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Gender differences in suicide in Serbia within the period 2016–2020

Polne razlike osoba koje su izvršile samoubistvo u Srbiji u periodu od 2016. do 2020. godine

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Abstract

Background/Aim. About one million suicide deaths occur worldwide annually, which indicates the importance of this problem. The aim of the study was to give an overview of the status of gender differences in suicides committed in Serbia from 2016 to 2020 and to highlight the most important trends over the past ten years. This investigation continues the previous one from the period 2011–2016. **Methods.** The same method was used as in previous investigations with data obtained from the Statistical Office of the Republic of Serbia, estimating gender differences for the total number of suicides, suicide rates, sociodemographic characteristics of suicidal victims, and methods of suicide. **Results.** Within the period 2016–2020, 4,752 suicides in Serbia were committed; among them, 75.1% were males (m) and 24.9% females (f) – m : f = 3 : 1. The annual suicide rate showed a constant decrease from 2016 to 2020, and in 2020, it was the lowest (13 per 100,000 inhabitants). Married men (43.4%) and widowed women (38.6%), retired, with secondary education most often committed suicide. About a quarter (24.5%) of suicide committers were older than 75, and 42.6% were older than 65 years. Hanging, strangulation, and suffocation were the most common suicide methods – 64% (m) and 54.9% (f). **Conclusion.** In the last decade, the suicide rate continued to decrease in Serbia year by year. Within the period 2016–2020, the m/f ratio of suicide rate in the age differences varied from 2.4 in the oldest group (older than 75 years) to 9.1 in the group of adolescents. The Suicide Prevention Program in Serbia should be primarily targeted at two age groups at the highest risk of committing suicide, the old adult population and male adolescents. A comprehensive state prevention program should include education for general practitioners for early detection of high-risk individuals to provide them with psychiatric care, including support for suicide survivors.

Key words:
aged; epidemiology; gender identity; risk factors; serbia; suicide.

Apstrakt

Uvod/Cilj. U svetu se izvrši oko milion samoubistava godišnje, što ukazuje na značaj tog problema. Cilj rada bio je da se prikažu polne razlike kod osoba koje su izvršile samoubistvo u Srbiji u periodu od 2016. do 2020. godine i da se ukaže na najvažnije trendove u prethodnih 10 godina. Rad je nastavak istraživanja samoubistva u Srbiji za period od 2011. do 2016. godine. **Metode.** U istraživanju je korišćena jednaka metoda kao i u prethodnim istraživanjima, sa podacima dobijenim od Zavoda za statistiku Republike Srbije, procenom polne razlike za ukupan broj i stopu samoubistava, sociodemografskih karakteristika žrtava samoubistava i metoda samoubistava. **Rezultati**. U periodu od 2016. do 2020. ukupan broj samoubistava u Srbiji iznosio je 4 752, od čega su 75,1% bili muškarci (m), a 24,9% žene (ž) – m : ž = 3 : 1. Godišnja stopa samoubistava je konstantno opadala od 2016. do 2020. godine i 2020. godine bila je najniža (13 na 100 000 stanovnika). Samoubistvo su najčešće izvršili oženjeni muškarci (43,4%) i udovice (38,6%), sa srednjim obrazovanjem, u penziji. Oko četvrtine (24,5%) samoubistava izvršile su osobe starije od 75 godina, a 42,6% osobe starije od 65 godina. Vešanje, davljenje i gušenje su bile najčešće metode samoubistva, 64% (m) i 54,9% (ž). **Zaključak.** Stopa samoubistava u Srbiji u poslednjoj deceniji je u opadanju iz godine u godinu. U periodu od 2016. do 2020. godine odnos stope samoubistva m/ž varirao je u starosnim grupama, od 2,4 u grupi starijih od 75 godina do 9,1 u grupi adolescenata. Program prevencije samoubistva u Srbiji prvenstveno treba da bude usmeren na dve starosne grupe sa najvećim rizikom od samoubistva, na grupu starih osoba i na adolescente muškog pola. Sveobuhvatni državni program prevencije trebalo bi da bude usmeren na edukaciju lekara opšte prakse za rano otkrivanje visokorizičnih pojedinaca kako bi im se pružila psihijatrijska pomoć, uključujući i podršku preživelima.

