

Deterioration in the Health of Russian Citizens

T Tagaeva^{1,2} and L Kazantseva¹

¹Institute of Economics and Industrial Engineering SB RAS

²Novosibirsk State University, Novosibirsk, Russia

E-mail: tagaeva@rambler.ru

Abstract. The article analyzes the public health situation in modern Russia, the dynamics of demographic indicators, healthy life expectancy, primary and overall morbidity, disability, infant and working age population mortality. International comparisons of the World Bank, the World Health Organization and the OECD statistics is presented. The article provides insight into the factors influencing public health in Russia. It presents the results obtained by Russian researchers and their foreign colleagues, showing that most of the deaths and diseases of Russians are the result of an unhealthy lifestyle. High blood pressure (which itself is caused by an unhealthy lifestyle), alcohol abuse, smoking and overweight account for a high rate of mortality and health deterioration. The most thorough attention is given to the problem of underfunding of the health care industry and the negative impacts of the reforms in health sector.

1. Introduction

Currently public health scenario in the Russian Federation is viewed as troublesome: slow growth in the life expectancy, low fertility rate, high mortality, especially in infants and working age men, population decline, increasing rates in overall and child morbidity, low healthy life expectancy, increased disability of the population, including childhood disabilities - all these factors indicate that the situation with public health is a threat to national security. Therefore, public health research is of scientific importance and relevance. This problem is studied by economists [1, 2], sociologists [3, 4], demographers [5-7], specialists in the field of medicine [8].

Scientific research methods, such as informational-analytical, comparative, methods of systematization, and more specific methods of qualitative and quantitative analysis, including regression provided methodological foundation for this research. The need to increase public spending on health in order to improve public health is confirmed by the results of the correlational analysis.

The data of the official statistics of the Russian Federation, the information of international organizations and ratings, the results of analytical studies in the open access were used in this research.

2. Public health deterioration

International comparisons show that the expected life expectancy of men in Russia is shorter than in some CIS countries, and on average 10-15 years shorter than in the EU and other developed countries, although positive changes have been observed in recent years. In 2018, the life expectancy of the entire population of the Russian Federation was 72.9 years, but the indicators of healthy life expectancy and the boundaries of old age remain low. Demographers proposed to determine the boundaries of old age, when a person has 15 or less years left to live on average [7]. According to this criterion, in Russia, an old age for men begins at 62, 8-9 years earlier than in developed countries and even in Eastern

Europe, for women the onset of old age is considered as 69 (the gap between Russia and other countries – from 3 to 7 years). It should also be noted that in Russia the picture differs by regions: in Moscow, the age threshold for women is more than 71, for men is about 70, and, for example, in Chukotka – 63 and 58 years, respectively [9].

According to the US Institute for the Health Study and Assessment (IEOS) the average healthy life expectancy (years of life in good health) in Russia from 1999 to 2013 was 58.9 years for men and 66.6 years for women. Thus, Russia is ranked 107th between Honduras and Tonga. Average life expectancy index places Russia at the 108th position between Iraq and North Korea. While the general picture shows increase of life expectancy and improvement in quality of life, which is observed even in the poorest countries of the world, the situation in Russia looks alarming. Thus, from 1990 to 2013 the average life expectancy increased by only 1.7 years, and healthy life - by 1.6 years (to compare with the worldwide increasement by 6.2 and 5.4 years, respectively). According to this indicator, Russia dropped from 88th to 108th (down 20 places) out of 188 countries for the period from 1990 to 2013 [10].

In the period from 2005 to 2017 the mortality rate in the Russian Federation decreased from 16.1 deaths per 1 thousand population to 12.4, which led to an increase in life expectancy, still in many regions mortality in 2017 remained higher than Russian average. Mortality in working-age population is 3.4 times as high as in the EU [11], especially in men: the rate of deaths between the ages of 15 and 60 is almost twice as high as the European average [6]. A 20-year-old male born in modern Russia can expect to live till 60 with a probability of about 67% [12].

