A comparative study on reasons of home accidents amongst elderly of rural and urban households of Ludhiana district

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ABSTRACT

Accidents in the home as cause of injury and death are of great importance. Home accidents are accidents that take place at home or its immediate surrounding and more generally not all accidents concerned with traffic, vehicles or sports. This study was undertaken to understand the nature and reasons of home accidents amongst elderly of rural and urban area of Ludhiana district. Findings revealed that majority for elderly women as well as for men accidents took place due to slipping (90%) and falls (60%) in both rural and urban area. Majority of cases elderly people met with accidents in their bathroom. It was also observed to be primary reasons of the accidents due to visual problems and muscle weakness. About 40 per cent of the selected respondents reported poor lighting system was the main cause of accidents in the kitchen.

INTRODUCTION

An accident is an unplanned, unexpected and undersigned event which occurs suddenly and causes injury and loss. During this century, the major challenges which most of the countries worldwide are facing is ageing *i.e.,* increase in the number of the aged population (60 years and above) in the existing population (Sandhya and Sharma, 2015). The UN (United Nations) defines a country as "ageing" or "Greying Nation" where the proportion of people over 60 reaches 7 per cent to total population. According to the Census of India 2001, India has 7.5 per cent elderly population. On the account of better education, health facilities and increase in life expectancy, the percentage of elderly population has gone up day by day. According to the Census of India 2011 India has exceeded that proportion by 8 per cent and is expected to reach 12.6 per cent in 2025 (Sample Registration System (SRS) Statistical Report 2011). This segment of population faces multiple physiological and medical problems. Indirect estimated by World Health Organization (WHO) and the Global Burden of Diseases study (GBD) suggest that unintentional injuries account for 3.9 million deaths worldwide of which about 90 per cent occur in low and middle income countries (Jagnoor *et al.,* 2012).

Home accidents are causes of death, disability, and defect. More people are disabled in home accidents than in work injuries and car crashes combined. Considering the fact that home accidents can be fatal or may disable

the victim, the present study was undertaken with the objective to examine reasons and the nature of home accidents.

MATERIAL AND METHODS

The study was conducted in rural and urban areas of Ludhiana district. Exploratory research design was adopted. Purposively sampling procedure was followed to select the sample. One zone was randomly selected for urban sample out of four zones of Ludhiana city from which two localities were selected randomly. For this zone A was selected randomly out of four zones: zone A, zone B, zone C, zone D of Ludhiana city. From zone A two localities were selected randomly *i.e.* Rishi Nagar and New Kitchlu Nagar. One block was randomly selected for rural sample out of twelve blocks from Ludhiana district out of which two villages were selected randomly. For this one block *i.e.* Ludhiana 2 was selected randomly out of twelve blocks of Ludhiana district. From Ludhiana 2 block two villages was randomly selected *i.e.* Hussainpura Chotha and Ladian Khurd. From rural and urban area 120 elderly respondents were selected (60 from rural and 60 from urban area). The data were collected through interviewing questionnaire. A self-structured questionnaire was used to collect information about demographic, nature and reasons of the rural and urban elderly. Simple averages, percentages and see the rural and urban differences Z- test were calculated and analyzed.

OBSERVATIONS AND ANALYSIS

The findings of the present study as well as relevant discussion have been presented under following heads:

Demographic profile of the elderly:

In this section personal profile included various demographic characteristics of respondents such as: age, sex, education, family structure. Table 1 show that 53.33 per cent of the elderly from rural and urban area was in the age group of 60-71 years old, while very few 11.67 per cent elderly was in age group of more than 84 years old. Female respondents were more in both areas as compare to men. Approx 80 per cent of elderly respondents were female and 20 per cent were male.

Post- graduates were found to be low in the study population whereas 32.50 per cent and 33.33 per cent respondents were upto matric and senior secondary, respectively. A joint family system was seen to be most common 74.17 per cent among the respondents interviewed followed by the nuclear family 25.83 per cent.

