

## FORENZIČKI ASPEKTI KOMPLIKOVANIH SAMOUBISTAVA

Tijana Gojković<sup>1</sup>, Ana Opanković<sup>2</sup>, Tatjana Atanasijević<sup>3</sup>, Tijana Petrović<sup>3</sup>

<sup>1</sup> Medicinski fakultet Univerziteta u Beogradu, Beograd, Republika Srbija

<sup>2</sup> Klinika za psihijatriju, Univerzitetski klinički centar Srbije, Beograd, Republika Srbija

<sup>3</sup> Institut za sudsku medicinu, Medicinski fakultet Univerziteta u Beogradu, Beograd, Republika Srbija

\* Korespondencija: doc. dr Tijana Petrović, Institut za sudsku medicinu, Medicinski fakultet Univerziteta u Beogradu, Delligradska 31A, Beograd, Republika Srbija; e-mail: [tijana.petrovic@med.bg.ac.rs](mailto:tijana.petrovic@med.bg.ac.rs).

### SAŽETAK

**Uvod/Cilj:** Komplikovana samoubistva (KS) su ona do kojih dolazi nakon što osoba počini jedno ili više ubistava. Ovaj društveni fenomen se javlja u kontekstu porodičnih tragedija. Učestalost je niska, ali se zbog tragičnog ishoda i posledica koje ostavlja na društvo javlja potreba istraživača širom sveta da obrađuju ovu temu. Cilj ove studije je analiza forenzičkih aspekata KS sa posebnim osvrtom na demografske karakteristike izvršilaca, način izvršenja ubistva i samoubistva i međusobni odnos žrtava i počinilaca KS, a kako bi se razumele okolnosti pod kojima nastaje, ali i rizik od pojave ovog društvenog fenomena.

**Metode:** Ovo je retrospektivna deskriptivna studija koja je obuhvatila osmogodišnji period (2015-2022). U studiju su uključeni svi pojedinci koji su izvršili samoubistvo nakon što su počinili jedno ili više ubistava. Podaci su dobijeni iz obdukcionih zapisnika i policijskih izveštaja osoba obdukovanih na Institutu za sudsku medicinu u Beogradu. Analizirane su demografske karakteristike, poreklo smrti, broj i lokalizacija rana, okolnosti slučaja, heteroanamnestički podaci, izjave svedoka, relacije između žrtava i ubica, motivi i toksikološke analize.

**Rezultati:** Izdvojeno je 19 KS i ukupno 39 nastradalih osoba. Žrtve su većinski bile ženskog (80%), a ubice muškog pola (89,5%). Ubice su od žrtava u proseku bile starije pet godina. Najveći broj ubica nije bio visoko obrazovan (84,2%), a veliki deo je imao neku psihijatrijsku dijagnozu (47,4%). Za obe komponente KS najčešće je korišćeno vatreno oružje (70-73,7%). Najviše se radilo o porodičnim odnosima (90%), najčešće partnerskim (60%). Vodeći motiv je bila ljubomora (45%), a potom loša finansijska i porodična situacija (25%) i milosrđe (15%).

**Zaključak:** KS nastaju u okviru porodice, najčešće vatrenim oružjem od strane muškaraca iz nižeg ili srednjeg društvenog sloja, koji su prethodno pokazali kritično ponašanje. Razlozi koji dovode do KS su ljubomora, svađe i bolest. Identifikovanjem komponenti KS moguće je sprečiti njihovu pojavu.

**Ključne reči:** komplikovano samoubistvo, vatreno oružje, psihijatrijsko oboljenje, ljubomora, sudska medicina

### Uvod

Komplikovana samoubistva (KS) su ona samoubistva koja nastaju kada pojedinac neposredno nakon zadesnog ili, što je i češće, namernog ubistva jedne ili više drugih osoba, ubije sebe (1,2). Različiti autori na osnovu vremenske distance između ubistva i samoubistva kao dve osnovne komponente ovog fenomena drugačije definišu KS (3). Jedni priznaju samo ubistva praćena samoubistvima počinjenim u prva 24 sata, a drugi podrazumevaju duži protok vremena, od nekoliko dana, do toga da se u nekim studijama

ne koristi vremensko ograničenje (4–6). U novije vreme većina autora za vremeski okvir između ova dva događaja uzima period do 72 sata, odnosno do sedam dana, što podrazumeva da su u tom periodu nastale samoubilačke povrede, a sama smrt se može dogoditi i nakon definisanog perioda. Mada je učestalost pojave ovih događaja relativno retka u poređenju sa drugim zločinima koji imaju tragičan ishod, a što potvrđuju različite studije, oni ipak privlače pažnju, kako istraživača, tako i javnosti (7). Razlog za to je što se KS javljaju u kontekstu

## FORENSIC ASPECTS OF HOMICIDE-SUICIDE PHENOMENA

Tijana Gojkovic<sup>1</sup>, Ana Opankovic<sup>2</sup>, Tatjana Atanasijevic<sup>3</sup>, Tijana Petrovic<sup>3</sup>

<sup>1</sup> Faculty of Medicine, University of Belgrade, Belgrade, Republic of Serbia

<sup>2</sup> Clinic of Psychiatry, University Clinical Center of Serbia, Belgrade, Republic of Serbia

<sup>3</sup> Institute of Forensic Medicine, Faculty of Medicine, University of Belgrade, Belgrade, Republic of Serbia

Correspondence: Prim. dr sc. med. Milan Bjekic, City Institute for Skin and Venereal Diseases, Dzordza Vasingtona 17, Belgrade 11000, Republic of Serbia; Beograd, Republika Srbija; e-mail: milinkovski@gmail.com

### SUMMARY

**Introduction/Aim:** Homicide-suicides (H-S) are those suicides that occur after a person commits one or more murders. This social phenomenon occurs in the context of family tragedies. The frequency is low, but due to the tragic outcome, there is a need for researchers worldwide to address this topic. The aim of this study was to analyze the forensic aspects of H-S with special reference to the demographic characteristics of the perpetrator, the way of committing murder and suicide, and the mutual relationship between the victim and the perpetrator of H-S, in order to understand the circumstances under which it occurs, as well as the risk of this social phenomena.

**Methods:** This retrospective descriptive study covered an eight-year (2015-2022) period. The study included individuals who committed suicide after committing one or more homicides. Data were obtained from autopsy and police reports from the Institute of Forensic Medicine in Belgrade. Demographic characteristics, circumstances of the case, number and localization of wounds, hetero-amnestic data, relationships between victims and killers, motives, and toxicological analysis were analyzed.