During the period from 1990 to 2017 Russia faced the growth of the primary morbidity from 96.3 to 114.4 million cases, and the overall morbidity from 107 to 237,5 million. The prevalence of overall morbidity over the primary one reveals the stable tendency of diseases to become chronic. The average life expectancy for patients with chronic diseases in Russia is low and is 12 years (in the EU this indicator is 18-20 years) [13].

In the report of IEOS USA based on WHO statistics, it is pointed that an unhealthy lifestyle is responsible for the majority of Russian population deaths and diseases. This conclusion is consistent with the findings of Russian researchers [14], who consider tobacco smoking and alcohol abuse, hypertension, hypercholesterolemia, a low fruit and vegetable intake, obesity, insufficient physical activity and adverse environmental factors as leading causes of morbidity and mortality increase [15].

Data from OECD statistics (2015, 2017) show a positive trend towards a healthy lifestyle in Russia; the number of regular smokers over the age of 15 and alcohol consumption per capita by persons over the age of 15 has decreased significantly (see Fig. 1, 2): from 33.8% in 2012 to 23.1% in 2016 in cigarette consumption, from 18 liters in 2012 to 10.1 liters in 2015 of alcohol consumption. Still 60% of men and 13% of women smoke, and in 2016 smoking was responsible for more than 300 thousand deaths (this is 17% of the total annual mortality in the country).

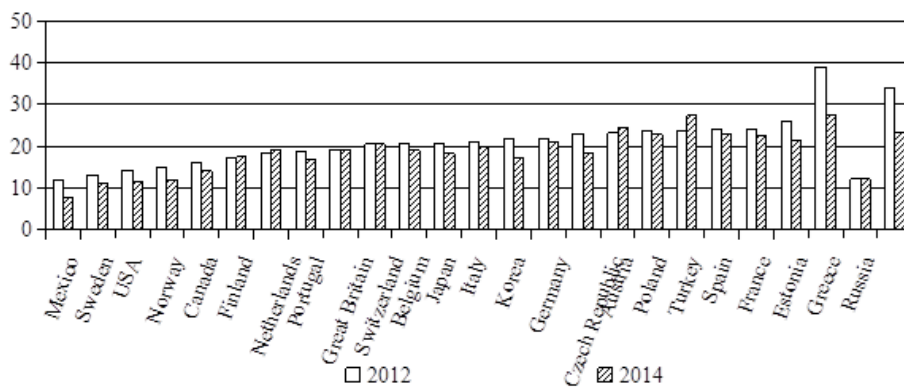


Figure 1. Regular smokers over the age of 15 (population proportion, %).

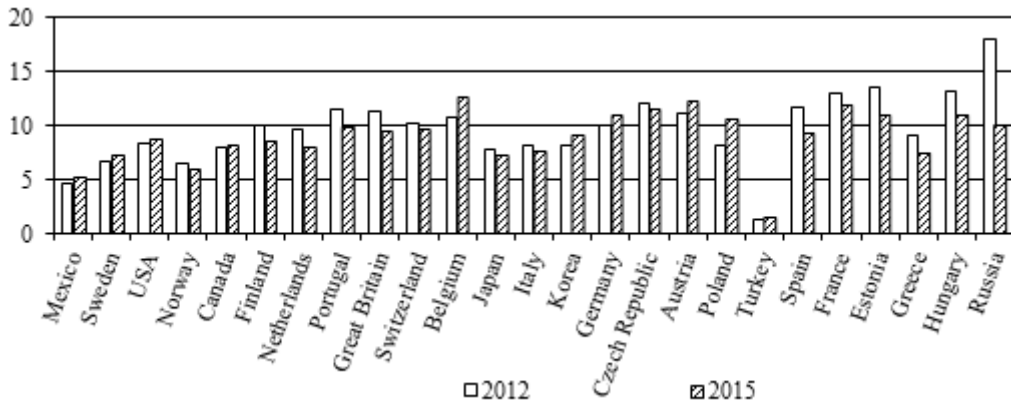


Figure 2. Alcohol consumption per capita by persons over the age of 15 (liters of pure alcohol consumed per capita by year).