Table 1 : Distribution of respondents according to the background information of selected households						(n=120)
Demographic features	Rural (n=60)		Urban (n=60)		Total	
	Frequency	%age	Frequency	%age	Frequency	%age
Age (years)						
60-71	31	51.67	33	55.00	64	53.33
72-83	20	33.33	22	36.67	42	35.00
More than 84	9	15.00	5	8.33	14	11.67
Mean	72.62		71.65		72.14	
S.D ±	9.08		7.9		8.49	
Sex						
Male	8	13.33	16	26.67	24	20.00
Female	52	86.67	44	73.33	96	80.00
Education						
Upto matric	24	40.00	15	25.00	39	32.50
Senior Secondary	35	58.33	5	8.33	40	33.33
Graduate	1	1.67	26	43.33	27	22.50
Post graduate	0	0.00	14	23.33	14	11.67
Family structure						
Nuclear	26	43.33	5	8.33	31	25.83
Joint	34	56.67	55	91.67	89	74.17

Nature of accidents :

As a ripe old age, elder people (60 or above) are more prone to accidents at home and major reasons are: their time spent at home is more, negligence, lack of supervision and their developed body. Moreover their decline in the body's ability to maintain a balanced interaction, *i.e.* homeostasis of the organs, muscles, bones and endocrine systems leads to accidents like slips, trips, falls, fire and burns, scalds etc. Table 2 shows that majority of respondents 90 per cent experienced slipping as a cause of accident. Similarly, 59.67 per cent respondents experienced falls, 33.33 per cent respondents

Table 2 : Distribution of respondents according to nature of accidents							(n=120)
Nature of accidents	Rural (n=60)		Urban (n=60)		Total (n=120)		Z value
	Frequency	%age	Frequency	%age	Frequency	%age	
Slips	59	98.33	49	81.67	108	90.00	3.04**
Falls	42	70.00	29	48.33	71	59.17	2.41*
Trips	25	41.67	15	25.00	40	33.33	1.94
Cuts	14	23.33	21	35.00	35	29.17	1.41
Struck	20	33.33	10	16.67	30	25.00	2.11*
Fires and burns	5	8.33	19	31.67	24	20.00	3.20**
Scalds	10	16.67	12	20.00	22	18.33	0.47

Multiple responses
* and ** indicate significance of values at P=0.05 and 0.01, respectively

Table 3 : Distribution of respondent according to the intrinsic reasons of elderly people leading to accidents							(n=120)
Intrinsic reasons leading to accidents	Rural (n=60)		Urban (n=60)		Total (n=120)		Z value
	Frequency	%age	Frequency	%age	Frequency	%age	
Slips							
Visual problems	42	70.00	37	61.67	9	65.83	0.96
Hearing problem	12	20.00	3	5.00	15	12.50	2.48*
Muscle weakness	23	38.33	31	51.67	54	45.00	1.47
Impaired coordination	0	0.00	2	3.33	2	1.67	1.43
Loss of posture control	4	6.67	3	5.00	7	5.83	0.39
Gait disturbance	0	0.00	4	6.67	4	3.33	2.03*
Cognitive impairment	0	0.00	1	1.67	1	0.83	1.00
Acute illness	4	6.67	27	45.00	31	25.83	4.80**
Struck							
Visual problems	22	36.67	19	31.67	41	34.17	0.58
Muscle weakness	26	43.33	10	16.67	36	30.00	3.19**
Acute illness	18	30.00	10	16.67	28	23.33	1.73
Cuts							
Visual problems	3	5.00	6	10.00	9	7.50	1.04
Muscle weakness	2	3.33	12	20.00	14	11.67	2.84**
Acute illness	7	11.67	5	8.33	12	10.00	0.61
Falls							
Visual problems	29	48.33	15	25.00	44	36.67	2.65**
Muscle weakness	20	33.33	21	35.00	41	34.17	0.19
Acute illness	2	3.33	21	35.00	23	19.17	4.41**
Trips							
Visual problems	20	33.33	23	38.33	43	35.83	0.57
Muscle weakness	23	38.33	20	33.33	43	35.83	0.57
Acute illness	2	3.33	0	0.00	2	1.67	1.43

Multiple responses
* and ** indicate significance of values at P=0.05 and 0.01, respectively

experienced trips, 29.17 per cent respondents got cut, 25 per cent respondents got struck, 20 per cent respondents met with fires and burns and 18.33 per cent respondents experienced scalds, respectively. There is significant relationship between all aspects related to nature of accidents at 5% and 1% level except trips, cuts and scalds. Guiseppi *et al.* (2012) and Erkal (2010) also mentioned about ill designed housing being one of the factor responsible for home accidents. The findings are in line with the results of Trybus *et al.* (2006); Soori and Naghavi (1999) and Scheffer *et al.* (2008) mentioned about increased risk of falling and progressive loss of health-related quality of life.

