SOME CHRONOBIOLOGICAL CHARACTERISTICS OF THE INCIDENTS WITH FATAL END IN PLOVDIV DISTRICT OF R. BULGARIA DURING THE PERIOD 2008 – 2017

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Abstract

Chronobiological factors have a noticeable influence on human behavior. The purpose of this Communication is to examine the impact of the seasons and months of the year, days of the week, dates and parts of the day on fatal incidents.

Material and method: 815 cases of fatal accidents occurred in the region. Plovdiv during the period 2008 - 2017. The autopsies were performed in the Department of Forensic Medicine of the University Hospital "St. Georgi ”EAD, Plovdiv. The data from the forensic medical examinations were used to determine some of the social characteristics. The obtained results are statistically processed and presented graphically.

Results: It was found that most fatal accidents occur during the winter season (27.36% ± 1.09%), in January (12.02 ± 1.09%), November and December, by 9 , 20% ± 0.97%). The risk days during the week are Saturday (17.55% ± 1.28%) and Sunday (15.46% ± 1.21%) in the afternoon and evening from 14 to 22 hours. The probability of an accident is increased during the first ten days of the month.

Keywords: *fatal accidents, chronobiology, seasons, month, days.*

Man is an integral part of the biosphere and is dependent on the changes taking place in it. The seasons, months, days of the week, even hours affect the functions and processes in living organisms (2, 3, 5). These chronobiological factors also influence the processes taking place in the human body, influencing human behavior. There are data on their impact on mental illness, suicide rates, serious accidents and more (4, 6, 7, 8, 9). Their impact on fatal accidents has been poorly studied.

The purpose of this Communication is to examine the impact of the seasons and months of the year, days of the week, dates and parts of the day on fatal incidents.

Material and method

The cases of fatal incidents that occurred in the region were studied. Plovdiv during the period 2008 - 2017. The autopsies were performed in the Department of Forensic Medicine of the University Hospital "St. Georgi ”EAD, Plovdiv. The data from the forensic medical examinations were used to determine some of the social characteristics. The obtained results are statistically processed and presented graphically (1).

Results

During the period 2008 - 2017 in Plovdiv district were registered 815 fatal incidents. Their distribution during the four annual seasons indicates winter and summer as seasons with an increased risk of fatal accidents (see Fig. 1).

The victims of the incidents were 651 men and 164 women. The distribution of the two sexes over the seasons shows some difference. The highest share of male victims is highest in winter and summer, and of women - in spring and autumn (see Fig. 2).

The number of incidents in different months of the year is different. The highest number of accidents was registered in January, August, November and December, and the lowest in May and June (see Fig. 3).

The dynamics of fatal accidents occurring with men and women are also different. For both sexes, the highest peak, which marks the maximum number of accidents, is in January. At the second peak there are differences - for men it is in December, and for women in April. Coincidence for both sexes also occurs at the third peak, which is in August (see Fig. 4).

The comparison of the data shows that while the dynamics of fatal accidents in men increases at the end of the year, it decreases in women.

The number of fatal accidents is different during the days of the week. The least dangerous are the days in the middle of the week - Wednesday and Thursday, while on the days of the weekend - Friday, Saturday and Sunday the risk of an accident is increased (see Fig. 5).

To determine which days of the month are the most incidents, we divided them into three ten-day periods. It was found that most fatal accidents occurred at the beginning of the month in the first ten days, and the least - in the last, but the differences between them are small (see Fig. 6).

Discussion

The established data on the increased number of fatal accidents in winter and summer are related to people's lifestyle. In winter, the likelihood of accidents such as frostbite, burns and carbon monoxide poisoning associated with fires increases. They are mostly tied up by homeless people or brave people who have taken risky measures in the winter. During the summer, the number of accidents caused by falls and drowning increases. During these seasons, the activity is especially high, especially for men, which is why the incidents with them are higher.

The dynamics of gender during the months of the year confirmed the judgments established for the seasons. The probability of fatal accidents does not differ significantly between the sexes. The end of the week is associated with increased activity outside the home and therefore the incidents during these days are more. In the middle of the week, life returns to normal and accidents decrease.

Differences in the number of incidents during the ten days of the month are negligible and probably depend on the number of weekends involved.

Conclusions

1. The number of fatal accidents is highest in winter.
2. The months of January, August and December pose an increased risk of fatal accidents for men.
3. The months of January, April, August and November are risky for women.
4. Saturdays and Sundays are risky for both sexes.

