SOCIO-ECONOMIC DEVELOPMENT STRATEGY

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Children and Young People in Russia: Global Challenges of Modernity*



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Abstract. The present-day world's development is becoming more and more uneven and new global challenges are emerging. Russia should respond to them by enhancing its economic competitiveness, preserving and increasing its population and human potential, first of all, that of children and young people. The paper points out that for the Russian Federation with its vast territory and substantial reserves

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of natural resources the most important geopolitical challenges consist in the preservation and increase of population and human potential. The authors prove that the formation of the population of Russia is under double "pressure" of high mortality and low fertility; therefore, natural movement (decline) is not completed by mechanical movement. In addition, the article determines that the share of young people in the total population is decreasing. For the first time in the history of Russia the share of children has become lower than the proportion of the elderly. In 2013 in 56 Russian regions, the proportion of children and adolescents accounted for less than 20% of the population (in the early 2000s, there were 41 such regions, and in 1990 – three). In addition to the reduction in the number of the population, child health potential is also deteriorating: about 35% of children in Russia are born ill or become ill in the near future (the figure is 30% in the Vologda Oblast). The number of adolescents aged 15–17 who are accounted for severe mental disorders is continuously increasing. The greatest socio-economic damage to the society comes from suicides that are widely spread among young people (the younger generation (persons up to 24 years old) accounts for one third of all the potential years of life lost from suicides). At the same time, young people consider health more valuable than does the population as a whole (4.5 points vs 4.4 points on a five-point scale). But young people underestimate the importance of self-preservation behavior. World experience shows that efficient development and productive use of the youth potential is the main advantage of the countries with innovation economy. The article shows that if the level of development of professional competencies is high, the level of innovation activity (projects, developments and inventions) among students is also high (3.93 points vs 3.69 points – in the absence of developments).

Key words: children, young people, population, health, innovation skills, years of potential life lost.

The present-day world's development is becoming more and more uneven and new global challenges are emerging, they are as follows: unevenness of economic growth; demographic imbalances; decrease in the share of young people in the total population; strong migration flows from the regions suffering from terrorism; environmental issues; increasing number of natural disasters. In addition, global economy and politics witness the establishment of new regional economic alliances (WTO, APEC, EurAsEC, APEC, Eurasian Customs Union, etc.) that are beginning to change the principles of world economic regulation. Countries are boosting their innovation activities, which accelerate the pace of change in several major economic trends in the world¹; this requires that human potential quality be enhanced.

All the regions of the world experience a decline in population growth rate along with its significant territorial differentiation. According to the World Bank, the rate of population growth is much higher in the regions, where most of the territory is occupied by developing countries (South and North Africa, the Middle East, South Asia, Latin America), compared to the areas occupied by developed countries (tab. 1).

The crude birth rate in the world between 1960 and 2013 decreased from 32 to 20‰

¹ Long-Term Forecast of Scientific and Technological Development of the Russian Federation (up to 2025).

| | | | | | · | | | | | | | |
|--------------------------|---------------------------------|-------|-------|-------|-------|----------------|-------|----------------|----------------|---------------|---------------|----------------|
| Morld | Population size, million people | | | | | Growth rate, % | | | | | | |
| World, region | 1960 | 1970 | 1980 | 1990 | 2000 | 2010 | 2012 | 1970 / 1960 | 1980 / 1970 | 1990/ 1980 | 2000/ 1990 | 2010 / 2000 |
| World | 3,032 | 3,699 | 4,451 | 5,295 | 6,124 | 6,987 | 7,052 | 122.0 | 120.3 | 119.0 | 115.7 | 114.1 |
| Europe | 605 | 657 | 693 | 721 | 729 | 738 | 740 | 108.6 | 105.5 | 104.0 | 101.1 | 101.2 |
| Africa | 282 | 364 | 480 | 637 | 821 | 1051 | 1,070 | 129.1 | 131.9 | 132.7 | 128.9 | 128.0 |
| Asia | 1,704 | 2,139 | 2,636 | 3,181 | 3,705 | 4,216 | 4,250 | 125.5 | 123.2 | 120.7 | 116.5 | 113.8 |
| Latin America | 220 | 288 | 364 | 444 | 523 | 596 | 603 | 130.9 | 126.4 | 122 | 117.8 | 114.0 |
| North America | 204 | 232 | 256 | 284 | 316 | 346 | 351 | 113.7 | 110.3 | 110.9 | 111.3 | 109.5 |
| Australia and Oceania | 16 | 20 | 23 | 27 | 31 | 37 | 38 | 125 | 115 | 117.4 | 114.8 | 119.4 |
| For reference: Russia | 119 | 130 | 138 | 138 | 146 | 143 | 143 | 109.2 | 106.2 | 100 | 105.8 | 97.9 |

Table 1. Population (million people) and growth rate, %

Sources: Europe in Figures – Eurostat Yearbook. 2009, p. 130. Available at: http://epp.eurostat.ec.europa.eu (accessed October 25, 2010); Demograficheskii ezhegodnik Rossii [Demographic Yearbook of Russia]. 2001, p. 19; 2011 World Population Data Sheet. The World at 7 Billion. Population Reference Bureau. Pp. 6-9.

(the total fertility rate decreased from 5.0 to 2.5), the crude death rate – from 18 to 8‰, respectively². The most significant decrease in the birth rate over this period was recorded in the European region (from 21.5 to 10.5%o), Asian region (from 42.3 to 19%o) and in Australia (from 23.0 to 12.9%o). That is, the decrease in the birth and death rates is a global trend (*fig. 1*).

The relative improvement in people's health is a positive trend of recent years. Since the beginning of the 2000s, life expectancy (LE) increased — from 65.3 years in 2000 to 70.8 years in 2013; as for healthy life expectancy (HALE), it also increased — from 58 to 61 years.

At the same time, Russia's lag behind developed countries in terms of the life expectancy indicator remains very considerable: in 2013, LE in the EU exceeded the Russian national average LE by 10 years; the situation is similar with regard to HALE. It is noteworthy that the dynamics of Russians' health indicators is unique. They were comparable to those of developing countries at the beginning of the period under consideration; however, Russia managed to bring them close to the level of developed countries, in which the dynamics was insignificant.

Despite the fact that there were some positive developments in Russia since the beginning of the century (in 2000–2014, the crude birth rate increased from 8.7 to 13.1 ppm; the crude death rate increased from 15.3 to 13.3; besides, the natural population increase is observed since 2013: by 54 thousand people during 2013–2014), experts' forecasts indicate the upcoming deterioration of trends (*fig. 2*), because a structural resource for increasing the birth rate has been exhausted.

² Natsional'naya bezopasnost' Rossii: vnutrennie ugrozy realizatsii strategii [Russia's National Security: Domestic Threats to the Implementation of the Strategy]. Under the supervision of V.A. Ilyin. Vologda: ISERT RAN, 2015. 132 p.

