

Suicides among Serbian War Veterans – An Autopsy Study

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SUMMARY

Introduction The risk of suicide among war veterans is a controversial issue, where findings so far have been contradictory.

Objective This study focusses on suicide in Serbian veterans from the wars in former Yugoslavia in the 1990s in order to create appropriate preventive measures and reduce the number of these fatal cases.

Methods The autopsy protocols of all 44 suicides committed by war veterans in the Belgrade District population over a period between 1992 and 2000 were investigated. Data were obtained from autopsy records, results of toxicological investigations and psychological autopsy protocols.

Results Symptoms of posttraumatic stress disorder were present in 27.3%, major depression in 9.1% and schizophrenia in 6.8% of veterans. The majority of suicides (84.1%) were committed by recruits in the Yugoslav National Army, spending between three and eight months in the zone of war operations. Six committed suicide during the first 30 days after their war activities, while the majority of suicides occurred between five and six years after combat. The most frequent manner of suicide was the use of handguns (56.8%) and bombs (18.2%).

Conclusion The results of this research may give useful information about the individuals with the highest suicidal risk in order to alleviate the consequences of war psychotraumas in veterans and prevent their growth into a permanent handicap or suicide.

Keywords: veterans; suicide; autopsy; Serbia

INTRODUCTION

The risk of suicide among war veterans is a controversial issue, where findings so far have been contradictory. The trend of increasing risk of suicide with increased occurrence of combat trauma in Vietnam has been reported [1]. Furthermore, suicide risk among former active duty Operation Enduring Freedom and Operation Iraqi Freedom veterans was significantly higher than that of general population – suicide mortality rate (SMR) 1.33; 95% CI, 1.03–1.69 [2]. A moderately, but significantly, increased SMR of 1.4 for suicide was found even among the former peacekeepers [3]. On the other hand, Macfarlane et al. [4] did not find excess of deaths recorded as suicide among UK Gulf War veterans. This study focusses on suicide in Serbian veterans from the wars in former Yugoslavia in the 1990s.

OBJECTIVE

In order to create appropriate preventive measures and reduce the number of these fatal cases, it is important to thoroughly analyze the committed suicides. The first war operations on the territory of former Yugoslavia started in 1991 in

Slovenia and Croatia, continuing with Bosnia and Herzegovina in 1992, and finally Kosovo in 1998. The war operations were ceased in the middle of 1999. The objective of this article was to analyze the frequency and other important characteristics of suicides of veterans in our population, and to compare them to the results of similar investigations from other countries.

METHODS

The autopsy protocols of all 44 suicides committed by war veterans in the Belgrade District population over a period between 1992 and 2000 were investigated. The autopsies had been performed at the Institute of Forensic Medicine, School of Medicine, University of Belgrade. Data were obtained from autopsy records, results of toxicological investigation, and psychological autopsy protocols, each of them involving the following: 1) analysis of death circumstances based on the Circumstances Subscale of Beck's Suicidal Intent Scale (SIS-CS) [5], 2) analysis of available medical records and 3) interview with victim's family members conducted by medical personnel immediately after suicide, based on questions corresponding to the victim's life history and mental health.

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RESULTS

The annual number of veteran suicides varied between zero and nine, with peaks in 1995 and 1999 (nine and eight cases, respectively) (Table 1).

In the analyzed autopsy material all war veterans that committed suicide were males. Their age ranged from 17 to 56 years (average 34.05 ± 9.30), and the majority of them were between the ages of 25 and 34 years (52.3%). Only one was younger than 18.

Most of the veterans were unmarried (21, or 47.7%) while 17 (38.6%) were married. Four of them were separated (one due to actual war situation – the suicide's wife had different ethnic and religious background).

In the observed group, the secondary school was the most frequent level of education (in 32 cases, 72.8%), 10 had a university degree (22.7%), and one veteran had completed only primary school. In regard to their occupational status, 23 (52.3%) were employed, 20 (45.4%) unemployed, and one was retired.

Most veterans (30, or 68.2%) had no previous contact with psychiatric services, nine (20.5%) had intermittent out-patient psychiatric treatment due to combat-related posttraumatic stress disorder (PTSD), major depression, or psychoactive substance use disorders, while three (6.8%) were hospitalized with the diagnosis of schizophrenia at the time of suicide, and in two cases there were no available data about previous psychiatric status. No one had a severe somatic disease; all of them were physically healthy individuals.

