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THE SUICIDES IN THE RUSSIAN FEDERATION: REVIEW OF NATIONAL STUDIES

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The epidemiological data of suicide rate, protective and risk factors is required to evaluate suicide losses, to develop appropriate interventions and to determine their effectiveness. Despite stable decreasing trend in suicide rates over the past three decades, the burden of suicides is determined by loss of young working-age population. In the post-Soviet Russia, fluctuations in suicide mortality indicators are associated with complicated periods of social economic transformations and radical changes of public policy. The risk factors also include economically depressive territories of residence, unemployment, psychoactive substance abuse, childhood and adolescence, family ill-being, incarceration, particular professional groups, physical illnesses, etc. The review established researchers' aspirations for topics improving understanding of suicide risk factors in population of Russia and needs of vulnerable groups. Such works are to result in better strategies of suicide prevention and development of new crisis care technologies. They identify problems in program implementation and provide important stimulus for determining global priorities in research and development areas.

K e y w o r d s : epidemiology; suicide; Russia; suicide mortality; vulnerable groups; review.

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Introduction

Despite a steady decline in suicide rates, Russia ranks among the countries with the highest suicide mortality rate every year, according to the WHO Global Observatory. Issues of crisis assistance in Russia are far from being resolved: inequality of emergency services, the imperfection of data collection, the incomplete knowledge of medical workers on suicide issues, as well as lack of propaganda on the suicide prevention — not a full list of problems requiring resolution in the nearest future. Significant progress in the development of suicide prevention programs has been achieved thanks to the numerous efforts of the scientific community, clinicians and other healthcare providers. But with the results we are still far from saturating with knowledge about suicidal behavior of the Russian population.

The **aim** of this work is to review the relevant national studies on suicide risk groups in the Russian Federation.

Materials and methods

By the preparation of the article, the official data of the Federal State Statistics Service (Rosstat) were used, the main indicators of suicide mortality in Russia for the period 1990–2021 are reported, taking into account the gender and age factor. With the help of Russian-language electronic platforms "Russian State Library", "Elibrary" and "CyberLeninka" the analysis of national studies covering the issues of suicidal behavior of the population of the Russian Federation was conducted. The most relevant publications on the authors opinion have been compiled in this review.

Results

The epidemiology of suicides in the Russian Federation over the past decades is characterized by a decrease of suicide mortality rates (SMR) by more than 50%, from 26.5 to 10.71 cases per 100,000 (Fig. 1) [1].

The scheduled periods of increase in suicide mortality are traditionally associated with social and economic transformations — change of regime, the peak of inflation in 1994, hopes collapse regarding new elections and reforms, the beginning of stabilization [2], the following default in 1998 and the global financial crisis in 2008. According to Polozhy B. S. (2016) the temporary range of influence should be expanded to the second half of the 1980s, because during this period, radical changes in the state were initiated: restructuring, democratization of the economic, social and political system and the subsequent dissolution of the USSR in December 1991 [3]. Cherepanova M. I. (2020) notes that the complex transformations processes have led to behavioural disorientation of a number of social formations, breaking of old stereotypes, deterioration of financial condition of the majority of population, appearance of new value orientations, the need to adapt to the new social reality, the disruption of institutional mechanisms of risk regula-