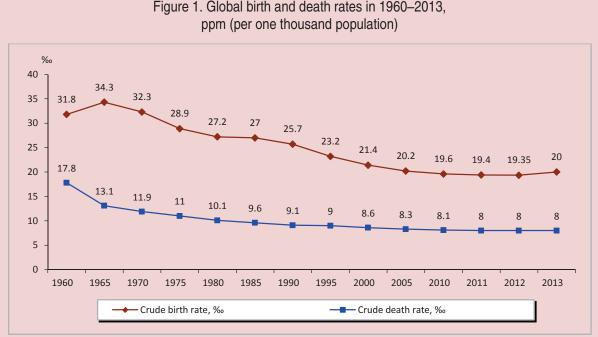


Figure 1. Global birth and death rates in 1960-2013,

Source: The World Bank. World Development Indicators. Available at: http://databank.worldbank.org/data/views/reports/ tableview.aspx

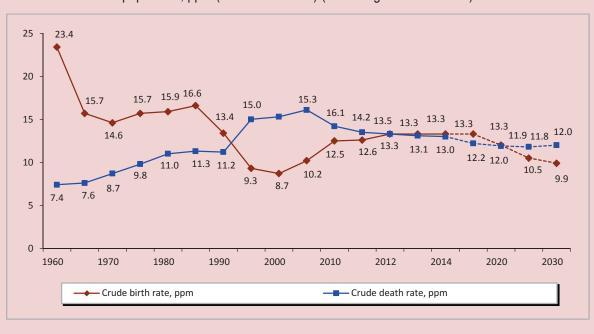


Figure 2. Developments in the crude birth and death rates of Russia's population, ppm (fact and forecast) (according to Rosstat data)

| | | | | | • | • | | | | |
|-----------|------|------|------|------|-------------|--------|------|------|------|------|
| Countries | 1990 | 1995 | 2000 | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| World | 62.8 | 60.0 | 53.1 | 44.3 | 37.5 | 36.2 | 34.9 | 33.7 | 32.6 | 31.7 |
| Russia | 21.9 | 22.2 | 19.7 | 14.4 | 10.3 | 9.8 | 9.3 | 8.9 | 8.5 | 8.2 |
| | | | | Dev | /eloped cou | ntries | | | | |
| USA | 9.4 | 8.0 | 7.1 | 6.8 | 6.3 | 6.1 | 6.1 | 5.9 | 5.7 | 5.6 |
| UK | 7.9 | 6.1 | 5.6 | 5.1 | 4.4 | 4.2 | 4.1 | 3.9 | 3.7 | 3.5 |
| Sweden | 5.8 | 4.0 | 3.4 | 3.0 | 2.5 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 |
| Canada | 6.8 | 5.7 | 5.2 | 5.3 | 4.9 | 4.7 | 4.7 | 4.6 | 4.4 | 4.3 |
| Denmark | 7.3 | 5.4 | 4.6 | 4.1 | 4.1 | 3.3 | 3.2 | 3.1 | 3.0 | 2.9 |
| Norway | 7.0 | 4.6 | 4.0 | 3.2 | 2.6 | 2.5 | 2.3 | 2.3 | 2.2 | 2.0 |
| France | 7.4 | 4.8 | 4.4 | 3.8 | 3.5 | 3.5 | 3.5 | 3.6 | 3.6 | 3.5 |
| Italy | 8.3 | 6.4 | 4.7 | 3.7 | 3.4 | 3.3 | 3.2 | 3.1 | 3.0 | 2.9 |
| Germany | 7.0 | 5.3 | 4.4 | 3.9 | 3.5 | 3.4 | 3.3 | 3.3 | 3.2 | 3.1 |
| Japan | 4.6 | 4.1 | 3.3 | 2.7 | 2.4 | 2.3 | 2.2 | 2.1 | 2.1 | 2.0 |
| Japan | 4.6 | 4.1 | 3.3 | 2.7 | 2.4 | 2.3 | 2.2 | 2.1 | 2.1 | 2. |

Table 2. Infant mortality, deaths per 1,000 live births

Source: World Health Organization. Global Health Observatory Data Repository. Available at: http://apps.who.int/gho/data/view.main. CM1320R?lang=en

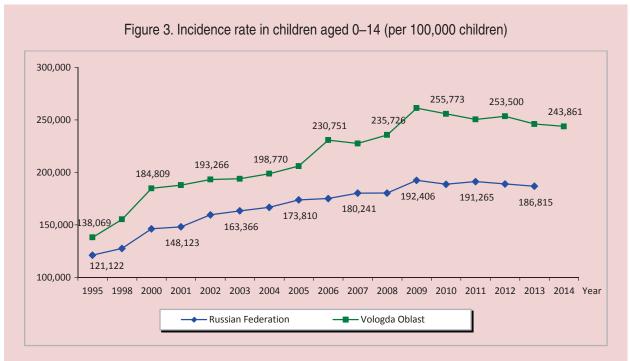
In 1999–2009, the number of women aged 18–34 increased by more than two million; this fact contributed to the increase in the number of births after 1999. According to the forecast of the Institute of Demography under the National Research University Higher School of Economics, by 2020, the number of women of active reproductive age will have declined by 4.7 million, and by 2025 – by more than 7 million³.

In addition, of particular concern is the fact that, despite the increase in LE and HALE, the level of infant and child mortality remains high *(tab. 2)*. The decrease in the proportion of young people in the population of European countries and Russia is one of the serious global challenges of our time.

The reduction in birth rates and increase in life expectancy were the main reasons for the change in the proportions of the age structure. Demographers are concerned about the fact that for the first time in the history of Russia the share of children became lower than the share of elderly population. In 2013, in 56 Russian regions, the share of children and adolescents was less than 20% of the total population (in early 2000, the number of such regions was 41, in 1990 — three).

In this regard, an important challenge for Russia is to preserve the health of the younger generation. Children's health potential decreases from early childhood, it is shown by the increase in their incidence rate. About 35% of children in Russia are born sick or become ill in the near future, this figure is about 30% in the Vologda Oblast (fig. 3).

³ Vishnevskii A. Rossiya: demograficheskie itogi dvukh desyatiletii i blizhaishie perspektivy [Russia: Demographic Results of Two Decades and the Near-Term Prospects]. *Mir Rossii. Sotsiologiya. Etnologiya* [World of Russia. Sociology. Ethnology], 2012, vol. 21, no. 3, pp. 3-40.

