# VIOLENT DEATH IN THE PLOVDIV REGION OF THE REPUBLIC OF BULGARIA DURING THE PERIOD 2008 - 2017

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Key words: violent death, murder, suicide, accidents.

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Abstract. Violence and aggression always accompany people's lives. They are an integral part of our everyday life, as the potential of violence is part of human nature. The drastic, unreasonable aggression we face on a daily basis often leads to crimes with irreversible consequences. The efforts of a large number of organizations are aimed at limiting them. The objective of the present work is to study the victims of the various violent deaths in the region of Plovdiv during the period 2008 - 2017.

Material and method. The main method used in the study is historical. Papers for 4,162 autopsies carried out in the Department of Forensic Medicine at the SvetiGeorgi EAD University Multiprofile Hospital for Active Treatment during the period 2008 - 2017 were studied. The obtained results were processed by the methods of parametric analyzes.

**Results and conclusions.** It was found that annually 0.04% of the area's population dies of violent death. There is three times the risk of violent death among men rather than women. Victims are mostly people of working age. The risk of violent death for the residents of Ploydiv District is greatest during the summer and in winter.

#### Ключевые слова:

насильственная смерть, убийство, самоубийство, несчастные случаи.

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# НАСИЛЬСТВЕННАЯ СМЕРТЬ В ПЛОВДИВСКОЙ ОБЛАСТИ РЕСПУБЛИКИ БОЛГАРИЯ В ПЕРИОД С 2008 ПО 2017 ГОД

М. Балтов, И. Биволарский, К. Сапунарова

**Резюме.** Насилие и агрессия всегда сопровождают жизнь людей. Они являются неотъемлемой частью нашей повседневной жизни, поскольку потенциал насилия является частью человеческой природы. Резкая, необоснованная агрессия, с которой мы сталкиваемся ежедневно, часто приводят к преступлениям с необратимыми последствиями. Большое количество организаций направляют свои усилия на их ограничения.

**Цель работы** - изучение случаев насильственных смертей в регионе Пловдив в период 2008 - 2017 гг.

**Материал и метод.** Были изучены документы на 4 162 вскрытия, проведенных в отделении судебной медицины многопрофильной больницы активного лечения SvetiGeorgi University EAD в период 2008 - 2017 гг. Полученные результаты были обработаны методами параметрического анализа.

**Результаты и выводы.** Было установлено, что ежегодно 0,04% населения этой территории умирает от насильственной смерти. Риск насильственной смерти среди мужчин в три раза выше, чем среди женщин. Жертвы - это в основном люди трудоспособного возраста. Риск насильственной смерти для жителей района Пловдив высокий летом.

### Ключові слова:

насильницька смерть, вбивство, самогубство, нещасні випадки.

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# НАСИЛЬНИЦЬКА СМЕРТЬ У ПЛОВДІВСЬКІЙ ОБЛАСТІ РЕСПУБЛІКИ БОЛГАРІЯ В ПЕРІОД З 2008 ПО 2017 РІК

М. Балтов, І. Біволярський, К. Сапунарова

**Резюме.** Насильство і агресія завжди супроводжують життя людей. Вони є невід'ємною частиною нашого повсякденного життя, оскільки потенціал насильства є частиною людської природи. Різка, необгрунтована агресія, з якою ми стикаємося щодня, часто призводить до злочинів із незворотними наслідками. Велика кількості організацій спрямовує свої зусилля на їх обмеження.

**Мета роботи** - вивчення випадків насильницької смерті в Пловдівській області Республіки Болгарія в період з 2008 по 2017 рік.

**Матеріал і метод.** Була вивчена документація 4 162 розтинів жертв, проведених у відділенні судової медицини багатопрофільної лікарні активного лікування SvetiGeorgi University EAD в період 2008 - 2017 рр. Отримані результати були оброблені методами параметричного аналізу.

**Результати і висновки.** Встановлено, що щорічно 0,04% населення цієї території

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вмирає від насильницької смерті. Ризик насильницької смерті серед чоловіків втричі вищий, ніж серед жінок. Жертви - це переважно люди працездатного віку. Ризик насильницької смерті для мешканців району Пловдив найвищий влітку.

#### Introduction

Violence and aggression always accompany people's lives. They are an integral part of our everyday life, as the potential of violence is part of human nature. The drastic, unreasonable aggression we face on a daily basis often leads to crimes with irreversible consequences. Murders, suicides, road accidents and other unfortunate events annually take many lives and cause pain and suffering to the loved ones of the victims. Worldwide, the number of these victims is increasing, according to data from some world organizations [1 - 7]. Violent death is subject of extensive research in many countries, but in each country the conditions and nature of the crimes are different [1, 3, 5].