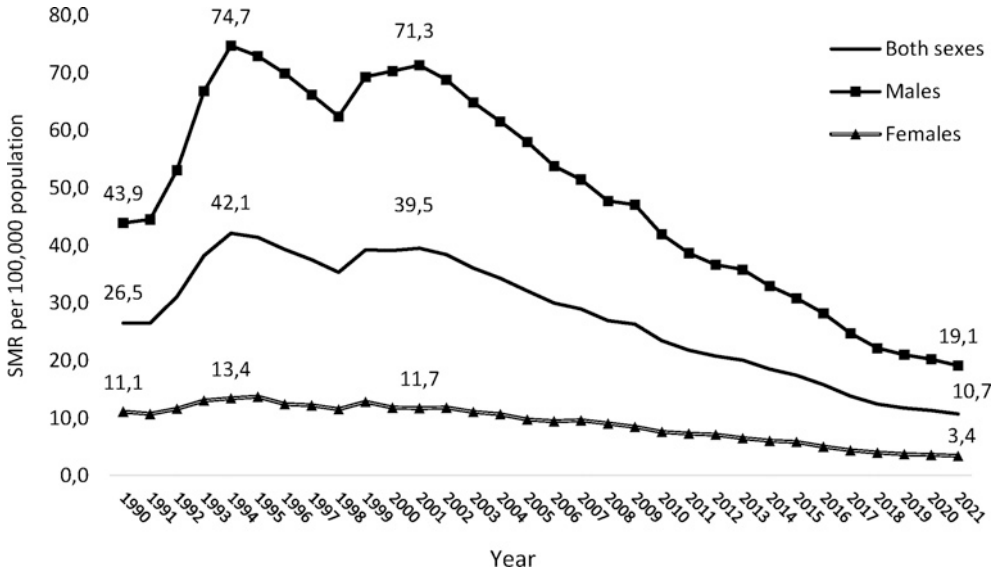

Fig. 1. Suicide mortality rates in the Russian Federation for 1990–2021 (per 100,000).

tion and, as a consequence, the formation of destructive and deviant behaviour patterns [4].

Men are traditionally more vulnerable to suicide. The male to female suicide mortality ratio in the Russian Federation in 2021 was 5.62:1, which is twice higher than global indicators. In total, 1,288,601 suicides were officially registered in Russia between 1990 and 2021. More than a million of them were male suicides and 225,124 were female. 64% of all victims are men in the age range 20-59 years, which determines the advantage of this interval among other age cohorts (Fig. 2) [5, 6].

Suicidal mortality rates (SMR) increase significantly from the age range of 20–24 years and gradually reach their highest in the age cohorts of elderly, both for women and men — 13.0 and 59.3 per 100,000 (2021) respectively. In general, over the indicated period, the SMR decreased in all cohorts, the next schedule demonstrates it clearly (Fig. 3).

According to the Rosstat statistical data, all regions, depending on the SMR, can be divided into several groups: low indicators (0–9 cases per 100,000), medium (10–19 per 100,000), high (20–29 per 100,000) and ultra-high (more than 30 per 100,000). In 1990, 34 regions showed ultra-high indicators of suicidal mortality, 34 regions had high SMR, in 8 regions medium indicators were noted and only in three low ones (Fig. 4). In 2021, a cartogram of suicides acquires a different form: ultra-high indicators were noted in three regions, high in 14, medium and low — in 32 and 33, respectively (Fig. 5). At the same time, despite the overall positive trend, in 2021 the ultra-high indicators remain in three regions — the Chukotka Autonomous Okrug (30.13 per 100,000), the Altai Republic (45.2 per 100,000) and the Republic of Buryatia (32.93 per 100,000) [1].

A number of regional studies are devoted to the epidemiology of suicide in specific constituent entities of the Russian Federation, gender and age differences, the

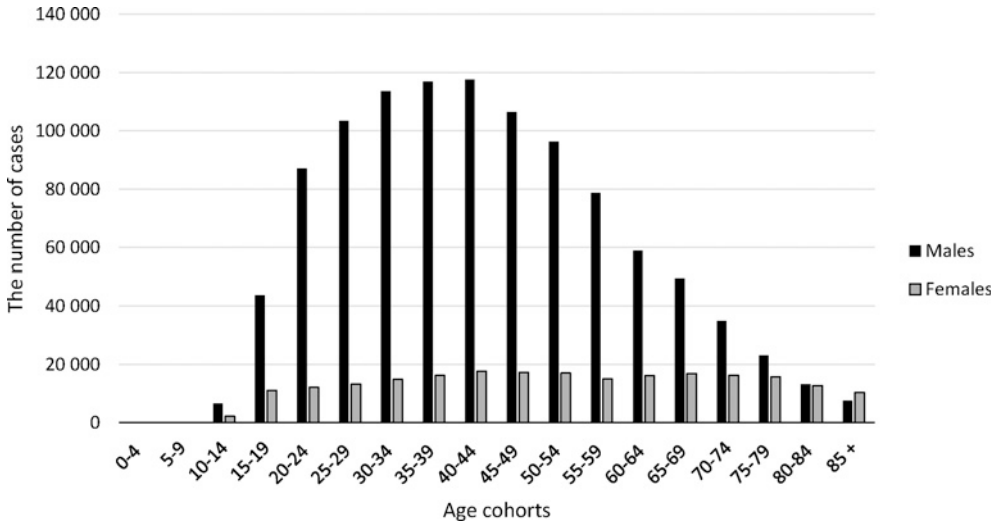

Fig. 2. Gender and age differences of suicides in the Russian Federation, 1990–2021 (per 100,000 population).