Ključne reči:
stare osobe; epidemiologija; pol; faktori rizika; srbija; samoubistvo.

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Introduction

Around one million suicide deaths occur worldwide annually, which indicates the importance of this problem. According to the World Health Organization (WHO), in 2019, the global suicide rate was estimated at 11.6 per 100,000 inhabitants [1].

There are wide geographic differences in suicide rates. Most suicides (nearly 79%) occurred in low and medium-income countries [2]. The core of the problem of suicide mortality has shifted from Western Europe to Eastern Europe but now seems to be shifting to Asia. According to the WHO, the biggest suicide rate in the world occurred in Eswatini (former Swaziland) (29.4 per 100,000 inhabitants) and in South Korea (28.6 per 100,000 inhabitants) [1]. In India, a rising trend of suicide rates has been observed over the last five decades [3].

Of the total number of deaths in Europe, 1.4 % is related to suicide [4].

Six of the top ten countries with the highest suicide rates internationally are from Europe [4]. According to the WHO, in 2019, the leading country was Lithuania, with a suicide rate of 26.1 per 100,000 inhabitants, where the highest suicide rate among males was registered (61.2 per 100,000 inhabitants). In South Korea, the top world suicide rates occur among females (22.1 per 100,000 inhabitants) [1, 3].

Gender differences in suicide are observed across the countries of the European Union. Therefore, death rates from suicide are four to five times greater for men (average rate 20.7 per 100,000 inhabitants) than women (average rate 4.7 per 100,000 inhabitants) [5].

The male (m) – female (f) rate ratio (m/f ratio) of suicide is estimated to be the highest in the European region (m : f – 4.0 : 1), but the lowest is in the Eastern Mediterranean region [2].

Among males, the highest suicide rate is observed in the following groups: Europe in the 45–59 age group, the South East Asian region in the 15–29 age group, and the Western Pacific region for ages above 60 [2, 6].

The remarkably high suicide rate among females is observed in Southeast Asia (15–29 years) and the Western Pacific region (from age 45) [2, 6].

By age, although suicide attempts are more frequent among adolescents and young adults, older men and women show the highest suicide rate in almost all countries worldwide [7, 8].

Over the last ten years, the suicide rate in the elderly has been almost two times higher than in young people [9–11]. The suicide rate increased with age among persons older than 60, and the highest suicide rate is among persons aged over 70 [4].

According to data obtained from the Statistical Office of the Republic of Serbia - Department of Demography (SORS), the suicide rate began constantly decreasing in 2006, and this tendency continued in the following five-year period (2011–2015) [12, 13].

This study continues previous investigations of suicide in Serbia [12, 13]. The aim of the study was to present gender differences in suicide mortality in Serbia during the period between 2016 and 2020 and highlight the most important trends over the past ten years.

Methods

The study analyzed trends of suicide in Serbia using the data from the past 5 years, from 2016 to 2020. The distribution of different important sociodemographic characteristics of suicide by gender differences, including age group, education, employment, marital status, nationality, and method of suicide, was analyzed.

As for previous investigations, data were obtained from the SORS.

This study included data on all suicides committed in Serbia (Central Serbia and Vojvodina) during the 5-year observed period (2016–2020).

Annual suicide rates per 100,000 inhabitants were calculated using the population data for the total population and for the male and female populations separately.

Classification of data related to suicide methods was defined based on the International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-X Code), WHO.

Results

It can be noted that the highest suicide rate for Serbia as a whole in the observed period was 14.3 per 100,000 inhabitants in 2017, with a decreasing tendency in the following years, and the lowest rate was 13 per 100,000 inhabitants in 2020.

The m/f ratio in the suicide rate for the total group varied from 2.88 in 2016 to 3.38 in 2020. The highest suicide rate for males in the observed period was 22.3 per 100,000 inhabitants in 2017, with a decreasing tendency in the following years, and the lowest rate was 20.3 per 100,000 inhabitants in 2020. The highest suicide rate for females in the observed period was 7.1 per 100,000 inhabitants in 2016, and the lowest was 6.0 per 100,000 inhabitants in 2020 (Table 1).

