

Original Article

Frequency of unnatural deaths in Fars province during a Five-year period

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Accepted for publication: 24 Nov 2015

Abstract

Background: The study of the mortality patterns in each country helps to improve proper programming to reduce the number of deaths. Our effort was to study the frequency of unnatural deaths from 2006 to 2010.

Methods: In the present cross-sectional research carried out to study the cases of unnatural deaths in Fars province between 2006 and 2010, all documents related to unnatural deaths in Fars Forensic Medicine Registry (FFMR) were investigated. Information about the deceased, including age, gender, education, and type of accident, was extracted and analyzed using IBM SPSS Statistics for Windows, Version 21.0.

Results: The findings indicated that during the five-year period studied a total number of 10079 unnatural deaths occurred. During the study period, unnatural deaths had a decrease. The most recurring cause of death was traffic accidents (38%), with the death caused by substance abuse (19.2%) and burns (9.5%) the second and the third leading causes of death. Of all deaths, 81% of the deceased were male. The highest frequency of deaths occurred in the age group of 20 to 29 years. Also, the highest number of deaths belonged to individuals with primary and middle school education (52%).

Conclusion: The number of unnatural deaths decreased as the time went by. Unnatural deaths were more frequent in males and in young people and happened more in people with lower education. Implementation of correct policies and appropriate programs focusing on these high risk groups could lead to considerable prevention of unnatural deaths.

Keywords: Accidents; Death; Faculty; Iran; Universities

Cite this article as: Khakpour M, Zarenezhad M, Gholamzadeh S, Dehghani M, Abdollahifard G. Frequency of unnatural deaths in Fars province during a Five-year period. SDH. 2015;1(4):151-57. DOI: <http://dx.doi.org/10.22037/sdh.v1i4.16426>

Introduction
Accident is an unexpected and unwanted event which, in most cases, results in physical damage and sometimes death. Today, accidents are among the most important challenges of public health and one of the most serious causes of death in

under 45-year age group (1). Each year 56 million people die all over the world. While cardiovascular diseases are the most prominent global cause of death, traffic accidents are in the ninth place of the causes of death ranked by World Health

Organization (2). Based on a 2014 study in India, burning caused by fire, traffic accidents, electrocution, and poisoning were the most prominent causes of unnatural death, respectively (3). In a study of mortality rate carried out in Iran between 1971 and 2009, accidents with 12.5% prevalence were recognized as the second cause of death among all age groups after coronary heart diseases, with road traffic accidents as the most prominent cause of accidents (4).

Although accidents are among the most prevalent causes of death, they can be prevented. Therefore, the study of mortality patterns in societies with regard to causes and types of accidents can reduce the mortality rate especially among young people.

Considering the importance of the matter, the present investigation was done to study the causes of unnatural death in Fars province in the period between 2006-2010 using recorded documents in Fars Province Legal Medicine Organization.

Methods

A cross-sectional study was carried out using recorded documents in Fars Province

Legal Medicine Organization. Fars province is located in the south of Iran with a population of 4.8 million. Unintentional injuries are ranked as the third most prevalent causes of death in this province (5). The statistical population comprised of all cases of unnatural death in Fars province recorded in the Legal Medicine Organization.

In the present study, all cases of unnatural deaths in Fars Province documented in electronic database or direct reference to the deceased person's dossier between 2006-2010 were selected and investigated. Age, sex, education level, and cause of death were also evaluated.

Data was analyzed using descriptive statistics using SPSS, version 21.0. Armonk, NY: IBM Corp. Categorical data were summarized using frequencies and proportions.

Results

In the present cross-sectional descriptive study, unnatural deaths in Fars Province in the time interval between 2006-2010, as recorded by Fars Province Legal Medicine Organization, were studied. During this period, 10079 cases of death by accident

Table 1. Frequency and percentage of unnatural death in Fars Province between 2006 and 2010, in terms of demographic information

Variable		N (%)
Year	2006	2221 (22)
	2007	2081 (20.6)
	2008	2102 (20.9)
	2009	1894 (18.7)
	2010	1781 (17.8)
Sex	Male	8163 (81)
	Female	1911 (19)
	0-9	363 (3.6)
	10-19	857 (8.5)
Average age	20-29	3003 (29.8)
	30-39	1965 (19.5)
	40-49	1371 (13.6)
	50<	2520 (25)
Education	No literacy	2117 (21)
	Primary school	2419 (24)
	Middle school	2832 (28.1)
	Secondary school	1623 (16.1)
	Associate's Degree	333 (3.3)
	Bachelor's Degree	302 (3)
	Master's Degree	30 (0.3)
	Doctorate Degree	20 (0.2)
	Unknown	403 (4)

were reported to Fars Province Legal Medicine Organization. Table 1 demonstrates participants' demographic characteristics.