**Results:** 19 cases of H-S and 39 victims were observed. The majority of victims were female (80%), and the killers were male (89.5%). The killers were 4.9 years older than the victims. The highest percentage of murderers were not highly educated (84.2%), and a lot of them had a psychiatric diagnosis (47.4%). For both components of H-S, firearms were most often used (70-73.7%). Most of them were in the family (90%), specifically in emotional relationships (60%). The leading motives were jealousy (45%), family and financial problems (25%), and mercy (15%).

**Conclusion:** H-S occurs within the family, most often using firearms by men from the lower social class, who have previously shown critical behavior. The reasons that lead to H-S are jealousy, quarrels, and illness. By identifying some of the components of H-S, it is possible to prevent their occurrence.

**Keywords:** homicide-suicide, firearms, mental illness, jealousy, forensic medicine

### Introduction

Homicides-suicides (H-S) are those suicides that occur when a person, immediately after the accidental, or more frequently, the intentional murder of one or more persons, kills himself (1,2). Different authors, according to the time distance between the murder and suicide as two basic components of this phenomenon, define H-S in different ways (3). Some recognize only those murders which are followed by suicides committed in the first 24 hours, while others include a longer period of time lasting up to several days, while in some studies, there are no time limitations

(4,6). Recently, most authors have considered the time frame between these two events to be 72 hours, that is, up to seven days, which means that suicidal injuries occurred during that period, while death itself could happen after the defined period. Although the frequency of occurrence of these events is relatively rare in comparison to other crimes that have a tragic outcome, which is confirmed in various studies, they attract the attention of researchers, and public, as well (7). The reason for that lies in the fact that H-S occurs in the context of family tragedies, which entails numerous

porodičnih tragedija, što sa sobom povlači brojna moralna, etička, psihijatrijska i sudskomedicinska pitanja. Okolnosti i način dešavanja ovog društvenog fenomena ostavljaju posledice na preživjele pojedince, ali i na društvo u celini (8).

Važnost ovog fenomena leži i u činjenici da različiti autori na drugačiji način sagledavaju ovaj tragični događaj. Prvi je taj da se radi o tipičnom ubistvu na koje se nadovezuje samoubistvo usled osećanja kajanja ili straha od predstojeće kazne, drugo je to da se radi o dvostepenom samoubistvu (usled intimne povezanosti žrtve i počinioca), a neki drugi autori ga smatraju izolovanim fenomenom koji se razlikuje od tipičnih ubistava i samoubistava po svojim karakteristikama i okolnostima pod kojima se dešava (8–10).

Uzimajući u obzir nisku učestalost ove pojave, istraživanja su malobrojna i najčešće su u pitanju studije deskriptivnog tipa. Prve studije, ali i najveći broj istih je sproveden u Sjedinjenim Američkim Državama (1,11,12). U Republici Srbiji, kao i u mnogim zemljama širom sveta, ne postoji registar KS, koji bi mogao da služi kao izvor informacija istraživačima koji su zainteresovani da obrađuju ovu temu i koji bi omogućio praćenje stope javljanja i smanjenje karakteristika KS kroz vreme (7).

Cilj ove studije je analiza forenzičkih aspekata KS sa posebnim osvrtom na demografske karakteristike izvršilaca, način izvršenja ubistva i samoubistva i međusobni odnos žrtava i počinilaca KS, a kako bi se razumele okolnosti pod kojima nastaje, ali i rizik od pojave ovog društvenog fenomena.

## Metode

Kao izvor podataka korišćenih u svrhe ove deskriptivne retrospektivne studije analizirani su obdukcioni zapisnici, policijski izveštaji kao i heteroanamnestički podaci dobijeni od osoba najbližih preminulima, a koji se tiču okolnosti slučajeve samoubistava i ubistava osoba koje su obdukovane na Institutu za sudsku medicinu Medicinskog fakulteta u Beogradu, u periodu 2015–2022. godine.

Imajući u vidu činjenicu da se u ovoj studiji analizira redak fenomen, kao i prethodno pomenute različite literaturne podatke koji se tiču vremenske diskrepance između počinjenja ubistava i samoubistva (3–6), u našu studiju su uključeni svi oni slučajevi osoba koje su izvršile samoubistvo, nakon što su u prethodnih sedam dana počinile jedno ili više ubistava. Pored obdukcioničkih zapisni-

ka počinilaca, analizirani su i obdukcioni zapisnici žrtava.

Razmatrane su opšte demografske karakteristike pojedinaca koji su bili izvršioци kao što su pol, uzrast, obrazovanje, bračni status i slično. Prikupljeni su i podaci o polu i uzrastu žrtava, kao i relaciji sa počiniocima. Iz policijskih izveštaja prikupljene su, a kasnije i analizirane, okolnosti o slučaju koje se tiču mesta događaja, oružja samoubistava i oružja ubistava. Iz obdukcioničkih zapisnika prikupljeni su podaci o broju i lokalizaciji rana, kao i prirodi, tj. poreklu smrti, kako ubica, tako i žrtava. Prikupljeni su i podaci koji se tiču prethodne osuđivanosti ubica, ali i podaci koji govore o tome da li je oružje kojim je izvršeno KS bilo u posedu ubice, pa samim tim i lako dostupno. U obzir i razmatranje su uzete sve izjave svedoka, ukoliko ih je bilo za dati slučaj. Iz heteroanamnestičkih podataka dobijenih tokom razgovora obducentata sa članovima uže porodice žrtava prikupljeni su podaci o slučaju, okolnosti koje se tiču potencijalnih motiva, ali i informacije o tome da li su izvršioци bolovali od neke somatske ili psihijatrijske bolesti, da li su konzumirali narkotike i alkohol tokom života, kao i sve atipično klasifikovane informacije koje su istraživači smatrali potencijalno korisnim za svrhe ove studije. Podaci o prisustvu narkotika u krvi u trenutku smrti, kao i alkoholemiji, dobijeni su hemijsko-toksikološkim analizama urađenim u Hemijsko-toksikološkoj laboratoriji Instituta za sudsku medicinu Medicinskog fakulteta Univerziteta u Beogradu.

Svi dobijeni podaci su obrađeni programom SPSS 26.0. Obrada rezultata izvršena je primenom deskriptivnih statističkih metoda. Svi podaci izraženi su u obliku aposlutnih i procentualnih učestalosti.

