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ORIGINAL ARTICLE

Accident-related mortality in Southern Khorasan Province in 2010

Toba Kazemi[1], Ahmad Amouzeshi[2]✉, Nahid Borna[3], Gholam Reza Sharifzadeh[4], Zahra Amouzeshi[5]

[1]*Professor, Atherosclerosis and Coronary Artery Research Centre, Birjand University of Medical Sciences, Birjand, Iran;*
[2] *Assistant professor, Atherosclerosis and Coronary Artery Research Centre, Birjand University of Medical Sciences, Birjand, Iran;*
[3] *member of the Student Research Committee, MD, Birjand University of Medical Sciences, Birjand, Iran;*
[4] *Assistant Professor, Social Determinants of Health Research Center, Birjand University of Medical Sciences, Birjand, Iran;*
[5] *Instructor, Faculty of Nursing and Midwifery, Birjand University of Medical Sciences, Birjand, Iran.*

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Abstract

Introduction: Causes of death vary globally, and they depend regionally on lifestyle and socio-cultural factors. The purpose of this study was to determine accident-related mortality in Southern Khorasan Province, Iran, in the year 2010.

Methods: This descriptive-analytical study involved all the death cases in the year 2010 in Southern Khorasan. The data were collected from the death registration system, and were classified and analyzed according to the codes of the 10th revision of the International Classification of Deaths (ICD).

Results: From among the 3,792 deaths in 2010, n=633 (16.7%) were accident-related. Of accident-related deaths, 73.6% (n=450) of the deceased persons were male. The highest rate of mortality belonged to Summer (July 23 to Aug 22) (n=203; 32.1%). The median age in accident-related deaths was 36.6±21.9 years with the minimum age of 5 days and maximum age of 92 years. The leading cause of mortality was traffic accidents (52.1%) and violence (18%). The median age of the deceased women in accidents was significantly higher than men (P<0.048) and in rural persons more than urban people (P=0.02), with Surgical complications as the least frequent cause of death.

Conclusions: Since road traffic accidents rank first in accident-related mortality, it is recommended to have measures to improve road safety as well as quality and safety of vehicles, and to establish strict rules for those who disobey traffic rules.

Key Words: mortality; intentional and unintentional injuries; accidents

Introduction

Types of deaths and diseases have been changing across the globe in recent years where accident deaths have turned into a major concern [1]. Injuries are considered as causes of fatality and inability worldwide. They account for about 16% of global bar of diseases and the cause of death for people below 60 years [2]. The indirect estimation of World Health Organization (WHO) and the Global Bar of Diseases (GBD) indicate that unintentional accidents result in 3.9 million deaths worldwide of which 90% occur in low- and middle-income countries. The most common causes of accident mortality include road traffic accidents, drowning, poisoning, and burning [3]. The main

@**2014 Journal of Surgery and Trauma;** Birjand University of Medical Sciences Journal Office, Ghaffari Ave., Birjand, I.R. Iran
Tel: +985632443041 (5533)
Fax: +985632440488
Po Box 97175-379
Email: jsurgery@bums.ac.ir

✉**Correspondence to:**
Ahmad Amouzeshi; Assistant professor, Atherosclerosis and Coronary Artery Research Centre, Birjand University of Medical Sciences, Birjand, Iran.
Telephone Number: +05632440488
Email Address: amouzeshiahmad@bums.ac.ir

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causes of death among the Iranian population consist of cardiovascular diseases, motor vehicle accidents, and intentional and unintentional injuries, respectively [4]. The majority of the injuries can be prevented where their prevention is a priority in developed countries [1]. Given the importance of this issue, therefore, this study was conducted to determine the causes of Accident-related mortality in Southern Khorasan Province, in the east of Iran, in the year 2010.

Methods

This descriptive-analytical study included all the deceased persons in Southern Khorasan in 2010 according to the Iranian death registration system. First, all the death cases were collected using the death registration system form from all the health houses, health-care centers, hospitals, Legal Medicine Organization, and cemeteries. They were examined in the committee for death registration. The incomplete forms were referred back to the reporting place and later collected. The causes of death were coded according to the 10threvision of ICD and then analyzed in SPSS using one-way Anova and independent t-test at the significant level of <0.05.

Results

In this study, from among the 3,792 deaths in 2010, n=633 (16.7%) resulted from accidents in the province. Of accident deaths, 73.6% (n=450) of the deceased persons were male. The highest death rate occurred in Summer (July 23 to Aug 22) (n=203; 32.1%). Frequency distribution of accident deaths is provided in Table 1 by age, residence, and the season in which the deaths occurred. The median age in this type of mortality was 36.6±21.9 years with the minimum age of 5 days and maximum age of 92 years.

The leading cause of death was road traffic accidents (52.1%), followed by violence (18%) (Table 2). The median age of deceased women in accidents was significantly higher than men (P<0.048) and in rural persons more than urban people (P=0.02), with Surgical complications as the least frequent cause of death (Table 3).