Table 1

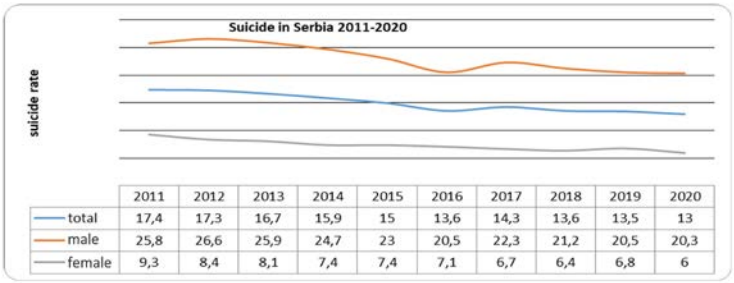
Gender differences in annual suicide rate (SR) per 100,000 inhabitants in Serbia within the period 2016–2020

Year of suicide	Total SR	Males SR	Females SR	m/f ratio
2016	13.6	20.5	7.1	2.88
2017	14.3	22.3	6.7	3.32
2018	13.6	21.2	6.4	3.31
2019	13.5	20.5	6.8	3.04
2020	13.0	20.3	6.0	3.38

m/f = male/female.

A declining trend in the suicide rate in Serbia as a whole has been noted in the last 10 years (Figure 1).

The gender differences in sociodemographic data (marital status, educational level, employment, and nationality) are shown in Table 2.



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
total	17,4	17,3	16,7	15,9	15	13,6	14,3	13,6	13,5	13
male	25,8	26,6	25,9	24,7	23	20,5	22,3	21,2	20,5	20,3
female	9,3	8,4	8,1	7,4	7,4	7,1	6,7	6,4	6,8	6

Fig. 1 – Annual suicide rate (per 100,000 inhabitants) in males and females in Serbia within the period 2011–2020.

Table 2

Gender differences in marital status, educational level, employment, and nationality of suicide committers in Serbia within the period 2016–2020

Socio-demographic data	2016 n	2017 n	2018 n	2019 n	2020 n	Total n (%)	m/f ratio
Marital status							
single							5.59
m	180	220	180	202	185	967 (84.8)	
f	47	22	37	37	30	173 (15.2)	
married							3.72
m	322	318	319	291	299	1 549 (78.8)	
f	79	100	74	83	80	416 (21.2)	
widowed							1.36
m	123	133	129	111	127	623 (57.7)	
f	105	93	85	95	79	457 (42.3)	
divorced							3.01
m	77	88	91	90	70	416 (75.1)	
f	27	27	33	27	24	138 (24.9)	
unknown	2	4	1	5	1		
Educational level							
no school							1.38
m	49	56	51	37	33	226 (58.1)	
f	47	31	28	30	27	163 (41.9)	
uncompleted primary school							1.97
m	64	60	57	52	55	288 (66.4)	
f	33	30	24	34	25	146 (33.6	
primary school							2.89
m	177	192	195	181	183	928 (74.3)	
f	69	59	59	67	67	321 (25.7)	
secondary school							4.38
m	339	362	339	349	345	1734 (81.4)	
f	89	84	85	71	67	396 (18.6)	
high school							3.07
m	29	27	32	24	20	132 (75.4)	
f	9	12	6	9	7	43 (24.6)	
university							2.39
m	29	51	31	40	45	196 (70.5)	
f	7	12	22	24	17	82 (29.5)	
no data							1.85
m	17	15	15	15	1	63 (64.9)	
f	4	14	5	8	3	34 (35.1)	
Employment status							
employed							5.58
m	285	312	257	271	237	1362 (84.8)	
f	54	42	57	53	38	244 (15.2)	
unemployed							5.30
m	123	150	129	134	100	636 (84.1)	
f	32	17	28	24	19	120 (15.9)	
retired							2.44
m	312	351	357	312	338	1670 (71.0)	
f	154	138	125	144	122	683 (29.0)	
dependents							0.49
m	18	13	27	18	15	91 (32.9)	
f	34	44	41	30	37	186 (67.1)	
Nationality							
Serbs							2.91
m	594	626	602	585	577	2 984 (74.4)	
f	224	202	197	213	189	1 025 (25.6)	
Hungarians							3.68
m	33	61	55	42	52	243 (78.6)	
f	15	18	13	9	11	66 (21.4)	
Croats							2.54
m	5	10	6	5	7	33 (71.7)	
f	3	4	3	2	1	13 (28.3)	
Roma							2.86
m	7	12	7	4	10	40 (74.1)	
f	3	3	1	2	5	14 (25.9)	
Slovaks							5.75
m	13	4	5	5	6	23 (85.2)	
f	0	0	0	4	0	4 (14.8)	
Rusyns							6.67
m	7	5	4	2	2	20 (86.9)	
f	1	1	0	0	1	3 (13.1)	
Rest							3.16
m	21	25	16	26	10	98 (75.9)	
f	3	10	9	2	7	31 (24.1)	
Unknown							
m	24	20	25	29	13	111 (78.7)	3.70
f	9	4	6	11	0	30 (21.3)	

