



Public Health in Serbia through the Lens of Security: A Review Article

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Abstract

Background: In recent years, the concept of health security has received an international dimension. However, despite evident links between health and security the concept of health security is not used in either academic or political discourse in Serbia. It comes as no surprise then that even though the issue of security challenges is present in Serbian legislation, it has not been incorporated into the National Security Strategy, by which health threats would be recognized as one of contemporary security priorities.

Methods: The method applied is descriptive and analytical, in keeping with social studies research methodology and the aims of this study.

Results: The 20th and the 21st century in Serbia have both been marked by events indicating a clear link between health and security. The most telling example of this connection is the events of the 1990s, namely civil wars, sanctions and the NATO bombing. The results of our research show that poor health conditions, an increasing number of reemerging diseases and pandemics of new diseases can have serious implications for the functioning of the state and devastating consequences for its population. What is most at risk are people's lives, capability for work, the entire economy and the capacities of the army and overall national security.

Conclusion: The results of this study indicate an inextricable link between health and security and the necessity of viewing health through the lens of health security and incorporating it as such into the National Security Strategy.

Keywords: Public health, Health security, Serbia

Introduction

Even though most people in developed countries nowadays believe terrorism to be the biggest security threat, the fact is that disease accounts for 91% of deaths the world over (1). According to WHO data, since the 1970s more than 40 new diseases have been identified and in the last few years alone, more than 1100 cases of epidemic events have been registered (2). HIV/AIDS being one of the biggest threats to global health and "world's leading infectious killer" (3). Due to its high mortality and morbidity rates, HIV affects the work force and contributes to the loss of capacities in key sectors of the labor market. The HIV/AIDS pandemic across Africa has reduced

the average domestic growth by 2% to 4% (4). The Asian Development Bank estimates that the economic impact of SARS was around US\$18 billion in East Asia, around 0.6% of the GDP (5). In its 2015 report, World Bank projected potential losses to West Africa's economy resulting from the Ebola pandemic at US\$1.6 billion in a "Low Ebola" scenario, that is, at US\$25 billion in a "High Ebola" scenario (6).

Because of all this, health has started to be viewed as an "exemplar of humanity's new collective insecurity" (7), with a special focus on developing the concept of health security. Although the concept of health security does not have a

uniform definition, analysis of relevant literature leads to the conclusion that it is linked to mass outbreaks of infectious diseases, bioterrorism, and to the fact that certain diseases, HIV/AIDS in particular, may have, in addition to high mortality rates, social, political, economic and implications for national security (8). “Viewing public health through the lens of security has become an integral aspect of public health governance in the 21st century”(9), while the concept of public health security itself is defined by the WHO as the policy areas in which national security and public health concerns overlap (10). Health securitization was embodied in the UNSC’s first resolution on non-traditional security risks, which sees HIV as a security threat and declares “peaceful war” on it (11), and then in its resolution on Ebola, declaring this disease a “threat to international peace and security”(12). Many countries, the developed ones in particular, have incorporated health security into their national security strategies, which view HIV/AIDS and other infectious diseases as threats to both national and global security.

On the other hand, smaller countries like Serbia, do not consider health issues from the standpoint of security despite the clear link between them. Geographically positioned in the region of South East Europe, at the center of the Balkan Peninsula, Serbia has for centuries been at the heart of numerous events that marked world history, including epidemics of infectious diseases. Two major epidemics gripped Serbia in the 20th century: a typhoid fever epidemic in 1915 and a smallpox epidemic in 1972. The 20th century began with wars and epidemics and unfortunately ended in much the same way. The economic crisis, civil wars, NATO bombing, as well as economic and international sanctions of the 1990s, have all had far-reaching consequences for the public health of Serbia’s population. Serbia was not spared from the pandemics of the early 21st century, such as the swine flu, either.

