





The Prevalence of Different Types of Accidents Among Elderly People Residing in Khorramabad, Iran: A Descriptive-Analytical Study

Katayoun Bakhtiar¹, Rasool Mohammadi², Maryam Moradi³, Soraya Nouraei Motlagh¹ , Fatemeh Bastami¹ , Iraj Zareban⁴, Mohammad Almasian⁵ and Shokoufeh Shirizadeh^{6,*}

¹Department of Public Health, Faculty of Health and Nutrition, Lorestan University of Medical Sciences, Khorramabad, Iran

²Department of Epidemiology and Statistics, School of Public Health and Nutrition, Lorestan University of Medical Sciences, Khorramabad, Iran

³Public Health Expert, Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran

⁴Health Promotion Research Center, Zahedan University of Medical Sciences, Zahedan, Iran

⁵Department of the English Language, Lorestan University of Medical Sciences, Khorramabad, Iran

⁶Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran

*Corresponding author: B.Sc. in Public Health, Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran. Email: shokoufe.shiri74@gmail.com

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Abstract

Background: Nowadays, accidents among the elderly are of great importance due to the increasing population of the elderly and the effects of their lifestyles.

Objectives: Therefore, the present study aimed to investigate the epidemiology of accidents among the elderly in Khorramabad, Iran, during 2016 - 2017.

Methods: This descriptive-analytical study was conducted on 434 elderly individuals aged 60 years old and older who had experienced accidents and had referred to hospitals in Khorramabad. The census sampling method was used. The data collection instrument was a checklist to investigate the types of accidents among the elderly. Data were entered into SPSS software version 22 and analyzed using the chi-squared test at the significance level of 0.05.

Results: The most common types of accidents were falls (64.5%), burns (14.7%), poisoning (14.5%), trauma (6%) and drowning (0.2%). There was a significant difference between the two sexes in terms of type of accident ($P = 0.002$). The prevalence of the above-mentioned incidents was higher in females than males, except for poisoning, which was more common in males. There were no significant relationships among the type of accident with age and the location of the accident.

Conclusions: Fall as the most common accident in the elderly calls for the design of preventive programs to enhance both the lifestyle and the safety of the living environment. The higher prevalence of poisoning in men can be attributed to opioid abuse, which is more common among males.

Keywords: The Elderly, Accidents, Epidemiology of Accidents, Injuries

1. Background

Aging refers to natural, progressive and irreversible physiological changes occurring with the passage of time (1). The World Health Organization has defined being old as belonging to the age group of 60 and older (2). In most countries, the proportion of people over 60 is increasing faster than any age group due to lower fertility rates and increased life expectancy. The world population is growing rapidly at a rate of 1.7% per year, and the increase in the population of people aged 65 and older is 2.5% (3). According to the census conducted by the Statistical Center of Iran, about 7.3% of the population in 2006 and 9.27% of the population in 2016 were over 60 years old, and the number of elderly people is projected to reach 10 million individuals

by 1400 (4).

As the elderly population increases, the health problems associated with this age group also increase. Accidents are among health problems that older people face, since the altered physiological and anatomical conditions of the elderly put them at risk of numerous accidents and injuries (5). By accident is meant an unprecedented event that is caused by environmental energy exerted to the body, which is more than the body's resistance and that leads to injury (5). On the one hand, accidents cause physical and psychological damage and, on the other hand, cause considerable financial and economic loss (5). Although serious injuries are essentially a problem for all people around the world, injured senior citizens comprise 23% of hospitalizations due to accidents and account for up

to 28% of hospital-related costs. Almost 28% of all accident-related fatalities occur in people 65 years old and older, injuries constituting the fifth most common cause of death in this age group (6, 7).

In the United States, accidents are the fifth leading cause of death among the elderly, falls being the most common cause of injury in this age group. About 11 percent of elderly people die from falls. About 40% to 60% of falls lead to serious injury (8). Results from previous studies indicate that falls and deliberate and accidental poisoning are the most common causes of preventable accidents in the elderly referring to hospitals (9-12), the incidence of falls being higher in older women, those with a history of previous falls, and the elderly residing in nursing homes (13, 14). As the population ages, there is also a significant increase in the number of elderly people using the road both as passengers and pedestrians. Drivers aged 65 - 69 years are 1.29 times more likely to be killed in traffic accidents, and this risk is much higher in those aged 85 years and over (15).

Accidents are of great importance in the elderly, because the elderly population is increasing and the mobility and lifestyle of the elderly puts them at risk of serious injury (16, 17). Studying the characteristics and types of injuries in the elderly provides valuable information to authorities responsible for the healthcare of senior citizens and the obtained results can be used in identifying interventional and research priorities in future studies.

2. Objectives

Due to the growth of the elderly population in Iran and the need to obtain adequate information about the epidemiology of injuries among the elderly and lack of similar studies conducted in the area among the elderly, this study aimed to investigate the prevalence of different types of accidents among elderly people in Khorramabad, Iran, in order to better understand these injuries in this age group.

