VILNIUS UNIVERSITY

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CHMIELIAUSKAS

Evaluating Homicide in Lithuania in Terms of Forensic, Ethical, Social, and Legal Aspects

SUMMARY OF DOCTORAL DISSERTATION

Medical and Health Sciences,
Medicine M 001

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Žmogžudysčių Lietuvoje vertinimas teismo medicininiu, etiniu, socialiniu ir teisiniu požiūriu

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SUMMARY

1. INTRODUCTION

1.1 Relevance of the Work

Homicide, not only in the context of the criminal offences, but also according to its nature and caused consequences, is the most serious and dangerous crime, which not only violates the subject and other individual rights, but generally negates the possibility to use any other rights and freedoms in the future.

There are not many long-term studies on homicide. The legal definitions of homicide differing across countries and the differences of the data sources hinder any possibility to study and compare homicides as a phenomenon internationally. There is no common homicide definition in the European Union, because each country uses different homicide definitions and applies various selection criteria. That is why uneven violent occurrences are included. Furthermore, separate homicide data sources contain different homicide information. Some sources make a detailed accident characterization, while others evaluate the patients if the attention is paid only to the guilty individuals and (or) to the appointed court judgement.

Another homicide evaluation factor is that homicides in Europe are evaluated based on different economic, geographic, social, or even political aspects. Ethnical dependency, political and economic differences are observed. After the founding of the European Union, countries, both from the political and economical perspective, became more equal; as a result, the possibility that joint researches will be executed at the European level rose.

In this project, the performed review tried to achieve a homicide comparison in different European countries.

The definition of homicide used in practice is not so simple – due to the evaluation of the act of killing, the criminal offence, and the

responsibility. Also, the evaluation of the motive is different in various countries. Objectively, homicides may be associated with an active and intentional activity or carelessness, but they may also be determined due to inaction. Furthermore, some authors emphasize some specific homicide types, which include abortions, aiding suicide, euthanasia, infanticide (infant homicides), assaults, postulating death, or dangerous driving.

In 1994, the intentional homicide rate in Lithuania was 14.2 cases for 100 000 residents, while in 2017 this rate amounted to 5.2 cases for 100 000 residents, which shows that the homicide rate has decreased twice during the indicated period; however, it still stays huge while comparing with the homicide rate in other European Union countries, where the intentional homicide average is 2.0 ± 1.9 cases in 100 000 residents.

Research of homicides as a "phenomenon" requires more detailed analysis than a simple, common homicide statistic evaluation. One of the present study's tasks is to identify the variables that are associated with the research in order to create important data categories. These data may be classified into various groups – for example, suffered and guilty of homicide individual, social, demographical characteristics, suffered and guilty of homicide individual relationships, offence location peculiarities, injury mechanisms, as well as alcohol and other psychotropic substance use during the crime. Generally, the analysis of all those variables would let us define the homicide as a psychological and sociological phenomenon and would let us have a better understanding of which social groups are the most vulnerable. Independently from the crime tendencies, the homicide rate research and the search of prevention decisions are still considered to be important questions. Generally, all the studies indicate crime prevention as the main obligation of law enforcement institutions.

1.2 Project Aim

To evaluate the peculiarities of homicides in Lithuania for the period 2004–2017 in terms of forensic and social aspects; to identify the stipulating factors of homicide spreading in Lithuania; to identify the victim and guilty of homicide individual profiles; to analyze the injuries made during the crimes and their leading variables.

1.3 Project Objectives

1. To evaluate the stipulating factors of homicide spreading and dynamics in Lithuania.
2. To evaluate injuries made during homicide and the leading patterns of injuries.
3. To evaluate the victim's social and demographic characteristics (social profile).
4. To evaluate the offender's social and demographic characteristics (social profile).

1.4 Project Novelty and Meaning

The novelty of the present study is the performed complex analysis of homicides regarding their peculiarities in Lithuania, the individual characteristics of victims and those guilty of homicide, according to gender, employment during the time of crime, education, alcohol, spread of drugs and strong psychotropic substance use during the time of crime, characteristics of the offence location, nature of the injuries, traumatic mechanisms that were performed during the crime time, and their evaluation in different groups. While executing the criminal investigation in homicide cases, this data may help to identify the victims and those guilty of homicide at the level of individual profiles.

The most informative variables of the homicide survey were provided with the help of statistical methods. These variables can form

the basis for developing a unified homicide evaluation system (register) in Europe.

1.5 Statements to be Defended

1. The spread of homicide in Lithuania is determined by social and economic changes.

2. More often the murdered victims are considered to be younger men and older women who have a secondary education, are unemployed, and are intoxicated from ethyl alcohol.

3. Individuals who have committed homicide are often younger than the victims they have murdered, have a secondary education, are unemployed, are intoxicated from ethyl alcohol, and happen to be in a close environment with their victims.

4. The dominating homicide mechanism in Lithuania is that of the injuries being made with hard, blunt objects and punctured-stab wounds.

5. Victims who had lived a longer period of time, would be sober, experienced injuries with hard, blunt objects, and had 3 or less traumatic experiences.

6. Women more often murder men with objects that possess cutting or stabbing features.

2. PROJECT METHODOLOGY

2.1 Project Stages

2.1.1 Literature Review

Homicide literature was collected using issued publications on the homicide topics, *medline*, *embase* databases, by using the following keywords: intentional homicide, killed victim, killer, homicide mechanism, injuries. According to the collected literature, the homicide peculiarities in Europe and Lithuania were summarized.

2.1.2 Characteristics of the Study Group

In order to evaluate the homicides in Lithuania, The State Forensic Medicine Service (SFMS) anonymized (with regard to homicides) forensic medicine archive data (n = 2202) of 2004–2017 were collected. Data for the years 2013–2017 from the Information Technology and Communications Department near the Ministry of the Interior, when the crime was identified according to the Criminal Procedure Code's Articles 129–134 (n = 463), were retrospectively analyzed.

2.1.3 Retrospective Data Analysis

The data was collected at the Lithuania State Forensic Service from the Forensic Expert's autopsy reports. Furthermore, different variables, such as, the victim's sex, age, the place where the body was found, the relationship with the killer, the victim's and the killer's employment and education, the injuries, the number of traumatic afflictions, the time the victim survived after the assault, the number of tests done during the autopsy, the investigator's questions, and the duration of the investigation were collected at the Ministry Of Interior

Affairs at the Department of Informatics and Public Relations. After collecting all of the information, a database was formed.

Forensic researches, autopsies were performed for all the homicide victims. For the identifying alcohol concentration in the internal medium, toxicological tests were performed for each case. In all the cases, the information regarding the offence place, possible death time, and other incident circumstances were received from the legal institutions.

Exclusion criteria of this research – identified accidents, suicides, suicides from faling, suicides in cases of mechanical asphyxia, traffic accidents, and deaths when advanced victim decomposition was identified. Cases when the advanced victim decomposition was identified were removed from the investigative scope due to the inability to identify the precise death cause. Data about registered homicide cases, country gross domestic product, number of residents, emigration, number of performed autopsies, used alcohol amount, and other resident variables were received from the statistical databases.

2.1.4 Statistical Data Analysis

By indicating the determining homicide variable evaluation, the method of a descriptive statistical analysis was applied. From the collected data, a database was compiled where all the data were statistically analyzed using the *R Commander* program. In order to check whether the variables are distributed according to the normal distribution law, the test of *Shapiro-Wilk* was used. *Spearman* correlation coefficient was applied. A weak correlation was identified when the r value was < 0.39; a medium intensity correlation – when r values were between 0.40 and 0.69; and a strong correlation – when the r value was > 0.70. In order to identify between which variable, the significant differences were observed, the *T-test* was used. The *Chi-square* test was used to compare the differences between groups.

Confidence intervals of 95% were calculated. Data differences were considered significant when the value of p was smaller than 0.05.

2.1.5 Authorization by the Biomedical Research Ethics Committee

The research authorization was issued by the meeting (protocol No. 158200-2017/12) decision of Vilnius University, Faculty of Medicine, Vilnius Regional Biomedical Research Ethics Committee on December 5, 2017.

3. INVESTIGATIVE PART

3.1 Determinants of Homicide

A strong and significant negative correlation between the Lithuanian gross domestic product (GDP) and the rate of intentional homicides (r = -0.85, p = 0.003) was identified. After the application of the *Poisson* regression model between the GDP, emigration rate, number of residents, alcohol use, and the number of performed autopsies, the variable of GDP was significantly related to the homicide rate (p = 0.01) (Fig. 1–5).

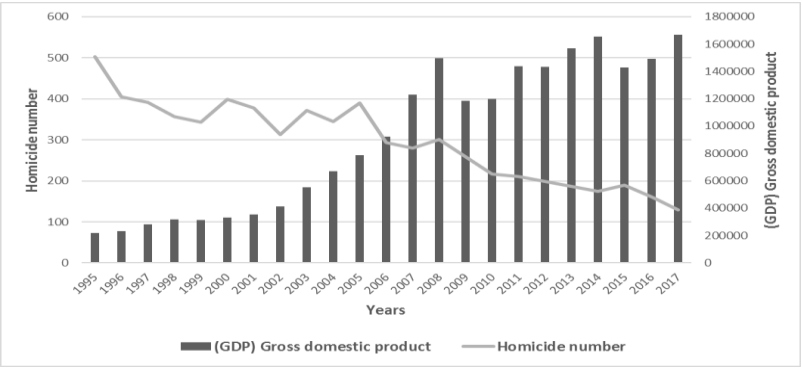

Fig. 1. Lithuanian gross domestic product for one resident and one homicide in Lithuania.