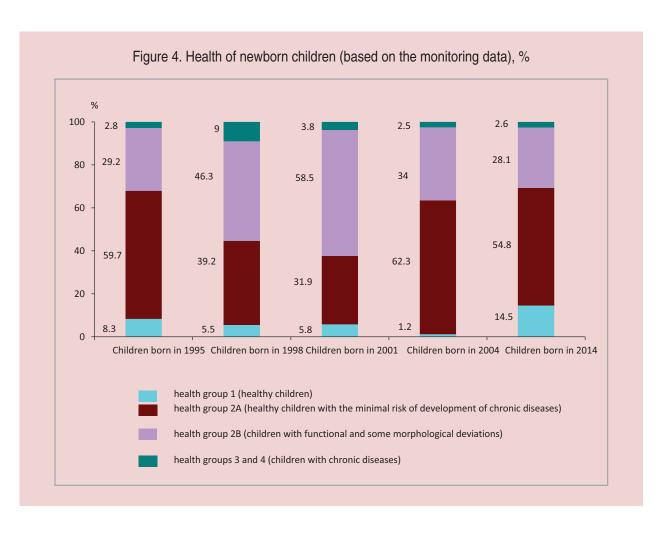


Sources: Rossiiskii statisticheskii ezhegodnik: stat. sb. [Russian Statistical Yearbook: Statistics Collection]. Rosstat. Moscow, 2001–2014; Osnovnye pokazateli deyatel'nosti uchrezhdenii zdravookhraneniya Vologodskoi oblasti za 1999–2014 gg.: stat. sb. [Main Performance Indicators of Healthcare Institutions of the Vologda Oblast for 1999–2014: Statistics Collection]. Vologda: Departament zdravookhraneniya Vologodskoi oblasti, GUZ DZ VO "MIATs", 1999–2014.

State statistics materials describe the current condition and trends in the health of children's population as a whole and help assess it as a component of public health. Special studies help understand changes in children's health. For this purpose, a medical and sociological monitoring of the health and development of children is carried out in the Vologda Oblast on a regular basis since 1995. It covers four cohorts of families in which the children were born in the spring of 1995, 1998, 2001, 2004 and 2014 (fig. 4). The study provides a unique opportunity to figure out how children's health changes and to understand what factors have greater influence on its formation. The medical and sociological monitoring reveals children's health and illness at a qualitatively different level and helps discuss the issue in more detail.

The study reveals that health is deteriorating in stages, stepwise and determines main critical periods of childhood:

- the first twelve months of life (the proportion of healthy children and children with minimal risk of loss of health among newborns is 60-40%; it decreases to 20-15% as they reach 12 months of age);
- 6-7 years old (the proportion of children with chronic diseases increases by an average of 5-6%, which is connected with the most important periods of social adaptation);



• 12 years old (by this age, due to physiological factors, children's immune system becomes stronger, the proportion of children who often fall ill with cold-related diseases reduces; however, the incidence of musculoskeletal disorders and gastrointestinal diseases increases, visual acuity decreases, on the whole, the number of chronic diseases increases).

In this regard, of particular concern is the fact that medical personnel pay less attention to the category of children with health group two. It often happens that such children are viewed as healthy only because they seldom visit medical institutions⁴.

According to observations made by health workers, 70% of disorders formed in children in primary school develop into chronic diseases by the time of graduation;

⁴ Shabunova A.A. Zdorov'e i zdorov'esberezhenie podrastayushchego pokoleniya [Health and Health Protection of the Younger Generation]. *Deti i obshchestvo: sotsial'naya real'nost' i novatsii: sb. dokladov na Vseros. nauch.-prakt. konf. s mezhdunar. uchastiem, g. Moskva, 23-24 oktyabrya 2014 g.* [Children and Society: Social Reality and Innovations: the Collection of Reports at the All-Russian Research-to-Practice Conference with International Participation, Moscow, October 23–24, 2014]. Moscow: ROS, 2014. pp. 851-861.

| Factors | Prevalence in the population |
|---|---|
| Unsatisfactory health of the mother | In 2014 in the Vologda Oblast 8% of women of reproductive age assessed their health as bad or very bad; 43% considered their health satisfactory. |
| Low level of hemoglobin in women during pregnancy | Anemia accounts for 33% of morbidity in pregnant women. |
| Maternal smoking | The prevalence of smoking among pregnant women increased significantly (from 3% in 1995 to 10% in the cohort of 2014). 29% of women in the reproductive age smoke in the Vologda Oblast. Their share is increasing. |
| Work conditions of the expectant mother that do not meet sanitary standards | In the Vologda Oblast in 2006, 26% of women worked in the conditions that did not meet sanitary norms, while in 2000 this indicator did not exceed 7% (according to Vologdastat). |
| Low incomes of families | In Russia, about 20% of children aged under 16 live in poverty. Some improvement was revealed in this period in subjective assessments of the purchasing power of the families participating in monitoring. There was an increase in the proportion of respondents who have enough money for all current expenses – from 27 to 38%, respectively. The number of families who say that they have enough money only for daily expenses, but buying clothes and other things is difficult for them, decreased respectively from 53 to 37%. |
| Adverse housing conditions | 13–18% of families that participate in the monitoring live in bad houses and apartments or in those requiring major repairs. |
| Unsatisfactory environmental conditions at the place of residence | 28% of children (according to their parents' assessments) live in poor or very poor environmental conditions. |

Table 3. Prevalence of risk factors in the population

moreover, the incidence of ophthalmological diseases increases 4–5-fold; the incidence of digestive system disorders and musculo-skeletal disorders increases threefold, and the incidence of neuropsychiatric disorders – twofold⁵.

The prevalence of the above risk factors is quite high. Only 6% of families have no problems in this respect; in other families, the risks are present in different combinations. More than one-third of families have two risk factors combined; about 20% of families have a combination of three risk factors. The largest share of healthy children is found in the families in which negative impacts are absent or minimal (about 30%). The highest proportion of children with chronic illness is observed in the families in which four (25%) and five (33%) risk factors are combined. It is

noteworthy that risk factors are concentrated in families with low incomes. The prevalence of identified risk factors in the population is presented in *table 3*.

The data obtained indicate the formation of a specific pattern: the prevalence of risk factors in the population causes children's health deterioration; this, in turn, leads to the low level of young people's health and ultimately affects the health of adults; poor health of parents is one of the reasons for illnesses in children. The so-called "social funnel" is being formed, into which all young cohorts are being drawn: health issues shift from older age groups to the groups of children and young people⁶.

⁵ Shabunova A.A. *Ibidem*.

⁶ Rimashevskaya N.M. Sotsial'no-ekonomicheskie i demograficheskie problemy sovremennoi Rossii [Socio-Economic and Demographic Issues of Modern Russia]. *Vestnik Rossiiskoi akademii nauk* [Bulletin of the Russian Academy of Sciences], 2004, vol. 74, no. 3, pp. 209-218.

Negative conditions and life factors weakened the immune protection, caused the development of pathological processes, depression, and other psychiatric deviations. The feeling of "exhaustion" and "fatigue" in the population leads to the fact that the generation of children does not reproduce the generation of parents not only quantitatively, but also qualitatively.

In Russia, there is a continuous increase in the number of adolescents aged 15–17 who have severe mental disorders (schizophrenia, schizoaffective psychosis, schizotypal disorder and affective psychosis). Since 2000, their number has grown by 45% (from 50.8 to 73.3 cases per 100 thousand adolescents)⁸. The decrease in this indicator among children aged 0–14 also increased by 20% (from 12.7 to 15.2 cases per 100 thousand children, respectively⁹).

