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«Modeling Social Determinants of Health of the Elderly People in Russia»

Projet de thèse

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Table des matières

Introduction

Relevance of the research topic. Due to the transition from high fertility to low, stable growth in life expectancy at birth and at older ages, the share of the elderly population increases. By 2030, the older population of the world will be about 13% of the total population, and will exceed the number of children of age of up to 10 years[1]. Moreover, a radical change in structure of the population will occur in developing countries. One of the most important aspects of aging is the progressive aging of population. People of the late elderly (85+ years old) make up 7% of the elderly population (65+ years) of the world: 10% in more developed countries and 5% in the less developed countries. More than half of the people of the late elderly live in six countries, including in Russia.

This trend has certain economic implications. Thus, the state and insurance companies are faced with the fact that the pension and social security should be provided for a longer period and to more people. Due to the chronic diseases, late elderly people are the most limited in life, which leads to an increase in healthcare costs. With the increase in life expectancy and the growing number of late elderly, the tendency of formation of families with four generations living at the same time is evolving, resulting in a growing dependency ratio of the population, and people of working age are experiencing financial and emotional pressure in light of the need to support three generations at the same time.

With age, state of health is deteriorating, and the women's figures are slightly worse than those of men, despite the opposite difference in life expectancy. The health of the elderly population is influenced by a variety of social factors, including income, socio-economic

[1] Why Population Aging Matters: A Global Perspective Department of State and the Department of Health and Human Services, National Institute on Aging, National Institutes of Health http://2001-2009.state.gov/g/oes/rls/or/81537.htm

conditions in early childhood, housing, employment, health behavior (nutrition, smoking/alcohol/drug habits and physical activity), involvement in society.

The extent of a problem. As the theoretical and methodological basis of the study served scientific works of Russian and foreign authors concerning aging and health issues. Information base is framed with the materials of periodicals, as well as international, foreign and Russian database population surveys.

To the problem of social determinants of health of different groups of the population are dedicated works of different scholars such as R. Bell, D. Gordon, G. Daalgren, N. Kostansek, J.-P. Mackenbach, M. Mermot, K. Pickett, G. Ram, M. Whitehead, R. Wilkinson, T.B. Yustun, S.Arzhenovsky, E.I. Ivanov, O.A. Kislitsyna, P. Kozyrev, M. Kosolapov, A. Sidorenko et al.

In order to study the problem of health inequity in a number of countries were implemented various surveys on the health of elderly people, such as Health and Retirement Study (HRS); longitudinal study of aging in the UK; the Survey of Health, Ageing and Retirement in Europe (SHARE); the Eurobarometer surveys; WHO's Study on Global Ageing and Adult Health (SAGE); Russian monitoring of the economic situation and public health HSE (RLMS); survey "Parents and children, men and women in family and society."

The object of research is the health of elderly population in Russia.

Subject of the research is modeling of social determinants of health.

The aim is to underpin the hierarchy of the social determinants of health of the seniors in Russia in order to highlight the key policies to strengthen in the sphere of health of the elderly population.

To achieve the goal were set the following tasks:

1. Basing on the systematization of theoretical and empirical research of social determinants of health, to define a set of social determinants of health of the elderly population;

2. To describe the sources of data about the health of the senior population;

3. To highlight the risks to the health of the elderly population in different age groups;

4. To propose a model that links social factors and health of the elderly population;

5. To propose a system of policy measures in the field of health of elderly for various age groups of elderly people in Russia on the basis of the model results and existing policies.

The scientific novelty of this work is creation of a composite index of the level of health of the elderly population in Russia and the development of econometric model that describes the relationship of the level of health of older people and the social determinants of health. The practical significance of the study is determined by using the results to create a complex of public policies for the benefit of senior citizens.

Presumable research methods: theoretical methods (description, analysis, classification), empirical methods (collecting primary and secondary data, observation, analysis of documents), the comparison method, modeling method.

Theoretical basis of the problem of health inequalities

Health inequality

Over the past 200 years life expectancy has doubled and continues to grow in the majority of countries. However, achievements in the improvement of health are distributed unevenly across countries and socio-economic groups within countries.

For example, life expectancy ranges from 49 years in Swaziland to 84 years in Hong Kong[2]. Inequities in the dynamics of life expectancy are also present within each country. For example, in America, the difference in life expectancy between the highest and lowest social groups is 14 years (15.4 years for men and 12.8 years for women), and life expectancy of the citizens of the richest areas of London is 88 years, while their fellow citizens from poor areas - 71 year[3].

Life expectancy disparities reflect the inequalities in health status. Inequality in health is the difference in the level of health or in the distribution of health determinants in different population groups[4]. For example, the differences between young people and seniors in movement or different mortality rates according to the social class.