This begs the question of whether public health in Serbia should be viewed through the lens of security. Even though the Republic of Serbia regulates the public health domain by a series of

regulations such as the Laws on Protection of Citizens against Infectious Diseases, on Public Health, on Health Care, HIV and AIDS Strategy, Republic of Serbia Public Health Strategy, and Influenza Preparedness Plan before and during Pandemic of the Republic of Serbia, this domain has not been included in the National Security Strategy or other security policies. The current National Security Strategy emphasizes that national security is largely affected by the consequences of the civil wars, international isolation and NATO bombing, but the notions of public health and health security are never mentioned in this document. On the other hand, the emergence and spreading of infectious diseases are mentioned as risks that are likely to pose security problems at some point in the future (13). It is our belief that infectious diseases, together with other health issues, are already a security issue, as will be shown in the following sections.

Therefore, the primary aim of this study is to examine and confirm the link between public health and security on the example of the Republic of Serbia. The secondary aim is to contribute to health securitization and point out the necessity of treating certain health issues as security issues and including them as such in documents regulating Serbia’s national security system.

Methods

This study was conducted in 2015, and the method applied was descriptive and analytical, in keeping with social studies research methodology and the aims of this study. The inclusion criteria for the study were original qualitative studies on health issue in Serbia and studies that also have a quantitative component, as well as publication date for the period relevant to the study. We excluded studies that failed to report sufficient data on health security in Serbia. The sources of data include numerous reports and annual studies on public health conducted by the country’s competent institution, i.e. the Institute of Public Health of the Republic of Serbia, statistical annuals, and other relevant literature from the field of security

and public health. Relevant scientific literature was collected via the Virtual Library of Serbia, which provides access to information in over 125 libraries in Serbia, and the KoBSON portal, which provides access to more than 35,000 foreign journals and over 40,000 books in their entirety. Furthermore, strategic documents and normative legislation concerning public health and security in Serbia were analyzed.

Results

Public health and security in Serbia in the 20th century

In the following section, we will present results of an analysis of health and security in Serbia in the 20th century. Given the time period covered by the analysis, the results will be limited to those events that best illustrate the link between health and security, namely the 1915 typhoid fever epidemic, the 1972 smallpox epidemic and the period between 1991 and 1999, which was marked

by wars, international isolation and the NATO bombing.

War and infectious disease

A host of studies confirm the inextricable link between conflicts and infectious disease epidemics, as illustrated in the UN report *A more secure world: Our shared responsibility*: “poverty, infectious disease, environmental degradation and war feed one another in a deadly cycle” (14). Serbia experienced this deadly cycle both at the beginning and at the very end of the 20th century. In early 20th century, a poor country, depleted by wars (the Balkan Wars of 1912 and 1913) and ravaged by a cholera epidemic, Serbia entered World War I, whose devastating effects resulted in environmental disruption, mass population displacements, a breakdown of sanitation and hygiene and a typhoid fever epidemic. The typhoid fever epidemic emerged in late 1914 and peaked in 1915, as one of the most severe epidemics the world has known in modern times (Table 1).

Table 1: Typhoid fever in Serbia during the World War I. Rapidity of infectious spread: military hospitals during January – April 1915 (15)

Months	Typhus	Relapsing	Total
January	200	2200	2400
February	1200	5300	6500
March	4100	7400	11500
April	8200	8500	16700

At its peak, military hospitals recorded as many as 2500 admissions a day, with three times as many reported cases among the civilian population. During the epidemic, the mortality rate varied between 30% and 60% at different times and in different places, in severe cases reaching even 70%. It is estimated that between 500,000 and 600,000 people contracted typhoid fever, with an estimated 135,000 deaths, 35,000 of whom were soldiers (16). The typhoid fever epidemic was contained in late 1915 thanks to military capacities, primarily the medical corps, as confirmed by testimonies of foreign physicians who came to Serbia in 1915 to help contain the fever. In their description of the hospitals and the conditions in

which patients were being treated, they concluded that “there was only one hospital, worthy of the name, in all Serbia, the Military Hospital in Belgrade” (17).

Another large-scale epidemic gripped Serbia (then Yugoslavia) in April of 1972 with an outbreak of smallpox, presumed to have been eradicated in Europe.