A weak correlation between the homicide rate and the emigration variable (r = 0.06, p > 0.05) was identified (Fig. 2).

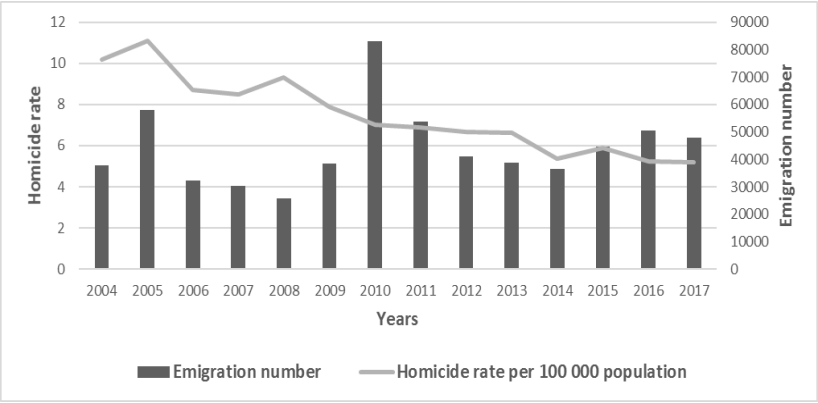

Fig. 2 Emigration and homicide rate in Lithuania.

Medium intensive negative correlation between the alcohol consumption countries (L, for one resident) and homicide rate (r = -0.49, p > 0.05) (Fig. 3).

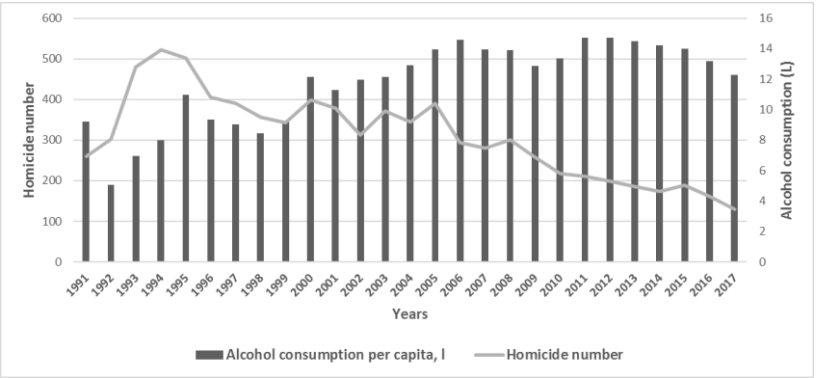

Fig. 3. Homicide number in Lithuania and alcohol consumption for one resident.

Observed was a strong correlation between the homicide rate and the number of performed forensic autopsies (r = 0.86, p = 0.002) (Fig. 4).

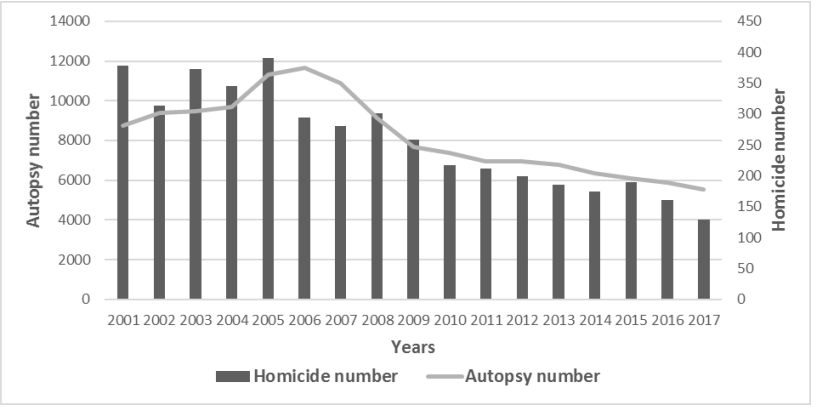

Fig. 4. Number of homicides and performed autopsies in Lithuania.

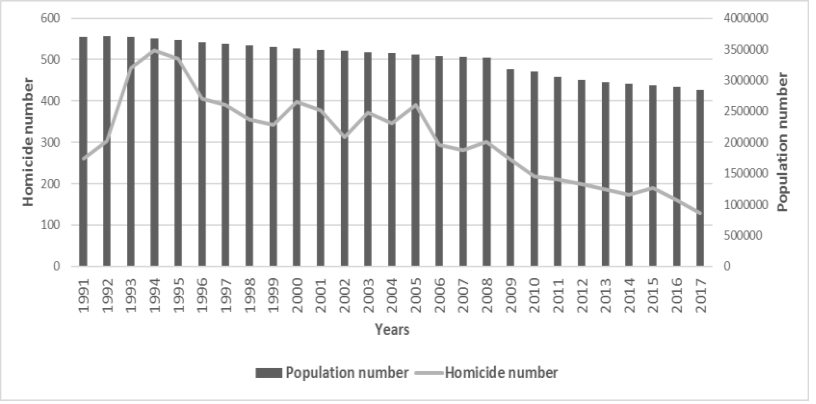

Fig. 5. Number of residents and homicide spread in Lithuania.

The descending trend of population and the prevalence of homicide were observed (Fig. 5).

There is a significant correlation between the Lithuanian GDP and the frequency of homicide, so it can be assumed that this variable is most relevant to the homicide rate.

3.2 Evaluation of Injury

From all investigated homicide cases, the most often used (52.2%) homicide mechanism was the operation of (a) hard, blunt object(s), which includes 28% of homicides made without any object, that is by punching or kicking; 33.2% of victims suffered from an item of cutting or stabbing features. When a death cause was considered to be a gunshot, of all the homicides 5.6% were such cases; in 5.4% of cases the homicide mechanism was asphyxia. In 2.4% of all the investigative scope, an object considered to have chopping features was used. The most rarely used homicide method (1.2%) were deaths determined by the physical factors, such as leaving a victim in a helpless state, leaving them in a cold environment, burning the victim, or others (Fig. 6).

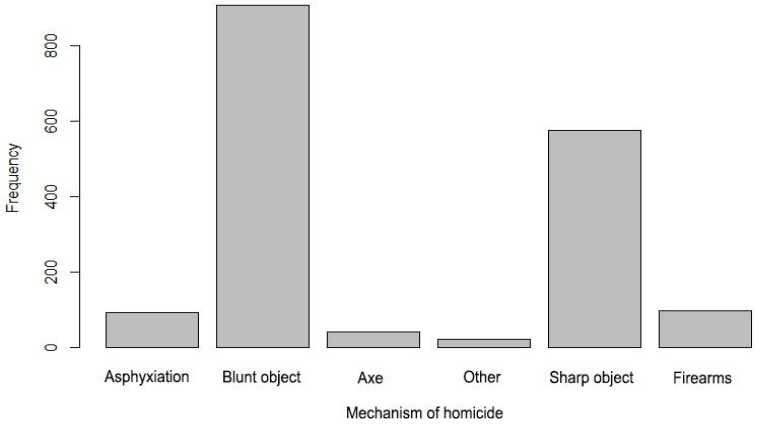

Fig. 6. Homicide method allocation.

Between the male homicides, in 53.2% of cases the homicide mechanism was bodily contact with (a) hard, blunt object(s); 35.0% were killed by using (an) object(s) with cutting or stabbing features; 5.8% were killed with a firearm; in 2.7% of cases the homicide

mechanism was asphyxia; in 2.5% homicide cases, an object with chopping features was used; and in 0.8% of cases the reasons of death were other physical factors.

Between the female homicides, the homicide mechanism in 49.9% of cases was bodily contact with (a) hard blunt object(s); in 28.2% of cases the victims were killed using (an) object(s) that have cutting or stabbing features; in 5.1% of cases the victims were killed with a firearm; in 12.4% of cases, the homicide mechanism was asphyxia; in 2.3% of cases, an object of chopping features was used; and in 2.1% of cases the reasons of death were other physical factors. In evaluating the mechanism of homicide across the different gender groups, the homicide mechanism of asphyxia is more often found among women than men (Fig. 7).

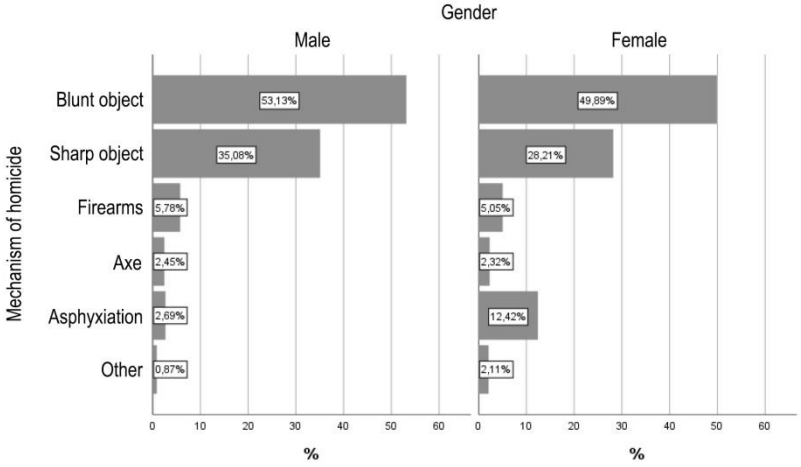

Fig. 7. The homicide mechanism in different gender groups.

