

Association of mortality rate caused by traffic accidents in Abadan during 2012-2013

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ABSTRACT

Fatal traffic accident is one factor which causes mankind death in Iran. Disability and deaths are the most important results of traffic accidents in the world. Based on reports, traffic accident is the second cause of death in Iran. The purpose of this study was to evaluate the mortality rate which was caused by traffic accidents in Abadan, Iran, during 2012-2013. Data are collected from a divided checklist which is related to fatal traffic accidents referred to Legal Medicine Center of Khuzestan province. Data were analyzed by SPSS Ver.16. According to the results of the study, in Abadan city 134 mortalities occurred which were caused by traffic accidents during 2012-2013. According to this study, the number of fatal traffic accidents in Abadan was more than recommended scales by international organizations. Based on the result of our study, the mortality rate of people according to gender (per 100000) with traffic accidents in Abadan were as following in which 28.77 men and 9.56 women. Results showed that the head and face are the most injured organ. In the current study, the most common final causes of death were head trauma (80.03% cases) and bleeding (14.38% cases). The results also showed that Abadan has one of the largest number of fatal traffic accidents in Khuzestan province of Iran. The results of this cross-sectional study showed that the most users of road were drivers, passengers and pedestrians. We found that the traffic accidents could be surprisingly common in apparently high-risk populations.

Keywords: Abadan, accidents, mortality, traffic.

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Introduction

One of the most problems of public health in

developed countries that can lead numerous rates of mortality and morbidity is road traffic (1-3). Nowadays, major factors such as air pollution,

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noise pollution, infection disease and traffic accidents are going to threaten human health (1, 4-9). Transportation accidents including cars, motorcycles and bicycles are the most devices that use for transportation of people and can be cause traffic accidents. In Iran, a major public health problem is traffic injuries because they have irritable damages and costly for people and government (10, 11). Based on different study and World Health Organization (WHO) report, one of the eight causes of deaths in all over the world (especially Iran; second death agent) is traffic accident. Also, the largest number of death which is caused by traffic injuries is related to the age of 15-29 (4). In recent years, fast growing of vehicles population in megacities and towns has resulted in a considerable increase of traffic accidents on roads and ring the alarm of fatal accidents (6, 12, 13).

According to WHO report, more than 60 million persons are injured because of traffic accidents every year (10, 14, 15). Based on the report of ministry of health, the second cause of death after cardiovascular diseases that threaten our country's health is traffic injuries (16). Different study showed that road traffic accidents fatality rate in eastern of Mediterranean region, Europe and around the world are 32.2, 13.4 and 18.8 per 100000 people, respectively (17, 18). Based on WHO report, the rate of road traffic accidents in Iran is very higher than the world (17, 18). Also, according to the result of this report, 25,224 cases of traffic accidents demonstrate in Iran during 2010 (17, 18).

The results of a study of road traffic modeling in 2003 in Brazil indicated that road traffic can be harmful effects on public health (19). Based on the result of Gomez et al. road traffic was one of the important factor of society health level reduction (20).

Increasing public awareness, prevention, controlling interventions, effective monitoring and doing efforts to reduce risk factors are the best ways for incidence of traffic accidents. The aim of this study was to evaluate the epidemiologic

pattern of the mortality rate which was caused by traffic accidents in Abadan during 2012-2013.

Materials and Methods

This cross-sectional study was performed to investigate the fatal traffic accidents in Abadan during 2012-2013. In this retrospective study, data collection forms of traffic accidents mortality provided by the Legal Medicine Organization (LMO) at southwest of Iran were used. The instrument was a record LMO form included demographic data (characteristics such as age and sex) and questions which were related to the traffic accidents including education, type of organs injuries, the accident location (urban or suburban), time of accident, cause of death and the occurrence of the accident. Abadan city with 300,000 populations approximately, is one of the metropolitans in Khuzestan province. Location of Abadan in the southwest of Iran is shown in Figure 1.

Statistical analysis

Data, which received from the Legal Medicine Organization, were analyzed by statistical software. In this study, descriptive statistics, the frequency and frequency percentage and chi-square test were used for analytical statistics. The p-value was considered significant at 0.05 level. SPSS version 16 was used for data management and analyses.

Results

This study was conducted on more than 134 cases of death who recorded by the LMO in Khuzestan province of Iran during 2012-2013.

Based on the results, the mortality rate, according to gender (per 100000), of fatal accidents was 28.77 men and 9.56 women (Table 1). According to the result of Table 1, the mean age of the deceased was 32.76 ± 19.83 . Also, based on the result of this study, the maximum and minimum of age were less than 87 and 1, respectively in Abadan during 2012-2013. According to the results of this study, 78.05% of

them had the BMI of 20-25 ($n=128$) and 18.3% had the BMI which were more than 55 (Table 1). According to the age groups, the highest rate of accidents had occurred at the ages of 20-34 (13.25%) and 35-49 (10.08%). The overall mortality rate (per 100 thousand people) of fatal accidents, based on age groups, is presented in

Table 1. Based on the result which is shown in Table 1, 68.12% and 31.23% of deceased persons were lived in urban and rural areas. According to the result of this study, 58.62% and 28.62% of accidents had happened during days and nights, respectively (Table 1).