n (%) – number (percentage) of suicide committers; m – male; f – female; m/f = male/female.

Within the period from 2016 to 2020, less than half of the male suicide committers were married (43.4%) with secondary education (48.6%) and retired (46.8%). More than one-third of female suicide committers were widowed (38.6%) or married (35.1%) with secondary education (33.4%), and more than half of them (57.6%) were retired.

According to nationality, as expected, male and female Serbs, as the majority nationality in Serbia, committed suicide most frequently within the observed period, followed by the Hungarians and Roma ethnic minority. Within the period 2016–2020, the number of suicides in Serbia increased with the age of the suicide committers. The number of suicides reached its highest number in subjects of both genders aged over 75 years; the m/f ratio in age differences varied from 2.4 in the oldest group (older than 75 years) to 9.1 in the group of adolescents (age 15 to 24) (Table 3).

Table 3

Gender differences in age of suicide committers in Serbia within the period 2016–2020

Age range (years)	2016	2017	2018	2019	2020	Total	m/f ratio
	n	n	n	n	n	n (%)	
<15							3.5
m	4	/	1	2	/	7 (77.8)	
f	1	/	/	1	/	2 (22.2)	
15–24							9.1
m	19	32	24	28	15	118 (90.1)	
f	3	3	4	1	2	13 (9.9)	
25–34							4.9
m	51	85	43	54	44	277 (83.2)	
f	13	17	11	11	4	56 (16.8)	
35–44							3.5
m	104	100	82	77	91	454 (78.0)	
f	22	29	24	28	25	128 (22.0)	
45–54							3.1
m	113	107	116	110	99	545 (75.4)	
f	42	33	31	36	36	178 (24.6)	
55–64							3.1
m	139	161	81	168	134	683 (75.8)	
f	52	53	32	37	44	218 (24.2)	
65–74							2.6
m	103	131	140	104	141	619 (72.5)	
f	52	53	39	51	40	235 (27.5)	
> 75							2.4
m	170	171	164	155	158	818 (70.3)	
f	73	64	69	78	62	346 (29.7)	

n (%) – number (percentage) of suicide committers; m – male; f – female; m/f = male/female.

Table 4

Gender differences in methods of suicide committers in Serbia within the period 2016–2020

Method of suicide	2016	2017	2018	2019	2020	Total	m/f ratio
	n	n	n	n	n	n (%)	
Self-poisoning by drugs and by exposure to liquid substances (X60-65, X68-69)							0.75
m	26	39	46	48	39	198 (42.9)	
f	53	58	52	52	49	264 (57.1)	
Hanging, strangulation, and suffocation (X70)							3.51
m	451	481	466	453	433	2284 (77.8)	
f	152	133	120	133	113	651 (22.2)	
Drowning and submersion (X71)							1.38
m	16	18	11	12	20	77 (57.9)	
f	10	13	13	9	11	56 (42.1)	
Firearm and explosive material (X72-X75)							21.0
m	150	141	125	119	53	588 (95.4)	
f	8	5	9	5	1	28 (4.5)	
Sharp or blunt object (X78, X79)							2.50
m	15	20	11	18	21	85 (71.4)	
f	9	11	2	8	4	34 (28.6)	
Jumping from a high place (X80)							1.42
m	28	37	35	30	30	160 (58.8)	
f	19	14	27	29	23	112 (41.2)	

n (%) – number (percentage) of suicide committers; m – male; f – female; m/f = male/female.