The mean male age in cases of bodily contact with (a) hard, blunt object(s) was 48.4 ± 14.4 years. For women who were killed by such mechanism, the mean age was 52.8 ± 15.9 years. For men who were killed with (an) object(s) containing the features of cutting or stabbing, the mean age was 42.5 ± 14.7 years. In this group, women's mean age

was 48.8 ± 16.4 years. For men who were killed with a firearm, the mean age was 36.4 ± 13.2 years. The women's mean age in this group was 44.9 ± 17.1 years. According to this data, it can be stated that older women tend to became homicide victims more often (Fig. 8).

In order to identify whether the homicide mechanisms significantly differ across the gender groups, the *Pearson Chi-square* criterion was applied. Proportions were compared with a *Bonferroni* correction. It was identified that in gender groups (p = 0.0001), the homicide mechanism statistically significantly differs. The men's homicides were more often executed with (a) cutting or stabbing object(s), while in the women's group, more often than in the men's group, the identified homicide mechanism was asphyxia or other mechanisms like deaths determined by such physical factors as leaving the victim in a helpless state, leaving them a cold environment, burning the victim, and others.

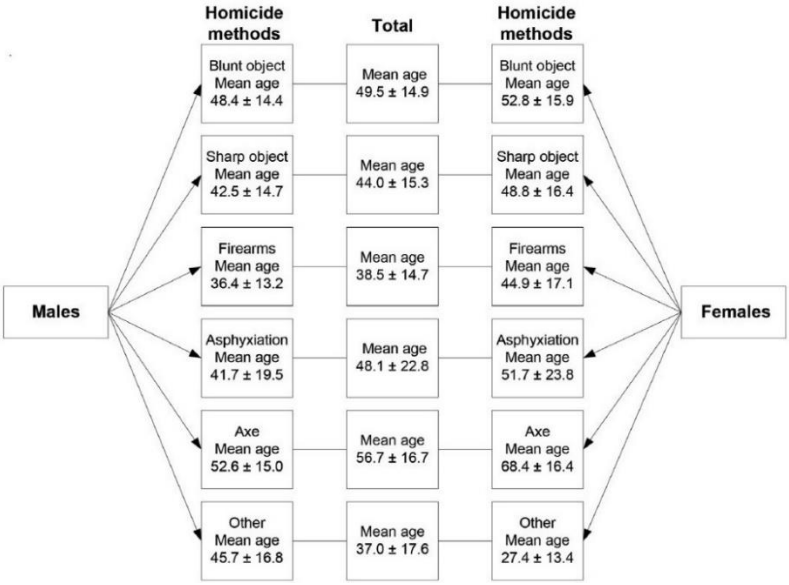

Fig. 8. Homicide mechanism according to the homicide victims' age and gender.

The reason of the death for the majority of homicides (68%) was due to the injuries of one type injury object. Homicides when two, three, or four injury object types were used accordingly match 30%, 1.7%, and 0.3% of all cases. While comparing with the men's group, women were more often killed using more than one injury type object ($p < 0.001$). Homicide victim identified with a higher ethyl alcohol concentration in their blood have experienced more traumatic inflictions ($p < 0.001$). Those homicide victims who had experienced the homicide mechanism of bodily contact with (a) hard, blunt object(s) also happen to have had experienced more traumatic inflictions ($p < 0.001$) (Table 1).

Table 1. Homicide mechanism allocation in the different gender groups.

		Gender			
		Male		Female	
		%	Mean	%	Mean
Mechanism of homicide	Blunt object	53,1		49,9	
	Sharp object	35,1		28,2	
	Firearms	5,8		5,1	
	Axe	2,5		2,3	
	Asphyxiation	2,7		12,4	
	Other	0,9		2,1	
Number of traumatic inflict			8,01		10,36
Different traumatic mechanisms			1,32		1,43

The mean men's age of 48.19 years and the mean women's age of 53.21 years were seen in the homicides of one type injury factor of (a) hard and blunt object(s). Age in this group differs significantly ($p < 0.05$). The number of traumatic inflictions when the homicide of (a) hard, blunt object(s) was identified has many abstractions; however, in cases of traumatic inflicts of one type, the committed male homicides resulted in (mean) 10 traumatic inflictions, and for women – 14 (mean) traumatic inflictions, which reveals that in cases of

women's homicides, a significantly higher number of traumatic inflictions have occurred ($p = 0.0002$).

When a homicide of one type of injury factor of (a) cutting or stabbing object(s) was identified, the mean men's age was 43.34 years, and women's – 46.58. Age in this group does not differ so significantly ($p = 0.21$). The number of traumatic inflicts when a homicide made using (an) object(s) of cutting or stabbing features was identified also has many abstractions; in cases of one type traumatic inflicts, the committed men's homicides were made with (mean) 2.8 traumatic inflictions, and in the cases of women – 6.8 (mean) traumatic inflicts, which reveals that there is a significantly higher number of traumatic inflicts in cases of women's homicides ($p = 0.002$).

When a homicide of one type injury factor – a gunshot wound – was identified, the mean men's age was 36.85 years, while the mean women's age was 45.93 years. Age in this group differs significantly ($p = 0.03$). The number of traumatic inflicts when a homicide with a firearm was identified also has many abstractions; however, in cases of one type traumatic inflicts, the committed men's homicides were made (mean) with 2 traumatic inflictions, and for women – 1.8 (mean) traumatic inflictions; this reveals that the traumatic infliction number of men's and women's homicides that has been committed with a firearm does not differ ($p = 0.56$).

The mean men's age of 57.14 years and that of women's 62.0 years were ascertained in cases when a homicide of one type injury factor using an object with chopping features (cutting injuries) was identified. The ages in this group do not differ significantly ($p = 0.83$). The number of traumatic inflictions of homicides using objects of chopping features had one abstraction (when the cutting injuries were made by 21 traumatic infliction); however, after removing this abstraction, cases of one type traumatic inflicts, when men's homicides were committed, were made (mean) with 4.7 traumatic inflictions, and 7.5 (mean) traumatic inflictions for women, which reveals that the number of traumatic inflictions of women's and men's

homicides executed using objects with chopping features does not significantly differ ($p = 0.64$).

The distribution of variable (number of traumatic inflictions) is asymmetric, where the data are allocated according to the non-normal distribution law, *Shapiro-Wilk normality test* $p < 0.05$, with a large amount of abstractions, which meaning ranges from 1 to 164, its mean 8.65 ± 14.53, median is equal to 3 (Fig. 9).

Therefore, the variable differences between the various homicide ways were identified using a non-parametric *Kruskal-Wallis* test, which allows to compare the qualitative variable rage means in several groups.

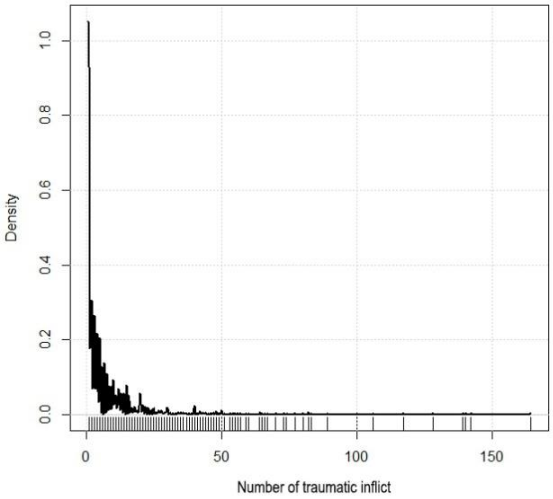

Fig. 9. Allocation of the scope of the traumatic inflictions number.

The amount of traumatic inflictions does not statistically significantly differ between the victim homicide ways ($p = 0.0001$); however, it is not clear if a statistically significant difference occurs in all homicide ways. Therefore, as an alternative, the number of traumatic inflictions was logged in order to set it closer to the normal

data allocation and to reduce the abstraction; here the *ANOVA* test was applied with an original as well as a logged variable by applying several post-hoc criteria according to the group size and dispersion difference. The used criteria were *Games-Howell, Tamhane* and *Dunnett T3*. All these *post-hoc* criteria have revealed that the number of traumatic inflictions does not statistically significantly differ between the homicides committed with hard, blunt objects and with objects with chopping features; as for the means – both contain 12 ± 16 and 12 ± 15 traumatic inflictions. After variable logging, for homicides committed with objects with cutting or stabbing features, the number of traumatic inflictions statistically significantly differs from all other traumatic inflictions numbers of all homicide methods. The mean of the traumatic infliction number of homicides executed with objects of cutting or stabbing features is 5.74 ± 13.14. Meanwhile, the number of traumatic inflictions of gunshot wounds, asphyxia, and other homicide methods does not statistically significantly differ. Their traumatic infliction number means are similar – 1.17 ± 1 and 1.91 ± 1 traumatic inflictions.