The highest number of unnatural deaths in Fars Province was recorded in 2006 with 2221 (22%) and the lowest number of deaths was in 2010 with 1781 (17.8%) cases, which shows a decreasing trend; however, in 2008, there was a slight increase in the number of unnatural deaths (Figure 1).

There was variation in the trend of unnatural deaths caused by different accidents and the number of deaths due to

traffic accidents, substance abuse, and burn had decreased (Figure 2).

Among accidents which lead to death, traffic accidents were the most frequent. In the studied time-period, 3824 deaths by traffic accidents were recorded which make up for 38% of total cases of death. Deaths caused by addiction and substance abuse with 1938 recorded cases (19.2%) and death by burning with 950 recorded cases (9.5%) were ranked second and third in terms of frequency. The least recorded frequency was related to death by drowning with 124 cases which makes up for 1.2% of unnatural deaths (Figure 3).

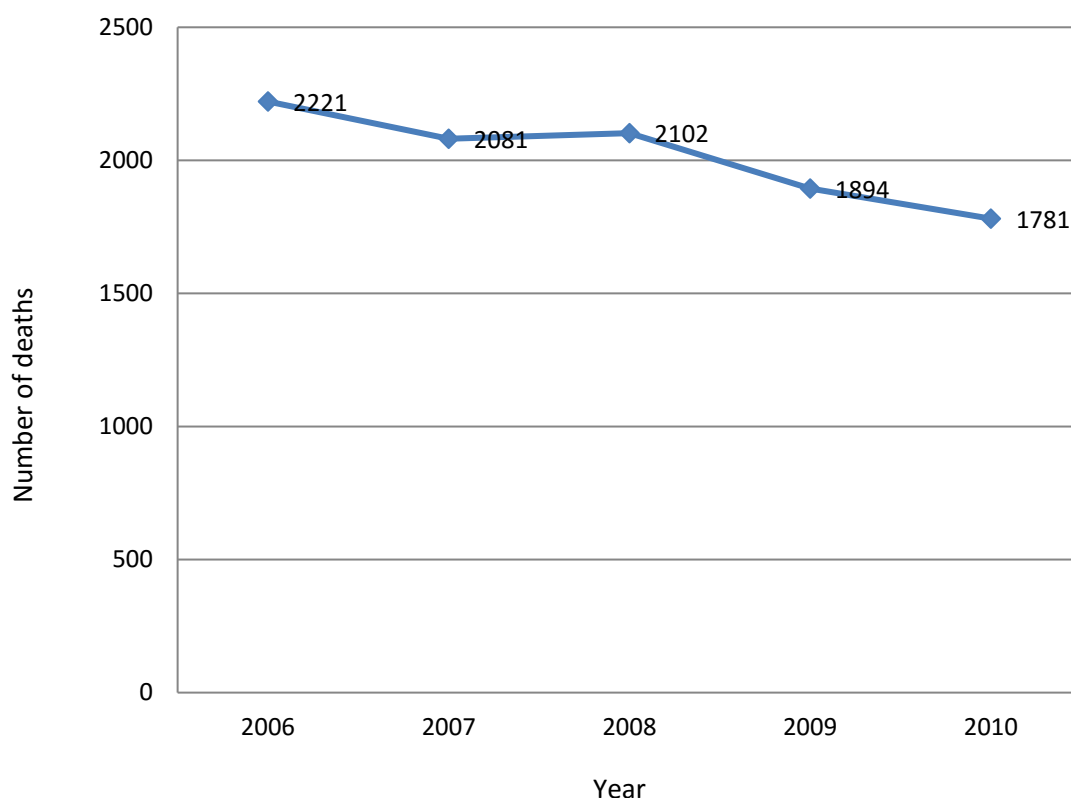


Figure 1. Frequency and trend of unnatural deaths in the Fars province 2006-2010

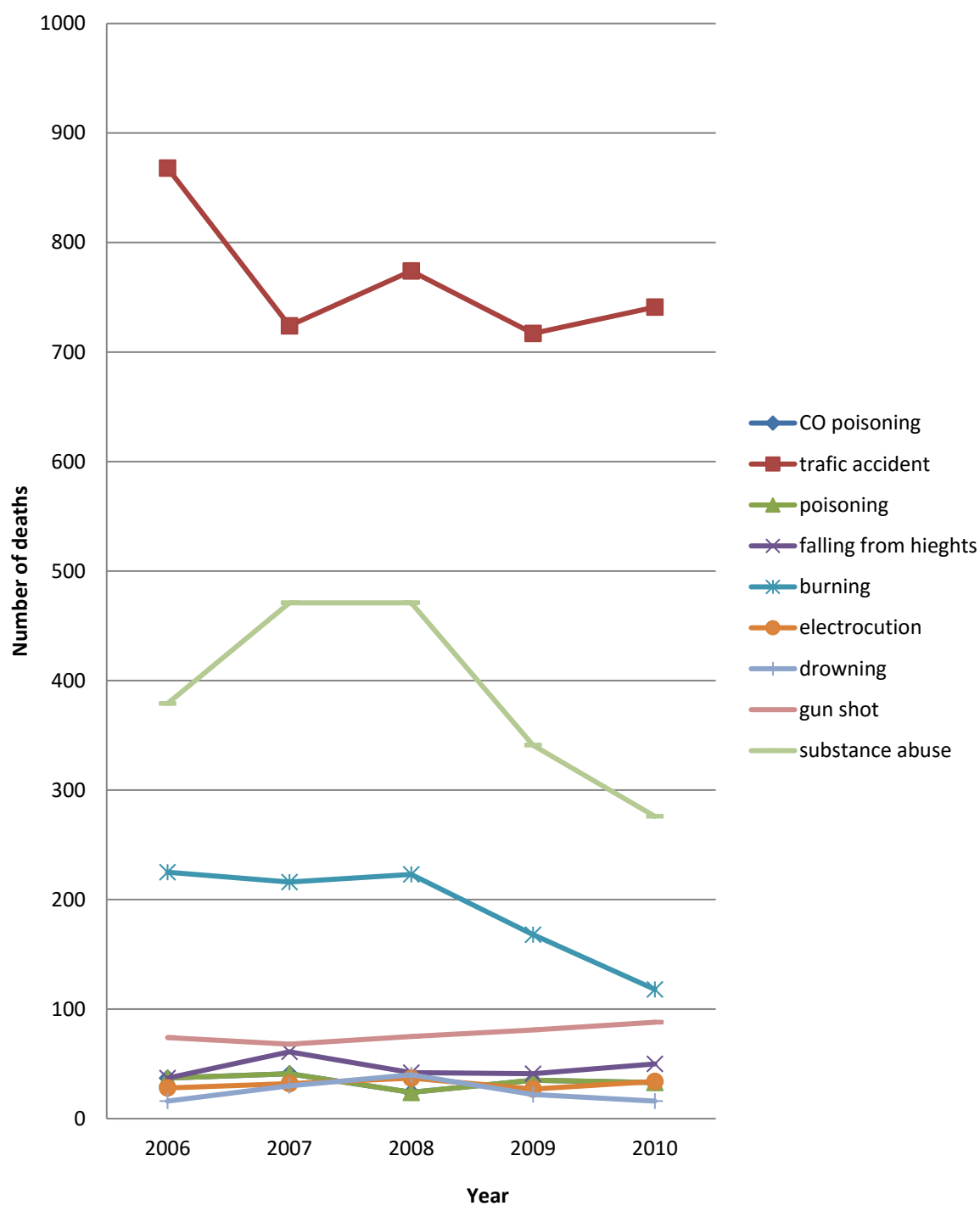


Figure 2. Annual trend of unnatural deaths classified in terms of accident type in Fars province in the time period 2006-2010