The objective of the present work is to study the victims of the various violent deaths in the region of Plovdiv during the period 2008 - 2017.

#### Material and method

The main method used in the study is historical. Papers for 4,162 autopsies carried out in the Department of Forensic Medicine at the SvetiGeorgi EAD University

Multiprofile Hospital for Active Treatment during the period 2008 - 2017 were studied. The obtained results were processed by the methods of parametric analyzes [2].

#### Results and discussion

During the analysis of the papers, it was found that  $2,555 (61.39\% \pm 0.75\%)$  were victims of violent death. This means that every year 255 people or 0.04% of the area's population fall victims of various types of violent death. Victims of murder are 113, 842 are suicides, and 1,600 have died in an accident (road accidents, falls from high, labor accidents, freezing, alcohol poisoning, etc.). The relative share of the victims of various types of violent death (Figure 1) shows that the share of victims of accidents is the highestand the share of murdered people is the smallest. This has prompted us to separate the victims of road accidents from the victims of casual accidents. Alarming is the fact that the share of suicides is the highest and exceeds that of people killed in road accidents and othercasula accidents.

The dynamics of violent death over the years is tracked (Figure 2).



Figure 1. Distribution of victims according to the type of violent death

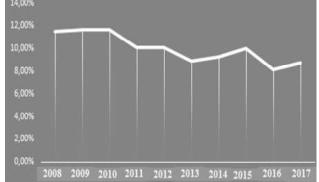


Figure 2. Dynamics of violent death

The dynamics of violent death show a pronounced downward trend. Highest values were recorded during the first three years of the survey period, and the lowest in the last two years.

Victims of violent death are predominantly male - 1,951  $(76.36\% \pm 0.96\%)$  and women are 604  $(23.64\% \pm 0.84\%)$ . Men dominate in the various types of violent death, but the number of women is the highest in murders and the lowest in accidents (Figure 3).

The risk of men losing their life because of murder is nearly twice than that of women. The ratio between men and women who have died because of suicide and accidents is about 3:1.

The age at which people most often fall victim to accidents is also studied. The dead people were arranged in four age groups according to their participation in the labor process: children and adolescents up to 18 years of age; young creative age from 19 to 44 years of age; mature

creative age from 45 to 64 of age and retirement age over 65 (Figure 4).

Children and adolescents most often fall victim to road accidents and other casual accidents, and, most rarely, to suicide. In murders, the highest is the share of retired victims (32.74%  $\pm$  1.37%). In suicides, the highest is the share of people in mature creative age (35.99%  $\pm$  1.65%). Young people most often die in road accidents and other casual accidents (36.38%  $\pm$  1.20%).

The study of the relationship between the annual season and the quantity of violent death showed an approximately uniform distribution (Figure 5).

We established that most murders occurred in the summer (15.93%  $\pm$  3.41%) and winter (35.40%  $\pm$  4.56%), and the smallest number in autumn. The cases of suicides are the smallest in autumn (21.14%  $\pm$  1.40%), and the accidents - in the spring (22.63%  $\pm$  1.05%).

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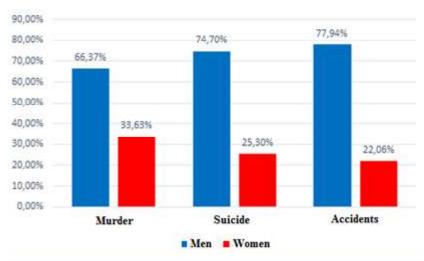


Figure 3. Distribution of the victims of different types of violent death by gender

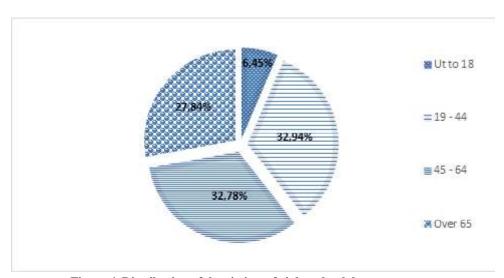


Figure 4. Distribution of the victims of violent death by age groups

#### **Conclusions**

The results of the 10-year study of violent deaths in the Plovdiv region of the Republic of Bulgaria allowed us to draw the following conclusions:

- 1. Every year, 255 people or 0.04% of the population of Plovdiv region are killed by violent death.
- 2. The dynamics of violent death in the years 2008 2017 show a pronounced downward trend.
- 3. For men, as well as people in working age, the risk of losing their lives by violent death is increased.
- 4. The risk of violent death for the residents of Plovdiv District is the highest in the summer and in the winter.