The homicide victim survival time after experiencing injuries is coded in a range scale from 1 to 4. In order to evaluate for which homicide mechanisms the victim survival time (time from injury to death) belongs, the binary logistic regression was applied. Also, for each way separately, separate binary logistic regression models were created. The *Enter* method was used, statistically not significant independent variables were mechanically eliminated, and the model was repeated until only the statistically significant variables remained. Victims who have suddenly died had been of older age, females found indoors, identified with severe intoxication, and have had experienced more injury mechanisms and traumatic inflictions.

For the majority of homicide victims (71%), medics did not manage to provide first aid and, shortly after sustaining injuries, they died (sudden deaths) (Fig. 10). While for the 29% of victims, medics

had provided first aid measures; however, they died shortly after sustaining their injuries (Table 2).

Table 2. Homicide mechanism and time of death after experiencing an injury (%).

	Mechanism of homicide					
	Blunt object	**Sharp object**	**Firearms**	**Axe**	**Asphyxiation**	**Other**
Sudden deaths	62,1	80,1	80,4	83,3	95,7	76,2
Emergency Medical Assistance	3,0	6,1	2,1		1,1	9,5
Survived less than 24 h	9,8	10,9	14,4	2,4	2,2	
Survived over 24 h	25,1	2,9	3,1	14,3	1,1	14,3
	100%	100%	100%	100%	100%	100%

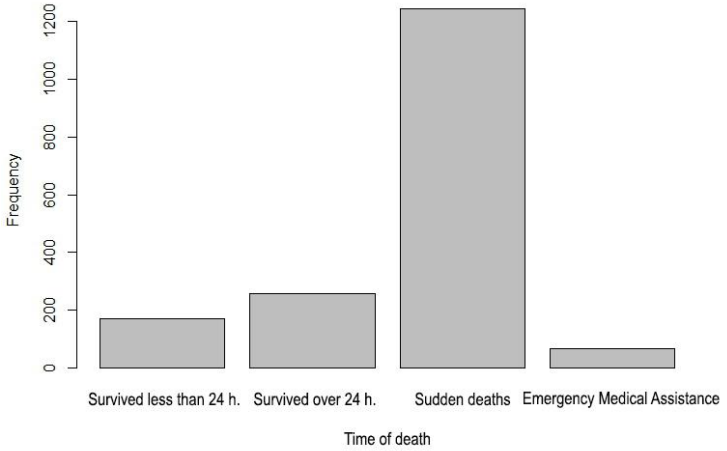

Fig. 10. Death time allocation after experiencing an injury.

Cases when the emergency medical service (EMP) was provided but victims died before hospitalization amount only to 3.8%, and that is why the prognostication of those cases using the binary logistic regression is harder. As an alternative, the *CHAID* classification method was applied and the following conditions identified:

EMS help (when victim did not manage to live until they were taken into a care institution) was more often provided only for those victims who had experienced a cutting or stabbing injury and had 3 or less injuries. From all the data, those cases include 47.8%. EMS help was provided only for those victims who were identified as having experienced injuries from hard, blunt objects and were moderately intoxicated. Those cases make up 29.9%. EMS help was also provided when other homicide mechanisms were identified, and when the victim had a light level of intoxication in their bloodstream or were sober. There were 16.4% of those cases.

Victims who, after experiencing their injuries, have survived more than 24 hours in a care institution, were identified with a light, moderate level of intoxication or were sober and younger than 34 years, the percentage of these cases – 27.8%. Cases where the identified victim was older than 33 years old and the place of their discovery was outdoors include 27.8%. If the victim's place of discovery was indoors, such cases make up 31.4%.

Victims who, after experiencing their injuries, have survived more than 24 hours make up 14.84% of all the victims that were taken into a care institution. Using a binary logistic regression, it was identified that between the victims who have survived longer, men who have been identified with a light level of intoxication were more often found outdoors, and in cases of experiencing injuries from hard, blunt (objects), they had experienced less traumatic inflictions.

For the victims found outdoors, emergency medical help was provided more often than for the victims found indoors ($p < 0.001$). Medical help for men was provided more often than for women ($p < 0.001$). More often sober victims would survived more than 24 hours in a hospital than the victims with a severe levels of intoxication ($p < 0.001$). Victims who have survived more than 24 hours in a hospital would have more often experienced injuries from hard, blunt objects ($p < 0.001$). The injured who had been identified with less traumatic

inflictions would more often, after experiencing their injuries, survive more than 24 hours in a hospital ($p < 0.001$).

While comparing the victims' age across the different survival groups (applied one *Anova* factor with a *Games-Howell* criterion), these statistically significant differences were identified: the mean age of victims who had survived less than 24 hours in a care institution was 4.12 years younger than the age of victims who had died suddenly, and it was 4.8 years younger than the age of victims who had survived more than 24 hours in a care institution. The mean age of all scope victims who had died shortly after experiencing injuries – 47.45 ± 16 years; the mean age of those who had been provided only with an EMS – 44.2 ± 15.39; the mean age of victims who, after experiencing their injuries, had survived less than 24 hours in a care institution – 43.33 ± 16.1 years; victims who, after experiencing their injuries, had survived more than 24 hours – 48.12 ± 16.11 years (Fig. 11).

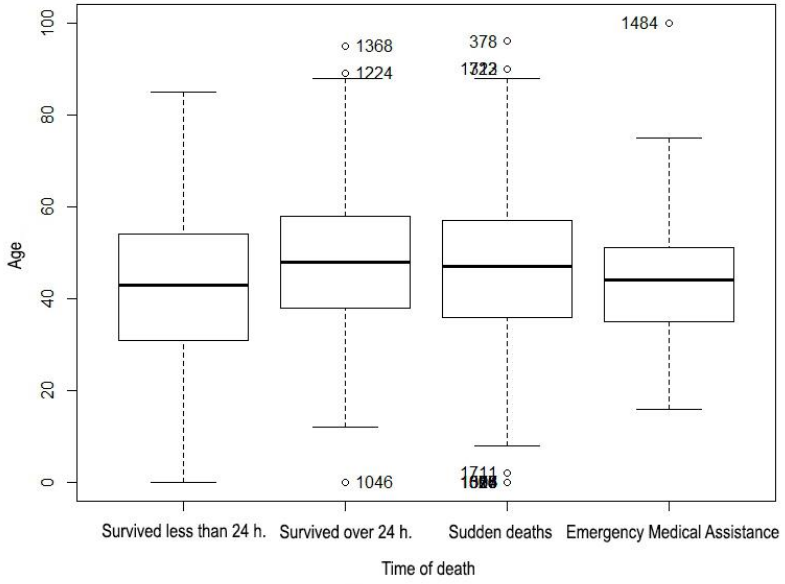

Fig. 11. Age allocation according to the different times of death after experiencing injuries.

Comparing the time of death in the different gender groups (*Chi-square* test), it was identified that, males are dominant in these variable categories – that is, a sudden death was identified more often in the women's group than in the men's group ($p = 0.0001$). Also, men, more often than women, would have survived more than 24 hours in a care institution ($p = 0.0001$) (Table 3).

In order to evaluate on which variables does the survival of a homicide victim depend, the method of the General Finite Line Source Model was applied. The dependent model variable is ranges from 4 categories, where a higher category means a better chance of survival after experiencing injuries. Independent factorial variables are injury mechanism and recoded dichotomy – how many traumatic mechanisms were applied (one or more than one).

Table 3. Time of death allocation in different gender groups.

		Gender			
		Male		Female	
		Number	%	Number	%
Sudden deaths	No	405	32,07	89	18,74
	Yes	858	67,93	386	81,26
Emergency Medical Assistance	No	1208	95,65	463	97,47
	Yes	55	4,35	12	2,53
Survived less than 24 h	No	1128	89,31	441	92,84
	Yes	135	10,69	34	7,16
Survived over 24 h	No	1048	82,98	432	90,95
	Yes	215	17,02	43	9,05

The quantitative trauma variable was set as a covariate. The received model is statistically significant ($p = 0.0001$), and all independent variables show the impact for survival ($p < 0.05$, B = 1.106). A higher possibility to survive longer would be present if the victim had experienced injuries from a hard, blunt object ($p = 0.037$); however, if the cause of death were asphyxia, it would more often identify with the occurrence of sudden death ($p = 0.015$, B = -1.775). In cases of a victim being injured from one type of trauma, a survival possibility of more than 24 hours would be higher than for the victims, who had experienced more than one trauma type ($p = 0.002$, B =

0.475). The higher traumatic inflict number is experienced, the lower possibility of survival (p = 0.0001, B = -0.062) (Table 4).