## Rezultati

U analiziranom osmogodišnjem periodu, na Institutu za sudsku medicinu Medicinskog fakulteta Univerziteta u Beogradu, je zabeleženo 19 komplikovanih samoubistava, od čega je u 18 stradala po jedna osoba pre samoubistva, a u jednom slučaju dve. To nam govori o ukupnom broju od 39 tragično nastradalih osoba, tj. 19 ubica i 20 žrtava. Najviše KS se dogodilo u 2015. (n=5) i 2017. (n=6) godini (tabela 1).

Žrtve KS su većinski bile ženskog pola i to 16 od 20 osoba (80%). Raspon njihovih godina je bio od 4 do 91, sa prosečnim uzrastom od 49,2±20,3

moral, ethical, psychiatric and forensic issues. The circumstances and ways of occurrence of this social phenomenon leave consequences for those who survived, and also for society as a whole (8).

The importance of this phenomenon also lies in the fact that different authors perceive this tragic event in a different way. The first refers to a typical murder followed by suicide due to feelings of remorse or fear of impending punishment, the second refers to the two-step suicide (due to the intimate relationship between the victim and the perpetrator), while some other authors consider it to be an isolated phenomenon that differs from typical murders and suicides in terms of its characteristics and circumstances under which it occurs (8,10).

Taking into consideration the low frequency of this phenomenon, there are few research studies and most often they are descriptive studies. The first studies, and also the largest number of them were conducted in the United States of America (1,11,12). In the Republic of Serbia, as well as in many countries around the world, there is no registry of H-S, which could be the source of information for researchers, who are interested in analyzing this topic and which would allow monitoring of the rate of occurrence and the change of the characteristics of H-S over time (7).

The aim of this study is to analyze the forensic aspects of H-S with a special insight into the demographic characteristics of perpetrators, ways of committing murder and suicide, and the relationship between the victims and perpetrators of H-S, in order to understand the circumstances under which it occurs, as well as the risk of occurrence of this social phenomenon

## **Methods**

Autopsy reports, police reports, as well as hetero-anamnestic data, were obtained from persons who were most closely related to the deceased, and which related the circumstances of suicides and murders of persons who were autopsied at the Institute of Forensic Medicine of the Faculty of Medicine in Belgrade in the period 2015-2022, were analyzed as the source of data used for the purpose of this descriptive retrospective study.

Considering the fact that a rare phenomenon is analyzed in this study, as well as the above-

mentioned literature data related to the time discrepancy between the murder and suicide (3-6), all cases of persons who committed suicide after having committed one or more murders in the previous seven days were included in our study. In addition to the autopsy records of perpetrators, the autopsy records of victims were also analyzed.

General demographic characteristics of perpetrators were analyzed, including sex, age, education, marital status, etc. Data on victims' sex and age were also collected, as well as data on the relationship with the perpetrators. The circumstances of the case related to the place, and weapons used in suicides and murders were collected from police reports and later analyzed. Data on the number and localization of wounds, as well as the nature, that is, the cause of death of both murderers and victims, were collected from autopsy reports. Data regarding the previous convictions of murderers were also collected, as well as data regarding the weapon with which the H-S was committed, including the fact whether it was in the possession of the murderer, and therefore, easily accessible. All witness statements for the given case, if there were any, were taken into consideration and analyzed. From the hetero-anamnestic data, which were obtained during the conversation between the coroner and the members of the closest family of victims, data on the case were collected, as well as on circumstances in terms of potential motives, and information on whether the perpetrators suffered from any somatic or psychiatric illness, whether they consumed narcotics and alcohol during their lifetime, and any atypically classified information that the researchers considered to be potentially useful for the purpose of this study. Data on the presence of narcotics in blood at the time of death, as well as alcoholemia, were obtained by chemical-toxicological analyses carried out at the Chemical-Toxicological Laboratory of the Institute of Forensic Medicine of the Faculty of Medicine, University of Belgrade.

All the obtained data were analyzed with the help of the SPSS 26.0 program. The analysis of results was conducted using descriptive statistical methods. All data were presented in the form of absolute and percentage frequencies.

**Tabela 1.** Učestalost javljanja KS u ispitivanom periodu

Godine	Slučajevi (N)	Ukupan broj žrtava (N)
2015	5	5
2016	1	1
2017	6	7
2018	1	1
2019	2	2
2020	2	2
2021	2	2
2022	1	1
<b>Ukupno</b>	<b>19</b>	<b>20</b>
<b>Prosečno za period 2015-2022.</b>	<b>2,4</b>	<b>2,5</b>

**Tabela 2.** Pol, bračni status i stepen obrazovanja ubica

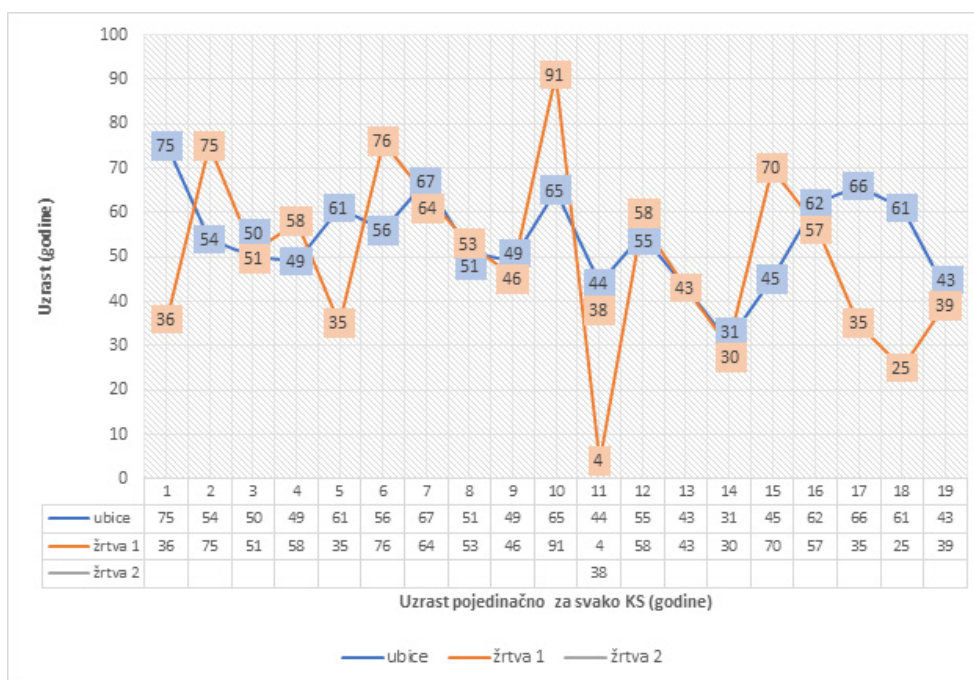
Karakteristike	N	%
<b>Pol</b>		
Muškarci	17	89,5
Žene	2	10,5
<b>Bračni status</b>		
Oženjen/udata	8	42,1
Razveden/a	6	31,6
Razveden/a	2	10,5
Neoženjen/neudata	3	15,8
<b>Stepen obrazovanja</b>		
Osnovno obrazovanje	4	21,1
Srednje obrazovanje	12	63,1
Visoko obrazovanje	3	15,8
<b>Ukupno</b>	<b>19</b>	<b>100</b>

godine, što ih čini u proseku oko pola decenije (4,9 godina) mlađim od ubica (grafikon 1). Žrtve su najčešće bile bivši ili sadašnji emotivni partneri počiniocu (60%), u 15% slučajeva roditelji, u 15% dete, a u 10% nadređena osoba.