The social conditions in which people live significantly affect their health: generally, the higher the social status of a person is, the better is his health. For example, in England, people from the poorest households die on average seven years earlier than people from the richest households. There is a more significant gap in the healthy life of the population - 17 years. If we exclude the extreme five percent of the population, the gap in healthy life expectancy is 13 years[5].

The benefits of eliminating health inequalities can be both economic and social. Social gradient value can be measured in years of life, years of healthy life and in total additional costs for treatment of diseases.

Systematic differences in health do not occur randomly and cannot be the result only of genetics, behavior and differences in access to health services, despite the importance of these

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[2] http://data.worldbank.org/indicator/SP.DYN.LE00.IN?order=wbapi_data_value_2013+wbapi_data_value+wbapi_data_value-last&sort=asc

[3] Marmot M, Bell R. Fair society, healthy lives. Public Health 2012

[4] http://www.who.int/hia/about/glos/en/index1.html

[5] Marmot M, Bell R. Fair society, healthy lives. Public Health 2012

factors. Social and economic differences in health reflect and are the cause of social and economic disparity in the society[6].

Thus is formed the concept of social determinants of health - the conditions in which people are born, grow, live, work and age, including the health system[7]. These circumstances are shaped through the distribution of money, power and resources on different levels. Social determinants of health are the main cause of health inequalities - the unfair and avoidable differences in health status observed within and between countries.

According to the final report on the Social Determinants of Health, established by the World Health Organization (WHO) in 2005, the differences in health should be considered in conjunction with a number of factors that interact with each other. These factors include financial security, social cohesion, psychological, behavioral and biological factors. In turn, each of these factors is influenced by the social position of a man, formed under the influence of education, professional status, income, gender, nationality and race. All these connections depend on the social, political and cultural situation in the region.

There is a number of theoretical models describing the social determinants of health, the main of which is the multi-level rainbow model[8] (Fig. 1).

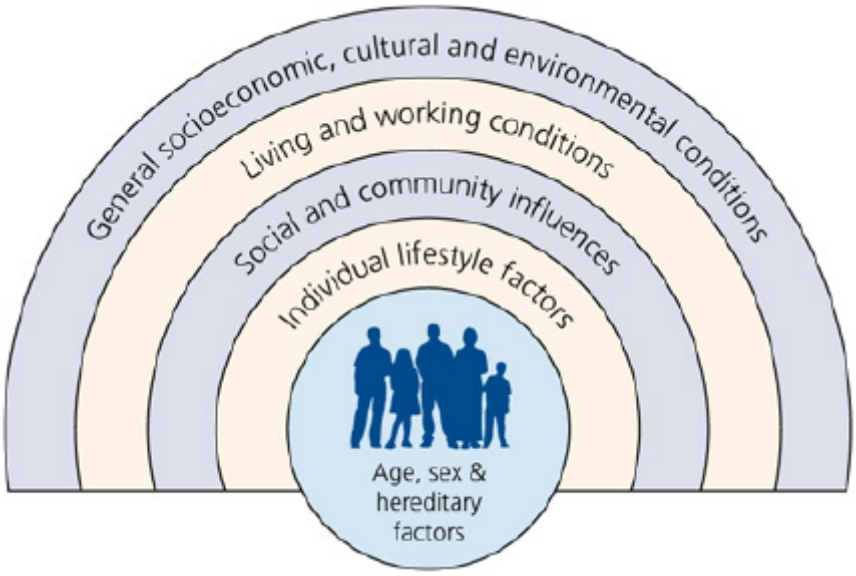

Figure 1. The multi-level rainbow model. Source: Dahlgren G., Whitehead M. 1991. Policies and Strategies to Promote Social Equity in Health. Stockholm: Institute for Futures Studies

[6] Huijts T, Eikemo TA, Skalicka V. Income-related health inequalities in the Nordic countries: examining the role of education, occupational class, and age. Soc Sci Med. 2010;71: 1964–72.
[7] Commission on Social Determinants of Health (2008) CSDH Final Report: Closing the gap in a generation: Health equity through action on the social determinants of health. Geneva: World Health Organization.
[8] Dahlgren G., Whitehead M. 1991. Policies and Strategies to Promote Social Equity in Health. Stockholm: Institute for Futures Studies

The main determinants of health in general can be represented by levels of influence. The central figure of the model is the individual with a set of biological characteristics - age, sex, physiological features. An individual is affected by a number of factors that can be influenced by policy. The main factor is the behavioral factor, that is, self-preservation behavior (first level), lifestyle factors such as smoking, sexual behavior, physical activity. The second level - social: the individual interacts with society, which directly affects the individual's behavior, including behavior in the field of health. The third level includes a wide range of influencing factors. These are the conditions in which the individual lives and works, eats, consumes products and services. Finally, the general socio-economic and cultural conditions, and the environment (fourth level) act as an overriding factor. This level has an impact on the whole population.