As an alternative for the General Finite Line Source Model, the *CHAID* classification tree was applied. The traumatic mechanism makes the highest impact on victim survival. If an injury is made from contact with a hard, blunt object, there is an increase in the time of death of victims, who have lived longer than 24 hours. It was identified that from the 258 homicide victims who have survived more than 24 hours after experiencing their injuries, 228 have experienced the injuries of a hard, blunt object, which is over than 88% of cases. If an injury from a hard, blunt object was identified, the time of death also depends on how many traumas the homicide victim has experienced – the lesser the number of traumas, the longer the time of survival. Homicide victims who had survived more than 24 hours after experiencing their injuries and who experienced 3 or less traumatic inflictions with a hard, blunt object make up 107 (46.9%) cases; in cases of 4–8 traumatic inflictions of a hard and blunt object – 67 (29.3%); if 9–20 traumatic inflictions of a hard, blunt object – 49 (21.5%).

Table 4. Variable allocation according to the different time of death intervals.

		Number (n)	%
Time of death	Sudden deaths	1244	71,6
	Emergency Medical Assistance	67	3,9
	Survived less than 24 h	169	9,7
	Survived over 24 h	258	14,8
Mechanism of killing	Blunt object	908	52,2
	Sharp object	577	33,2
	Firearms	97	5,6
	Axe	42	2,4
	Asphyxiation	93	5,4
	Other	21	1,2
Number of traumatic inflict	1	1183	68,1
	2–4	555	31,9

3.3 Characteristics of Homicide Victims

Victim allocation, according the gender, analysis shows that men contain the major part, 73% of all cases, while women contain only 27% of all investigates.

The mean age of the all investigated murder victims was 47 ± 16 years. Victims younger than 18 years old included 4.2% of all investigated cases. The mean age of the murdered women is defined as 50.9 ± 17 years. A statistically significant fact is that the major part of the murder victims were younger men and older women ($p < 0.001$). From all the murdered victims, 72% were unemployed, and 64% of them had only a secondary education; 73% of the murder victims are men; 66% are homicides made indoors, and 57% were committed within the urban territory (Table 5).

Table 5. Characteristics of homicide victims

Years	Male (%)	Female (%)	Male age		Female age		Outdoor killings	Indoor killings	Intoxicated	Rural area	Urban area
			Mean	SD	Mean	SD					
2004	66%	34%	42.8	14.5	49.8	18.8	38.2%	61.8%	57%	44.8%	55.2%
2005	72.1%	27.9%	44.6	15.7	51.1	16.5	32%	68%	58.6%	39.7%	60.2%
2006	71.9%	28.1%	43.9	14.6	56.6	19	32.2%	67.8%	60.2%	45.4%	54.6%
2007	76.9%	23.1%	45.7	13.9	50.9	16.2	35.7%	64.3%	55.8%	37.2%	62.8%
2008	75.1%	24.9%	48.7	15.6	51.2	15	38.7%	61.3%	57.8%	43.1%	56.9%
2009	75.9%	24.1%	43.8	15.8	51.4	18.4	36.9%	63.1%	58.1%	43%	57%
2010	65.9%	34.1%	47.9	16.5	48.7	18	27.1%	72.9%	60.5%	45%	55%
2011	66.2%	33.8%	46.7	12.5	46.6	17.8	31.5%	68.5%	59.2%	43.8%	56.2%
2012	76.7%	23.3%	47	13.8	50.1	19	26.2%	73.8%	67%	41.8%	58.2%
2013	79.5%	20.5%	45.9	15.9	52.2	20.5	29.5%	70.5%	57.4%	45.1%	54.9%
2014	66.1%	33.9%	42.9	15.6	47.6	17.1	37.8%	62.2%	55.1%	45.4%	54.6%
2015	61.5%	38.5%	41.7	13.6	48.8	19.6	33.8%	66.2%	61.2%	35.4%	64.6%
2016	69.7%	30.3%	45.3	15.2	54.4	19.2	35.6%	64.4%	57.9%	41.7%	58.3%
2017	66.2%	33.8%	43.4	16.3	48.1	23.6	33.3%	66.7%	56.8%	32%	68%

SD – standard deviation

Victims whose blood tests came positive to the ethyl alcohol concentration contains a larger part (58.6%) of all the homicide cases; 9.4% of them were identified with light intoxication (0.4 ‰ – 1.5 ‰); 18.1% identified with moderate intoxication (1.51 ‰ – 2.5 ‰); and the most often – 31.1 – those identified with severe intoxication in the bloodstream (more than 2.5 ‰). Finally, only 41.4% of the murder victims were sober.

Evaluating the places where the victims were found, the major part (57%) of persons were murdered in urban places, while 43% were murdered in rural areas. Men: 57% of them were found in urban places, while 43% in rural areas. Women: 56% were murdered in urban places, while 44% in rural areas. The mean age of a victim found in an urban place was 46.28 ± 15.97 years, in a rural area – 48.02 ± 16.13 years. In order to compare the victims who were found in the urban and rural areas, the independent scope *T-test* was applied. An evaluation of the place of victim discovery yielded that the victims of rural areas were younger by 1.74 year than the victims murdered in urban places; in other words, older victims were more often murdered in rural areas ($p = 0.025$) (Fig. 12).

Though, the difference is not so big, its statistical significance is observed due to the large scope of investigatives. Therefore, according to *Cohen's d* formula, the effect size of the found differences was additionally calculated. The effect size is evaluated as low when its value is from 0.3 till 0.5, and as high if its value is less than 0.8. In this group, *Cohen's d* value is equal to 0.11, which identifies very low effect: 57.9% of victims when the homicide mechanism was bodily contact with hard, blunt objects, 60.3% of victims murdered using a cutting or stabbing features-containing object, 50.5% of victims murdered with a firearm, and 55.9% of victims whose homide mechanism was asphyxia, were found in urban places; 64.3% of victims who have been killed with objects containing chopping features and 66.7% of victims whose reasons of death were other physical factors were found in rural areas.

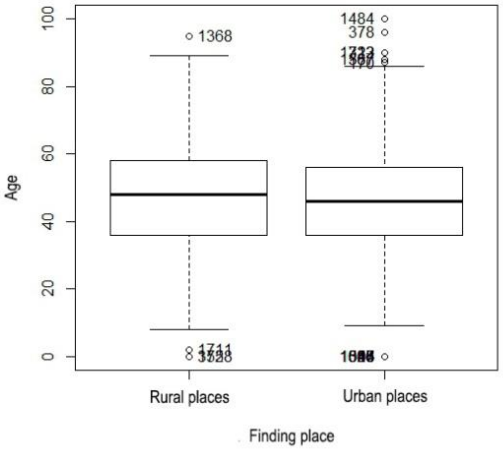

Fig. 12. The age distribution of homicide victims found in urban and rural areas.

The major part (66%) of murdered individuals were found indoors (in a flat, house, stairwell, basement, etc.), while 34% of victims were found outdoors (on a street, forest, etc.). Men: 61% of them were found indoors, 39% – outdoors. Women: 82% of them were found in indoors, 18% – outdoors. The mean age of murdered women found indoors was 49.45 ± 15.81 years, and found outdoors – 42.23 ± 15.47 years (Fig. 13). In order to compare the mean ages of victims found indoors and outdoors, the independent scope *T-test* was applied. Individuals murdered indoors were older (by 7.23 years) than those who were killed outdoors ($p < 0.001$). According to *Cohen's d* formula, the effect size of the found differences was additionally calculated, and its value in this group is 0.45, which shows an average effect. Women were more often killed indoors than outdoors (*Chi – squared test*, $p < 0.001$). According to these variables, it can be stated that the bigger the homicide rate is indoors, the higher the homicide risk is for the group of older women.

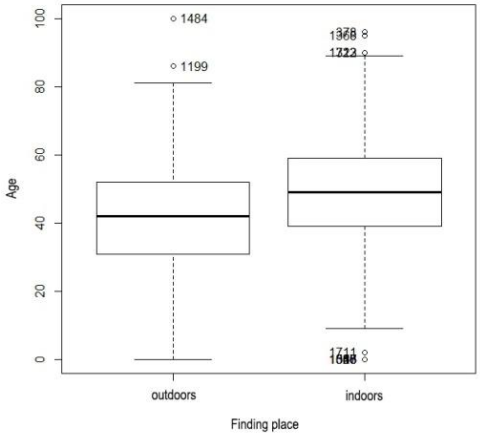

Fig. 13. The allocation of homicide victims found outdoors and indoors.

In 39.1% of the investigated cases, the murdered men were sober. Light intoxication in a group of men's homicides, was identified as 9.2%; in 18.8% of cases, moderate intoxication was identified, and severe intoxication was in 32.9% of cases. Sober women were killed in 47.1% of cases. Light intoxication was identified in 10.1% of the women's group; moderate intoxication – 16.4%, and severe intoxication – 26.5% of cases. Severe intoxication was identified in the group of men more often than in the group of women ($p = 0.001$) (Table 6). Severe intoxication in the homicide victims found outdoors was identified more often than in the victims found indoors ($p < 0.001$). More often, severe levels of intoxication were identified for victims, killed with objects with cutting or stabbing features ($p < 0.001$).

Table 6. Age and gender allocation according to the alcohol level.