Fig. 1. Location of the study area in the Khuzestan Province (Abadan city), in the South-West of Iran

Table 1. Characteristics and the incidence of fatal accidents in Abadan during 2012-2013

| | Characteristics | The overall mortality rate (per 100 thousand people) |
|---------------|-----------------|--|
| Age group | 0-19 | 13.18 |
| | 20-34 | 23.75 |
| | 35-49 | 27.01 |
| | 50-64 | 32.53 |
| | More than 65 | 55.25 |
| Gender | Female | 9.56 |
| | Male | 28.77 |
| Region living | Urban | 68.12 |
| | Rural | 31.23 |
| Time accident | day | 58.62 |
| | night | 28.62 |

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Table 2. Frequency distribution of registered injured organ(s) in Abadan city during 2012

| Injured organ | Frequency | Percentage |
|----------------------------------|-----------|------------|
| Head and Face | 180 | 75.65 |
| Chest and Abdomen | 90 | 38.65 |
| Hand and Arms | 85 | 35.82 |
| Feet | 82 | 32.37 |
| Neck | 28 | 20.56 |
| Posterior trunk (back and spine) | 18 | 13.26 |
| Pelvis | 16 | 9.6 |

Table 2 shows that as far as physical injuries are concerned, the injuries to heads and faces (75.65%), chests and abdomens (38.65%), hands and arms (35.82%), feet (32.37%), neck (20.56%), posterior trunk (13.26%) and pelvis (9.6%) are concerned too. The frequency distribution of registered injured organ(s) can be seen separately in Table 2.

Discussion

According to findings, mortality rate caused by traffic accidents in Abadan during 2012-2013 is higher than WHO standard level. Based on the result of our study, the incidence of mortality from car accidents in Abadan city was 19.16 per 100,000.

Based on the results of this study, the mortality rate was lower than the study of Hashemi during 2005-2009 in Khuzestan province (21). According to the result of this study, the age of 20 to 34 were the most incidents of death that had occurred mortality traffic accidents. According to the present study, 80 of participants (59.71%) were males and 54 (40.29%) of them were women. The reason could be the more presence of men outside of the home to commute to work and do social activities.

The cross sectional different study showed the numerous cases of death which were in males and is similar to our results in Tehran, Kordestan, Isfahan, Shanghai in China, Singapore and Greece (22-27). Nazari et al. (2012) in their study evaluated the relationship between the mortality and injury severity in the accident (28). They reported that the mortality and injury severity in the accident victims, referred to the Hefdah Shahrivar Hospital, between males are higher than

females (28). Based on WHO report in 2010, 79% and 21% of deaths which were caused by traffic accidents in Iran happened to men and women (29). According to the results of Hatamabadi et al. (2012), the number of dead men was higher than women (30).

Results of different study showed that in recent years, the mortality rate had 13% increase in compare to past decade in the world (30). Based on the result of the chi-square test, a significant relationship was observed between the death place and the location of the accident (urban-suburban) ($P=0.000$), statistically. The results show that there was a significant relationship between the condition of the deceased persons and the injured organ(s) (head and face, chest and abdomen and hand and arms) ($P=0.026$). But there wasn't a significant relationship with neck trauma ($P=0.052$), posterior trunk ($P=0.0603$) and pelvis ($P=0.0582$).

According to the result of this study, the maximum number of the accidents had happened during the days. Also, in several studies, which were considered the traffic at different times of a day, the highest mortality rates of suburban roads were at 6, 20, 5, 19 and 4 o'clock (day) while, the lowest rates were at 3, 24, 21, 23 and 2 o'clock (night); this was similar to the results of our study (10, 31-34). The reason for this could be due to the amount of light and crowded streets of these hours.

The results showed that the most commonly injured parts of the body were heads and faces. Also, the results showed that head trauma was the main cause of mortality rate which is caused by traffic accidents in Abadan during 2012-2013,

and it was similar to other studies (10, 26, 28, 31, 35). According to WHO report, heads and faces are the most important organs of the body that people are affected by these injuries (36). The major limitations of this study were the lack of access to suburban roads to calculate the incidence rate and make proper comparisons. Also, the absence of accurate recording of the accident and details of them was another limitation faced by the researchers.

Conclusion

Traffic accident is one of the most agents in metropolitans that threat public health. In this study, detailed analyzed data were carried out to find the epidemiology of mortality rate which is caused by traffic accidents in Abadan (located in the south-west of Iran), during 2012-2013. Based on findings, it seems that the outcome of people managed with a combination of educating, the correct driving culture, increase public health, the monitoring increase, careful planning to prevent road accidents, traffic rules and the use of safety devices could be helpful for reduction and also prevention of traffic accidents.

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Conflict of Interests

Authors have no conflict of interests.

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