Intrinsic reasons leading to accidents :

Table 3 show that majority of accidents 65.83 per cent experienced slip due to visual problems whereas, 34.17 per cent, 36.67 per cent and 35.83 per cent experienced struck, falls and trips due to visual problem. Due to muscle weakness 45 per cent respondents slipped, 30 per cent respondents got struck, 34.17 per cent

experienced fall and 35.83 per cent respondents tripped, respectively. Due to acute illness 25.83 per cent respondents slipped, 23.33 per cent got struck and 10 per cent respondents got cut. Contribution of gait distribution, impaired coordination and hearing power was negligible in both rural and urban area. Migliardi *et al.* (2004); Neghab *et al.* (2006) and Bhanderi and Choudhary (2008) also studied causes of home accidents and mentioned factors similar to these findings.

Extrinsic reasons leading to accidents :

Extrinsic reasons are beyond the control of human. It is related to environment. It includes: kitchen, bathroom, entrance, staircases, open yard and passage. Sometimes extrinsic reasons become major in causing accidents.

Kitchen :

Table 4 show that most of elderly 41.67 per cent experienced slips due to inadequate lighting where as none of respondents got cut, scalds and falls due to

Table 4 : Distribution of respondents according to extrinsic reasons leading to accidents in kitchen						(n=120)	
Kitchen	Rural (n=60)		Urban (n=60)		Total (n=120)		Z value
	Frequency	%age	Frequency	%age	Frequency	%age	
Slips							
Inadequate lighting	21	35.00	29	48.33	50	41.67	1.48
Oily and greasy floor	4	6.67	24	40.00	28	23.33	4.32**
Wet floor	13	21.67	23	38.33	36	30.00	1.99*
Shelves higher than normal reach	7	11.67	14	23.33	21	17.5	1.68
Cuts							
Inadequate lighting	0	0.00	1	1.67	1	0.83	1.00
While cutting and chopping	0	0.00	3	5.00	3	2.55	1.75
While washing utensils	5	8.33	1	1.67	6	5.00	1.68
Wrong storage of sharp edged tools	20	33.33	15	25.00	35	29.17	1.00
Breaking of glass items	22	36.67	30	50.00	52	43.33	1.47
Scalds							
Taking of pressure cooker from gas burner	15	25.00	10	16.67	25	20.83	1.12
While pouring hot water	20	33.33	12	20.00	32	26.67	1.65
Spills from tea, coffee and milk	0	0.00	2	3.33	2	1.66	1.43
Falls							
Slippery footwear	22	36.67	25	41.67	47	39.17	1.56
Inadequate lighting	4	6.67	15	25.00	19	15.83	2.75**
Oily and greasy floor	0	0.00	11	18.33	11	9.16	3.48**
Wet floor	2	3.33	15	25.00	17	14.16	3.40**
Shelves higher than normal reach	1	1.67	6	10.00	7	5.83	1.95

Multiple responses
* and ** indicate significance of values at P=0.05 and 0.01, respectively

inadequate lighting. Similarly, 43.33 per cent got cut due to breaking of glass item, 39.17 per cent respondents experienced falls due to slippery footwear, 30 per cent slipped due to wet floor and 26.67 per cent got scalds due to while pouring hot water. Very few respondents felt due to oily and greasy floor, inadequate lighting and wet floor. There is significant relationship between all the aspects related to kitchen except cuts and scalds in kitchen, falls due to slippery footwear and shelves higher than normal reach as well as slips due to inadequate lighting and shelves higher than normal reach from both rural and urban area. Kent and Pearce (2006); Ormandy (2007) and Kool *et al.* (2011) too enlisted similar causes from household burns and minor cuts during performance of routine activities at home.

Bathroom :

Table 5 show that half of respondents 50 per cent slipped due to soapy floor, 33.33 per cent slipped due to wet floor and 23.33 per cent slipped due to absence of non skid mats and 16.66 per cent slipped due to absence of grab bars in the bathroom. It was also reported 18.33 per cent respondents tripped due to absence of non skid mats. 33.33 per cent respondents got scalds and burns

due to spillage of hot water and 28.33 per cent got scalds due to unmarked taps. Very few respondents 4.16 per cent felt due to soapy floor. Due to absence of grab bars and bathing stool unstable 15 per cent and 14.16 per cent respondents felt, respectively. There is a significant relationship between all aspects related to bathroom except slips, falls due to soapy floor from both rural and urban area. Indo Asian News Service (2011) has also mentioned about such incidents. Other less observed lacking safety features of bathroom were: 'bathing stool unstable', 'layer of soap on floor' and 'unmarked hot water tap'. Lee *et al.* (1999) too mentioned about toilet being most common accident area in the home.