	Sober	0,41–1,5‰	1,51–2,5‰	> 2,51‰
Mean age of male	47,5 ± 17,2	43,2 ± 17,5	44,4 ± 14,5	44,4 ± 11,9
Mean age of female	54,4 ± 21,2	48,9 ± 17,6	49,7 ± 14,1	46,4 ± 11,2
Mean age of all	49,7 ± 18,8	44,9 ± 17,7	45,7 ± 14,9	44,9 ± 11,1

3.4 Characteristics of Homicide Suspects

In the period of 2013–2017, in 463 of cases the persons who have committed the homicides was identified. The men's group, is not only dominant in the homicide victim group (71%) but also in the homicide suspect group, where, according to the gender allocation (n = 402), men convicted for murder make up 87% of cases, while women amount to 13% (n = 61).

In evaluating the murderer age groups, it can be seen that the majority (73%) of them are middle ages, 15% – older aged, and 8% are younger than 18 years old. The mean age of persons who have been convicted for murder is 34.9 ± 15 years. This shows that younger individuals tend commit homicides more often ($p < 0.05$) (Fig. 14).

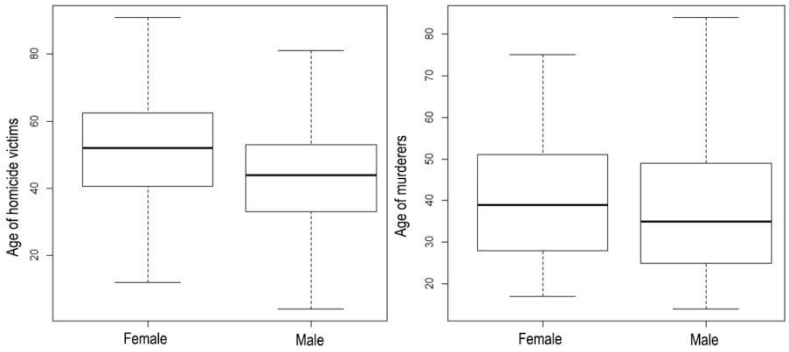

Fig. 14. the allocation of homicide victims and murderers according to their gender and age.

The mean age of men convicted for homicide was 34.5 ± 14, while for women, the mean age was 38.5 ± 14 years (Table 7). A statistically significant difference is observed between the mean age of men and women (independent samples *T-test*, $p = 0.004$). In all the samples, the age allocation of persons who have committed a homicide is asymmetric where the data are allocated according to the normal distribution law, *Shapiro-Wilk normality test* $p < 0.05$, with abstractions where the age varies from 14 to 84 years and the median is equal to 32 years (Fig. 20). From 2013 to 2017 years, a percentage of an increase of women commiting homicides was observed.

Table 7. Individuals who have commited homicides; allocation according to gender and age.

				Mean of age	
Years	**Male (%)**	**Female (%)**	**Intoxicated**	**Male**	**Female**
2013	98%	2%	63,5%	34,5 ± 15,1	38,2 ± 12,7
2014	89,7%	10,3%	65,4%	33,7 ± 14,4	39,8 ± 15,6
2015	89%	11%	70,7%	34,2 ± 14,1	41,6 ± 12,4
2016	88,5%	11,5%	53,6%	36,7 ± 13,9	36,1 ± 12,4
2017	86,2%	13,8%	56,7%	33,8 ± 12,9	37,3 ± 15,2

3.5 Relationship between Variables

Comparing the homicide victim and murderer ages in a victim-suspect gender matrix, a *Pearson* correlation coefficient and dispersion chart was used. Found correlations: if the victim and suspect are men, there is no relation between the victim and the suspect; a wide data dispersion is observed. The correlation coefficient is not statistically significant ($r = 0.07$, $p = 0.273$); if a victim is a woman and the suspect a man, a weak ($r = 0.231$), statistically significant correlation ($p = 0.01$) would be identified; the dispersion chart shows that the relation could be stronger, and that the age of men and women could synchronize; however, there is a major part of younger men who were accused of murdering women much more older than themselves; if a victim is a man and the suspect a woman,

the relation is average (r = 0.680) and statistically significant (p = 0.0001), where the majority of the accused women's age is equal to the age of the murdered men; however, there are cases of women who have been suspected of murdering infants, and these abstractions weaken the relation; if a victim is a woman and the suspect a woman, the relation is strong (r = 0.757) and statistically significant (p = 0.003), even though, only 13 of these cases were observed – including some these cases that include infant homicide (Fig. 15).

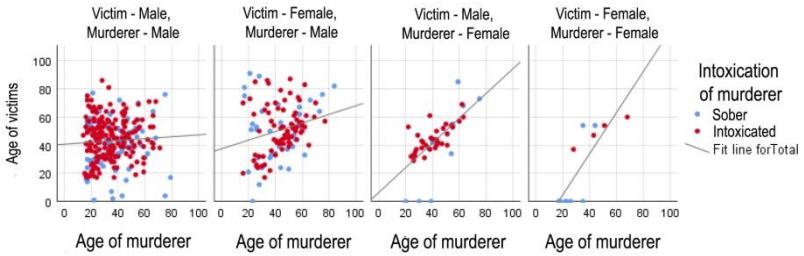

Fig. 15. Homicide victim and murderer age allocation.

In these charts, the intoxication of murderers is marked using the different colors. It is noted that most often the suspects of children and infant murder were sober both in men and women's groups. In groups where women were suspected of murdering men, a major part was identified as having been intoxicated.

The relation of intoxication between homicide suspects and homicide victims is analyzed in detail using dispersion charts, the *Chi-square* and *Fisher exact test*, and by additionally allocating the data according to the suspect and victim gender combinations (Table 8), wherein the diagrams also reflect the age of homicide suspects and victims (Fig. 16).

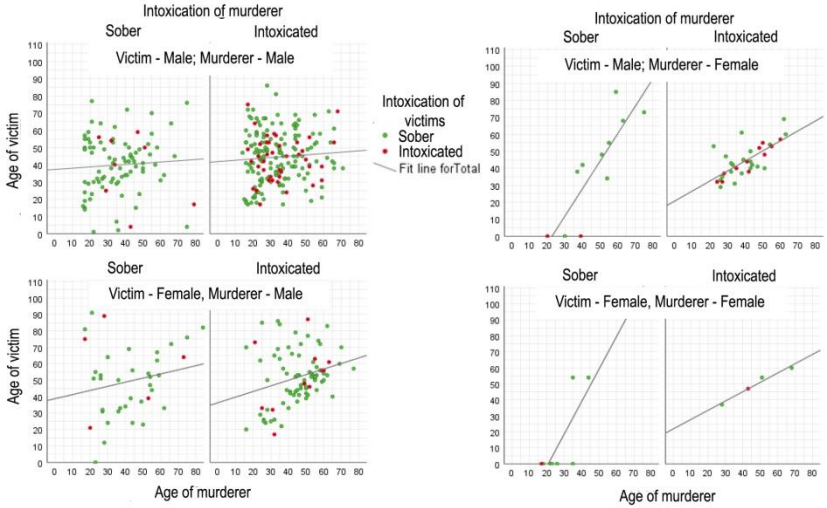

Fig. 16. Intoxication relation of homicide suspects and victims.

A statistically significant relation is observed only in the group where the homicide victims were men and the persons to have committed the homicides were also men. By using the proportion comparison with a *Bonferoni* correction, it was identified that this groups' proportion is bigger than it should be, as in cases of sober homicide victims and homicide suspects, as in cases of intoxicated homicide victims and homicide suspects, while it is also less believed that the intoxication was identified only for one of the parties. In other groups, any relation of the sobriety/intoxication between the homicide victim and murderers is not found, even though the number of observations is too small in cases where women were both homicide suspects and victims (the scope is considered to be insufficient).

Table 8. Data allocation according to the homicide victim and murderer gender combinations.

		The intoxication of male who executed of homicide					
		Sober	Intoxicated	Total	Sober	Intoxicated	Total
Intoxication of male which was killed	Sober	83	147	230	29,9%	52,9%	82,7%
	Intoxicated	8	40	48	2,9%	14,4%	17,3%
	Total	91	187	278	32,7%	67,3%	100%

Pearson Chi-square test = 6,620, Fisher exact test p = 0,01

		The intoxication of female who executed of homicide					
		Sober	Intoxication	Total	Sober	Intoxicated	Total
Intoxication of male which was killed	Sober	10	23	33	21,7%	50,0%	71,7%
	Intoxicated	2	11	13	4,3%	23,9%	28,3%
	Total	12	34	46	26,1%	73,9%	100%

Pearson Chi-square test = 0,973, Fisher exact test p = 0,464

		The intoxication of male who executed of homicide					
		Sober	Intoxicated	Total	Sober	Intoxicated	Total
Intoxication of female which was killed	Sober	33	71	230	27,5%	59,2%	86,7%
	Intoxicated	5	11	48	4,2%	9,2%	13,3%
	Total	38	82	278	31,7%	68,3%	100%

Pearson Chi-square test = 0,001, Fisher exact test p = 0,969

		The intoxication of female who executed of homicide					
		Sober	Intoxicated	Total	Sober	Intoxicated	Total
Intoxication of female which was killed	Sober	8	3	11	61,5%	23,1%	84,6%
	Intoxicated	1	1	3	7,7%	7,7%	15,4%
	Total	9	4	13	69,2%	30,8%	100%

Pearson Chi-square test = 1,593, Fisher exact test p = 0,505

A major part of murderers (66%, n = 307) were intoxicated, while 32% (n = 150) of murderers were sober. Meanwhile, 2% were under the effect of drugs. Among the sober men murderers, the mean age was 38.1 ± 16 years, among women – 37.7 ± 16 years. In this group a statistically significant difference, between the mean age of women and men (p = 0.91) is not observed. When the person who had committed a homicide were not intoxicated from ethyl alcohol (the common mean age was 43.8 ± 18 years), the mean age of the homicide victim was 37.7 ± 16 years. This group observes a significant difference between the mean age of murderers and homicide victims ($p < 0.008$).