The spread of mental and behavior disorders associated with consumption of psychoactive substances among adolescents aged 15–17 is shown by the following trend. If at the beginning of the 1990s the most acute was the issue of substance abuse, then in the second half of the 1990s – early 2000s – the problem of rapid growth of drug abuse came to the fore; and in the 2000s, there emerged

the issue of alcoholism, which was also acute among the adult population¹⁰. The registered incidence of drug abuse reached its peak in 2000, when 6,122 adolescents (82 persons per 100 thousand people of this age) were taken under observation; 9,062 adolescents (121 persons per 100 thousand adolescents) were registered with health care institutions; 16 thousand (218 persons per 100 thousand) were on the preventive account by the end of the year. The incidence of adolescent drug abuse declined sharply by 2003, and then continued to decline at a moderate pace. In 2012, only 143 young people were taken under observation with drug addiction diagnosed for the first time (3.4 per 100 thousand people aged 15–17); 284 adolescents (6.9) were registered with healthcare institutions at the end of the year. Mental and behavioral disorders associated with substance abuse are recorded in children aged under 14. In 2000, 216 children were taken under supervision in this regard. Since 2010, their number is 7–8 per year on average¹¹. In 2012, 13 children aged up to 14 diagnosed with drug addiction were registered with medical and preventive organizations. In addition, 427 children were on the preventive account in connection with the use of drug substances with harmful consequences.

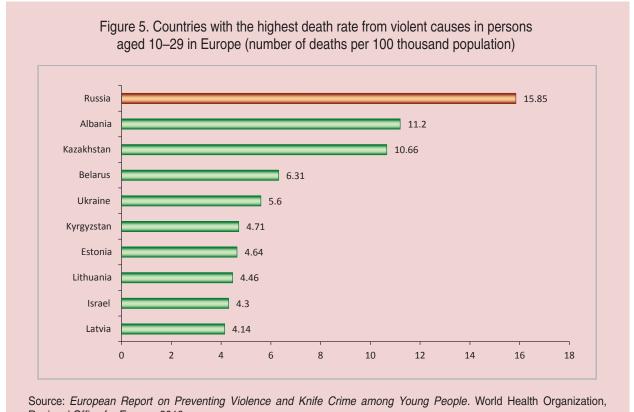
⁷ Analiticheskii material k razrabotke kontseptsii gosudarstvennoi migratsionnoi politiki RF [Analytical Material for the Development of the Russian Federation State Migration Policy Concept]. Available at: http://www.proektnoegosudarstvo.ru/materials/analiticheskij_material_k_razrabotke_kontceptcii_gosudarstvennoj_migratcionnoj_politiki_rf/

⁸ Zdravookhranenie v Rossii. 2013: stat.sb. [Health Care in Russia. 2013: Statistics Collection]. Rosstat. Moscow, 2013. P. 147.

⁹ Zdravookhranenie v Rossii. 2013: stat.sb. [Health Care in Russia. 2013: Statistics Collection]. Rosstat. Moscow, 2013. P 131.

¹⁰ Shcherbakova E. Chislo sostoyashchikh na uchete s diagnozom alkogolizm i alkogol'nye psikhozy, narkomaniya i toksikomaniya, v 2011 godu prodolzhalo sokrashchat'sya [The Number of Those Registered with the Diagnosis of Alcoholism and Alcoholic Psychosis, Drug Addiction and Toxic Substances Addiction Continued to Decline in 2011]. *Demoskop weekly* [Demoscope Weekly], 2013, no. 547-548, March 18-31

¹¹ Zdravookhranenie v Rossii. 2013: stat.sb. [Health Care in Russia. 2013: Statistics Collection]. Rosstat. Moscow, 2013. 380 p.



Regional Office for Europe, 2010.

The Russian Federation tops the list of

In 2013, the suicide rate in the Volc

European countries with the highest level of mortality from violent causes in young people aged 10–29 (fig. 5). According to the WHO, about 40 young people aged 10–29 die in violence in Europe every day, or more than 15 thousand people every year¹². Violence is the third leading cause of death in this age group. For comparison: in Western Europe the death rate in people aged 10–29 is significantly smaller – for example, it is 0.5 cases per 100 thousand population in Germany and Austria.

In 2013, the suicide rate in the Vologda Oblast decreased in all age groups of the population *(tab. 4)*. It should be noted that the decline is going on at the smallest rate in the group of those aged 10–19.

This can be explained by the fact that representatives of these groups (mainly children and adolescents) have a high level of lability of their psyche and, at the same time, they do not have enough life experience to react properly to psycho-traumatic situations, which increases the risk of their committing suicide. This indicator experienced significant improvement only in 2013.

Thus, we see that the issue of suicidal behavior is critical for the entire Russian society, and especially with regard to children

¹² Evropeiskii doklad o predotvrashchenii nasiliya i prestupnosti sredi molodezhi [European Report on Preventing Violence and Knife Crime among Young People]. World Health Organization, 2010.

| A = 0 = = = = = = = = = = = = = = = = = | | Year | | | | | | | | | 2013 compared | |
|---|---|------|------|------|------|------|------|------|------|------|---------------|---------|
| Age group | 1998 | 1999 | 2000 | 2002 | 2004 | 2006 | 2007 | 2008 | 2009 | 2010 | 2013 | to 1998 |
| 10–19 years old <i>(from 1998 to 2000 – 0-19 years old)</i> | 6.7 | 6.3 | 8.8 | 15.2 | 12.8 | 8.8 | 11.9 | 7.2 | 7.0 | 9.7 | 4.5 | 67.2% |
| 20–39 years old | 59.8 | 68.4 | 61.0 | 57.0 | 55.6 | 43.2 | 37.5 | 25.3 | 33.7 | 27.8 | 26.0 | 43.5% |
| 40-59 years old | 88.2 | 94.7 | 84.5 | 74.7 | 64.3 | 56.0 | 46.8 | 37.8 | 38.6 | 33.8 | 30.7 | 34.8% |
| 60 years old and more | 54.8 | 81.0 | 71.4 | 63.0 | 62.0 | 57.8 | 47.3 | 36.7 | 45.3 | 38.1 | 29.7 | 54.1% |
| Source: Federal State Statistics S | Source: Federal State Statistics Service database. Available at: www.gks.ru | | | | | | | | | | | |

Table 4. Age structure of mortality from suicide in the Vologda Oblast (deaths per 100 thousand population in this age group)

and adolescents. Suicide among children and adolescents poses a series of threats to social development¹³; we consider the following threats to be most important.

1. Social-psychological threat. Social alienation is, in essence, the inability of an individual to adapt to social reality; i.e., it is a definite negative reaction of an individual to the influence of social conditions. There should be no such reactions in childhood, since the representatives of this age group are only getting to know the world, and their interaction with society is "covered" by the guardianship of their parents and family. The fact that social alienation is manifested in childhood and adolescence, and to such a degree that they are expressed at the physical level, at the level of social pathologies, arouses particular concern with regard to the future of the young generation and the country as a whole.