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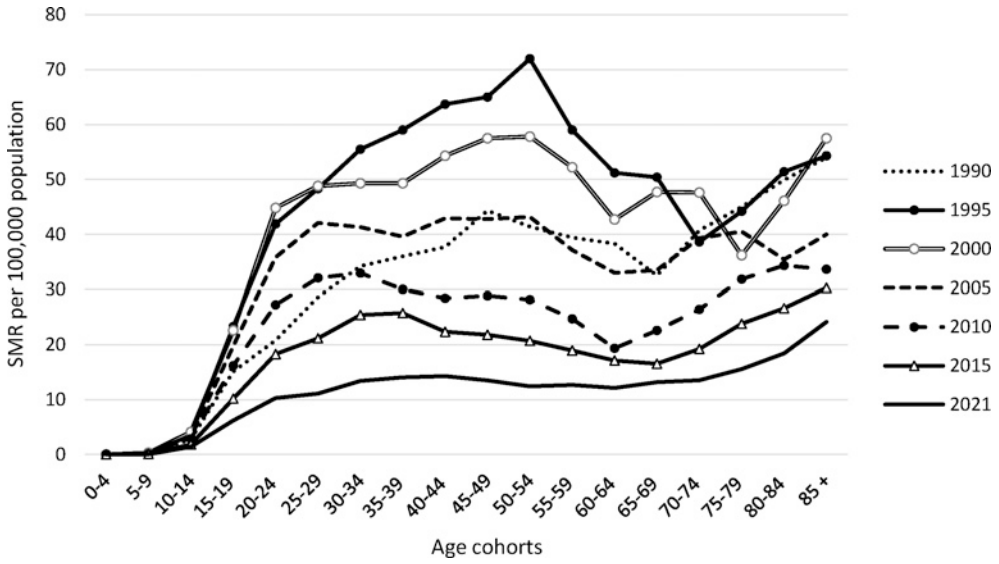

Fig. 3. The SMR of the population of the Russian Federation in age cohorts, 1990–2021 (per 100,000 population).

definition of "hot spots" on the maps of regions, the methods of suicide etc. Thus, the leading risk factors of suicidality in the social context are socio-psychological dysfunction, obvious and latent long-term unemployment and loyalty to social deviations [4]. Emelyanova A. S. analysis (2020) shows that more than 40% of victims at the time of death were unemployed [7]. On the contrary, according to Loginov I. P. et al. (2021) the conclusion was made about the independence of suicide levels from the stagnation of the region and difficulties in its socio-economic system [8].

A negative correlation of low suicide mortality rates with higher levels of bank deposits and incomes is shown, as well as an increase in credit debt of the population, which indicates that the impact of credit history on suicidal behavior is ambiguous. According to Golikov N. A. et al. (2016) such interactions are permissible provided that other elements (e.g. loss of breadwinner, loss of employment, etc.) leading to synergy are incorporated in an interdependent manner [9].

Number of studies discuss the risk of suicide among the indigenous peoples of Siberia and the Far East, and provide an analysis of the self-awareness of the North native population in modern socio-economic conditions. A strong aspiration of ethnic groups for affiliation, a sense of collectivism, a lack of relevance of con-

Fig. 4. SMR regional differences in the Russian Federation, 1990 (per 100,000).