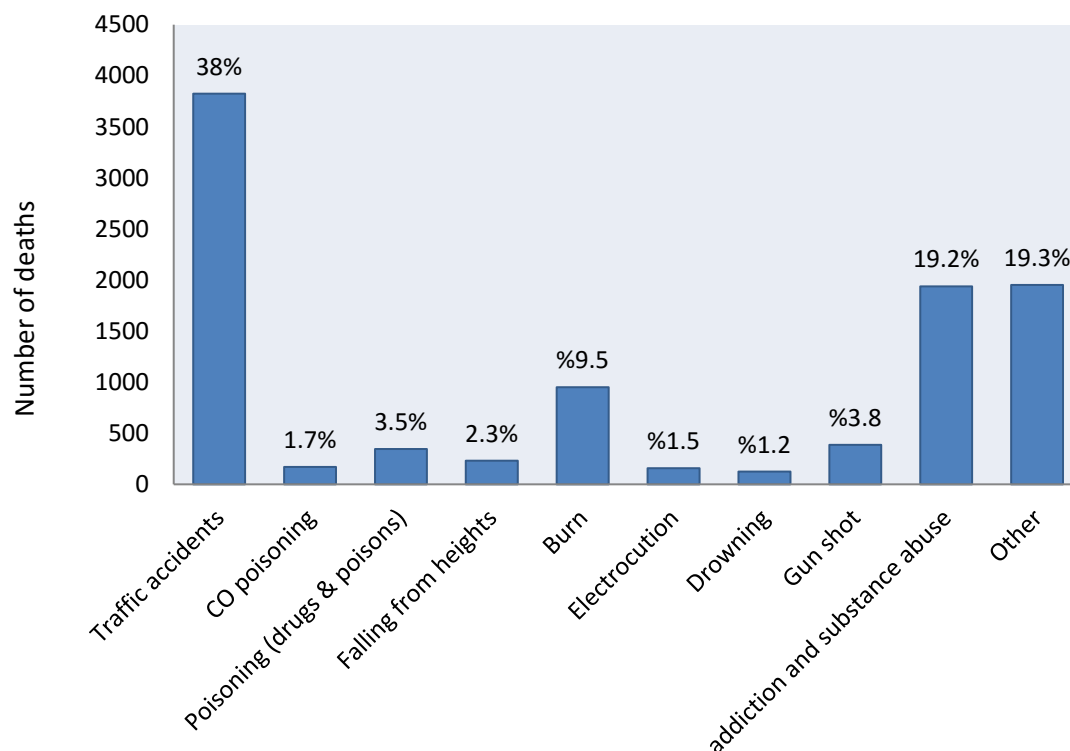


Figure 3. Frequency of unnatural deaths classified in terms of accident type in Fars province in the time period 2006-2010

Discussion

The results of the present study indicated that during the time period studied, the highest number of unnatural deaths occurred due to traffic accidents; they make up for 38% (3824 cases) of all unnatural deaths. In a similar study carried out in Taiwan, similar results were obtained, i.e. traffic accidents were the most prevalent causes of unnatural deaths (6). In a study of trauma patients admitted to emergency clinics in a one-year period, the most cases of trauma were found to be caused by falling from heights and traffic accidents, respectively (7).

In the present study, 81% of the deceased were male. In a similar study by Islam, 73% of the deceased were reported to be male (8). Also, in a study by Heron et al in U.S., conducted on the main causes of death, the male-to-female ratio in unnatural deaths was reported to be 6.2 to 3.6 (9). The results obtained in these studies shed light on the fact that men are more exposed to the threat of such accidents, and, hence, they are the

more vulnerable part of the population. Byun et al. relate this conclusion to the fact that men are more active than women in terms of social activities; therefore, they are more exposed to accidents happening at work place or on the road (10).

The results of the study also indicated that with 3003 cases (29.8%), the age group 20-29 had the highest frequency of unnatural deaths. After that, the highest number of deaths was related to people over 50 with 2520 cases (25%). In the study by Shrestha R et al. on epidemiologic analysis of trauma cases admitted to emergency clinics, most cases were in the age group 15 to 49 (7). In the study by Yazdani Charati et al., people over 65 had the highest number of deaths caused by traffic accidents (2). In addition, in the study by Izadi N et al., age group over 80 was reported to have the highest frequency of victims of death by traffic accident (11). In another study by Byun et al., the average age of trauma patients was reported to be 35.2 (10), which is close to the results obtained in the present study.

Considering the fact that people in the age group 20 to 30 make up the largest group of Fars Province population and risky behaviors are more common among these individuals, the frequency of deaths in this particular age group is to some extent explicable. On the other hand, old age and beginning of many physical problems and diseases in people over 60 make them more vulnerable to accidents; hence, senior citizens are among vulnerable groups in road traffic accidents (12).

Moreover, individuals with middle school education were found to have the highest number of unnatural deaths. In a study on the epidemiology of traffic accidents, the highest rate of accidents belonged to individuals with elementary or secondary school level of education (13). Likewise, in a study of deaths caused by traffic accidents in Fars province, 45% of the deceased had middle school or high school education (14) and in a study carried out by Hejazi et al., the highest number of deaths caused by addiction and drug abuse occurred among illiterate people or individuals with middle school education (15).

Analysis of the number of unnatural deaths in terms of education revealed that individuals with middle school education had the highest rate of unnatural deaths; in fact, with the rise of the persons' educational level, the number of unnatural deaths decreased. This fact can point out the presence of a significant correlation between the level of education and rate of unnatural deaths.

Lack of awareness among individuals with low level of education alongside their tendency to work in hazardous and risky occupations could have made these individuals exposed to threats and danger.

As the present study suggests, traffic accidents as the major causes of death among different age groups must be addressed as a basic public health problem and necessary interventions should be made for prevention of road traffic accidents.

Conflict of interest

Authors declare no conflict of interests.

Acknowledgements

We would like to thank the staff at Fars Province Legal Medicine Organization for their participation. The present article was extracted from the thesis by Maryam Khakpour and was financially supported by Shiraz University of Medical Sciences, grant no. 90-2972.

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