2. *Economic threat*. The younger the age of death from suicide, the greater the loss of human and labor potential of the territory. This

was shown by the assessment of economic damage from premature death due to various causes¹⁴ including some forms of destructive and self-destructive behavior: the assessment was carried out by ISEDT RAS in the Vologda Oblast in 2013¹⁵.

The total loss of man-years of productive life from mortality due to suicide was 3,241 PYLL in 2013 (tab. 5), in money terms — about two billion rubles or 0.6% of GRP (for comparison: the damage from homicide — 2,096 PYLL or 0.4% of GRP). Alcohol abuse causes even more significant damage to the

¹³ Morev M.V., Shmatova Yu.E. Sotsial'nye patologii v detsko-podrastkovom vozraste (na primere issledovanii suitsidal'nogo povedeniya) [Social Pathologies in Childhood and Adolescence (Case Study of Suicidal Behavior Research)]. *Voprosy territorial'nogo razvitiya* [Territorial Development Issues], 2014, no. 10 (20). Available at: http://vtr.isert-ran.ru/article/1456

¹⁴ One of the key indicators for calculating the value of socio-economic impacts of premature mortality is the cost of economic damage from the loss of a member of the society, expressed in standardized units of "potential years of life lost (PYLL)". The per capita gross regional product (GRP) of the Vologda Oblast calculated based on the number of people employed in the economy in a given year was used as a measure of the value of the damage. This allowed us to determine the amount of profit lost in the region due to mortality of working age population, under the assumption that it is all economically active. For each case of death the number of years of "life lost" until retirement age (men under 60, women – under 55) was determined, all the cases were summed up, and the resulting number of man-years of potential life lost was multiplied by the average annual gross regional product (GRP) per employee in the economy. The result was the GRP lost due to mortality from suicide.

Rossii v kon-tekste kontseptsii epidemiologicheskogo perekhoda [Dynamics of Mortality in Russia in the Context of the Epidemiologic Transition Concept]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2015, no. 4(40), pp. 192-210.

| | | Death | ı rate | | | PYLL | | Damage | |
|----------------------------------|--------------|----------------|----------------|-----------------------|--------|-------------|--------|-------------------|-------------|
| Cause of death in 2013 | In men, % | In women, % | Total cases | % to crude death rate | Men, % | Women, % | Total | Million rubles | % to GRP |
| All causes | 81.5 | 18.5 | 4,783 | 100.0 | 80.9 | 19.1 | 54,684 | 32,667.1 | 9.4 |
| Malignant neoplasms | 72.8 | 27.2 | 691 | 14.4 | 69.9 | 30.1 | 5,818 | 3,475.6 | 1.0 |
| Cardiovascular diseases | 86.1 | 13.9 | 1,550 | 32.4 | 86.6 | 13.4 | 13,555 | 8,097.5 | 2.3 |
| Diseases of the digestive system | 97.3 | 2.7 | 258 | 5.4 | 99.0 | 1.0 | 4,889 | 2,920.6 | 0.8 |
| Alcohol* | 86.3 | 13.7 | 388 | 8.1 | 88.1 | 11.9 | 5,109 | 3,052.0 | 0.9 |
| External causes: | 83.9 | 16.1 | 1,327 | 27.7 | 85.6 | 14.4 | 23,511 | 14,045.0 | 4.0 |
| suicides | 87.6 | 12.4 | 177 | 3.7 | 89.8 | 10.2 | 3,241 | 1,936.1 | 0.6 |
| homicides | 84.3 | 15.7 | 102 | 2.1 | 88.9 | 11.1 | 2,096 | 1,252.1 | 0.4 |
| road traffic accidents | 78.7 | 21.3 | 183 | 3.8 | 80.9 | 19.1 | 4,119 | 2,460.6 | 0.7 |

Table 5. Structure of the burden due to the death rate of the Vologda Oblast population in 2013 from various groups of causes

Age groups Cause of death 25–29 5-9 10–14 15-19 20-24 30-34 35-39 40-44 45-49 50-54 55-59 Ischemic heart disease 47 3,146 10,276 48,541 109,537 175,137 169,830 60,134 42 25,922 72,757 12,715 28,413 Malignant neoplasm 10,881 20,656 40,380 53,263 63,737 84,667 132,767 125,041 44,832 Accidental alcohol 0 136 2,077 12,534 29,580 42,136 42,833 36,123 37,503 21,740 4,758 poisoning Road traffic accident 13,342 16,119 68,327 138,348 113,427 82,378 52.997 37.639 29.036 13,881 2.634 Homicide 2,631 2,408 21,944 53,928 64,600 65,788 52,168 35,366 28,861 13,749 2,578

133,027

105,111

71,107

135,401

Table 6. Dynamics of PYLL in different age groups of the population in the Russian Federation

region's labor potential. The study shows the need for more attention to the issue in order to prevent self-destructive and destructive behavior, especially among adolescents.

515

10,613

71,571

Suicide

In comparison with other causes of death, PYLL due to suicide are the greatest among people of young age (20–29 years old; *tab. 6*). Overall, this group accounted for 37% of all PYLL. A similar situation is observed only among traffic accidents. The biggest losses from homicide are recorded in the group of persons aged 25–35, from alcohol intoxication – in the group of persons aged 30–39, from

neoplasms and ischemic heart disease — in the group of persons aged 45-55.

41,590

22,823

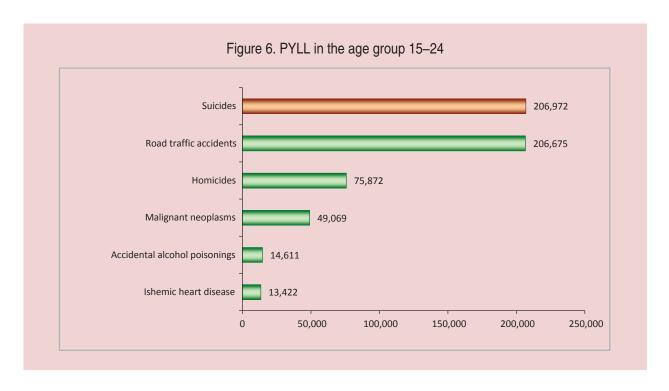
4,566

48,737

The losses from suicide among young people (group of persons aged 15–24) are almost 207 thousand man-years, which is higher than the losses from all causes of death under consideration (fig. 6).