Between the murderers who were intoxicated with ethyl alcohol, the mean men's age was 37.5 ± 14 years, and the mean women's age – 41.3 ± 12 years. In this group, no significant difference between the mean age of men and women (p = 0.07) is observed. When the murderers were intoxicated with ethyl alcohol (common mean age 37.9 ± 14 years), their homicide victims' mean age was 46.5 ± 14 years. This group observes a significant difference between the mean ages of murderers and homicide victims ($p < 0.05$).

In comparing the intoxication of homicide victims and murderers in two groups – when the identified homicide resulted from a hard, blunt object and and an object of cutting or stabbing features – the *Chi-square* criterion was used; however, there were no statistically significant differences between the homicide mechanisms (*Chi-square* = 2.970, p = 0.227).

A murderer employment analysis reveals that the majority (73%, n = 338) of murderers were unemployed, their mean age was 38.1 ± 13 years, while during the homicides only 15% (n = 70) of them had a job, their mean age being 36.0 ± 11 years. There is no statistically significant difference between the mean ages of employed and unemployed persons (p = 0.33). During the homicide time, only 6% (n = 26) of the investigated persons were in the process of acquiring an education, their mean age being 17.4 ± 2 years. In the group of young people (who had been studying) convicted for murder, the homicide victim mean age was 41.1 ± 20 years. This group observes a statistically significant difference between the mean age of victims and their murderers ($p < 0.05$).

In evaluating the homicide victim and murderer employment proportions, a group of unemployed suspects was distinguished to be the riskiest, while the victims and the proportion of the unemployed persons consists of even 37.6% of all cases. When, during the homicide, both parties (homicide victim and murderer) were employed, the incident proportion was equal to 6.2% (Fig. 17).

Fig. 17. The employment allocation of individuals who have been convicted for homicide and homicide victims.

An education analysis of individuals convicted for homicide revealed that the majority (56%, n = 257) had a primary or professional education. The mean age of individuals convicted for homicide was 34.8 ± 15 years; 37% (n = 172) of persons convicted for homicide had a secondary education, their mean age being 40.4 ± 14 years. Only 3% (n = 16) of persons convicted for homicide had acquired a university education, their mean age being 44.5 ± 12 years. A statistically significant difference was observed between the mean age of individuals convicted for murder who had a primary or professional education and those who had a secondary education ($p = 0.001$). There is no statistically significant difference between the mean age of individuals convicted for murder who had a secondary education and those who had finished university studies ($p = 0.48$).

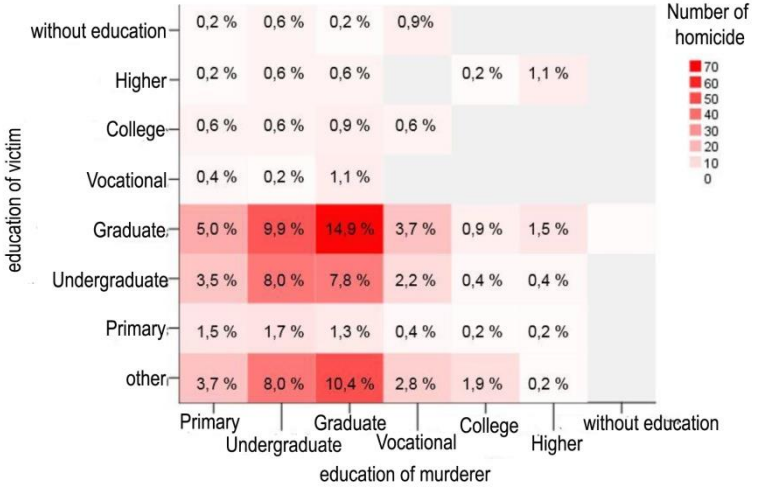

Fig. 18. The allocation of persons convicted for homicide and homicide victim education.

In valuating the education proportions of the murderers and homicide victims, the group of people with primary and secondary education became distinguished. The proportion of the homicide victims who had a primary education and suspects with a secondary education consists of 14.9% of all cases (Fig. 18).

No statistically significant difference between the mean age of individuals who had committed a homicide in urban and rural places ($p = 0.54$) is observed. However, victims murdered in the rural areas were older than the victims murdered in urban places ($p = 0.041$). A statistically significant difference between the mean age of convicted murderers who had committed a homicide indoors (mean age 39.6 ± 15 years) and outdoors (mean age 31.1 ± 13 years) is observed ($p < 0.05$), while victims who had been found indoors (mean age 47.7 ± 15 years) were also older than the victims found outdoors (mean age 39.1 ± 15 years) ($p < 0.001$). A statistically significant difference was observed between the mean age of individuals who had committed a

homicide indoors and the homicide victims who had been found indoors ($p < 0.05$); also, a significant difference was observed between the mean age of individuals who had committed a homicide outdoors and homicide victims who had been found outside ($p = 0.0004$). When a homicide was committed with hard, blunt objects or with objects of cutting or stabbing features, the crimes significantly differ according to the location of offence ($p = 0.028$). Homicides with hard, blunt objects were committed more often outdoors than indoors, while homicides committed with object of cutting or stabbing features were committed more often indoors than outdoors.

Relations between the homicide victims and convicted murderers: 10% of all homicide cases, the victim was a murderer's spouse; in 9% – brother or sister, in 2% of cases – the murderer's child, and 5% – mother or father. In more than half of the cases the victims knew their murderer, even though the victims were not family members. And only in 28% of cases the murderers did not know their victims.

In the 52.2% of homicide cases when a homicide was committed with hard, blunt objects, the mean age of individuals who had committed a crime was 33.6 ± 14 years. In homicide cases made with objects of cutting or stabbing features, which constitute 33.2%, the mean murderer age was 38.5 ± 14 years. In homicide cases made with a firearm (5.6%), the mean murderer age was 43.6 ± 21 years. In the 2.4% of cases when the homicides were commited using objects with chopping features, the mean murderer age was 65.7 ± 12 years. Other homicide methods were executed by individuals with the mean age of 32.3 ± 4 (Fig. 19). A statistically significant difference was observed between the murderer mean age when the homicide was commited with a hard, blunt object and the murderer mean age when a homicide was made with an object of cutting or stabbing features ($p = 0.02$). While investigating cases of whether the mean victim and suspect ages differ across the different homicide categories, the *independent samples T-test* was used.

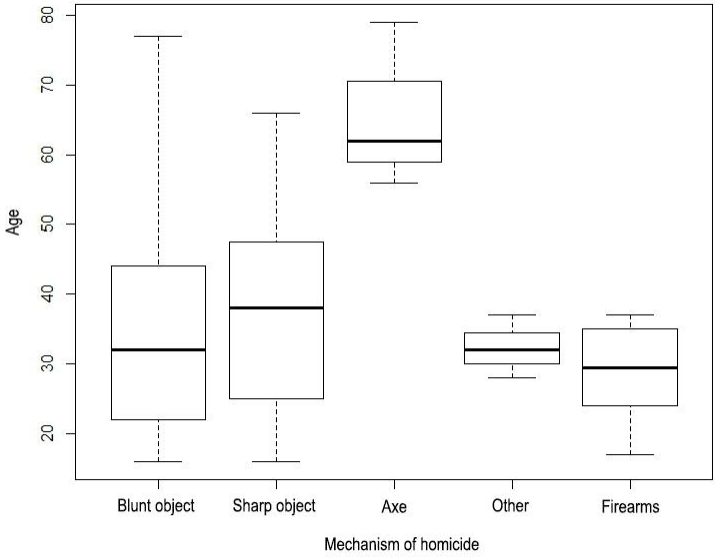

Fig. 19. Murderer age allocation according to the different homicide mechanism cases.

A reliable age difference was observed between the groups of homicide victims and murderers when homicides were committed with hard, blunt objects and when an objects of cutting or stabbing features were used. In both groups, the homicide victim was older than the murderer. In order to investigate whether a relation between the homicide victim and a murderer differs, age was evaluated with the *Paired Samples T-test* with correlations. In crimes where the homicide mechanism was a hard, blunt object, the mean age difference was 14 years, and in 95% of all cases the mean age difference of the homicide victim and murderer variated between 9.9 and 18.8 years. The difference is statistically significant (p = 0.0001); however, the correlation is weak (r = 0.202) and not statistically significant (Table 9).

Table 9. Homicide victim and murderer age allocation according to the different homicide mechanisms.