Počinioci su predominantno bili muškog pola (89,5%) (tabela 2). Najmlađi počinitelj je bio star 31, a najstariji 75 godina, dok je prosečan uzrast bio  $54,1 \pm 10,7$  godine, oko pet godina više od prosečnog uzrasta žrtava (grafikon 1). U bračnoj ili vanbračnoj zajednici je bilo 8 (42,1%) ubica, 31,6% (6) su bili razvedeni, 10,5% (2) udovci/ce, a 15,8% (3) nisu nikada stupali u brak ili vanbračnu

zajednicu (tabela 2). Ubice su ređe imale završeno visoko obrazovanje (15,8%) i osnovno obrazovanje (21,1%), a najčešće završeno obrazovanje srednjeg stepena (63,1%) (tabela 2).

Kada govorimo o somatskim bolestima, šest (31,6%) ubica je imalo dijagnozu nekog oboljenja iz spektra kardiovaskularnih bolesti, a sledeća najčešća dijagnoza je bila šećerna bolest tipa 2 (15,8%). Od psihijatrijskih poremećaja ubice su imale depresiju ( $n=1$ ), agresivnost ( $n=1$ ), hronični moždani sindrom ( $n=1$ ), neuračunljivost ( $n=1$ ), šizofreniju ( $n=1$ ), alkoholizam ( $n=1$ ). Nedefinisane psihijatrijske dijagnoze su bile prisutne kod dve osobe (10,5%), za

**Grafikon 1.** Raspodela ubica i žrtava po uzrastu pojedinačno za svako komplikovano samoubistvo

**Table 1.** Frequency of occurrence of homicide-suicide phenomena in the observed period

Years	Cases (N)	Total number of victims (N)
2015	5	5
2016	1	1
2017	6	7
2018	1	1
2019	2	2
2020	2	2
2021	2	2
2022	1	1
Total	19	20
Average for the period 2015-2022	2.4	2.5

**Table 2.** Gender, marital status and level of education of murderers

Characteristics	N	%
<b>Gender</b>		
Male	17	89.5
Female	2	10.5
<b>Marital status</b>		
Married	8	42.1
Divorced	6	31.6
Widowed	2	10.5
Single	3	15.8
<b>Level of education</b>		
Elementary school	4	21.1
Middle school	12	63.1
Higher education	3	15.8
Total	19	100

**Results**

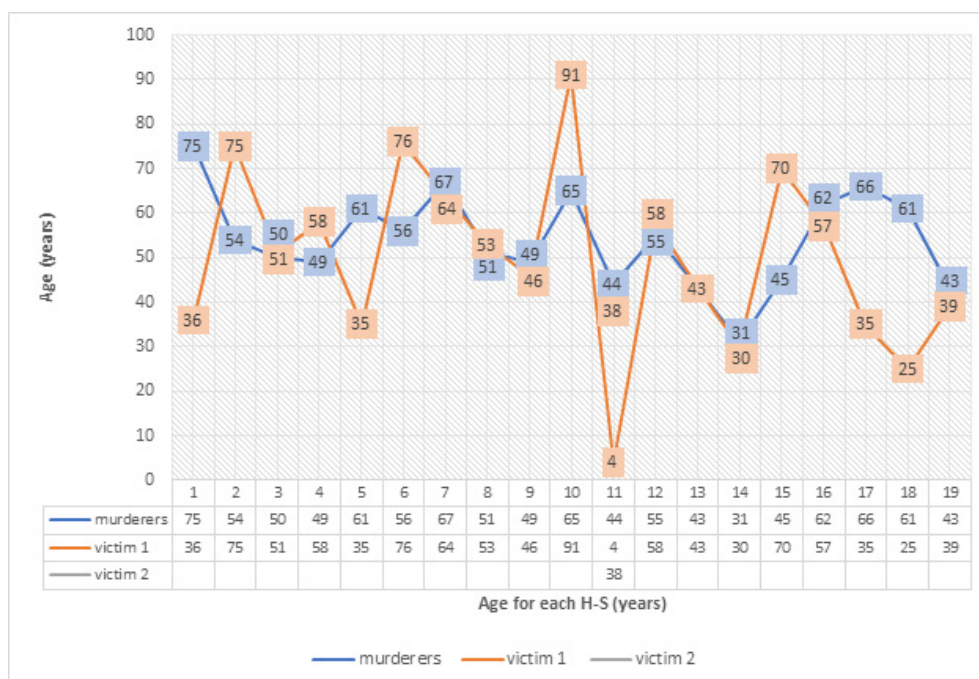
In the observed eight-year period, 19 complicated suicides were recorded at the Institute of Forensic Medicine of the Faculty of Medicine, University of Belgrade, while in 18 cases, one person died before the suicide, and in one case two persons died. This means that the total number of tragic deaths was 39, that is, 19 murderers and 20 victims. The largest number of H-S was in 2015 (n=5) and in 2017 (n=6) (Table 1).

The majority of victims were women, more precisely 16 out of 20 persons (80%). Their age ranged between 4 and 91 years, while the average

age was 49.2±20.3 years, which means that they were on average 4.9 years younger than murderers (Figure 1). The victims were most often former or current emotional partners of perpetrators (60%), parents in 15% of cases, children in 15% of cases, and superiors in 10%.