According to demographers in recent decades up to 30% of male and 15% of female deaths were the cases of so called “alcohol losses”. Apart from deaths from alcohol poisoning, alcohol-related risks should be mentioned, and first of all, mortality from external causes in men (suicides, murders, accidents), and from coronary heart disease in women, while about 42% of the growth of life expectancy of men and 34% of women in 2003-2012 are associated with a decrease in mortality from alcohol [12].

Rosstat data indicate a decrease in the consumption of drugs and the incidence of sexually transmitted diseases. However, percentage of those who are obese is still fairly high (17%); it leads to many diseases, although obesity rate among Russians is lower than those in developed countries (23.8% in OECD countries).

Rosstat data for 2017 showed the deepest decline in fertility rates in recent years – 11.5 born per 1,000 population. The number of births has returned to the level of 2007.

The health status of children is of a particular concern. Their mortality is 2 times higher than in developed countries and even in the new EU member states, especially at the age from 1 to 14 years [16]. Figure 3 reproduces infant mortality rates; we use WHO, the World Bank, and Rosstat data.

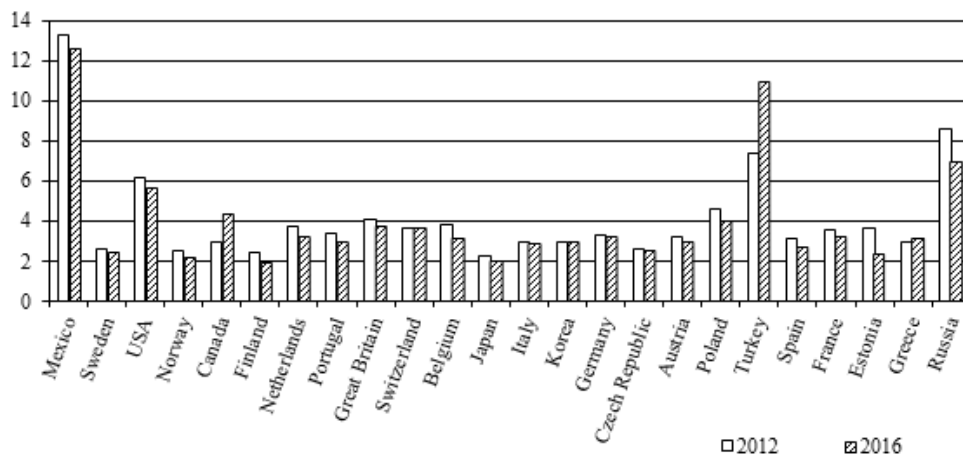


Figure 3. Infant mortality (number of deaths per 1,000 live births of children under 1 year of age).

School health studies reveal that up to 20% of children at the age of six are not ready for school and up to 50% are immature, they are more likely to get sick and have neuropsychiatric disorders. 12-15% of first-graders have speech problems, 7-9-year-old children are suffering from mental retardation. The proportion of healthy children among schoolchildren does not exceed 20%, 40-45% have chronic dis-

eases. It is estimated that only 85% of children born to rich families and no more than 25% of poor children are healthy [17]. Every year children's disability is more and more troubling trend, in 2017 there were 568.5 reported cases of disability in children aged zero to seventeen years.

3. Underfunding of the health care system

According to medical experts, in order to achieve satisfactory indicators of public health, the public health financing should be at least 6.6% of GDP, which will constitute 75-80% of total expenditure (public and private) for medical purposes. Currently, government spending on health is 3.7% of GDP, thus, in relative terms (share of GDP), public health spending in the Russian Federation is more than 2 times less than in developed European countries (see Fig. 4, statistics of WHO, the World Bank, Rosstat is used).