3. Methods

After obtaining the approval of the Ethics Committee of the Lorestan University of Medical Sciences (IR.LUMS.REC.1397.100), the present descriptive-analytical study was conducted on 434 elderly individuals aged 60 years and older who had experienced accidents and had referred to hospitals in Khorramabad during 2016 - 2017. Incidents or injuries in this study were defined as any lesions in the body that occur due to acute exposure to forces and pressure above the threshold of physiological tolerance or as types of dysfunction, such as drowning and

suffocation, caused by deprivation from vital elements (water, air, heat) (18).

The census sampling method was used. The inclusion criteria were being 60 years old and older, residing in Khorramabad, having been admitted to the Shohadaye Ashayer and the Shahid Rahimi Hospitals from September 22, 2016 to September 23, 2017. The exclusion criteria included having incomplete medical records, cases in which after giving their personal consents or without informing the hospital or medical center, the patients had left the hospital or medical center, or had been transferred to another medical center, as a result of which the outcomes of their accidents could not be determined.

The data collection instrument was a checklist of accidents in the elderly, which included the types of accidents (burns, drownings, falls, traumas, and poisonings), the place of occurrence (rural or urban areas), and the outcome (recovery or death) (4). The reliability of the instrument was tested by calculating Cronbach's alpha on 30 elderly individuals who had had accidents as 0.79.

To gather the data, the researchers referred to the archives of the Shohadaye Ashayer and Shahid Rahimi hospitals and entered the information obtained from the medical records of the patients hospitalized between the above-mentioned dates into the checklist. Data were entered into SPSS software version 22 and analyzed using the chi-squared test at the significant level of 0.05.

4. Results

A total of 434 elderly individuals 60 years old and older with the mean age of 73.13 ± 9.4 were evaluated. The subjects included individuals affected by accidents who had been admitted to hospitals in 2016-2017. The frequency distribution of patient demographic information along with types of accidents and the eventual outcomes are summarized in Table 1. According to the results of the study, the most frequent type of accident was falls affecting 280 people (64.5%) and the least frequent was drowning with the frequency of 1 person (0.2%) (Table 1). In addition, the results of this study showed that there is a statistically significant relationship between gender and the type of accident ($P = 0.002$) (Table 2). However, there were no statistically significant relationships between the type of accident with age and the type of accident with the place of occurrence ($P > 0.05$) (Table 2).

5. Discussion

The aim of this study was to evaluate the epidemiology of accidents in elderly patients referring to hospitals

Table 1. The Frequency Distribution of the Demographic Characteristics of the Studied Individuals

Variable	No. (%)
Gender	
Male	199 (45.9)
Female	235 (54.1)
Age	
≥ 70	206 (47.5)
60 - 69	228 (52.5)
Areas in which the accidents occurred	
Urban areas	306 (70.5)
Rural areas	128 (29.5)
Type of accident	
Burns	64 (14.7)
Drowning	1 (0.2)
Falls	280 (64.5)
Trauma	26 (6)
Poisoning	63 (14.5)
Outcome	
Recovery	425 (97.9)
Death	9 (2.1)

affiliated with the Lorestan University of Medical Sciences in Khorramabad, Iran, during the years 2016 - 2017 in order to better understand the injuries of this age group. In the present study, falls were the most common type of accident, which is in line with the results of studies by Toffoletto et al. (19) on elderly people injured in Brazil in 2012 and Gowing and Jain (20), which is based on the records of elderly people admitted to hospitals in Ontario, Canada, between 2000 and 2003. However, it was unclear how the accidents occurred due to lack of access to full information on the elderly affected by accidents. A study by Soliman et al. conducted in Cairo, Egypt, in 2016 showed that most of the falls occurred in the elderly due to the lack of handrails and handles in the bathroom and, in older patients, falls could be a nonspecific symptom of many diseases, including pneumonia, urinary tract infections, or myocardial infarction (21). Moreover, a 2011 study by Ercal et al. in Ankara, Turkey, on elderly individuals living in nursing homes showed that, 97% of the accidents among 27.3% of the elderly who had experienced an accident were falls. The results of this study showed that most of these incidents were caused because of neglect and slippery surfaces (22). In addition, a 2010 study by Samaras in Geneva, Switzerland, showed that falls are associated with conditions such as cardiovascular syncope, carotid sinus

syndrome, sudden hypotension, drug poisoning, acute abdominal injury, and maltreatment (23). Previous studies have shown that falls are associated with older age, taking walks less frequently, poor general health, presence of some chronic illnesses and disabilities, and severe psychological anxiety (24, 25). Furthermore, the prevalence of musculoskeletal disorders, visual impairments, or postural hypotension in the elderly that lead to balance problems increases the risk of falls and injuries (26). A study by Yeong et al. conducted on Malaysian elderly individuals showed that living alone was directly related to the frequency of falls (27). The prevalence of falls in the elderly population of Malaysia was 4.07%, which is lower than in other Asian countries such as Japan (15.8%), Hong Kong (19.3%), and China (11.1%). The relatively lower prevalence of falls in Malaysia seems to be due to the fact that the elderly population in Malaysia is on average younger than in other countries (27).