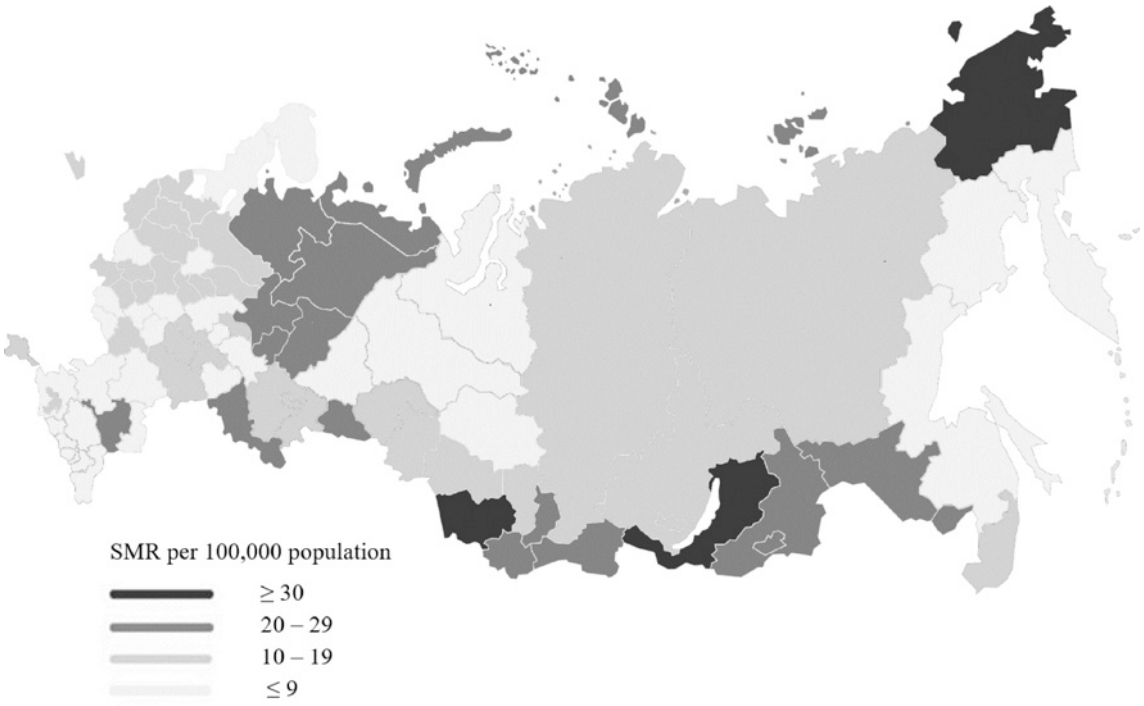

Fig. 5. SMR regional differences in the Russian Federation, 2021 (per 100,000).

temporary social requirements to the needs of indigenous communities and their high social vulnerability were noted [10–14].

In the study of the suicide rate of the Republic of Sakha (Yakutia) native population, certain conclusions were made about its close relationship with a number of parameters: the remoteness of districts from industrial centers, negative anthropogenic impact and ecological imbalance, displacement of indigenous peoples, ageing and extreme climatic conditions [15].

Semenova N. B. (2018) notes the association of suicidal behavior of indigenous population of Siberia with the loss of semantic landmarks and change of socio-economic formation, highlighting the uncertainty of the attitude of traditional religious worldviews to the value of human life [16].

An overview of current national studies indicates a high level of interest in suicide risk groups. One such category is children, adolescents and youth. Social surveys conducted in the Russian Federation show the problem of suicidal activity of the younger generation [17, 18]. Thus, every second student at least once in his/her life thought about suicide, one out of twenty made an attempt [19], more than 25% of adolescents, students of secondary schools noted a high level of loneliness and the same number of them entered the group of high suicide risk [20].

According to the forensics of child suicides, most of the victims were from incomplete families. In each fifth case there was a family history and signs of suicidal behavior in an anamnesis (suicidal threats, attempts, interest in the topic of suicide). In most cases, family conflicts are probable reasons for suicide [21]. This is indirectly confirmed by a high risk of suicide for children from orphanages [22] and special-needs schools, which may be associated with the absence of parents, as well as insufficient support from legal guardians, lack of private space, features of children's contact with each other [23] and actual intrapersonal and interpersonal problems interfering with adaptation [22].

It has been shown that families of children who committed suicide are more likely to find higher levels of self-destructive [24] and deviant [25] behavior in parents. However, teenagers, from prosperous, at first sight, families may also be at risk [26].

Probable causes of teenage suicides include psychological factors related to negative experiences [19], lack of clear life goals and long-term vision [27], a lower level of death acceptance. Moreover, adolescents treat critical situations, like suffering, not like opportunity for growth [28]. It has been discovered that personal characteristics of adolescents are connected with suicidal behavior, affective disorders and other types of deviant behavior [29]. The older age group is immersed by the growth of psychological problems in education, family sphere, relationships with the opposite gender, at the same time, maladaptive personality features are strengthened, accompanied by adjustment and depressive disorders increase [30]. The main factors of suicidal behavior of younger pupils are suggestibility, impressionability, mood swings, anger, impulsiveness, fear, intimidation, hopelessness, desire to punish and to be punished etc. [31].

On the contrary, young people who are not prone to self-destructive behaviour have a social success orientation and interaction with others [32], family responsibility [33] and the ability to cope with the stressful situation [34]. The most significant factor that restrains the majority of older adolescents is responsibility to the

family and the belief that problem situations are possible to be resolved [35].