The 1972 Smallpox Outbreak in Yugoslavia

According to available data, 38,953 persons had died of the smallpox epidemics in Serbia between 1896 and 1910. The last smallpox fatality in Serbia was registered in 1926, while the last case of the disease was recorded in 1930 (Table 2) (18).

Table 2: Smallpox in Yugoslavia in 20th century (19)

Year	Infected	Died
1919	5278	1100
1920	4150	941
1921	2119	483
1922	728	165
1923	1042	198
1924	330	330
1925	14	3
1926	4	2
1927	3	0
1928	0	0
1929	0	0
1930	1	0
1972	175	35
After 1972	0	0

The 1972 epidemic, which is considered the largest outbreak of smallpox in the history of Europe and the first since 1930, was imported from Iraq, which was at the time a seat of the contagion. The outbreak involved 175 cases, with 35 deaths. Martial law was imposed on March 16. The measures taken involved blocking off entire villages and neighborhoods, setting up roadblocks, prohibiting public meetings, closing borders and prohibiting all non-essential travel. At the same time, surrounding countries closed their borders. The smallpox outbreak greatly affected the health and economic situation in SFRY and to some degree disrupted social life, seeing as many people were quarantined without being able to contact their families, which caused stress and discontent. The direct cost of the outbreak amounted to 6 billion SFRY dinars (equivalent to 600 million US dollars in 1972)(20).

Although the period after World War II saw an improvement in overall health conditions and the healthcare system, the end of the 20th century brought new devastation in the form of civil wars (1991-1995), international isolation and the NATO bombing (1999).

Health implications of civil wars, UN sanctions and NATO bombing

The study on the effects of the war and UN sanctions on health of the population of Serbia has

shown significant increase of mortality in the period between 1991 and 1994 (mortality rates were standardized directly using the "European population" as the standard). In the period between 1991 and 1994, which was marked by the war and UN sanctions, total mortality in women between the ages of 25 and 44 was considerably higher than expected based on the trend in the preceding period (21). In 1991 and 1992, a rise in mortality rates resulting from infectious disease, injuries and poisoning was registered in men between the ages of 15 and 34. It is possible to explain the increased number of deaths caused by injuries and poisoning in the 15-34 age bracket as a direct consequence of the war. Although no military operations took place on the territory of Serbia, young men from Serbia participated in the war in other republics of former Yugoslavia (21). In June 1993 staff members of the three international agencies in Belgrade, namely the United Nations High Commission for Refugees (UNHCR), WHO, and the International Federation of Red Cross and Red Crescent Societies, issued an unusual appeal to their agency heads regarding the impact of the sanctions. They cited a sharp rise in the incidence of tuberculosis, the tripling of mortality rates in mental institutions in under a year, a decreased number of immunizations, and deaths resulting from the lack of fuel needed to transport patients to hospitals (22).

These wars, compounded by international isolation and economic sanctions, led to the country's economic collapse, a major drop in production and drastic decline in employment and standards. There had been very little investment in the healthcare system or public health, which, coupled with the bombing campaign, left many buildings in disrepair (NATO bombing destroyed 147 health facilities), rendered existing equipment outdated and prevented health workers from gaining fresh insights. Most of the facilities fell into serious disrepair after a decade of scarce investments and poor maintenance. Procurement of drugs and medical supplies and their provision to patients proved a difficult task. Continual stress and an anxiety-inducing environment engendered depression, hopelessness,

confused values and wariness of the future, accompanied by a general negligence towards health and increased risk behavior, particularly the types likely to lead to HIV transmission (drug abuse, risk sexual behavior)(23).

The NATO's 1999 bombing campaign (78 days of air raids) has had immeasurable implications for the entire population, children in particular. The rate of the risk children were exposed to in 1999 was 29 on a scale of 0-100, 6 being the European average at the time (24).

Mental disorders were recorded among adults in the aftermath of the bombing, and a study conducted three years after the bombing on a sample of 562 respondents emphasize show much a patient seeking medical care in the post-war context might be afflicted by a war-induced mental disorder. In total, 73 (12.99%) respondents had symptoms of PTSD, and 272 (49.19%) had symptoms of depression (Table 3). 66 (11.9%) respondents were found to suffer from both disorders (25).