Only one veteran in the analyzed population had past criminal conviction. Other veterans had no juvenile criminal record, past violent charges or past violent convictions.

Table 1. Annual number of suicides among war veterans and in general population (GP) of Belgrade District

Suicides	Year									
	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Veterans	2	6	6	9	-	7	3	8	3	
GP	243	218	266	234	230	275	220	247	282	

Table 2. Duration of involvement in war operations

Duration (months)	0–2	3–5	6–8	9–11	>12	Unknown
Number of cases	4	14	10	1	6	9

Table 3. Period between arrival from battlefield and suicide

Period	Up to 1 month	2–6 months	1–2 years	3–4 years	5–6 years	7–8 years	Unknown
Suicides	6	5	9	6	10	4	4

Table 4. Methods of suicide

Methods	Number of cases
Handgun	25
Bomb	8
Hanging	3
Jump from height	2
Train	2
CO	1
Corrosive	1
Incisions	1

In three cases the suicides among family members were positively proved by heteroanamnestic data.

The majority (37, or 84.1%) were included in the Yugoslav National Army (YNA) – 21 of them (47.7%) were in regular military service as non-professional participants (recruits), 11 (25%) of them were mobilized in the YNA after the beginning of war operations, five (11.4%) were volunteers in YNA, while 7 (15.9%) of them were volunteers in paramilitary forces.

Twenty-six of all observed war veterans (59.1%) participated in war operations only in Croatia, 11 (25%) only in Bosnia and Herzegovina, three (6.8%) both in Croatia and Bosnia and Herzegovina, and four (9.1%) in Kosovo.

Most of the veterans (24, or 53.3%) spent between three and eight months in the zone of war operations (Table 2).

During the first 30 days after their war activities (Table 3), six of them (13.6%) killed themselves, and five more (11.4%) in the course of the following six months. Majority of the cases (10, or 22.7%) were registered between five and six years after the war activities, with the longest interval being eight years.

Only two suicides (4.5%) had been severely wounded in combat with resultant invalidity.

The use of handguns was the most frequent manner of committing suicide (25, or 56.8% of the cases), followed by self-injuring using bombs (8 cases, or 18.2%) (Table 4). Other suicidal methods, including hanging, were far less frequent (in one to three cases, respectively).

Concerning previous suicidal behavior, it is interesting that in no cases suicidal announcements were noticed by family members. The previous attempts of suicide were registered only in four cases (9.1%), all of them after involvement in war operations.

Suicide notes were found only in five cases (11.4%). There was no evidence of overt communication of suicidal intent, acting to get help and final acts in the anticipation of death.

Postmortem toxicological investigation showed that 23 individuals (52.3%) committed suicide while being sober. In two cases toxicological examination was not performed because of advanced putrefaction, while 19 veterans (43.2%) were under influence of alcohol when committing suicide, with the most frequent blood alcohol level between 0.5‰ and 1‰, as well as between 1.1‰ and 2‰ (Table 5). In two cases family members reported drug abuse, but after complete toxicological investigation no evidence of drugs was found.

Table 5. Blood-alcohol level in veteran suicides

Alcholemia (‰)	Number of cases (%)
Negative	23 (52.3)
<0.5	3 (6.8)
0.5–1	6 (13.6)
1.1–2	6 (13.6)
2.1–3	3 (6.8)
>3.1	1 (2.3)
Undetermined	2 (4.6)
Total	44 (100.0)

In the majority of cases (25, or 56.8%), no changes in psychic status or behavior of the analyzed individuals prior to suicide were recognized by their surroundings. During the period that ranged between one and five months before suicide, according to heteroanamnestic data given by the members of the family, symptoms of mental disorders were present in 19 (43.2%) cases. Almost a third of the veterans (14 cases, or 31.8%) fulfilled criteria for alcohol dependence. Symptoms of PTSD were present in 12 (27.3%), major depression in four (9.1%), and schizophrenia in three (6.8%) veterans.