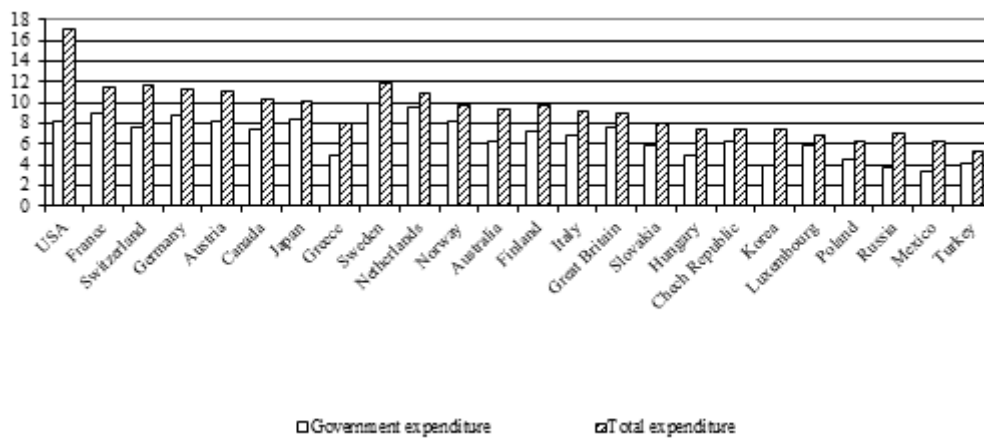


Figure 4. Health spending in 2015 (% of GDP).

In the structure of social expenditures, health care funding in Russia has been reduced since the times of the USSR. According to Minzdravmedprom (Ministry of Health and the Medical Industry) of the Russian Federation, the maximum share of government spending on health in the USSR was 6.6% (1960), 6.1% (1970), 5.0% (1980) of GDP. In 1990s in Russia this indicator was much more modest: 2.6% in 1991 and 2.4% in 1994. The decline in the 1990s was caused by the crisis of the transition period, but at the beginning of the last decade the country enjoyed the economic growth, still in 2004 public expenditure on health amounted to 2.2% of GDP and fell to 75% of the 1991 level in comparable prices. Only from the mid-2000s, with the implementation of the priority national project "Health", public expenditure on health begins to increase significantly both in relative terms (4.2 % of GDP in 2007) and in value terms. However, after 2009 the funding was reduced again, because of the crisis situation in the Russian economy which had contributed to the budget deficit (see Fig. 5, Rosstat data).

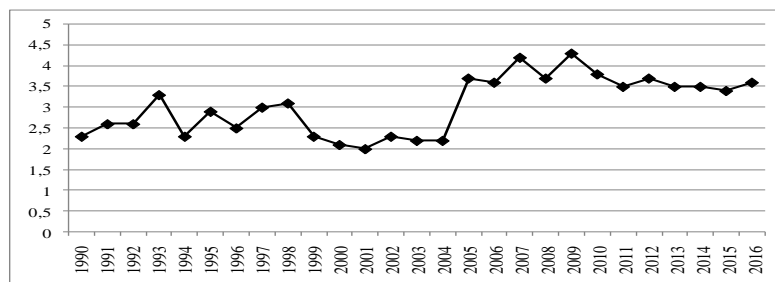


Figure 5. Dynamics of government spending on health in Russia (% of GDP).

In 2016, Russia spent \$ 917.2 per capita from public sources, which is 5-6 times less than in developed countries, and 2-3 times less than the "new" EU countries spent. It is notable that in the Soviet Union in 1960-1970 public spending on health per capita was approximately at the level of the United States and developed countries of Europe in the same time period.