Table 3: Symptoms of PTSD and major depression among emergency department three years post-war (n = 562) (25)

Characteristics	PTDS		Depression		PTDS & Depression	
	N	%	N	%	N	%
Total	73	12.99	272	49.19	66	11.9

Furthermore, because of using depleted uranium ammunition in 1999, an increased incidence of malignancies was recorded in Serbia (around 15 tons of depleted uranium was dropped during the 78 days of the bombing). The number of deaths resulting from malignant tumors rose by 20.3% between 1997 and 2007 (Table 4). The most sig-

nificant increase in the number of people suffering from malignancies occurred in 2006, at the end of the seven-year latent period between exposure to carcinogenic radioactive material and the onset of disease. The malignancy rate rose by 18.4% in that period and by 22% in 2007 (26).

Table 4: Growth of Cancer Death Rate after NATO bombings (27)

Cancer disease	1997			2007		
	Male	Female	Total	Male	Female	Total
Deaths rate (per 100,000 population)	9764	7299	16.973	11.736	8681	20.417

Wars, isolation and bombing affected the size of the population. From 1991 onward, there was a constant reduction in Serbia's population, from 7,576,837 in 1991 to 7,498,001 in 2002 (Fig. 1). Furthermore, Serbia is one of the countries with the highest suicide rate in Europe. From 1953 to 2005, the number of suicides doubled from 725 to 1442. However, the suicide rate reached its record high at the onset of the civil wars international isolation and NATO bombing, with a 1662

registered suicides in 1997 and 1572 registered suicides in 1999 (Table 5) (28).

It is safe to conclude that the events of the 20th century confirm the hypothesis on the correlation between conflict and public health. The cycle of conflicts and infectious disease epidemics that began in early 20th century ended with a new conflict in late 20th century and the destruction of public health in Serbia.

Unfortunately, this negative trend continued in the first decade of the 21st century.

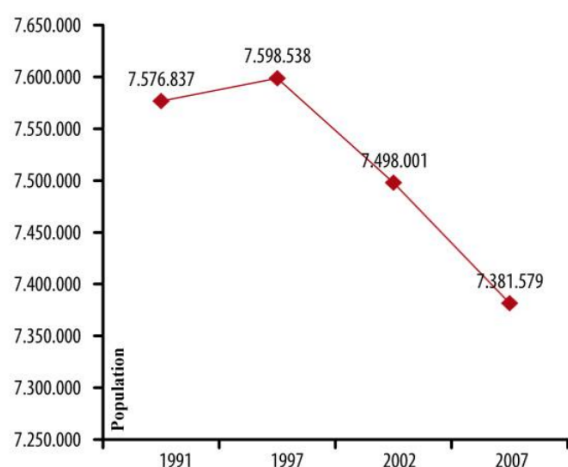


Fig. 1: Population decline in the Republic of Serbia, 1991 - 2007 (27)

Public health and security in Serbia in the 21st century

The population decline, caused by the war, sanctions of the international community, NATO bombing, has continued in the 21st. Today, with a population of 7,164,132 in the 21st century Serbia is among countries with a negative population growth (population growth was -4.8% in 2013) and has a mortality rate of 14‰ (Table 6). The population is ageing, with data for 2013 showing that the number of young people decreased from 16% in 2003 to 14.3% in 2013, while in the same period the number of old people increased from 16.8% to 17.8% (29).