The most common method of suicide both in males (64%) and females (54.9%) was hanging, strangling, and suffocation (X70), thereby 3.5 times more often in males than in females. The second most common method of suicide in males was by firearm and explosive material (X72-X75) (16.48%).

The second most common method of suicide in females was self-poisoning by drugs and by exposure to liquid substances (X60-65, X 68-69) (22.28%) (Table 4).

Discussion

According to the data obtained from the Statistical Office of the Republic of Serbia (Department of Demography) in the observed five-year period (2016–2020), the annual suicide rate decreased constantly from 13.6 in 2016 to 13.0 in 2020.

Comparing the suicide rate in Serbia with the suicide rate in neighboring countries of former Yugoslavia (https://www.macrotrends.net) for the period 2016 to 2019, it can be noticed that the suicide rate in Serbia during the observed period was lower than in Montenegro (over 21 per 100,000), Slovenia (over 19 per 100,000), and Croatia (over 16.4 per 100,000), but higher than in North Macedonia (9.4 per 100,000) and Bosnia (over 10 per 100,000). Unfortunately, no data has been recorded yet in the literature for suicide rates during the pandemic period for 2020 for countries of former Yugoslavia.

Observing the last decade year by year, it is evident that the suicide rate in Serbia continued the tendency to decrease permanently from 17.4 in 2011 to the mentioned 13.0 in 2020.

For gender differences, the trend of an increasing suicide rate among the male population compared to the female one, which began in Serbia in 2006 (m : f = 2.56), continued in the next five-year period (2011–2015) (m : f = 2.77-3.11) and the last five-year period (2016–2020) as well (m : f = 2.88-3.38) [12, 13]. In support of the previously mentioned, as documented in the literature, the number of male suicide committers has been increasing globally in the past decade, while among females, there was a fall in the number of suicide cases [5].

What are the reasons that caused the decrease in the suicide rate in the Serbian population?

Behind the decrease in the suicide rate within the period 2016–2020, some factors referred to the decrease in suicide numbers per year.

According to the data obtained from the SORS, 1,145 fewer people committed suicide (20%) in the observed five-year period (2016–2020) than in the previous five-year period (2011–2015).

The transformation of demographic factors and the socioeconomic structure of the Serbian population could be one of the factors that could explain the change in the suicide rate. The total number of inhabitants in Serbia decreased by 4.96% in the observed 10-year period from 7,258,753 in 2011 to 6,899,126 in 2020 [13]. On the other hand, the age distribution of the total population changed as well. The number of elderly persons increased for both genders. Third, but equally important, specific aspects of Serbian society with an increase of people who migrated to other countries, especially young people, for employment and education abroad, changed the demographic structure in Serbia within the last five years.

In the year 2020, the whole world began suffering from the coronavirus disease (COVID-19) pandemic. From the beginning of the pandemic, especially during the lockdown, many people lost their jobs. Some habits were changed because some of them were forced to leave their place of work to work from home. Some of them lost their close relatives and got depressed, but some committed suicide.

It is believed that disasters, in general, have an adverse effect on people and their mental health. Although previous investigations have shown that deaths by suicide increased during the 1918–1920 influenza pandemic in the USA [14], it was expected that the same would happen in the COVID-19 pandemic as well [15, 16].

Observing the pandemic's impact on suicide in many countries, it can be noted that data from the literature indicate that during the COVID-19 pandemic, the suicide rate decreased in many countries, including Serbia [17, 18]. A study comparing data on committed suicides during the COVID-19 pandemic from 21 countries (16 high-income and five upper-middle-income countries) with the data from the pre-pandemic period shows that the number of suicides has remained largely unchanged or declined at the beginning of the pandemic compared with the number of suicides in the previous years [19, 20].