In general, young people (aged up to 24) account for one third of the total PYLL from suicide. For comparison, the losses from ischemic heart disease are about 2%, from neoplasms – 15%, from alcohol poisoning – 7%, traffic accidents – 43%. Therefore,

^{*} This group of causes of death includes mental disorders (alcoholic psychoses), degeneration of the nervous system caused by alcohol abuse, alcoholic polyneuropathy, alcoholic myopathy, alcoholic cardiomyopathy, alcoholic gastritis, alcoholic liver disease, chronic pancreatitis of alcoholic etiology, fetal alcohol syndrome, accidental alcohol poisoning, intentional alcohol poisoning, poisoning by and exposure to alcohol with undetermined intent.



suicide causes the highest socio-economic losses because of its wide distribution among young people.

3. Demographic threat. Mortality from suicide is not only a psychological and socioeconomic threat, it also causes demographic losses. Thus, according to our calculations¹⁶, life expectancy losses due to mortality from suicide, homicide and causes related to alcohol consumption are 1.3 years. The peak of demographic loss falls on the age group up to 19 (tab. 7), in the case of mortality from alcohol consumption — on young people aged 20—24.

Summarizing the above, we can conclude that suicidal behavior among children and adolescents carries socio-psychological, demographic and economic threats. All this negatively affects the formation of labor and human potential. The ability to eliminate this phenomenon determines the importance of development and adoption of preventive measures.

The reduction in the size of young cohorts is associated with a significant risk for the development of the country, which is manifested primarily in the reduction of creative potential, the main carrier of which is the younger part of human resources.

The young generation of modern Russia is one of the resources of modernization; the potential of this resource is still not utilized to the fullest extent. Young people accumulate historical experience and they are, in a sense, an indicator of resilience of society and a powerful innovation factor. The President of Russia Vladimir Putin in his Address to the Federal Assembly on December 3, 2015 noted: "...preserving the nation, bringing up

¹⁶ The methodology is described in the book: Val'chuk E.A., Gulitskaya N.I., Antipov V.V. *Zabolevaemost' naseleniya: metody izucheniya* [Morbidity: Methods of Study]. Minsk 2000. P. 23.

| | Avoraga lifa | | Total loss of | years due to mor | tality from | Average life expectancy excluding |
|-------------|-------------------------|---------|---|-----------------------|---|-----------------------------------|
| Age | Average life expectancy | suicide | icide homicide alcohol suicide, homicide and consumption* | | mortality from suicide, homicide and alcohol-related causes | |
| 0–1 | 70.35 | 0.32 | 0.19 | 0.19 0.62 1.13 | | 71.48 |
| 1–4 | 69.7 | 0.32 | 0.19 | 0.62 | 1.13 | 70.83 |
| 5–9 | 65.73 | 0.32 | 0.19 | 0.62 | 1.13 | 66.86 |
| 10–14 | 60.79 | 0.32 | 0.18 | 0.62 | 1.12 | 61.91 |
| 15–19 | 55.86 | 0.32 | 0.18 | 0.62 | 1.12 | 56.98 |
| 20–24 | 50.98 | 0.3 | 0.17 | 0.63 | 1.1 | 52.08 |
| 25–29 | 46.26 | 0.26 | 0.14 | 0.62 | 1.02 | 47.28 |
| 30–34 | 41.6 | 0.23 | 0.11 | 0.6 | 0.94 | 42.54 |
| 35–39 | 37.18 | 0.2 | 0.1 | 0.56 | 0.86 | 38.04 |
| 40–44 | 33.13 | 0.15 | 0.07 | 0.46 | 0.68 | 33.81 |
| 45–49 | 28.87 | 0.12 | 0.05 | 0.36 | 0.53 | 29.4 |
| 50-54 | 24.77 | 0.09 | 0.04 | 0.27 | 0.4 | 25.17 |
| 55–59 | 21.13 | 0.05 | 0.02 | 0.18 | 0.25 | 21.38 |
| 60–64 | 17.88 | 0.02 | 0.01 | 0.1 | 0.13 | 18.01 |
| 65–69 | 14.84 | 0.01 | 0 | 0.02 | 0.03 | 14.87 |
| 70 and more | 11.88 | 0 | 0 | 0 | 0 | 11.88 |

Table 7. Life expectancy (LE) losses due to mortality from the causes related to the deterioration of social health, 2012, years

our children and helping them develop their talents constitute the basis of the power and future of any country, including Russia"¹⁷.

The younger generation¹⁸ in the new social and economic environment is experiencing significant changes in their interests, attitudes, values [6, pp. 5-6]; and the social values that they choose will largely determine the future of society. Today the young age is a concept that is not so much demographic, as social and political. The attitude of society toward young people, their place and role in society indicate

the ability of society to develop rapidly. Young people are bearers of new ideas, significant intellectual potential, enhanced creative abilities (due to inherent high sensitivity, perception, visual thinking, etc.), critical views and attitudes toward the existing reality that are especially necessary in a time of change in society. Being by nature the enemy of conservatism, the young generation helps to accelerate the introduction of new ideas, initiatives, and new ways of life. Being young, a person easily acquires basic knowledge, skills and abilities. The importance and value of youth in the modern world increases also due to the necessity to expand the volume and depth of professional training, which is inevitable in the conditions of modernization of society.

When analyzing young people as the future labor potential of the country, it is necessary to take into account that according to the laws

¹⁷ *Poslanie Prezidenta RF Federal'nomu Sobraniyu ot 3 dekabrya 2015 g.* [Address of the President of the Russian Federation to the Federal Assembly on December 3, 2015].

¹⁸ In the Russian Federation, people aged 14–30 are officially considered young people (in Europe – from 15 to 29 years old); but researchers have the differentiated approach to the definition of age limits of the younger population. For example, in the study of substance abuse among young people, age limits are defined from 11 to 24 years old, professional orientation – from 15 to 26 years old, and in the study of economic and political issues – from 18 to 30 years old (considering the electoral rights of the population).

of succession (the law of negation of negation), they develop the inherited social relations, spiritual and material values of a particular society, and subsequently reproduce them. The type of reproduction — simple or expanded — depends also on the level of social development of young people and on the values that they develop.

The results of a sociological survey¹⁹ of the young cohort in the Vologda Oblast population indicate that young people show relatively high political and information activity, they are interested in self-realization in the cultural and socio-economic space of the region. Young people consider the following values to be most important: health, financial security, family, love (4.5 points out of 5, tab. 8). The youngest group (aged 16-18), the majority of which have not started a professional career, is characterized by strong attachment to traditional values (family, happiness). The middle group (aged 19-24), the representatives of which are studying at college to obtain professional education, consider the values of freedom and independence to be most important; this fact reflects the actual situation -

these people have made their choice of profession, many have started an independent life separately from their parents. As people get older (age group of 25–29), the priority of labor increases.

Health tops the list of values important for young people. They give higher assessments of health than the entire region's population (4.5 vs 4.4 points on the five-point scale). However, young people point out that the ability to take care of one's own health is the least important for the people in their social circle, which means that the culture of self-preservation behavior is developed insufficiently. The study reveals that, when planning their employment, young people do not take into consideration the health aspect of a job with regard to their own capabilities, which results in further deterioration of health, loss of productivity and lower wages (differences in productivity among young people with different levels of health reach 19%, differences in remuneration – 34%). As they reach adulthood, they more often try to find a job in accordance with their capacity; and certain health issues are partially compensated by greater professionalism, which positively affects the effectiveness of labor (difference in productivity is 11%, in remuneration -6%; tab. 9).