The review of publications on suicide risk reveals unequal interest of Russian scientists in other vulnerable categories of the population. Thus, a relatively low number of studies are devoted to suicides among the elderly: there is a positive and significant correlation between loneliness [36], severe physical illnesses and chronic pain and suicidal symptoms in this population [37].

The national literature describes suicidal risks in individuals who are diagnosed with urological diseases [38], organic injuries of central nervous system [39], traumatic brain injury [40], epilepsy [41], the musculoskeletal system diseases [42] etc.

The role of mental disorders as a suicide risk factor is undeniable. The clinical structure of mental disorders in persons hospitalized with a suicidal behavior differs depending on the profile of the clinic: in the psychiatric hospital, persons with schizophrenic spectrum disorders predominate [43], in multidisciplinary clinics — with reactions to severe stress and personality disorders [44].

Features of neurophysiological reactivity and functioning of neurotransmitter systems of the brain in the development of suicidal behavior were studied. Thus, in patients who attempted suicide, the reduction of neurodynamic characteristics in the prefrontal cortex on any types of emotional stimuli, the most tangible on neutral and positive stimulation, is revealed, which forms a unique, different from control groups, EEG-reactivity profile [45]. Genotypes and alleles which are markers of the suicidal risk and those that have shown themselves as protective ones were identified as a result of the study of polymorphic variants of genes of serotoninergic system in the ethnic group of Russians [46].

A number of Russian publications discuss the relationship between alcohol and other substance use disorders as a combined risk factor for suicidal behavior [47–52]. Forensics show the postmortem detection of alcohol in the body fluids in about half of all suicides [7]. The high level of alcohol consumption in the population is considered to be a predictor of extreme response to stress [53]. Voroshilin S. I. (2012) shows a close correlation of the suicide rate with the dynamics of alcohol consumption in the USSR and former Soviet countries [54].

Higher incidence of family and personal suicide history in consumers of synthetic psychostimulants leads to the suggestion of family accumulation of suicidality patterns. It was also noted that almost 20% of those patients had experience of relationships with a person, committed suicide and in most cases, they showed a positive ("…did the right thing") or neutral ("…I can understand that") attitude to the fact of suicide, which may be a sign psychological acceptance of this form of deviation [55].

It's important to draw attention to suicidal risk in certain professional groups. Thus, among medical workers, self-destructive behavior is associated with burnout syndrome, low self-esteem and depression, interpersonal and family conflicts, a high level of stress and increased workloads, low professional prospects and income levels [56].

The issues of suicidal risk among the military have been studied and a number of personal features in this professional category have been allocated [57, 58]. A separate risk group are veterans of local conflicts, due to an "organic combatant personality" formation and related problems of adaptation that can cause suicidal behavior [59, 60].

Features of self-destructive behavior of convicts in high-security institutions of the Federal Penitentiary Service are described [61]. There is a certain type of people under investigation, who are considered vulnerable in terms of suicidal risk. These include persons who are admitted for the first time to a remand centre and stay there for less than two months or more than six months [62, 63], persons with mental disorders, those who have committed crimes against sexual integrity and sexual freedom of the individual, remand prisoners [64] and persons sentenced for life imprisonment [65].

Discussion

An integrative approach to suicide prevention involves combining a number of critical areas aimed at reducing suicidal mortality and includes addressing prevention at all possible levels. The results obtained from national studies describe vulnerable groups and agree with the data of our foreign colleagues on a number of questions. This makes it possible to apply well-established and proven techniques developed in accordance with the modern scientific paradigm. The national suicide prevention strategy is a road map towards the goal, accompanied by regularly updated normative documentation, technical guidelines, information resources and case studies.

There is an urgent question of increasing funding for development in the field of suicide prevention, support for research through targeted grants. It is important to provide State assistance to scientific laboratories specializing in suicide and to facilitate the transfer of technology and the sharing of knowledge that could help to accelerate the development of new activities. There is a need to strengthen the capacity of scientific centers to conduct trials and accelerate research on suicidal behavior.

Studies such as those cited in the review should contribute to policy renewal, effective implementation of new interventions, continuous monitoring of their results, and annual revisions of recommendations.

Conclusions

The identification of risk groups and the evaluation of the effectiveness of the activities undertaken contribute to the implementation of measures on a scale commensurate with the demand in the population. On the basis of the data obtained Governments and stakeholders identify priorities for local contexts. The future lies in the continuation and expansion of these programs and activities with proven effectiveness, as well as in the development of a new agenda where there is evidence of the greatest need.

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