Our findings of the decrease in suicide rate in 2020, during the COVID-19 pandemic, require an explanation.

One of the explanations is that families were all united during the lockdown, which caused family members to strengthen their bonds. That was explained in Durkheim's studies on social integration, explaining the apparent reduction in suicides during the war. During the lockdown, which can be observed as a traumatic event for many, people explored a widespread sense of solidarity. Applying Durkheim's social integration explanation during the crisis, we might expect a decrease in suicide numbers if the coronavirus pandemic persists in the following years [21]. Although the current situation with an increasing number of infected people with coronavirus led people to think pessimistically with negative predictions about the future, predicting the worst-case scenario, some people successfully adapted to the new situations, trying to rediscover themselves, their needs, their hobbies, escaping from busy daily routines, and sharing more time with their families.

People realized that if they were in a crisis, they would probably get support from their family and friends. A general feeling of solidarity in society buffered the aspect of 'I am alone' that exists in suicidal thoughts and precedes suicide act [7, 22]. Another equally very important explanation is that during the first and second wave of the COVID-19 infection, people in crisis could get psychological help from the SOS telephone emergency service, organized by institutions like

psychiatric hospitals and Serbian psychotherapeutic associations.

As for sociodemographic data, the trend which began in 2011 continued in the following five-year period. Differences were not observed in the sociodemographic characteristics of suicide committers according to the previous five-year period (2011–2015) because married men and widowed women with secondary school education, who were retired, most often committed suicide within the mentioned period [12, 23].

After reviewing the distribution of suicide victims by their education for the last decade, it was observed that suicide has more often taken place among suicide committers in secondary school than with a lower educated group and less with high education. Compared with the previous five-year period, it seems the tendency to commit suicide is increasing among higher-educated people while decreasing among lesser-educated [12, 23].

It is interesting to note that the state of being married is not a deterrent for male suicidal behavior. The state of being married does not appear to be a protective factor, but its impact on suicide differs by gender. Men are at a higher risk of suicide while they are still married. Among females, the main risk factor for suicidal death is becoming a widow, and suicidal behavior is less often triggered when they are married [14, 23]. In explanation, it can be noticed that suicide as a multifactorial phenomenon contains various variables which affect one individual wishing to die. Therefore, suicidal behavior is the product of the interaction of many factors, biological and psychological, not only sociodemographic, like marriage. That means that other factors, like the presence of chronic and debilitating diseases, often accompanied by profound psychological suffering, are a powerful motif for male suicide victims to commit suicide [24, 25].

On the other hand, mental state is a significant risk factor for female suicide committers, mostly suffering from depression [10]. For women, widowhood initially causes family and friendly network support. With time passing by, this support network weakens, and the widow becomes decidedly lonely. Feeling isolated, with a sense of deep-seated sadness, women become vulnerable and emotionally emptied. Turning in on themselves, the only solution they find is suicide [26].

By age, in the observed five-year period, 42.5% of suicides were committed by persons over 65, i.e., about a quarter of total suicide committers (24.5%) are persons over 75.

Suicide may occur at different stages within the life span of a person, but the elderly remains a category of the world's population at major risk of suicide.

Risk factors for elderly suicide are specific sociodemographic risk factors such as older age, marital status, and male gender. Psychological factors are also important. The most important factors are the sense of worthlessness, the feeling of social disconnectedness, and the lack of social support. Some of them, such as the loss of an emotional partner, loneliness, and bereavement (especially in men), as well as conflicts in the family, cause great problems preceding suicide. Clinical factors like psychiatric illnesses (depression, alcohol misuse, previous suicide attempt, vulnerable personality traits, dementia, etc.) are important. Some chronic physical illnesses (pain, disability) are also connected [23, 24]. Sinyor et al. [25] identified three groups of suicide risk factors among elderly suicide committers over 80 years. The first group included marital status (married or widowed patients). The second group is connected with social connections, stressing the risk factors in individuals living alone or being socially isolated. The third group refers to health problems, including persons suffering from depression and dementia.