As for the value of art, representatives of all the groups placed it close to the bottom of the ranking. On the one hand, it is associated with greater significance of financial priorities in modern life: the value of creativity for those who do not have financial difficulties (64%) is by ten percentage points more important than for those whose income covers only everyday expenses (54%).

The study was conducted in the form of the survey of young people. The form of the research was doorto-door survey in the cities of Vologda and Cherepovets and in eight districts of the Vologda Oblast (Babaevsky, Velikoustyugsky, Vozhegodsky, Gryazovetskiy, Kirillovsky, Nikolsky, Sheksninsky and Tarnogsky districts). The study sample included 1,000 people aged 16–29 (the general population was 217,841 people). the purposeful and quota sample was used. The quotas of the sampling were made in accordance with the following parameters: 1) place of residence; 2) gender and age characteristics. The survey sample consisted of the young people:

[—] who live the city of Vologda — 32.8%; in the city of Cherepovets — 28.1%; in the Vologda Oblast districts — 39.1%;

⁻ aged 16-18-14.7%; 19-24-39.2%; 25-29-46.1%; - men - 51%; women - 49%.

Social recognition, authority

Approval of other people

Creativity, art

By age Average for the survey 19-24 16-18 Answer option 25-29 Points Ranking **Points** Ranking Points Ranking **Points** Ranking Health 4.5 4.5 4.5 4.5 4.5 4.4 2 4.5 4.4 2 Financial security 1 1 Happy family life 4.5 1 4.5 1 4.5 1 4.5 1 Love 4.5 1 4.4 2 4.5 1 4.5 1 2 Good and faithful friends 4.4 2 4.4 4.4 2 4.3 3 Freedom, independence 4.3 3 4.3 3 4.4 2 4.3 3 Interesting job 4.2 4 4.1 4.3 4.2 4 5 3 4 Dignity, honor 4.2 4.1 5 4.2 4 4.2 4 Emotional peace, inner 4.2 4 4.1 5 4.2 4 4.2 4 harmony 4,2 Entertainment 4,1 5 4 4,1 5 4 6 Social justice 5 4,1 5 4,2 4 4,1 5 4,1 4,0 6 3,9 7 4 6 4 6 Active and dynamic life Learning 4,0 6 3,9 7 4 6 4 6 4 Social position, status 4,0 6 4,1 5 6 4 6 Continuous physical and 4,0 6 4 6 4 6 4 6 moral advancement

Table 8. Degree of importance of different aspects of life for young people in different age groups (in points, 1 – not important, 5 – very important)

Table 9. Performance efficiency of work depending on people's age and state of health

4

3,9

3,7

6

7

3,9

3,8

3,8

7

8

7

8

Source: Sociological survey carried out among young people of the Vologda Oblast, 2015, N = 1,000 people

3,9

3,8

3,7

| Age | State of health | Labor productivity, average score | Average labor remuneration, rubles | Social capacity index, points | | | |
|--|-----------------|-----------------------------------|------------------------------------|-------------------------------|-------|--|--|
| - | | 2014 | 2014 | 2000 | 2014 | | |
| | Excellent, good | 7.7 | 18008 | 0.700 | 0.710 | | |
| Under 30 | Satisfactory | 7.0 | 14606 | 0.662 | 0.676 | | |
| | Poor, very poor | 6.2 | 11850 | 0.613 | 0.597 | | |
| | Excellent, good | 8.0 | 20829 | 0.676 | 0.701 | | |
| Over 30 | Satisfactory | 7.4 | 17991 | 0.641 | 0.654 | | |
| | Poor, very poor | 7.1 | 19535 | 0.581 | 0.582 | | |
| Source: Monitoring of the quality of labor potential of the Vologda Oblast population, N=1,500 people. | | | | | | | |

On the other hand, this is connected with the widespread lack of demand of this quality of the employee at his/her workplace. About 20% of the interviewed young people express their creativity only if they get the corresponding assignment from their superior, or if there is a practical necessity to do so; and only a small part of the population is engaged in creativity and invention on a regular basis²⁰.

7

8

9

3,9

3,8

3,7

²⁰ Molodezh' sovremennoi Rossii — klyuchevoi resurs modernizatsii [The Young People of Modern Russia — a Key Resource of Modernization]. Under the general editorship of A.A. Shabunova. Vologda: ISERT RAN, 2013. 151 p.

Here there is an ambiguous situation: young people have a certain amount of creativity and invention (this will be discussed below), and the economy has not yet managed to adjust to innovation requirements that young professionals face.

World historical experience of modernization shows that the absence of government policy in the sphere of management of resources of young people forms mixed trends in the society. On the one hand, it is the opportunity for the participation of young people in public life, on the other — "erosion and leakage of this resource". The country needs an efficient modernization program, which would determine the role of this resource. In this case, the involvement of young people in socio-economic development of the state is one of the most probable scenarios of their establishment as modernization subjects.

At the same time, the efficient development and productive use of the potential of the young becomes the main advantage of countries with innovation economy. In his Address to the Federal Assembly on December 3, 2015 the RF President said: "Russian schools, additional and professional education, and support for children's creative work should be aligned with the country's future, the requirements of ... young people in this case, and the demands of the economy in the context of its prospects. These guys will have to resolve even more complicated tasks and should be ready to be the best. They should become not only successful in their careers but also simply decent people with a firm moral and ethical background"21.

The success of young generations, their achievement of worthy position in the Russian society largely depends on the timely encouragement of initiative of each student at school and at college, and on their degree of adaptation to the constantly changing world and society. The goal of building competencies²² was introduced in the normative and practical basis of education (new Federal State Educational Standards) simultaneously with the adoption of the Law "On education in the Russian Federation" (2012). This goal enables students to combine theoretical knowledge and their practical application to solve not only life tasks but also problem situations. Modern society needs the workers who are well adapted to the professional space, and whose educational potential may contribute to public acceptance and being in demand in society²³.

The study of development of competences in young people conducted with the use of the data of the survey of young people of the Vologda Oblast²⁴ shows that a higher level of competences promotes innovation activity (projects, developments and inventions) of students (3.93 points vs 3.69 points — in the absence of developments; *tab. 10*).

²¹ Poslanie Prezidenta RF Federal'nomu Sobraniyu ot 3 dekabrya 2015 g. [Address of the President of the Russian Federation to the Federal Assembly on December 3, 2015].

²² In Latin the word "competence" means the range of issues in which an individual has the knowledge and experience.

²³ Koroleva L.V. Sotsial'nye kompetentsii i vospitanie uspeshnosti [Social Competences and Training to Be Successful]. *Nachal'naya shkola plyus do i posle* [Primary School Plus Before and After], 2010, no. 12, pp. 30-37.