DISCUSSION

War operations on the territory of former Yugoslavia that started in 1991 caused numerous social and economic disturbances in all parts of this country, including Serbia and especially its capital, Belgrade. One of the negative consequences of those changes was a sudden increase in total number of suicides and therefore progressively enlarged suicide rate in general population. According to the official statistics, in 1990 and 1991 the total annual number of suicides was 141 and 189 (suicide rate 8.8 and 11.8 per 100,000 in the general population, respectively), though during the next eight years this number exceeded 200, with maximum value of 282 suicides in 2000 (suicide rate 17.2). In the same period new potentially suicidal risk groups appeared, including refugees from Croatia, Bosnia and Herzegovina and Kosovo, as well as veterans who had participated in war operations in the above-mentioned areas. So far, some investigations of suicides of refugees have been carried out in our country, but no specific studies regarding veteran suicides.

During the analyzed nine-year period in Belgrade District, 44 suicides committed by war veterans were registered, representing 1.98% of all 2,215 suicides reported by official statistics. According to OSCE, 15% of Serbia's male population are veterans of Balkan wars, which represent cca. 400,000 [6]. There are no official statistical data regarding either number of veterans in Belgrade or number of veterans' suicides in Serbia. Hence, it was impossible to estimate SMR for this group both in Belgrade and Serbia and to compare it to general Belgrade population, in which the average suicide rate in the same period was approximately 14.2. The authors are fully aware that this represents a strong limitation of the study, but since there is a shortage of studies like this, particularly from non-NATO states, the intention was to present as much data as possible at this moment.

The two peak-years in the number of veteran suicides were 1995 and 1999. The first peak may be connected with the end of war operations in Bosnia and Herzegovina as well as Croatia and return of veterans home, while the second peak was probably due to ending of combat activities in Kosovo.

Among the subjects of this study no female veterans were present. This could be explained by the still dominating strict patriarchal value system in our country in-

terfering with female involvement in the military. Though infrequent, some researches recognized the significance of suicide phenomenon in female veterans as well. Thus, examining mortality among women veterans, Thomas et al. [7] concluded that suicide rate in both Vietnam and non-Vietnam female veterans were nearly the same but obviously lower compared to male veterans.

The average age of suicide victims was 34 years, with variations between 17 and 56; the highest rate was in the age group between 25 and 29 years, cca. 50% were unmarried, and most of them (84.1%) were draftees of YNA. These results are in accordance with data regarding Vietnam veterans, according to which 75.93% were in the regular army, 50% were between 20 and 24 years old, and 72.22% were unmarried [8]. Adams et al. [8] state that Vietnam War was "psychiatrically worse than others" because of ill-defined engagements, a defensive posture against an often unseen and illusive enemy, the relative absence of "professional soldiers" and antiwar activism on the home front. The authors think that this strongly corresponds to the situation in Serbia during the Balkan wars, which explains similar characteristics of veterans' suicides.

One group of our veterans (13.6%) committed suicide in a short period (up to 30 days) after their war activities, and in these cases this was probably due to acute psychic reaction to extreme combat experiences. However, Farberow et al. [9] did not confirm the extent of combat experience in Vietnam as a good predictor of suicide. In other cases suicide was committed in variable post-combat intervals, with majority of cases between five and six years, and the longest interval of eight years.

The finding that only two out of 44 suicides had been severely wounded in combat is not in accordance with observation of Bullman and Kang [1], who found a trend of increasing risk of suicide with increased occurrence of combat trauma in Vietnam veterans, with the highest relative risk being observed for those veterans who were wounded more than once and hospitalized.

In the observed group the secondary school was the most frequent educational level, which is in accordance with findings of O'Toole and Cantor [10] based on analysis of suicide risk factors among Australian Vietnam era draftees, who stated that suicide victims were less likely to have continued education beyond high school, having lower mean scores on the army general intelligence. Similarly, in the study of Jakšić et al. [11] regarding Croatian war veterans, 8% of the participants had completed elementary school, 75% had completed secondary school and 17% held a college degree.

It is well known that combat-related PTSD plays an important suicidal role in veterans [12]. Vietnam veterans have been reported to be at increased risk for PTSD and death due to traumatic causes after service in the Vietnam War [1]. They found that the standardized mortality ratio for suicides was 6.74 (CI=4.4–9.87) among PTSD veterans and 1.67 (CI=1.05–2.53) among non-PTSD veterans [13]. Hendin and Haas [14] found five factors which were significantly related to suicides: guilt about combat actions, survivor guilt, depression, anxiety and severe PTSD, and

logistic regression analysis showed that combat guilt was the most significant predictor of both suicide attempts and preoccupation with suicide. Lehmann et al. [12] found that about 60 percent of veteran suicides occurred among patients in out-patient mental health treatment. Thompson et al. [15] stated that veterans with past contact with psychiatric services may be especially at risk of suicide, particularly as contact with these services diminishes.