Suicide in the elderly population draws less attention than suicide in the younger population. It is a phenomenon that is very often ignored or neglected because elderly suicide victims are not employed and have a lower economic impact on society. Although the elderly get better health care and achieve a better quality of life and their lives are prolonged, most are a burden for their family [27, 28].

In the last several decades, the 'traditional' family and the role of the elderly in the family and society have also changed. Young family members are not always ready to take care of their elderly parents, explaining they are busy and have less time to dedicate to them. All these factors make the elderly feel like a burden to their family and society.

One explanation for the higher suicide among men than women, especially among the elderly, could be that women have a greater ability to adapt to new life events. In old age, emotions tend to change in quantity and quality. Retirement, as the onset of life's third age, for some people, especially men, provokes feelings of helplessness and hopelessness. They might be anxious, worried about the future, or depressed. Women are at an advantage because they are often emotionally protected against feelings of worthlessness and self-esteem since they are occupied with children, grandchildren, and the household. In women, those small everyday matters may serve as emotional protection against feelings of worthlessness and for self-esteem [29–31].

Suicide prevention program

A comprehensive suicide prevention program (SPP) is generally aimed at the early detection of high-risk individuals, targeting medical service delivery to such individuals and supporting family members of suicide committers (the so-called survivors).

Medical service delivery is aimed at improving the early detection and treatment of mental illness, especially early detection of depression [22, 23, 26].

The SPP in Serbia should primarily be targeted at two age groups with the highest risk of committing suicide – the old adult population (over 65 years) group and male adolescents.

With the world population constantly increasing and life expectancy becoming longer, the elderly population is becoming more prone to committing suicide. In the SPP

targeted at adults over the age of 65, as the most vulnerable population with the highest number of suicides in the last five-year period, the need to integrate specific suicide risk factors, such as psychological, feelings of social isolation, bereavement, neurocognitive impairment, as well as health problems like chronic physical illnesses and disability, should be emphasized.

Male adolescents fall in the second target group in the SPP. Like in many other countries, the suicide rate for this group is on the rise.

In SPP, the accent is on general medical professionals (GPs) because they are the first to have contact with depressed and suicidal people.

SPP include the education of GPs in improving their knowledge of depression and training in suicide crisis intervention, as well [19]. Therefore, healthcare professionals need to be trained to early detect depression and suicide risks. There are several reasons for that. First, older people have a higher prevalence of physical immobility, which is a reason for getting medical help but the pain is very often connected with suicidal behavior in older adults. Second, older adults are much more ready to discuss their problems with their GP but less ready to discuss their worries with their psychiatrists before suicide. In addition, it is well known that two-thirds of the elderly who committed suicide had consulted their GP in the month before suicide, half in the last 10 days. Third, some life events, such as the loss of a spouse, are considered in the elderly. Special training in crisis intervention against the development of complicated grief is recommended for the bereaved and widowed living socially isolated, followed by suicidal thoughts. In this project, social protection for the elderly must be established, followed by the government's financial support.

Further monitoring of suicide is necessary to determine the short-term and long-term consequences of the COVID-19 pandemic. At first, it includes a high-quality mental health assessment of the general population and, where appropriate, specific treatment for persons with mental illness. Second, the continued offering of medical services by SOS telephone emergency service, with an emphasis on psychiatric first aid available for people in suicidal crisis, represented a relevant mechanism for reducing the suicide rate during the COVID-19 pandemic [28].

Conclusion

In the last decade, the suicide rate in Serbia continued to decrease yearly, especially from 2016 to 2020, with the lowest being in 2020, during the COVID-19 pandemic.

Within the period from 2016 to 2020, the m/f ratio in suicide rate age differences varied from 2.4 in the oldest group (older than 75 years) to 9.1 in the group of adolescents.

SPPs in Serbia should be oriented toward two groups at the highest risk of committing suicide – primarily the elderly population and secondary male adolescents.

The suicide rate could be reduced by the government's comprehensive prevention program aimed at educating medical professionals by introducing a system for the early detection of high-risk individuals and targeting medical service delivery to such individuals, including providing support for the family members of suicide committers (the so-called survivors). The role of SOS telephone emergency service, as psychiatric first aid available for people in suicidal crisis, is also important.

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