²⁴ The pilot survey (October 2015) aimed to identify the level of competences of students of higher professional educational institutions and secondary vocational educational institutions of Vologda (500 people) and its effect on innovative activity of young people. The sample was formed taking into account the share of students of a given educational organization in the total number of students and different academic progress in order to avoid data displacement.

Table 10. Distribution of young people by inventions they made depending on the level of competences, %

| Level of development of competences | Inventions | Type of invention | | | | | | |
|-------------------------------------|---------------------|-------------------|-----------------|----------------------|--------------------------|--|--|--|
| (average score) | are available | Device | Technique | Computer program | Methods and technologies | | | |
| | Grouping based or | n the mear | n and standard | deviation | | | | |
| Less than 3.18 | 9.3 | 0.0 | 0.0 | 8.3 | 20.0 | | | |
| 3.18–3.71 | 11.6 | 11.1 | 8.4 | 16.7 | 0.0 | | | |
| 3.71–4.25 | 60.5 | 77.8 | 58.3 | 58.3 | 60.0 | | | |
| More than 4.25 | 18.6 | 11.1 | 33.3 | 16.7 | 20.0 | | | |
| Division int | o 3 groups (divisio | n of the so | ale from 1 to 5 | into 3 equal groups) | | | | |
| Low level (less than 2.33) | 2.3 | 0.0 | 0.0 | 0.0 | 20.0 | | | |
| Median level (2.333.66) | 16.3 | 11.1 | 8.3 | 16.7 | 0.0 | | | |
| High level (more than 3.66) | 81.4 | 88.9 | 91.7 | 83.3 | 80.0 | | | |

Source: Pilot survey aimed to determine the level of competences of students of higher and secondary professional education, Vologda, 2015, N=500 people.

Table 11. Availability of inventions and their patenting, as a percentage of the number of respondents

| | | Higher professional | inclu | ding: | Cocondary professional | including: | |
|--|---------|---------------------|---------------|---------------|---|---------------|---------------|
| Answer option | Average | education, total | first year | final year | Secondary professional education, total | first year | final year |
| Yes, I have made inventions and they are patented | 0.8 | 1.1 | 1.7 | 0.6 | 0.0 | 0.0 | 0.0 |
| Yes, I have made inventions, but they are not patented | 8.3 | 7.2 | 7.8 | 6.7 | 12.3 | 13.1 | 11.3 |
| No, I have not made any inventions | 90.9 | 91.6 | 90.6 | 92.7 | 87.7 | 86.9 | 88.7 |

Source: Pilot survey aimed to determine the level of competences of students of higher and secondary professional education, Vologda, 2015, N=500 people.

Nine percent of the students who study in universities and colleges in the region said they belonged to the innovation-active society. About 1% of the students who have patents for invention and 8% of those who have inventions but do not have patents answered affirmatively to the question: "Did you have to invent something in the past year?" (tab. 11). This generally correlates with the statistical data on the level of innovation activity of the population.

In 60% of the cases, the availability of inventions was ensured due to the fact that students with the competencies "above average" (3.71–4.25 points on a five-point scale) participated in the innovation process. The dependence of inventive activity of young

people is connected to a greater degree with the level of development of innovation skills (research skills, project management skills, creativity; *tab*. *12*).

Therefore, the most important geopolitical challenges for the Russian Federation are to preserve and increase the population size and human potential. There is a decrease in the share of young people in the total population. For the first time in the history of Russia the share of children became lower than the proportion of the population of older ages. In 2013, in 56 regions of the country, children and adolescents accounted for less than 20% of the population (in the early 2000, there were 41 such regions, in 1990 — three). In addition

| of inventions, the average score on a five point scale | | | | | | | | |
|--|----------------------|-------------------------|--|--|--|--|--|--|
| Competences in | There are inventions | There are no inventions | | | | | | |
| Project management | 3.9 | 3.4 | | | | | | |
| Manifestation of creativity and inventiveness | 4.2 | 3.8 | | | | | | |
| Building professional prospects | 4.0 | 3.6 | | | | | | |
| Ability to define objectives | 4.0 | 3.8 | | | | | | |
| Ability to communicate and interact with others | 4.1 | 4.0 | | | | | | |

Table 12. Level of development of certain skills and the presence (absence) of inventions, the average score on a five-point scale

Source: Pilot survey aimed to determine the level of competences of students of higher and secondary professional education, Vologda, 2015, N=500 people.

to reducing the population size, child health potential is also deteriorating: about 35% of children in Russian are born sick or become ill in the near future (this figure is 30% in the Vologda Oblast).

Ability to take into account the norms and values of other cultures

The number of adolescents aged 15–17 who are diagnosed with severe mental disorders is continuously increasing. The greatest socioeconomic damage to the society is caused by suicide among young people, a cause of death that is widespread in their environment (the younger generation – aged under 24 – accounts for one third of all the PYLL from suicide). At the same time, the importance of self-preservation behavior is underestimated by young people.

Effective development and use of productive potential of the young is the main advantage of countries with innovation economy. A higher level of development of professional competencies provides higher innovation activity.

Attention to the problems of children and young people in modern Russia increases in light of new global challenges. The expected result is presented in the actualization of intellectual, vocational, demographic, sociocultural and personal potential of the younger generations.

It is necessary to intensify measures to minimize demographic losses, both quantitative and qualitative. It is important to organize the main efforts to promote health protection so that the greatest effect from their implementation was visible in the age group 20–24.

4.0

It is necessary to introduce the task of children's socialization as a priority in the work of educational organizations. Educational programs in the framework of the Federal State Educational Standard and also special variable courses on moral education should be based on the principle and objective of formation of ethical norms as an integrative philosophic, humanistic, theological, axiological and legal component of world cognition. At the level of educational organizations it is necessary to monitor the psychological and emotional state of students and carry out preventive activities aimed to form a favorable psychological climate at school and in the family.

It also becomes relevant to form a system for monitoring the current and perspective demand of employers for the personnel of necessary qualification and different professional competencies. This requires the promotion of cooperation between educational organizations and employers, enhancement of

career guidance among young people who study in educational institutions of different levels. It is also necessary to provide services for the purpose of detection of abilities in students with emphasis on the choice of activities in accordance with the level of skills development. In addition, it is necessary to forecast the socio-economic impact of employment outside one's specialty and without taking into consideration one's functional abilities.

The innovation activity of young people can be promoted through the following measures: greater involvement of students in research and development, strengthening their practical orientation, the creation of "platforms" for the development and implementation of interdisciplinary research projects, the formation of conditions for the accumulation of general erudition, research skills, the ability to analyze specific situations, the ability to communicate with experts from other areas.

It is necessary to develop effective mechanisms for modernization, which would determine the strategies for "survival" of today's young people. In this case, the involvement of young people in the socio-economic potential of the state is viewed as the likely scenario of the formation of the group as a subject of modernization in the framework of forming an adequate response to global challenges.

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