The results of the correlation analysis reveal that the public spending on health in order to improve public health is needed to be increased. It shows the directly proportional relationship between life expectancy and total mortality from per capita public health financing (see Fig. 6, 7; *the statistics of WHO, the World Bank, and Rosstat*).

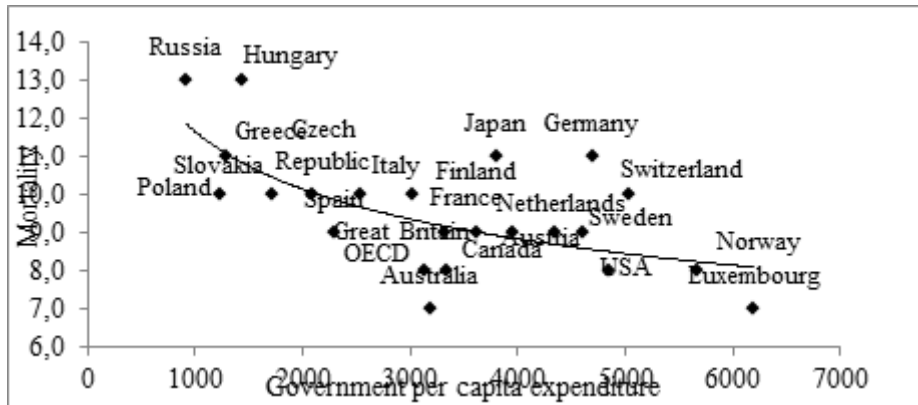


Figure 6. Total mortality rates (per 1,000 population) and public spending on health per capita (by PPP, US\$) in 2016 worldwide.

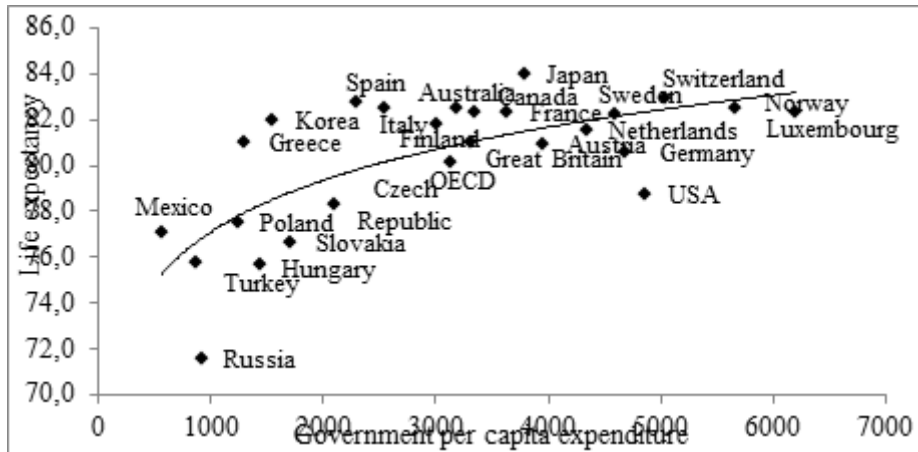


Figure 7. Life expectancy (years) and government spending on health (current US\$ per capita) in 2016 worldwide.

As it can be seen, the countries we compared vary by the size of the population, cultures and lifestyles, they have different health care systems, but all points on the curve are within the corridor defined by the amount of state funding – the main factor affecting mortality and life expectancy. Russia is below the global trend line (see Fig. 7) more likely due to inefficient use of funds.

4. Health reform

In 2014 and 2015, the Russian government took a set of measures called "optimization" of the health care system in Russia, initially meant to improve the quality and availability of medical care. The primary goals of "optimization of health care" are reducing the number of doctors through the increase of doctors' workload and medical institutions consolidation; wage increase for medical workers; provid-

ing polyclinics and hospitals with high-tech equipment. One of the arguments in favour of such a policy was the claim that in Russia there is the excess of medical personnel, though many developed countries (Germany, Austria, Sweden, Switzerland, etc.) need more doctors and nurses per 1000 people.