The perpetrators were predominantly male (89.5%) (Table 2). The youngest perpetrator was 31 years old, while the oldest was 75, and the average age was 54.1±10.7, which is about five years more in comparison to the victims' average age (Figure 1). There were 8 murderers (42.1%) who were married or lived in an illegitimate union, 31.6% (6)

**Figure 1.** Distribution of murderers and victims by age for each homicide-suicide case (H-S)



**Tabela 3.** Vrsta oružja korišćena za ubistva i samoubistva

	Ubistvo N (%)	Samoubistvo N (%)
Vatreno oružje	14 (70,0)	14 (73,3)
Hladno oružje-oštrica	5 (25,0)	3 (15,8)
Ruke-zagušenje	1 (5,0)	0
Kanap	0	1 (5,25)
Nasilno gladovanje	0	1 (5,25)
<b>Ukupno</b>	<b>20 (100,0)</b>	<b>19 (100,0)</b>

tri osobe (15,8%) nisu bili dostupni jasni podaci, a bez dijagnoze je bilo devet (47,4%) ubica.

Hetereoanamstički podaci govore o tome da je ukupno 9 (47,4%) od 19 ubica imalo barem jedan susret sa psihijatrom za života, kao i to da nijedan počinitelj nije pio psihijatrijsku terapiju u trenutku izvršenja KS, bez obzira na dijagnozu koju je imao.

Niko od počinitelja nije zloupotrebljavao narkotike tokom života, dok je osam (42,1%) njih zloupotrebljavalo alkohol. U trenutku smrti nijedan počinitelj nije imao narkotike u krvi, a alkohol je bio prisutan kod tri osobe i to u sledećim koncentracijama: 1,72‰, 0,65‰ i 0,17‰.

Prethodno krivično osuđivanih lica je bilo 26,3% (n=5), neosuđivanih 52,6% (n=10), dok su za 21,1% (n=4) podaci bili nepoznati. Osam od četrnaest ubica koji su počinili KS vatrenim oružjem je imalo dozvolu za korišćenje i bilo je vlasnik tog oružja. Pet osoba (26,3%) nije koristilo vatreno oružje za izvršenje KS, pa nisu ni mogle da budu vlasnici istog.

Ubistva su se većinski dogodila u urbanoj sredini 70% (n=14) u odnosu na ruralnu 30% (n=6). Predominantno je korišćeno vatreno oružje, kako za izvršenje ubistava 70% (n=14), tako i za izvršenje samoubistava 73,7% (n=14). Sledeće po učestalosti je bilo hladno oružje-oštrica i to za pet (25%) ubistava i tri (15,8%) samoubistva. Ruke počinioca su korišćene za izvršenje jednog (5%) ubistva zagušenjem. Korišćeni su i kanap za vešanje (5,25%) i nasilno gladovanje (5,25%) kao način da se izvrši po jedno samoubistvo (tabela 3). Žrtve su u 45% (n=9) slučajeva iskrvarile na smrt, a u 40% (n=8) je smrt nastupila usled višestrukih povreda glave. Usled politraume je preminulo 10% (n=2) žrtava, a 5% (n=1) usled zagušenja. Višestruke povrede glave nastale dejstvom projektila su bile vodeći uzrok smrti počinitelja 68,4% (n=13), a potom sa

opadajućom učestalošću iskrvarenje kod četiri (21,1%), ugušenje kod jedne (5,25%) i jakostepena pothranjenost kod jedne osobe (5,25%). Povrede na telu žrtava su najčešće bile u predelu glave i to kod osam osoba (40%), zatim u više regiona tela kod šest osoba (30%), na grudima pet (25%) i na vratu jedne žrtve (5%). Ubice su žrtvama najčešće nanosile više od jedne povrede što je registrovano na 12 tela (60%), a u jednom ekstremnom slučaju, ubica je naneo žrtvi preko 80 povreda oštricom.

Žrtve i ubice su se u svakom slučaju (100%) poznavale, nije bilo nasumičnih tragičnih događaja. U sedam (35%) slučajeva počinitelj je bio trenutni partner počiniocu, u pet (25%) bivši partner, u tri (15%) roditelj, u tri (15%) dete, a u dva (10%) zaposleno lice. Kao vodeći motivi za izvršenje KS izdvajaju se ljubomora, raskid i neuzvrćena ljubav u devet (45%), potom loša finansijska situacija i porodični problemi i nesuglasice u pet (25%), kao i patnja koju prolaze bližnji usled bolesti člana porodice u tri slučaja (15%). Jedno ubistvo praćeno samoubistvom je bilo pokrenuto pozitivnim simptomima u okviru kliničke slike šizofrenije (5%), a u dva slučaja motivi su ostali nepoznati (10%).

## Diskusija

Kako su KS retka pojava i registri ovih događaja u RS ne postoje ni na državnom, ni na lokalnim nivoima, nije moguće napraviti poređenje kroz prethodne godine i uvideti da li se njihova stopa javljanja povećava, smanjuje ili ostaje nepromenjena. Situacija je slična i u mnogim drugim zemljama (7).

Slično kao i u ostalim studijama, naši rezultati su pokazali da su ubice većinski bile muškog (89,1%), a žrtve ženskog pola (80%) (13,14). Raspon godina uzrasta napadača je bio od 31 do 74 godine, a najveći broj njih je bio u 5. ili 6. deceniji života. Žrtve su u proseku bile okopet godina mlađe, pri čemu je najmlađa žrtva imala 4, a najstarija 91 godinu. Gotovo svaki počinitelj je pre nego što je usmrtio sebe, usmrtio jednu osobu, a u jednom slučaju to su bile dve osobe. Američke studije kojih ima najviše i koje su prve sprovedene, ali i evropski podaci, govore o tome da je situacija približno ista i u drugim centrima (15,16). U Italiji, Britaniji, ali i našim istraživanjem, pokazano je da su počinioci najređe bili visoko obrazovani i da su najčešće pripadali niskoj do srednjoj društvenoj klasi (1,9,17). Među najizazovnijim podacima za prikupljanje i tumačenje bili su oni koji se tiču psihijatrijske di-

**Table 3.** Means of execution of murders and suicides

	Homicide N (%)	Suicide N (%)
Firearm	14 (70.0)	14 (73.3)
Cold weapon	5 (25.0)	3 (15.8)
Hands ( <i>Strangulatio manualis</i> )	1 (5.0)	0
Twine ( <i>Suspensio</i> )	0	1 (5.25)
Forced starvation	0	1 (5.25)
Total	20 (100.0)	19 (100.0)

were divorced, 10.5% (2) were widows/widowers, while 15.8% (3) had never married or lived in extramarital union (Table 2). The murderers less frequently completed higher levels of education (15.8%) and primary education (21.1%), while most frequently they completed secondary levels of education (63.1%) (Table 2).

