution of the subjects



There were 71 people who fell inside the home, 10 fell outside the home and 18 were not applicable to this question. There were 19% people, who fell repeatedly at one place, 31 people replied about hazard environment where fallen that contribute to fall. According 24 people they had Safety checks of their home yard and/ or neighborhood which will assist to avoid future fall.

Table # 3-4 and Graph 3-4)

Table # 3

Frequency Distribution of Place of fallen

	Frequency	Percent	Cumulative Percent
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Inside the home	72	72.0	72.0
Outside the home	10	10.0	82.0
NA	18	18.0	100.0
Total	100	100.0	

Graph # 3
Place of fallen

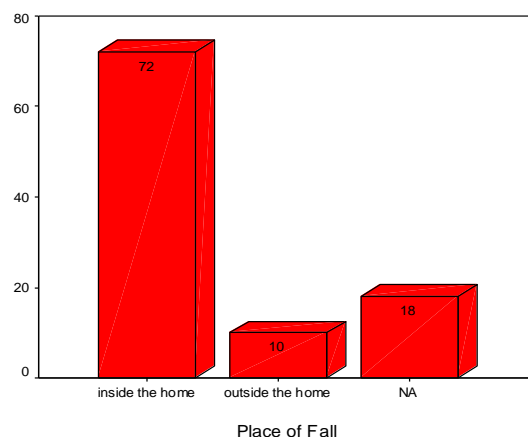
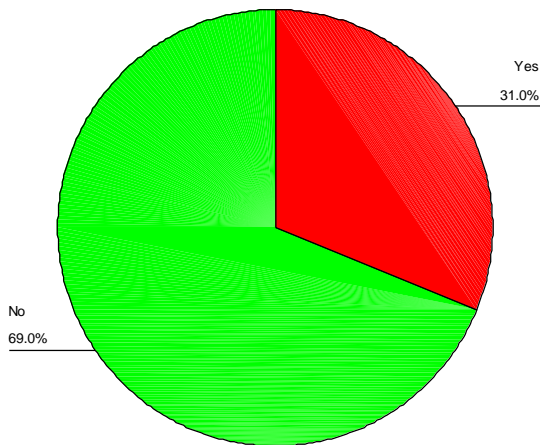


Table # 4
Frequency Distribution of hazard environment where fallen that contribute to fall

	Frequency	Percent	Cumulative Percent
Yes	31	31.0	31.0
No	69	69.0	100.0
Total	100	100.0	

Graph # 4
Hazard environment where fallen that contribute to fall



Discussion:

When the study was launched and approximately one hundred and five participants were invited to respond questionnaire. Hundred patients/clients responded the questionnaire. Most of the participants reported that they had experience of near to fall and reported their previous fall to the health professionals. They had limited their activities or decreased due to fall, near fall or fear of fall. 71% elderly fall inside their home showing that they need to evaluate their living places and need modifications in their home environment. The presence of certain home hazards (e.g., storage problems, clutter, and hall rug problems) is more important in predicting falls at home. Since falls tend to occur where people spend the most time, home oriented prevention strategies may be most effective in reducing fall rates in older persons.^{7,8} There is one thing that is very important that a majority of them fall at home than outside which shows that we have to make a safe home environment for them.

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