Table 5: Suicide Statistics in the Republic of Serbia (per 100.000 population) (28)

Year	No	Rate
1981	1257	16.2
1986	1319	16.8
1991	1472	18.8
1996	1484	19.1
1997	1622	20.9
1998	1460	18.8
1999	1572	20.3
2000	1546	20.1

Table 6: Vital Rates in the Republic of Serbia, 2004 – 2013 (30)

Indicator	2004.	2005.	2006.	2007.	2008.	2009.	2010.	2011.	2012.	2013
Birth rate (per 1000 population)	10.5	9.7	9.6	9.2	9.4	9.6	9.4	9.0	9.3	9.2
Mortality rate (per 1000 population)	14.0	14.3	13.9	13.9	14.0	14.2	14.2	14.2	14.2	14.0
Rate of natural increase (per 1000 population)	-3.5	-4.6	-4.3	-4.7	-4.6	-4.6	-4.8	-5.2	-4.9	-4.8

The leading causes of death in Serbia in the 2000s were cardiovascular diseases, cancers, HIV and flu viruses. Bearing in mind that health security deals exclusively with infectious diseases, this sec-

tion of the paper will present results of analyses related to HIV, as well as the epidemics that marked the beginning of the 21st century. At the

same time, it will present the economic consequences of infectious diseases.

HIV and emerging infectious diseases in 21st century in the Republic of Serbia

The first cases of the HIV epidemic in Serbia were recorded among intravenous drug users (IDUs) and this remained the most common transmission route in the years to come. By the end of the 1990s, intravenous drug use continued to be the number one risk among the cumulative number of HIV/AIDS cases (around 48.9%), followed by sexual transmission (33%). Various factors contribute to the spreading of HIV, the most significant being low social and economic status of a section of the population, but also an inadequate system for controlling the HIV/AIDS epidemic. Although Serbia is believed to have a low HIV infection prevalence, the fact remains that the HIV/AIDS testing rate is very low. In the period from 1985, when the first cases of HIV/AIDS were reported in Serbia, to 2013, 1692 people were reported infected with HIV, 1061 (63%) of whom died (31). The aforementioned shows that HIV/AIDS not only has a high mortality rate but also leads to negative consequences for the healthcare system, family and society as a whole. On the other hand, people infected with HIV/AIDS often face basic human

rights violation, discrimination and stigmatization (32).

Fidler argue that besides HIV/AIDS, significant health issues from the standpoint of national (and international) security include infectious diseases and fears of terrorist use of bioweapons – bioterrorism (33). This rise in infectious diseases, particularly respiratory ones, came because of the 2009 the outbreak of the new H1N1 pandemic flu. Based on a special epidemiological surveillance, the total number of infected people in Serbia was estimated at between 750,000 and 1,000,000, the total number of hospitalized people was 6,021, and 137 died. The then health minister therefore issued a decree declaring the H1N1 flu epidemic an issue of high epidemiological significance on the territory of the Republic of Serbia.

The period between 2005 and 2009 also saw an increase in the number of patients suffering from infectious diseases whose viruses are classified as category A potential biological agents (Table 7). Although Serbia has not yet encountered bioterrorism, the existence of these agents and the possibility of their being used for terrorism necessitate the preparation of the public healthcare system as well as the security system for such situations.

Table 7: Number of cases per 100.000 population in Serbia of infectious disease from Category A of potential bioterrorist agents, 2005 – 2009 (34)

Disease	2005	2006	2007	2008	2009
Cutaneous antrax	1	0	0	4	1
Botulism	10	6	19	4	7
Tularemia	56	36	7	25	2

Globalization of Disease

The rapid disease transmission is often driven by high population mobility and mass gatherings, as proven in the case of the spreading of the H1N1 virus in Serbia. Namely, the transmission of the H1N1 virus in Serbia was aided by two major events in 2009: the Universiade and the EXIT music festival. The 25th Universiade, an international sporting event for young university ath-

letes, was held from 1 to 12 July, at 53 sites in nine towns, with 8,600 athletes from 143 countries, 10,000 volunteers, 5,000 staff and an estimated 500,000 spectators. The first imported case of influenza A (H1N1) in Serbia was detected and laboratory-confirmed in Belgrade in a returning traveller from Argentina. According to incubation periods and contact histories, three cases among athletes were considered as travel-related

(Argentina, Australia, Uganda), whereas three athletes (one from France and two from Zambia) and one volunteer probably were infected within Serbia (35).