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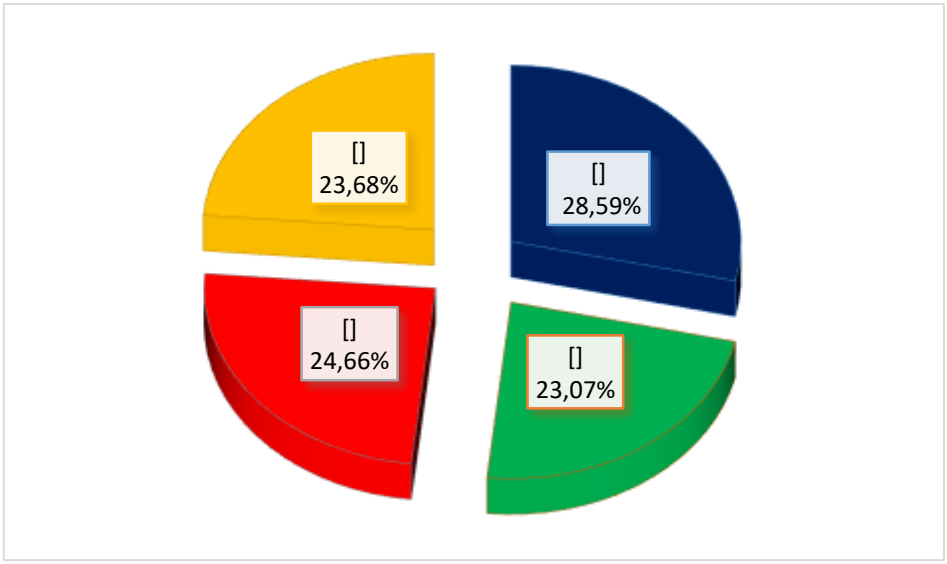
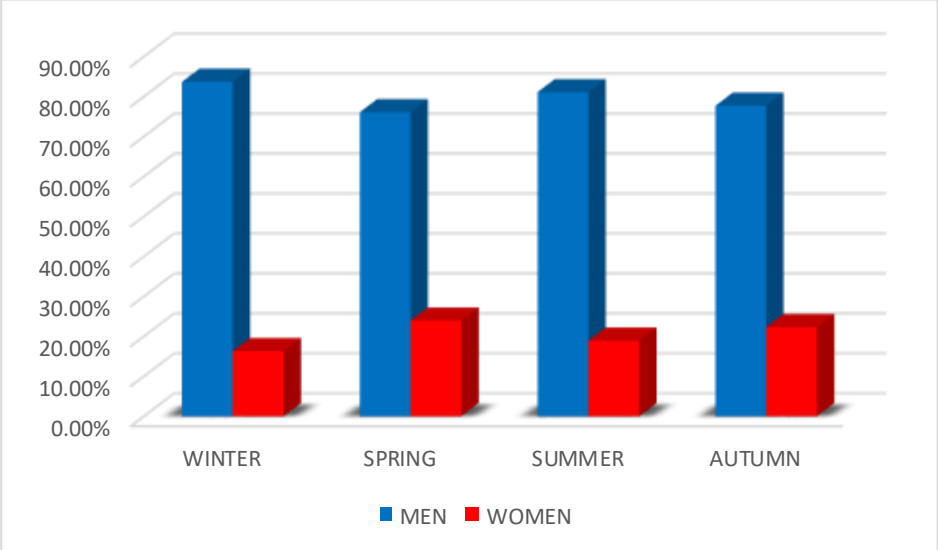
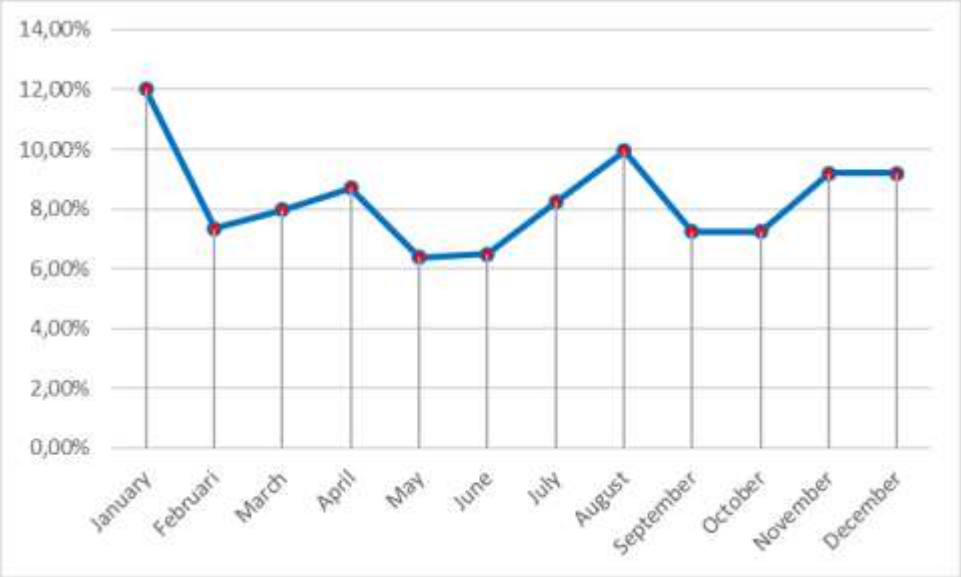
SEASONALITY OF FATAL INCIDENTS
FIG. 1