As far as somatic diseases are concerned, six murderers (31.6%) had been diagnosed with some of cardiovascular diseases, while diabetes mellitus type two was the next most common diagnosis (15.8%). Of psychiatric disorders, the murderers had depression (n=1), aggressiveness (n=1), chronic brain syndrome (n=1), insanity (n=1), schizophrenia (n=1), and alcoholism (n=1). Undefined psychiatric diagnoses were present in two persons (10.5%), for three persons (15.8%), no clear data were available, and nine murderers (47.4%) were without a diagnosis. Heteroanamnestic data indicate that a total of 9 murderers (47.4%) of 19 murderers had at least one meeting with a psychiatrist during their lifetime, as well as that none of them took the psychiatric therapy at the time when H-S was committed, regardless of the diagnosis he had.

None of the perpetrators used narcotics during their lifetime, while 8 of them (42.1%) used alcohol. At the moment of death, none of the perpetrators had narcotics in blood, and alcohol was present in three persons in the following concentrations: 1.72‰, 0.65‰, 0.17‰. 26.3% persons had been previously convicted (n=5), 52.6% had not been convicted (n=10), while data were unknown for 21.1% (n=4). Eight out of fourteen murderers who committed H-S with a weapon had a license to use and were the owners of that weapon. Five persons (26.3%) did not use the weapon to commit H-S, so they could not be the owners.

The majority of murders took place in urban areas (70%, n=14) in comparison to rural areas (30%, n=6). Firearms were predominantly used, both for the execution of murders (70%, n=14) and for committing suicide (73.7%, n=14). According to its frequency, the next was a cold weapon – blade in five murders (25%) and three (15.8%) suicides. The perpetrator's hands were used to commit one of the homicides (5%) by strangling. Hanging rope (5.25%) and forced starvation (5.25%) were used as a way to commit the suicide (Table 3). Victims bled to death in 45% (n=9) cases, while in 40% of cases (n=8) death occurred due to multiple head injuries. 10% of victims (n=2) died due to polytrauma, and 5% (n=1) due to strangling. Multiple head injuries, which were caused by projectiles, were the leading cause of death of perpetrators in 68.4% (n=13) of cases, followed by bleeding to death in 4 (21.1%), strangling in one (5.25%) and severe malnutrition in one person (5.25%). The injuries on the victims' bodies were most often in the area of head, that is, in eight persons (40%), then in several body regions in six persons (30%), on the chest in five persons (25%) and on the neck in one victim (5%). The murderers usually inflicted more than one injury, which was registered on 12 bodies (60%), and in one extreme case, the murderer inflicted over 80 injuries with a blade.

In all cases (100%), the victims and murderers knew each other, and there were no random tragic events. In seven cases (35%), the perpetrator was the current partner, in five (25%) former partner, in three (15%) a parent, in three (15%) a child, and in two (10%) an employee. Jealousy, breakup, and unrequited love were the leading motives for the execution of H-S in nine cases (45%), then bad financial situation, family problems and disagreements in five (25%), and suffering that the closest people go through due to the illness of a family member in three cases (15%). One murder followed by suicide was triggered by positive symptoms within the clinical symptoms of schizophrenia (5%), and in two cases motives remained unknown (10%).

## Discussion

Since H-S is a rare phenomenon and there are no registries of these events in the Republic of Serbia either at the state or local levels, it is not possible to compare the previous years and



jagnoze počinitelaca. Rezultati naše studije su pokazali da je gotovo polovina ubica u trenutku izvršenja KS imala prethodni susret sa psihijatrom i neku vrstu psihijatrijske dijagnoze, gde nije uočeno da se neka svojom učestalošću posebno izdvaja. Kod onih koji su izvršili KS u sklopu ljubavnih odnosa, usled ljubomore, neprihvatanja raskida i slično, članovi porodice najčešće navode prethodno ispoljenu agresivnost, posete psihijatru u privatnom okruženju, odlazak u dnevne bolnice. U svakom slučaju nije zabeležena redovnost u posetama lekaru, a nijedan počinitelj nije bio ni na psihonijednoj terapiji. To može biti posledica trenutne društvene situacije u kojoj mentalna higijena ne zavređuje dovoljno pažnje, a posebno u manjim sredinama i nižim slojevima društva.

Počinioci koji su izvršili KS u sklopu porodičnih odnosa, a da ljubomora nije bila vodeći motiv, najčešće se opisuju od strane članova porodice kao depresivni u vremenu koje je prethodilo događaju. Jedno KS je izvršio počinitelj sa dijagnostikovanom šizofrenijom, a upravo se bolest i navodi kao glavni motiv. Drugi autori takođe uviđaju značaj psihičkih bolesti u izvršenju KS i u skladu sa dobijenim rezultatima preporučuju da se više pažnje usmeri mentalnom zdravlju u cilju prevencije ovih događaja (18,19).

Najčešće korišćena oružja za KS su bila vatrena oružja (70-73,7%) i to u nešto nižem procentu nego što su pokazale referentne studije (80-97%) (14,20). Razlog za ovakve rezultate može biti mali uzorak, a takođe i novi načini za izvršenje KS koji se razvijaju kroz vreme. Za 42,1% ubica je pokazano da su bili vlasnici oružja i/ili da su imali dozvolu za korišćenje, a većina KS je izvršena upravo vatrenim oružjem. To postavlja pred nas mnoga pitanja koja se tiču kontrole korišćenja oružja i da li je laka dostupnost jedan od faktora rizika za KS. Trebalo bi predložiti reviziju zakona koji se tiču posedovanja i korišćenja vatrenog oružja i strogo ih kontrolisati, što predlažu i drugi autori (2).

Posebno interesantni podaci se tiču broja i lokalizacije rana. Najčešće se radilo o nanošenju više od jedne povrede (60%), čak i kada za to nije bilo potrebe, tj. kada je ubistvo kao primarni cilj već bilo počinjeno. U literaturi je ovaj fenomen poznat kao „overkill” fenomen (21).