In 2015, the Accounts Chamber summed up the results of the so-called health care optimization [18]: a significant reduction in medical staff was reported; just in a year the number of medical workers in the country was reduced by 90 thousand people with a high level of combining jobs (about 140%/). At the same time, the reduction in the number of medical workers often did not fit the actual needs for medical services in the regions. The number of beds and medical staff was reduced, first of all, in rural hospitals, where medical services were provided by inter-district and regional hospitals, as a result, the access to health services for rural population was as well significantly reduced.

To organize the work of primary care institutions was seen as the most acute issue, because long queues and an ineffective organization of patient attendant jobs was really a painful problem for Russians. According to Rosstat, the average number of days of waiting for hospitalization increased more than 2 times, the number of people who sought medical treatment, but did not receive it for different reasons as well increased. Against the background of population growth, the number of visits to doctors in 2014 decreased by 7.7 million compared to 2013, the number of those who refused an ambulance increased by almost 22%. The increase in nosocomial mortality in 2014 was registered in 61 regions, in 49 regions the increase in the number of deaths was accompanied by a decrease in the number of hospitalized patients [18].

Many hospitals have reduced doctors wage rates within the framework of the "optimisation", while the gap between the salaries of doctors and managers of medical institutions has increased tenfold. The workload on doctors has increased dramatically with wage rate remaining low; many doctors are forced to work in several hospitals (part-time work, quarter-time work, one eighth-time work) or to have multiply jobs in one hospital to survive on a low salary. The shortage of nurses and assistant nurses is even more acute problem seriously affecting the quality of nursing care. According to JAMA (The Journal of the American Medical Association), nurse workload being increased from four to eight patients per nurse increases mortality in hospital up to 31% [19].

Actually, the health system "optimization" program continues the policy of transition from the so-called "budget" model of healthcare funding (direct financing from the budget expenses on the maintenance of a single nationwide network of medical institutions) to the "insurance" model, which has been establishing since the early '90s. This model provides for payment for receiving medical assistance through insurance intermediaries (Federal Compulsory Medical Insurance Fund and private insurance companies). Today, about 35% of expenditures on health care is spent on regional offices of FCMIF, another 10% are taken by insurance companies [20], that is, almost half of the health budget is spent on the maintenance of officials who are far from practical medicine. Meanwhile, many of the developed countries with high levels of public health (Sweden, Great Britain, Canada, etc.) enjoy effective and high-quality health systems with the "budget" model of its financing.

It should be said that the modernization has really brought the material and technical base of domestic medicine to a new level. The technical equipment of medical and preventive treatment organizations has been improved. Many doctors have had access to new opportunities, previously constrained by outdated equipment, but at the same time there are cases when new equipment is not used effectively and become obsolete due to the lack of qualified personnel who would be able to apply new technologies of examination and treatment in practice. The implementation of "May decrees" of the President of Russia began just before the presidential elections in 2018 ensured pay raises for medical workers, but concurrently payments for high qualification, for example, could be stopped.

5. Summary

The socio-economic conditions created by the State are important for public health in general. To provide all citizens the right to health care is considered as one of the most important social priorities regarding the public health. Public policy at all levels, in all sectors and departments, and in public and

private institutions should be targeted at improving public health and sharing responsibilities for building a healthy society. It is necessary to create the concept of the value of health to put it into practice at the state, social and individual levels. To do this it is necessary to intensify activities aimed at real incomes growth and health care financing, to take steps to combat drug addiction, alcoholism, tobacco consumption, and other unhealthy habits, and to develop education system, to promote the active sports movement and encourage healthy practices, physical activity, active leisure, to improve the environment for comfort life, as well as to improve child-rearing.

The analysis presented in the article can be used in the development of measures for long-term socio-economic and demographic policy.