The 10th EXIT music festival was held at the Petrovaradin fortress, Novi Sad, from 9 to 12 July, with an estimated 190,000 visitors including 20,000 from abroad. As of 24 July 62 confirmed cases were identified associated with EXIT festival, including secondary cases to cases exposed at the festival site. Fifteen cases in total were classified as travel-associated (11 from United Kingdom, two from Canada, one from the Former Yugoslav Republic of Macedonia and one from the Netherlands) (35).

Economic implications of infectious diseases

Health issues also have economic implications and it is estimated that the H1N1 epidemic incurred economic losses in Serbian production and trade, between RSD6.2 and 8.2 billion (€64.5 to 85.5 million). Around 1/6 to 1/8 of all costs were the costs of preventative and anti-epidemic measures (36). On the other hand, the losses were also reflected in a decreased GDP because of work absences and in health expenditure. Research shows that 51.6% of the population in 2013 had health expenditure (37), putting additional burden on Serbia's population, which has the lowest income in Europe with an unemployment rate of 16.8% (2014). Health expenditure per capita in Serbia is 4.7 times lower than the average expenditure in the EU, while the unfavorable economic situation means that drugs without a guarantee of validity are bought at markets or online and that citizens self-medicate without seeing a doctor. According to a 2013 study, 27% of the population self-medicated with drugs not prescribed by a doctor (37). The events of the late 20th century still have ramifications for the mental health and lifestyle of Serbia's citizens and a study conducted in 2014 determined that psychological distress, measured on Kessler 6 screening scale, was present in some forms in 20% of adult population, while 5.8% of the population can be said to suffer from serious behavioral disorders or anxiety (38).

Discussion

At the beginning of the 21st century, health risks are becoming recognized as an increasingly serious challenge to collective security. Conflicts, bioterrorism, increased population mobility, tourism, trade and corruption as an indirect threat undermining health and security institutions, have all left national healthcare systems faced with the danger of increasing health threats, which are now able, thanks to these factors, to spread and escalate rapidly. Cases such as HIV, SARS, H5N1, H1N1 and Ebola pandemics best illustrate the reality of this threat, which nowadays goes beyond national borders and poses an increasingly serious risk for the entire international community.

On a national level, health risks such as viral pandemics have an impact on state and social cohesion affecting both their macro and micro dimensions. On the macro level the consequences are seen in a declining domestic growth, reduced economic prosperity, serious challenges for health and educational institutions, etc. On the micro level, it is the individual and his family that endure the most of the many negative consequences of exposure to a health threat. The situation is no different in Serbia.

Serbia's geographic position in the Balkans has for centuries exposed it to great historical turbulences such as infectious disease epidemics. In addition to the casualties claimed by many wars, its recent history is marked by two epidemics – typhoid fever in 1915 and smallpox in 1972. The 1990s left Serbia particularly vulnerable as it faced civil wars, economic crisis, economic and diplomatic sanctions and NATO bombing all within a short time span. The detrimental effect of the wars on the overall health of the population is best demonstrated by the fact that in the wake of the NATO bombing campaign (because of depleted uranium ammunition use) the incidence of malignancies has been on a rapid rise. Furthermore, following its international isolation in the 1990s Serbia once again became part of global developments at the beginning of the 21st

century, but this also exposed it to pandemics, which pose global risks, such as the swine flu epidemic.

If we bear in mind that Serbia is a country at once afflicted by negative population growth and population ageing, it becomes clear that taking an adequate attitude toward health risks is vital to its security. What is most at risk are people's lives, but also their fitness for work, the entire economy, the capacities of the armed forces and overall national security. Although there is some awareness in Serbia of the legislative contribution to preventing, fighting and containing consequences of health threats, it is manifested solely in the form of individual laws and strategies aiming to regulate certain segments of this domain. The National Security Strategy, which identifies priority national security threats, still fails to recognize health threats as one of state priorities. It is therefore necessary to increase efforts toward health securitization and an institutional perception of public health through the lens of security.

Conclusion

The results of this study indicate an inextricable link between health and security and the necessity of viewing health through the lens of health security and incorporating it as such into the National Security Strategy with the aim of building efficient capacities to fight and contain pandemics and other health threats.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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The authors declare that there was no conflict of interest.

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