Dakle, u slučajevima „overkill” fenomena ubice su žrtvama nanosile daleko veći broj povreda nego što je dovoljno za nastupanje smrtnog ishoda, a što se prvenstveno povezuje sa emo-

tivnom motivacijom za izvršenje ovog krivičnog dela. Sa druge strane, bilo da se radi o jednoj ili više povreda, počinioci su u najvećem broju slučajeva ciljali da povrede nanesu u predelu glave i grudnog koša, a naročito kada se radilo upravo o emotivnim odnosima. Sva KS koja su obuhvaćena ovim istraživanjem su bila počinjena od strane osobe koja poznaje žrtvu, a u 90% KS radilo se o porodičnim odnosima. Vodeće mesto su zauzeli partnerski odnosi (60%), a odmah za njima odnosi na relaciji roditelj-dete (30%) i to u oba smera. Prethodno opisani načini ubistva se mogu objasniti upravo ličnim odnosom ubice i žrtve i može se uvideti obrazac koji govori u prilog zločina iz strasti. Ovi podaci odgovaraju podacima iz citiranih istraživanja. Ono što su bili vodeći motivi da se počini KS jesu ljubomora, raskid i neuzvrćena ljubav. U pozadini ovoga, kako navode stručna lica, a protivno pogrešnom shvatanju laika, ne stoji ljubav, već aktiviranje niskih pobuda, povređena sujeta i gubitak kontrole. Uzimajući u obzir da ove karakteristike odgovaraju zločinu iz strasti, korisno je u istraživanja koja se bave ovom temom uključivati psihijatre koji svojom ekspertizom mogu bolje i bliže da protumače karakteristike ovako kompleksnih zločina, ali i karakteristike samih počinitelaca. Sve navedeno pomaže da se shvati rizik od ove društvene pojave. Sledeće porodične situacije su se ticale bolesti jednog člana porodice koja je znatno ometala normalan život i funkcionisanje, pa su ova KS počinjena iz milosrđa i na manje dramatičan način od prvih spomenutih. To je po pravilu podrazumevalo manji broj povreda, najčešće samo jednu, a ovim događajima su prethodili planovi, ali ne i svađe.

KS usled finansijskih problema su najčešće prethodile svađe i depresivnost. Najređe se radilo o lošim odnosima radnika i nadređenih lica koji su svojom kulminacijom doveli do KS (10%). Definišući odnose između ubica i žrtava i prepoznavanjem verovatnog motiva za KS, neki autori su napravili klasifikaciju KS, koja se razlikuje od klasifikacije napravljene na osnovu psihopatologija ubica (15,18).

Bez obzira na to što učestalost KS nije visoka, svojim sadržajem ona zaslužuju određenu pažnju javnosti i medicinskog osoblja. Engleski autori su došli do podataka da se većina ubica javila psihijatru ili lekaru opšte prakse, u periodu od mesec dana koji je prethodio KS (22).

realize whether their rate of occurrence increased, decreased or remained unchanged. The situation is similar in many other countries (7).

Similar to the results of other studies, our results showed that the majority of murderers were males (89.1%), while the majority of victims were females (80%) (13,14). The age of perpetrators ranged from 31 to 74 years, while the largest number of them were in the 5th or 6th decade of life. Victims were approximately 5 years younger, on average, while the youngest victim was 4 years old and the oldest was 91. Almost every perpetrator, before he killed himself, had killed one person, and in one case two persons. American studies, which were conducted first and which are the most numerous, as well as the European data speak about the similar situation in other centers (15,16). In Italy, Britain, and in our study, it was shown that the perpetrators were rarely highly educated, and that they most frequently belonged to lower or middle social class (1,9,17). The most challenging data for collecting and analyzing were those related to the psychiatric diagnosis of perpetrators. The results of our study showed that almost half of murderers at the moment of execution of H-S had previously met a psychiatrist and had a psychiatric diagnosis, where it was not noticed that some of them stood out. In those who committed H-S within love relationships, due to jealousy, non-acceptance of breakup and similar things, family members most often cited previous aggressiveness, visits to a psychiatrist in a private setting, going to day hospitals. In any case, regular visits to the doctor were not observed, and none of the perpetrators were under psychiatric care or received drug therapy. This may be the consequence of the current social situation in which the mental hygiene does not deserve enough attention, and especially in smaller environments and lower strata of society. The perpetrators who committed H-S within family relations, when jealousy was not the leading motive, they were most often described by family members as depressed during the time that preceded the event. One H-S was committed by a perpetrator diagnosed with schizophrenia, and the disease itself was stated as the main motive. Other authors also perceive the significance of mental diseases in the execution of H-S and in accordance with the obtained results, recommend that more attention should be directed towards mental health aimed at preventing these events (18,19).

The most frequently used weapons for H-S were firearms (73.7%), and in a somewhat lower percentage than the reference studies showed (80-97%) (14,20). The reason for these results can be a small sample, and also new ways of execution of H-S that develop over time. It has been shown that 42.1% of murderers were owners of guns and/or that they had a license to use them, while the majority of H-S was committed with a firearm. This raises many questions related to the control of the use of guns and whether availability is one of the risk factors for H-S. A revision of laws related to the possession and use of firearms should be recommended and they should be strictly controlled, which is proposed by other authors, as well (2).

Particularly interesting data are related to the number and localization of wounds. Most often it was about inflicting more than one injury (60%), even when there was no need for that or when murder like the primary goal had already been accomplished. This phenomenon is known as the "overkill phenomenon" in the literature (21). Thus, in case of "overkill phenomenon", murderers inflicted a far greater number of injuries on their victims than it was sufficient for the fatal outcome, which is primarily associated with the emotional motivation for the execution of this crime. On the other hand, no matter whether it is one or more injury, the perpetrators in most cases aimed to inflict injuries in the area of head and chest, especially when it was about emotional relationships. All H-S that are included in this research were committed by the person who knew the victim, and in 90% within family relationships. The leading place belongs to partnership relations (60%), followed by relations parent-child (30%) in both directions. The previously described ways of homicide can be explained by the personal relationship between the killer and the victim, and one can see the pattern that speaks in favor of crime of passion. These data correspond to the data from the cited studies. The leading motives for committing H-S were jealousy, breakup and unrequited love. In the background of this, as it is stated by experts, and contrary to the misconception of laymen, it is not love, but activation of low motives, hurt vanity and loss of control. Given that these characteristics correspond to the crime of passion, it is useful to include psychiatrists in research dealing with this topic, because they can, with their expertise, analyze more closely the characteristics of such

Pronađena je veza između potencijalno nasilnih adolescenata i kasnije počinitelja. Podatke ovog tipa je izuzetno teško prikupiti, a pre svega je potrebno izgraditi pravilan odnos javnosti sa lekarima i mentalnim tegobama. Ono što je naša studija pokazala, a tiče se prethodnog kritičnog ponašanja ubica, jeste da je 26,3% njih prethodno bilo krivično osuđivano, gotovo polovina je zloupotrebljavala alkohol, dok se u izjavama bližnjih neretko pronalaze navodi koji govore da su ranije tokom života pokazivali agresivno ponašanje. Uzimajući u obzir prirodu i karakteristike ovih podataka nije ih moguće obraditi uobičajenim statističkim metodama, ali ih je važno spomenuti i o njima prodiskutovati. Identifikacija psihičkih bolesti i ponavljanih obrazaca lošeg ponašanja su mogući vid prevencije ovih, ali i sličnih događaja.