	Blunt object	Sharp object	Firearms	Axe	Other
Age of the homicide victims	49,5 ± 14,9	44,0 ± 15,3	38,5 ± 14,7	56,7 ± 16,7	37,0 ± 17,6
Age of the murderer	33,6 ± 14	38,5 ± 14	28,6 ± 7,6	65,7 ± 12	32,3 ± 4
Independent samples T-test	$p < 0,05$	$p = 0,03$	$p = 0,11$	$p = 0,28$	$p = 0,64$

If a homicide method is cutting or stabbing injuries, the age difference between the homicide victim and murderer was not high – 4.7 years – and variated from 0.6 to 8.8 years. This difference is statistically significant (p = 0.024), and there exists a statistically significant positive medium intensity correlation between the age of the homicide victim and murderer (Table 10). So, the older the victim is, the older the murderer is as well. The correlation was also reflected in the dispersion charts; however, it may be additionally seen that there exists a group different from the common graph, where young individuals, aged less than 25 years, have murdered persons older than 50 years (their parents).

Table 10. Age differences in both homicide mechanism groups.

	Mechanism of homicide	Difference of mean age (95%)
Age of the homicide victim and the murders (paired cases)	Blunt object	14,384 (9,970 – 18,797)
	Sharp object	4,745 (0,659 – 8,831)

The gender allocation of the homicide victims and murderers, according to the homicide mechanism, is also observed in the dispersion charts (Fig. 20). The group of men is much more often not only in the group of homicide victims but also in the group of murderers. While evaluating the gender proportions of homicide victims and murderers in the different groups according to the homicide mechanism, no statistically significant difference was found. *Fisher exact test* $p > 0.05$ (Tables 11–12).

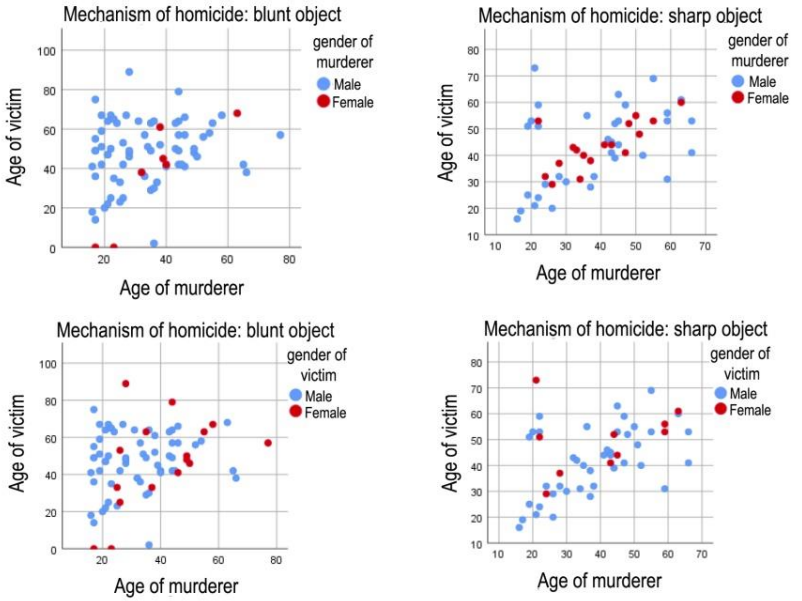

Fig. 20. Allocation of homicide victims and murderers.

However, in the group of homicides committed with objects of cutting or stabbing features, women had murdered men almost twice as much as men had murdered women.

Table 11. Homicides committed with hard, blunt objects.

		Murderer			Murderer		
		Male	Female	Total	Male	Female	Total
Homicide victims	Male	54	5	59	72,0%	6,7%	78,7%
	Female	14	2	16	18,7%	2,7%	21,3%
		68	7	75	90,7%	9,3%	100,0%

Fisher exact test p = 0,637

Table 12. Homicides committed with objects of cutting or stabbing features.

		Murderer			Murderer		
		Male	Female	Total	Male	Female	Total
Homicide victims	Male	25	16	41	49,0%	31,4%	80,4%
	Female	9	1	10	17,6%	2,0%	19,6%
		34	17	51	66,7%	33,3%	100,0%

Fisher exact test p = 0,135

However, if the gender matrix proportions would be compared in two homicide groups – blunt traumas and cases of cutting or stabbing injuries – then the proportions could be observed as statistically significant (p = 0.003, *Chi-square* = 13.75). In comparing the proportions, a statistically significant difference is observed only when both the homicide victim and the murderer were men. In this case, the blunt trauma proportion is higher (68.4%) than the cutting or stabbing injuries (31.6%). When the homicide victim is a man and the murderer a woman, the proportion of cutting or stabbing injuries (76.2%) is higher than the blunt traumas (23.8%) (Table 13).

Table 13. Homicide victim and murderer allocation according to gender.

	Blunt trauma		Stabbing - cutting		Total	
	N	%	N	%	N	%
Victim – male, murderer – male	54	72,0%	25	49,0%	79	62,7%
Victim – female, murderer – male	14	18,7%	9	17,6%	23	18,3%
Victim – male, murderer – female	5	6,7%	16	31,4%	21	16,7%
Victim – female, murderer – female	2	2,7%	1	2,0%	3	2,4%
Total	75	100,0%	51	100,0%	126	100,0%

In comparisons of the homicide victims and murderers, victims were placed in the suspect matrix, and the *Pearson* correlation coefficient and dispersion charts were used. Found correlations: if a homicide victim was a man and the person who had committed the homicide also a man, there was no relation between the ages of homicide victims and murderers. The correlation coefficient is not statistically significant (p = 0.273). If a homicide victim is a woman and the person who had committed the homicide was a man, the

relation was weak (r = 0.231); a statistically significant (p = 0.01) correlation was observed in such cases. In the dispersion chart, it is seen that the relation between the homicide victim and murderer could be stronger, and even their age could synchronize, but it would consist mainly of younger men who had murdered much older women than themselves. If a homicide victim is a man and the murderer a woman, the relation is of average intensity (r = 0.680) and statistically significant (p = 0.0001). The majority of women's ages coincide with the ages of murdered men. However, there is a segment of women who had killed infants, and these cases would only weaken this relation. If both the homicide victim and murderer were women, relation is strong (r = 0.757) and statistically significant (p = 0.003), although only 13 of these cases were identified.

CONCLUSIONS

1. A significantly strong correlation is observed between the homicide rate and the Lithuanian gross domestic product, which shows that homicide rates are increasing due to poverty.

2. Among all the investigated cases, the dominating cause of death was performed using a hard, blunt object, which was used in 52.2% of cases, while a stabbing or cutting object was used in 33.2% of cases. The dominating cause of death (68%) was observed to have been from injuries performed by one type of object. Comparing with the male group, women had experienced a higher number of traumatic afflictions. Homicides that were committed using objects with cutting or stabbing features were used more often in the men's group. In the female group, asphyxia was the most common mechanism of death. The offenders who had committed homicide using sharp, stabbing or cutting objects were more likely to be severely drunk. The victims who were sober, experienced 3 or less traumatic afflictions, and were attacked with hard, blunt objects during the crimes were more likely to have survived more than 24 hours.

3. Male victims contributed to the majority of homicide cases and made up 73% of cases. Younger men (45.5 ± 15 years) and older women (50.9 ± 17 years) made the majority of homicide victims. Of all cases, 58.6% homicide victims were intoxicated with ethyl alcohol. The majority of victims were unemployed and had only acquired primary or secondary education. In more than half of the cases (53%) the victims were acquainted with the murderers, but the murderers were not the victims' family members.

4. The male group contributed to the majority (87%) of cases as the murderers. The mean age of the murderers was 34.5 ± 14 years, and the mean age of female murderers – 38.5 ± 14 years. The majority (66%) of the offenders were intoxicated with ethyl alcohol. An occupational analysis revealed that the majority (73%) of them were unemployed and had achieved only primary or secondary education.

The most likely scenario of a homicide in Lithuania is when the murderer and the victim are both male.

RECOMMENDATIONS

The number of homicides committed by individuals younger than 18 years old comprise a quite low percentage of 10% of all cases. However, it is observed that the number of homicides committed by young people (younger than 18 years old) has been increasing. Only a few of the authors did observe these tendencies; however, the increase of underage crime, due to its peculiar nature, clearly deserves the attention of scientific study.

The maturity of younger, under 18-year-old individuals allows them to understand the consequences of homicide quite early, and that is why it would be appropriate to consider the question of whether a criminal liability for homicide should be applied to individuals younger than 14 years old.

During primary prevention, it is very important to form the following values in the individual: understanding of life, respect for life, respect for the individual and their rights, respect for family. Also, any violent statements (physical, psychological, sexual) the final stages of which could evolve into a homicide should be considered from the early days.

Secondary prevention is directed at individuals who have already committed a homicide and are carrying the sentence out; that is why recidivist prevention is important in this group, where complex means are essential – it is not only important to educate murderers; the duty of social workers in noticing families where latent violence manifests is also important.

While evaluating the criminal offences, including homicides, that were committed by individuals who had already been convicted for crimes by administering the penalties for homicide, it would be appropriate to consider administering a stricter criminal liability, also considering the gravity of the offence and the suspect's personality.

It is recommended to unify the rules/regulations of court medical examinations – autopsies. The homicide investigation variables can

serve as a basis for the development of a unified homicide rating system (register) in Europe. Such databases may include information regarding the method of homicide, the victim's and the offender's social profile, the place of the homicide, and the victim's relationship with the offender.

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