#### List of literature

- 1. Балтов М, Козицька НВ, Гавазда РВ. Порівняльний аналіз та соціально-економічні проблеми самогубств в Пловдівській області (Болгарія) і в Хмельницькій області (Україна). Судовомедична експертиза. 2017;2:62-6.
- 2. Димитров И. Основи на научните проучвания в медицината: методика и методология. Пловдив: ИК "ВАП"; 2007. 164 с.
- 3. Йорданова И. Анализ на критичните инциденти със заявено суицидно намерение. Годишник на Института по психология. 2011. 89 с.
- 4. Advenier AS, Guillard N, Alvarez JC, Martille L, Lorin de la Grandmaison G. Undetermined manner of death: an autopsy series. J Forensic Sci. 2016;61(Suppl 1):S154-8. doi: 10.1111/1556-4029. 12924

ISSN 1727-4338 https://www.bsmu.edu.ua

- 5.Batton C. Gender differences in lethal violence: Historical trends in the relationship between homicide and suicide rates, 1960-2000. Justice Quarterly. 2004;21(3):423-61. doi: 10.1080/07418820400095861
- 6.Erdogan S, Yalcin M, Yilmaz M, Korkmaz A. Temporal statistic of traffic accidents in Turkey. ISPRS Annals of Photogrammetry, Remote Sensing & Spatial Information Sciences [Internet]. 2015[cited 2019 Apr 11];2:117-21. Available from: https://www.isprs-ann-photogramm-remote-sens-spatial-inf-sci.net/II-2-W2/117/2015/isprsannals-II-2-W2-117-2015.pdf
- 7.Terranova C, Suenghi R, Thiene G, Ferrara S. Psychic trauma as cause of death. Med Sci Law. 2011;51(Suppl 1):S11-5. doi: 10.1258/msl.2010.100061

#### References

- 1.Baltov M, Kozyts'ka NV, Havazda RV. Porivnial'nyi analiz ta sotsial'no-ekonomichni problemy samohubstv v Plovdivs'kii oblasti (Bolhariia) i v Khmel'nyts'kii oblasti (Ukraina) [Comparative analysis and socio-economic suicide problems in the Plovdiv region (Bulgaria) and Khmelnytsky region (Ukraine)]. Sudovo-medychna ekspertyza. 2017;2:62-6. (in Ukrainian).
- 2.Dimitrov I. Osnovi na nauchnite prouchvaniya v meditsinata: metodika i metodologiya [Basics of Scientific Research in Medicine: Methodology and Methodology]. Plovdiv: IK "VAP"; 2007. 164 p. (in Bulgarian).
- 3. Jordanova I. Analiz na kritichnite intsidenti sis zajaveno suitsidno namerenie [Analysis of critical incidents with declared suicidal intent]. Godishnik na Instituta po psikhologiya. 2011. 89 p. (in Bulgarian).
  - 4. Advenier AS, Guillard N, Alvarez JC, Martille L, Lorin de la

Клінічна та експериментальна патологія. 2019. Т.18, №2 (68)

Grandmaison G. Undetermined manner of death: an autopsy series. J Forensic Sci. 2016;61(Suppl 1):S154-8. doi: 10.1111/1556-4029. 12924

5.Batton C. Gender differences in lethal violence: Historical trends in the relationship between homicide and suicide rates, 1960-2000. Justice Quarterly. 2004;21(3):423-61. doi: 10.1080/07418820400095861

6.Erdogan S, Yalcin M, Yilmaz M, Korkmaz A. Temporal

statistic of traffic accidents in Turkey. ISPRS Annals of Photogrammetry, Remote Sensing & Spatial Information Sciences [Internet]. 2015[cited 2019 Apr 11];2:117-21. Available from: https://www.isprs-ann-photogramm-remote-sens-spatial-inf-sci.net/II-2-W2/117/2015/isprsannals-II-2-W2-117-2015.pdf

7.Terranova C, Suenghi R, Thiene G, Ferrara S. Psychic trauma as cause of death. Med Sci Law. 2011;51(Suppl 1):S11-5. doi: 10. 1258/msl.2010.100061

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