Thus, an individual's level of health is not his choice, but is largely determined by the conditions under which the individual was born, grew up, lives, works and ages.

Another model describes the relationship of the human health and social status[9] (Fig. 2).

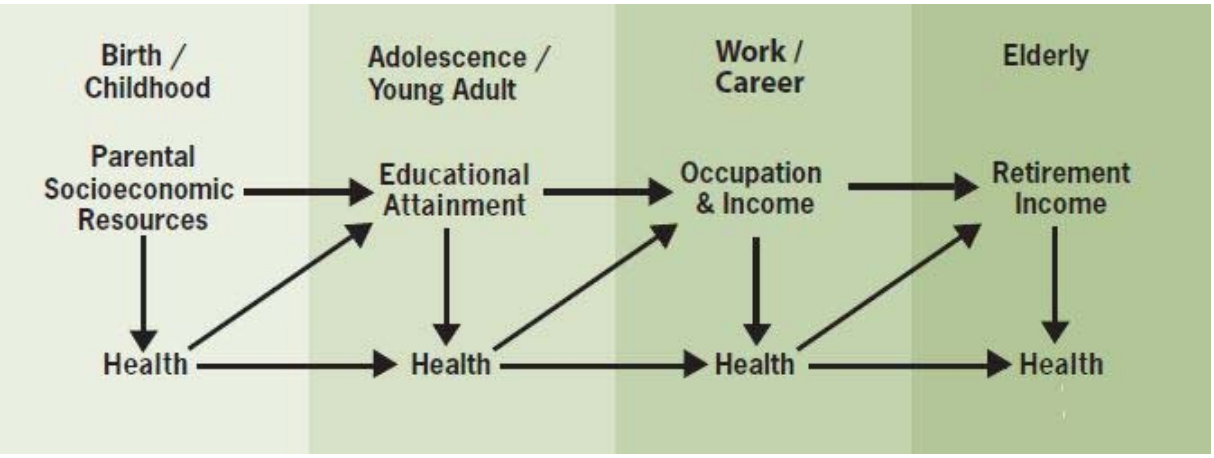

Figure 2. The dynamic relationship between health and ladder position. Source: Reaching for a healthier life: Facts on socioeconomic status and health in the U.S. MacArthur Foundation Research Network on Socioeconomic Status and Health; 2010

The social status of an individual affects his health, and health, in turn, has an impact on an individual's opportunity to achieve a higher status in society.

For children born in families of low social class, have less social and economic resources for their development, which leads to a greater number of weaknesses and chronic diseases, such as asthma. Such children often miss school, collectively receiving fewer years of education. This limits their opportunities in the profession and career development to low-paid jobs. This kind of activity is usually associated with difficult working conditions and the high

[9] Reaching for a healthier life: Facts on socioeconomic status and health in the U.S. MacArthur Foundation Research Network on Socioeconomic Status and Health; 2010 from http://www.macses.ucsf.edu/downloads/Reaching_for_a_Healthier_Life.pdf

level of stress, which is detrimental to health. Accumulated diseases over the years affect the ability to work on and/or get a promotion, which leads to a deterioration of the individual's financial security in retirement.

In turn, the greater part of his life the individual retains a higher socio-economic status, the more he accumulates benefits for own health. Immunity is not damaged, diet and regular exercise create and maintain physical health, calm working conditions contribute to mental health.

That is, the socio-economic status is directly related to health. Studies have shown that poor health and absence from work due to illness, as well as permanent disability is mostly common among people with lower status[10]. Socio-economic status of a person is determined by its key indicators: education, professional status and income, which are closely interlinked with each other and all by themselves affect health. Therefore, the connection between social status and health is complex and bipolar[11].

Risk factors

The behavior of the individual in the field of health is called self-preservation behavior. It is defined as a system of measures, actions and attitudes that affect the health and life expectancy. Self-preservation behavior manifests itself in conjunction with any other sphere of life of the individual - whether reproductive behavior, lifestyle or choice of goods and services for consumption. Self-preservation behavior is of three types: positive, negative and protective.

Positive factors of self-preservation behavior are aimed at maintaining and promoting health. The main positive factors are: economic security, good housing and social conditions, and high-quality food. Strong social ties and positive emotions are also important positive factors for self-preservation behavior.