6. Acknowledgments

Work is performed under the research work plan of the Institute of Economics and Industrial Engineering of SB RAS, the project XI.170.1.1. "Innovative and environmental aspects of the structural transformation of the Russian economy in the new geopolitical reality", № AAAA-A17-117022250127-8.

7. References

- [1] Aganbegyan A 2016 Demography and healthcare of Russia at the turn of the century (Moscow)
- [2] Aganbegyan A 2014 On goals and measures of health care reform in Russia *Voprosy Ekonomiki* **2** 149–157
- [3] Soboleva S, Smirnova N, Chudaeva O 2018 Features of the incidence of the population in the federal districts of Russia The formation and use of human capital in the modern economy ed. G P Litvintseva Ministry of science and higher education of RF, Novosibirsk State University, IEOPP SB RAS (Novosibirsk: Publishing House of NSTU) Ch. 3.3 141–170
- [4] Shilova L 2013 Modernization of the Russian health care: challenges, expectations and reality *Bulletin of the Institute of Sociology* **6** 146–162
- [5] Andreev E, Vishnevskii A, Treivish A 2004 Prospects for Russia's Development The Role of the Demographic Factor *Problems of Economic Transition* (New York) vol 46 **11**
- [6] Yumaguzin V 2012 Mortality trends from external causes of death in Russia in 1990–2010 *Russian Journal of Earth Sciences* **10** 23–43
- [7] Sanderson W, Scherbov S 2015 Faster Increases in Human Life Expectancy Could Lead to Slower Population Aging PLoS One p 6 URL: <http://doi.org/10.1371/journal.pone.0121922>
- [8] Ulumbekova G 2010 The relationship of health financing and health indicators for the Russian Federation Lessons and recommendations for Russia *Health economics* **3** 30–34
- [9] Vishnevsky A 2017 Report at the conference "Society for all ages" URL: <https://www.pencioner.ru/news/ekspertiza/anatoliy-vishnevskiy-raskryvaet-tayny-demograficheskikh-piramid/>
- [10] Sysoyev B 2015 Russia ranked 107th in terms of healthy life expectancy among 188 countries of the world URL: <http://infonarod.ru/info/prodolzhitelnosti-zdorovoy-zhizni-sredi-188-stran-mira>
- [11] Aganbegyan A 2017 Demographic drama on the path of perspective development of Russia *Narodo-naselenie* **3** 4–23
- [12] Petrova N 2015 Mortality is the norm of life. Why life expectancy in Russia is low *Kommersant* URL: <https://www.kommersant.ru/doc/2678981>
- [13] Grigoriev L, Bobylev S 2014 Human Development Report in Russia URL: <http://nauka.x-pdf.ru/17energetika/128327-2-doklad-chelovecheskom-razviti-rossiyskoy-federacii-201-doklad-chelovecheskom-razviti-rossiyskoy-federacii-doklad-chel.php>
- [14] Rozmainsky I, Tatarkin A 2018 Disbelief in the future and “negative investment” in health capital in contemporary Russia *Voprosy Ekonomiki* **1** 128–150
- [15] Bobylev S (ed.) Human Development Report 2013 in the Russian Federation Sustainable Development: Rio Challenges (Moscow) *RA ILF LLC* 202 p

- [16] Ulumbekova G 2018 Healthcare in Russia: 2018–2024 What to do? *Bulletin of VSHOUZ* **1** 9–16
- [17] Venediktov D et al 2016 About the WHO global strategy for achieving health for all in the twenty-first century *Chief Doctor* **5** 53–61
- [18] Fadeichev S et al 2016 The Chamber of Accounts checked the optimization in the sphere of healthcare, culture, education and social services URL: http://www.ach.gov.ru/press_center/news/21297
- [19] Zorina E 2018 "Optimization" of medicine URL: https://www.gazeta.ru/comments/2018/11/10_a_12053491.shtml
- [20] Zavyalov Y 2016 For affordable and free medical aid *Home Council* **6** 5