Potencijalna ograničenja našeg istraživanja bi mogla da se, pre svega, tiču broja analiziranih KS (n=19). Iako su rezultati naše studije u korelaciji sa referentnim studijama, važno je istaći da na malom uzorku kakav je obrađen u ovoj studiji postoji veća verovatnoća da dođe do odstupanja od uobičajenih vrednosti. Potom, kako je ovo istraživanje rađeno na Institutu za sudsku medicinu u Beogradu gde se obdukuje najveći broj slučajeva u Republici Srbije, njime ipak nisu obuhvaćene sve obdukovane osobe u našoj zemlji. Tekstualni zapisnici koji se zbog svog kvalitativnog sadržaja teško analiziraju i ostavljaju prostor za subjektivni istraživački doživljaj. Pored svega navedenog, mi ipak smatramo da smo uspeli da dobijemo adekvatne i objektivne rezultate i formiramo senku profila ličnosti osoba koje počinje KS, definišemo i objasnimo okolnosti pod kojima se KS događaju, kao i da predočimo koji je značaj, ali i rizik od ovog društvenog fenomena, što je i bio cilj naše studije. Pored zabeleženih slučajeva KS, analizom obdukcioničkih zapisnika primećen je nezanemarljiv broj pokušaja izvršenja KS. Ono što ih razlikuje od KS jeste to što su napadač ili žrtva preživeli jer je povreda bila nedovoljna da usmrti nekog od učesnika momentalno, a medicinska pomoć brza i efikasna. Iako pokušaji KS nisu bili predmet ove studije, smatramo da je njihov značaj podjednak, jer po svojim karakteristikama i sadržaju oni odgovaraju KS i predlažemo da se u nekim narednim studijama na ovu temu uključe u analizu.

## Zaključak

Našom studijom se potvrđuje postojeći obrazac komplikovanih samoubistava. Najčešće se ovi događaji dešavaju u okviru porodice, od strane muškaraca i vatrenim oružjem. Karakteristike ovog fenomena ostaju iste ili slične kroz vreme, a pitanja koja se tiču prevencije ostaju otvorena. U skladu sa dobijenim rezultatima predlažemo da se fokus stavi na uzročne mehanizme kako bi se bolje razumeo, predvideo i potencijalno prevenirao izvestan broj ovih događaja. Potrebno je posvetiti više pažnje mentalnom zdravlju, uočiti negativne obrasce ponašanja u ranim godinama i ne ignorisati najavu ovih događaja koja gotovo po pravilu prethodi samom događaju. Korišćenje i posredovanje vatrenog oružja bi trebalo da bude strogo kontrolisano. Sa što većim brojem prikazanih slučajeva KS, ali i KS u pokušaju, pomažemo da buduća istraživanja budu sadržajna i omogućće nam kvalitetnije prediktivne i preventivne strategije.

## Konflikt interesa

Autori su izjavili da nema konflikta interesa.

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complex crimes, as well as the characteristics of perpetrators. All of the above mentioned helps to realize the risk of this social phenomenon. In some family situations, when one member was ill and the disease disturbed normal life and functioning, the H-S was committed from mercy and in a less dramatic manner than the previously mentioned H-S. As a rule, it included fewer injuries, usually only one, and these events were preceded by plans, but not by quarrels. Due to financial problems, H-S was most often preceded by quarrels and depression. Bad relations between workers and their superiors, which culminated in H-S, were the rarest (10%). By defining the relationships between murderers and victims, and recognizing the probable motive for H-S, some authors have made the classification of H-S, which is different from the classification made according to the psychopathology of murderers (15,18).

Regardless of the fact that the frequency of H-S is not high, their content deserves a certain attention of the public and medical staff. English authors have come to the data that most murderers reported to a psychiatrist or general practitioner, in the month that preceded the H-S (22). A link was found between potentially violent adolescents and later perpetrators. It is difficult to collect such data, and first of all, it is necessary to build a proper attitude of public towards doctors and mental difficulties. What our study showed, concerning the previous critical behavior of murderers, was that 26.3% of them had been previously convicted, while almost half of them abused alcohol and their closest relatives stated that they had been aggressive before. Taking into consideration the nature and characteristics of these data, they cannot be analyzed with the help of usual statistical methods, but they should be mentioned and discussed. The identification of mental illnesses and repeated patterns of bad behavior are a possible form of prevention of these and similar events.

The potential limitations of our study could be related, first of all, to the number of analyzed H-S (n=19). Although the results of our study are correlated with the reference studies, it is important to point out that in a small sample like the one analyzed in this study, deviation from usual values is highly probable. Furthermore, although this study was conducted at the Institute of Forensic Medicine in Belgrade, where the

largest number of autopsies in the Republic of Serbia is performed, not all autopsied persons were included. Also, written records are difficult to be analyzed due to their qualitative content and they leave room for subjective researcher's perspective. In addition to the above mentioned, we still believe that we managed to get adequate and objective results and create a shadow of the personality profile of persons who commit H-S, define and explain the circumstances under which H-S were committed, as well as to present the importance and risk of this social phenomenon, which was the aim of this study.

In addition to the recorded cases of H-S, the analysis of autopsy reports showed a non-negligible number of attempts of H-S. What makes them different from H-S is that the attacker or victim survived because the injury was not sufficient to kill one of the participants immediately, while medical assistance was fast and efficient. Although attempts of H-S were not the subject of this study, we think that they are equally important because, according to their characteristics and content, they correspond to H-S, and therefore, they should be included in the analysis in some future studies on this topic.

## **Conclusion**

The existing pattern of complicated suicides is confirmed in our study. Most frequently, these events take place within the family, they are committed by men and using the firearms. The characteristics of this phenomenon remain the same or similar over time, while the questions of prevention remain open. In accordance with the obtained results, the focus should be placed on causal mechanisms in order to better understand, predict and potentially prevent a certain number of these events. It is necessary to pay more attention to mental health, notice negative patterns of behavior in the early age and not ignore the announcement of these events, which almost as a rule precedes the event itself. Using and owning of firearms should be strictly controlled. With more presented cases of H-S, and attempts of H-S, we help future research be more comprehensive and allow us better predictive and preventive strategies.

## **Competing interests**

The authors declared no competing interests.

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