DISTRIBUTION OF VICTIMS BY SEX AND SEASON
FIG. 2

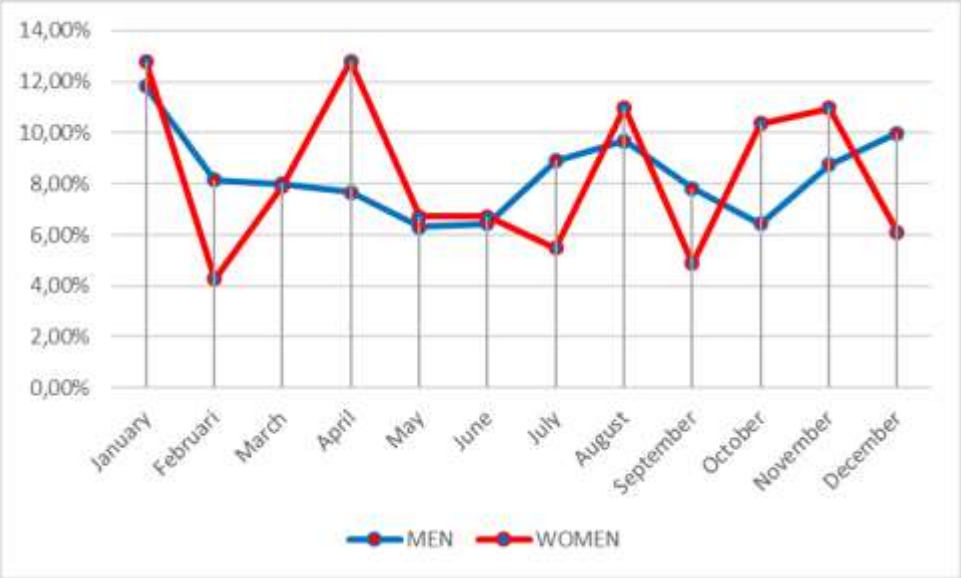


DISTRIBUTION OF INCIDENTS BY MONTHS
FIG. 3



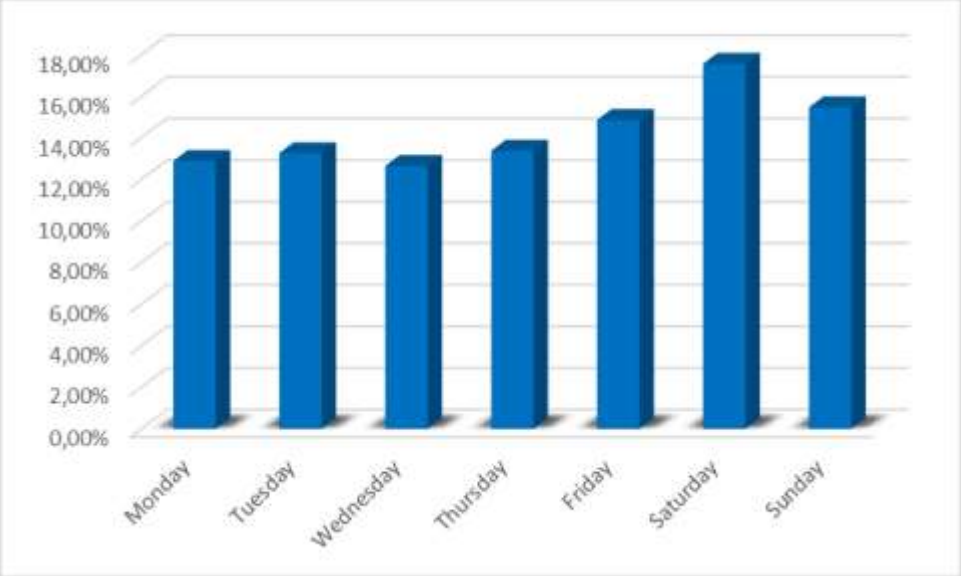
DYNAMICS OF VICTIMS BY SEX AND MONTHS

FIG. 4



RELATIONSHIP BETWEEN FATAL INCIDENTS AND WEEKS

FIG. 5



DEPENDENCE BETWEEN QUANTITY ON THE INCIDENTS AND THE DAYS OF THE MONTH

FIG. 6