Table 1: Frequency distribution of accident deaths by age, residence, and season

Variable		Frequency	Percent
Season	Spring	174	27.5
	Summer	203	32.1
	Autumn	114	18
	Winter	121	22.2
Residence	Urban	241	38.1
	Rural	392	61.9
Age (years)	< 20	140	22.2
	20-44	290	45.8
	45-65	119	18.8
	> 65	84	13.2

Table 2: Frequency distribution of Cause of death due to accident

Cause of death	Frequency	Percent
Traffic accidents	330	52.1
Violence by others	114	18
Burning	56	8.8
Falling	21	3.3
Unintentionalaccidents	20	3.2
Suicide	17	2.7
Accidental poisoning by drugs and medicine	14	2.2
Surgical complications	13	2.1
Other reasons	48	7.6
Total	633	100

Table 3. Comparison of median age in accident deaths by Sex, residence, and cause of death

Variable and sub-groups		Age		
		Frequency	X±SD	P value
Sex	Male	450	39.6±26.6	0.048
	Female	163	35.5±19.9	
Residence	Urban	238	34.1±20.5	0.02
	Rural	375	38.3±22.7	
Cause of death	Unintentional accidents	496	37.9±23.8	0.007
	Violence by others	100	31.9±9.4	unintentional accidents or violence
				0.03
	Suicide	17	26.9±8.9	Unintentional accidents or suicide
				p<0.001

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Discussion

In the present study, three common causes of accident-related mortality were Traffic accidents, Violence by others, and Burning. According to Saadat (2014), the leading causes of mortality among Iranians include cardiovascular diseases, motor vehicleaccidents, cancers, and intentional and unintentional injuries, respectively. Life years lost root respectively from cardiovascular diseases, motor vehicle accidents, cancers, and intentional and unintentional injuries [4]. These findings are similar to those of other countries.

In our study, the most common cause of death was accidents. According to WHO estimates, the most frequent causes of unintentional accident deaths include road traffic accidents, falling, drowning, poisoning, and burning [3]. WHO predicts that road traffic accidents will be on the rise by 2020 except for high-income countries [5]. Road traffic accidents are the second commonest cause of death in Iran, while they are the ninth at the global scale and seventh in the United States [6].

In our study, men were the major victims in accident deaths. In Khuzestan Province, in the southeast of Iran, similar findings were observed in the same year (82% male; 18% female).

In Southern Khorasan in 2010, the majority of deaths occurred in the age group of 20-44 years. In Ghorbani Birghani (2012), the highest rate of mortality belonged to the age group of 15-44 years [6] which is somehow similar to our findings. This highlights the necessity on the part of authorities for immediate action in identifying and preventing the causes. In our study, accident deaths occurred more during the summer. Chen (2013) showed that accident deaths in Canada followed an obvious seasonal pattern in which men were the main victims. The reason mentioned for the seasonal pattern can be summer vacations and increased travels [2].

In the current study, the leading cause of death after road traffic accidents (52.1%) was violence (18%). In 2012, mortality rate due to violence was 10% at the global scale and 7% in the eastern Mediterranean region [7]. In the same year, violence mortality rates in men and women were 1.6% and 5.2% respectively [8], which are lower than the rates in Iran. When their risk factors are known, the majority of injury and violence causes of death can be prevented. Nonetheless, violence and injury-related risk factors are complicated and multi-factored. Interventions, on the other hand, can both reduce mortality and have economic implications because much of the medical, social, and legal expenses can be saved [7].

Burning mortality in the present study counted to 8.27 per 100,000 persons. In Amiralavi (2013), burning mortality was reported as 8.7. In the developed countries, however, the rate is 2.1 per 100,000. Mortality risk factors vary across countries and depend regionally on lifestyle and socio-cultural factors [9]. In Amiralavi's study, risk factors of burning mortality are indicated by adulthood, illiteracy, unemployment, residence in rural areas, and low socio-economic status along with burning percents. The difference between urban and rural areas resides in access to medical and emergency services that can affect mortality rate [10]. Another probable reason for the higher rate of mortality in rural areas is the greater contact of rural residents with environmental injury factors than the urban residents.

In the current study, mortality arising from falling was 33%, while the rate is 5% in the Mediterranean region and 14% worldwide [7]. In this study, poisoning rate was 22%; this rate was 4% in the Mediterranean region and 14% worldwide [7]. Global poisoning mortality ratesin the year 2010 in men and women (for 14-49 year-olds) were reported as 9% and 1.2% [9]. Generally speaking, falling and poisoning mortality in the current study was less than other regions. The reason can be the fewer number of the elderly population in Iran than other countries because this population is more prone to falling than other age groups. Unintentional poisoning usually occurs as a result of chemicals in houses, medicine, and plants. This can be due to the more limited access to chemicals in Sothern Khorasan province because of the limited number of factories and greenhouses.

Suicide was the least frequent cause of death in the current study (2.5 per 100,000). It is the 13th cause of death across the world [11]. In a systematic review of suicide in Iran, suicide had a frequency 9.4 per 100,000 [12]. The reason for the lower rate of suicide in our study than the mean rate in Iran can be the cultural status of the region in terms of social literacy and religious beliefs.

Conclusions

To prevent road traffic deaths, it is recommended to have measures to improve road safety as well as quality and safety of vehicles, and to establish strict rules for those who disobey traffic rules. In addition, elevated coordination between different centers such as police stations, fire department, and emergency medical services

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can provide improved and faster services to victims.

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