Based on the results of the present study, the incidence of injuries is higher in women than in men, which is similar to the results reported in a study on injuries among the elderly in Northern Sweden by Saveman and Bjornstig (28) and another study by Tlemissov et al. (29) in Kazakhstan. However, in most other similar studies, men experience more injuries than women, such that in a study by Azami-Aghdash et al., men were most affected by accidents. According to the results of this study, this could be due to men's working conditions, excessive working hours outdoors, men being more physically and manually involved, and the fact that most drivers are male (7). In addition, the results of an epidemiological study of injuries occurring at home in Kashan, Iran, conducted by Fazel in 2012 showed that men suffered more home injuries than women. This study also argues that this issue may be due to the involvement of Iranian men in daily household chores, as a result of which men are more likely to be seriously injured than women (30).

Moreover, based on the findings of the present study, a statistically significant difference was observed between the two sexes in terms of the type of accident, which is consistent with the results of the study by Azami-Aghdash et al. (7). However, Yeong et al. (27) showed that there was no significant relationship between gender and the frequency of falls, which is not in line with the findings of the present study. Based on the results of the present study, burns are more frequently seen in women, which is consistent with the results of a study carried out in Cairo by Mabrouk et al. in 2003 (31). This can be attributed to the fact that women are more involved in housework and the preparation of hot foods and fluids and are, therefore, more likely to suffer burns. However, the results of a five-year study in Iran indicated that elderly men are twice as likely as to suffer from

Table 2. The Frequency Distribution of the Type of Accident Based on Age, Gender, and Place of Occurrence

Variable	Type of Accident, No. (%)				P Value ^a
	Burns	Falls	Trauma	Poisoning	
Age					0.056
≥ 70	37 (57.8)	120 (42.9)	13 (50)	36 (57.1)	
60 - 69	27 (42.2)	160 (57.1)	13 (50)	27 (42.9)	
Gender					0.002
Male	29 (45.3)	119 (42.5)	8 (30.8)	42 (66.7)	
Female	35 (54.7)	161 (57.5)	18 (69.2)	21 (33.3)	
Place of occurrence					0.448
Urban areas	44 (68.8)	204 (72.9)	17 (65.4)	40 (63.5)	
Rural areas	20 (31.3)	76 (27.1)	9 (34.6)	23 (36.5)	

^aThe significance level of the chi-squared test.

burns than women, the most common causes of burns being cooking, prolonged exposure to heat sources such as radiators, cigarette burns, and taking baths and showers (32). One of the reasons that the ratios reported in different studies vary could be because various studies are conducted on people in different age groups.

According to the findings of the present study, there is no significant relationship between the type of accident and the age of the elderly. Nevertheless, Acimis et al. (33) and Ramazani et al. (34) observed a statistically significant relationship between age and type of accident in the elderly and that the prevalence of accidents in the elderly increased with age.

According to the results of the present study, the incidence of accidents was higher in urban areas than in rural areas, which is similar to the findings of Safizadeh (35). This could be due to the higher exposure of urban dwellers to risk factors, such as traffic accidents. Additionally, this can be attributed to the fact that the number of referrals from rural areas to hospitals is lower than the actual number of accidents due to economic and transportation problems. The results of this study also showed that there was no significant relationship between accident type and the place of occurrence. However, burns occur more frequently in urban areas, which is in line with a 2018 study by Moosazadeh et al. (36).

In addition, it should be noted that in this study most of the people affected by accidents had recovered and only a small number of accident victims had died, which is consistent with the final accident outcomes as determined in previous studies conducted on the age group of individuals 60 years old and older (37, 38). Although most injuries end in recovery, each of these injuries can cause significant mental, physical, and economic and financial difficulties

for individuals and societies (37, 38).

5.1. Conclusions

Since most injuries in the elderly are related to falls, designing fall prevention programs such as making homes safer or educating the elderly about lifestyle changes such as alterations in diet, physical activity, and smoking is essential. Moreover, investigation of medication use, drug trafficking control, and the implementation of addiction rehabilitation treatments to reduce poisoning and the teaching of safety tips to reduce the incidence of burns, avoidance of leaving seniors citizens alone at home, and periodical examinations by physicians are some of the preventive measures that can be taken in this regard. The results obtained from the present study and similar studies can provide valuable information for designing effective accident minimization programs and designing educational programs to increase people's knowledge on how to deal with accidents.

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Footnotes

Authors' Contribution: Katayoun Bakhtiar, Shokoufeh Shirizadeh and Maryam Moradi were involved in the design and implementation of the research. Rasool Mohammadi and Soraya Nouraei Motlagh were involved in the

analysis of the research data. Fatemeh Bastami, Iraj Zareban and Mohammad Almasian contributed to the final writing and editing of the paper.

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