Entrance :

Table 6 showed that 24.16 per cent respondents and 23.33 per cent respondents felt due to uneven floor and barrier at entrance. Whereas 20.83 per cent respondents also felt due to step followed by entrance and 15 per cent respondents slipped due to step at entrance. Similarly very few respondents from both area neither slipped nor fall due to narrow entrance, barrier at entrance and difference in height at both ends of entrances. Further there is significant relationship between all aspects

Table 5 : Distribution of respondents according to extrinsic reasons leading to accidents in bathroom							(n=120)
Bathroom	Rural (n=60)		Urban (n=60)		Total (n=120)		Z value
	Frequency	%age	Frequency	%age	Frequency	%age	
Slips							
Soapy floor	25	41.67	35	58.33	60	50.00	1.83
Wet floor	9	15.00	31	51.67	40	33.33	4.26**
Absence of non skid mats	2	3.33	26	43.33	28	23.33	5.18**
Absence of grab bars	5	8.33	15	25.00	20	16.66	2.45*
Bathing stool unstable	1	1.67	11	18.33	12	10.00	3.04**
Trips							
Wet floor	9	15.00	0	0.00	9	7.55	3.12**
Absence of non skid mats	4	6.67	18	30.00	22	18.33	3.30**
Scalds and Burns							
Unmarked taps	24	40.00	10	16.67	34	28.33	2.84**
Spillage of hot water	9	15.00	31	51.67	40	33.33	4.26**
Falls							
Soapy floor	3	5.00	2	3.33	5	4.16	0.46
Wet floor	3	5.00	13	21.67	16	13.33	2.69**
Absence of non skid mats	0	0.00	9	15.00	9	7.55	3.12**
Absence of grab bars	1	1.67	17	28.33	18	15.00	4.09**
Bathing stool unstable	3	5.00	14	23.33	17	14.16	2.88**

Multiple responses
* and ** indicate significance of values at P=0.05 and 0.01, respectively

Table 6 : Distribution of respondents according to extrinsic reasons leading to accidents in entrance open yard and lawn in front   (n=120)

Entrance, open yard and lawn in front	Rural (n=60)		Urban (n=60)		Total (n=120)		Z value
	Frequency	%age	Frequency	%age	Frequency	%age	
Slips							
A step at entrance	8	13.33	10	16.67	18	15.00	0.51
Difference in height at both ends of entrance	3	5.00	4	6.67	7	5.83	0.39
Narrow entrance	7	11.67	0	0.00	7	5.83	2.73**
Barrier at entrance	4	6.67	0	0.00	4	3.33	2.03*
Water pipe lying haphazardly	2	3.33	3	5.00	5	4.16	0.46
Falls							
A step followed by entrance	11	18.33	14	23.33	25	20.83	0.67
Difference in height of entrance	2	3.33	12	20.00	14	11.66	2.84*
Narrow entrance	3	5.00	0	0.00	3	2.55	1.75
Barrier at entrance	16	26.67	12	20.00	28	23.33	0.86
Uneven floor	21	35.00	8	13.33	29	24.16	2.77**

Multiple responses
* and ** indicate significance of values at P=0.05 and 0.01, respectively

related to entrance except slippage due to step at entrance, difference in height of entrance, water pipe lying haphazardly as followed by falls due to narrow and barrier at entrance and step followed by entrance in both rural and urban area. Guiseppi *et al.* (2012) also mentioned about ill designed housing being one of the factor responsible for home accidents. Similar work related to the present investigation was also carried out by Erkal and Sahin (2010); Kopjar and Wickizer (1996); Krishna *et al.* (2014) and Mohammadi *et al.* (2005).

Conclusion :

Home accident is one of the common cause of morbidity in our rural as well as urban population. Slips and falls were the most common home accident seen in the study. The main risk group for home accidents was elderly. Because of home accidents there is economical loss to the people and in turn to the country. Therefore, in order to prevent and control the home accidents, promotion of household safety measures, and creation of awareness among the community using IEC interventions have to be undertaken.

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