Lacking the evidence of overt communication of suicidal intent and acting to get help in suicidal crisis, irregular psychiatric treatment, family members mostly failing to notice pathological behavior – they all pointed to significant detachment from others, and weak family and social support, which unfavorably affected recovery from war psychotrauma in the subjects of this study.

Handin and Haas [14] reported that 19 of the 100 veterans had made a post-service suicide attempt, and 15 more (totally 34) had been preoccupied with suicide since the war. Kramer et al. [16] found that among Vietnam veterans thoughts of ending one's life and previous suicide attempts were significantly correlated with a diagnosis of PTSD. Compared to these studies, previous suicidal attempts in our subjects have been established in only 9.1% of cases, which is in line with very strong social and religious intolerance of suicide among Serbs.

Alcohol abuse, as a well-known suicidal factor, was significantly present in the observed group – 31.8% of the subjects were alcoholics, and 43.2% committed suicide under the influence of ethanol. In the literature, we found that alcohol plays an important role in the group of Bosnian war veterans [17], which is also the case with veterans in Croatia, where more than one fifth of war veterans with PTSD drink alcohol more than they used to before the war [18]. On the other hand, drug abuse was rarely noticed – in only two cases according to heteroanamnestic data, in which

narcotics were not found by postmortem toxicological investigation. Therefore, drug abuse was not an important suicidal factor in our analyzed group. Since we were not able to carry out toxicological screening in all cases, this conclusion should be accepted with certain caution. The investigation among Vietnam veterans showed evidence of strong continuity of PTSD, drug dependence, and suicidality over time [19]. The important role of drug abuse in veteran suicides is also mentioned by Lehmann et al. [12].

The most frequent suicidal method was use of firearms and bombs, usually preserved after combat, and therefore illicitly possessed. While gunshot injuries are common suicidal method in general male population, bombs are relatively rarely used, and may be considered typical for veteran suicides. Thoresen et al. [3] stated that the increased number of suicides by use of firearms indicates that gun control might be an important prevention measure in this group.

According to our opinion, more attention should be paid to the prevention of veteran suicides in Serbia. The results of this research may give useful information about the individuals with the highest suicidal risk, having in mind that suicide prevention in psychotraumatized war veterans does not depend only on the efforts of the health services. To alleviate the consequences of war psychotraumata in veterans and prevent their development into a permanent handicap or suicide, family and wider social support are necessary as well.

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Самоубиства српских ратних ветерана – аутопсијска студија

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КРАТАК САДРЖАЈ

Увод Ризик од самоубиства међу ратним ветеранима је контроверзно питање, а досадашњи подаци указују на различите ставове.

Циљ рада Циљ овог истраживања било је испитивање самоубиства српских ратних ветерана из ратова у бившој Југославији деведесетих година двадесетог века, како би се установиле одговарајуће мере превенције и смањило број смртних случајева.

Методe рада Анализирана су 44 обдукциона записника случајева самоубиства које су починили ратни ветерани између 1992. и 2000. године на територији Београда. Подаци су преузети из обдукционих записника, резултата хемијско-токсиколошких анализа и хетероанамнестичких података које је дала најближа родбина умрлих.

Резултати Симптоми посттрауматског стресног поремећаја уочени су код 27,3% ветерана, симптоми депресије код 9,1%, а шизофреније код 6,8%. Највећи број случајева самоубиства (84,1%) догодио се међу регрутима ЈНА који су провели између три месеца и осам месеци на фронту. Шест особа је извршило самоубиство у првих 30 дана након повратка с фронта, док се већина самоубиства догодила између пет и шест година након завршетка борбених дејстава. Најчешћи начин извршења самоубиства био је употреба ручног ватреног оружја (56,8%) и бомби (18,2%).

Закључак Резултати овог истраживања дају корисне податке о особама с највећим ризиком за самоубиство с циљем да се ублаже последице психотраума код ратних ветерана.

Кључне речи: ратни ветеран; самоубиство; обдукција; Србија

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