Protective factors eliminate the risk of a disease or contribute to disease resistance. A classic example is immunization against various infectious diseases. Psychological factors, such as social support and having a goal in life, are also believed to protect the health factors.

Negative factors, or risk factors are the external conditions or characteristics of the individual's actions, which negatively affect his health. They can be social or economic, and can be associated with environmental or behavioral factors.

[10] Mackenbach JP. Socio-economic health differences in the Netherlands: a review of recent empirical findings. Soc Sci Med. 1992;34: 213–26.; Piha K, Laaksonen M, Martikainen P, Rahkonen O, Lahelma E. Interrelationships between education, occupational class, income and sickness absence. Eur J Public Health. 2010;20: 276–80.

[11] Lahelma E, Martikainen P, Laaksonen M, Aittomäki A. Pathways between socioeconomic determinants of health. J Epidemiol Community Health. 2004;58:327–32.

Social determinants of health

Social determinants of health are the conditions in which people are born, grow, live, work and age, including the health system. On the basis of the WHO[12] materials the author has defined a number of social determinants that have the greatest impact on health. Among them:

1. Living conditions in early childhood;
2. Education;
3. Employment;
    i. Unemployment;
    ii. Working conditions;
4. Income and wealth;
5. Stress;
6. Community
    i. Living conditions;
    ii. Neighbors and habitat;
    iii. Lifestyle [13];
    iv. Transport.

Conditions in early childhood

Events that a person experiences in early childhood become the basis of his future life. The physical, social and cognitive development of the child during the first years of his life greatly affect his school readiness and academic abilities, as well as health.

Social graded inequalities exist prenatally and continue to spread in the early years of children's lives. Maternal health, stress, nutrition, tobacco, alcohol and drug use during pregnancy cause irreparable harm to the health of the fetus and the early development of the brain. The biological effect of non-standard weight at birth on the development of the brain interacts with other factors (eg, social status) that affect the child's cognitive development. Thus, a quarter of all infant deaths could be avoided, provided that all births would have been the same level of risk as that of women socially stable[14].

[12] Wilkinson R, Marmot M, eds. Social determinants of health: the solid facts. 2nd edition. Copenhagen, WHO Regional Office for Europe, 2003.
[13] In the context of current work a way of life is determined by the characteristics of the individual self-preservation behavior.
[14] Marmot M, Bell R. Fair society, healthy lives. Public Health 2012

The first years of life are critical for the formation of brain activity and cognitive abilities. Studies show that if a child falls behind in development at an early age, most likely, it will be lagging behind and in the subsequent stages of education[15]. On the other hand, the rapid development of cognitive abilities leads to future success in education, income and good health[16]. The development of emotional and social skills, such as diligence, self-control and empathy, also allows children to achieve and maintain a strong relationship of trust in school and later in life[17].

Education

Good education is the shortest route to get a prestigious job and higher income. But few link education and health. Despite this, there are a lot of empirical evidences of this connection[18]. People with more years of education live longer, have better health, leading an active lifestyle, timely check their health.

Education may affect health in three ways[19] (Fig. 3):

1. Increasing knowledge of health and healthy lifestyles. Education accumulates knowledge, improves problem-solving skills by allowing the individual to make a choice, having more information about the options related to health. As a result, the individual decides best for himself and accumulates health.

2. Good education is the shortest path to a good job. Good job involves high wages, good working conditions, benefits associated with the position. All these conditions lead to the maintenance and promotion of health.

3. Education is associated with psychological and social ties that contribute to health promotion. While studying, the individual is involved in society, receives social support and self-management skills, which contributes to the maintenance of mental health at a high level.

[15] Feinstein L (1999) Preschool educational inequality? British children in the 1970 cohort. London: Centre for Economic Performance and University College.
[16] Feinstein L and Duckworth K (2006) Development in the Early Years, Centre for Research on the Wider Benefits of Learning, Research Report 20.
[17] Lexmond J and Reeves R (2009) Building Character. London: Demos.
[18] Ross CE, Mirowsky J. Refining the association between education and health: the effects of quantity, credential, and selectivity. Demography 1999;36(4):445-60. ; Low MD, Low BJ, Baumler ER, Huynh PT. Can education policy be health policy? Implications of research on the social determinants of health. J Health Polit Policy Law 2005;30(6):1131-62.; Mirowsky J, Ross CE. Education, social status, and health. Hawthorne, NY: Aldine de Gruyter; 2003.
[19] Egerter S, Braveman P, Sadegh-Nobari T, Grossman-Kahn R, Dekker M. Education matters for health. Exploring the social determinants of health: issue brief no. 6. Princeton (NJ): Robert Wood Johnson Foundation; 2011.

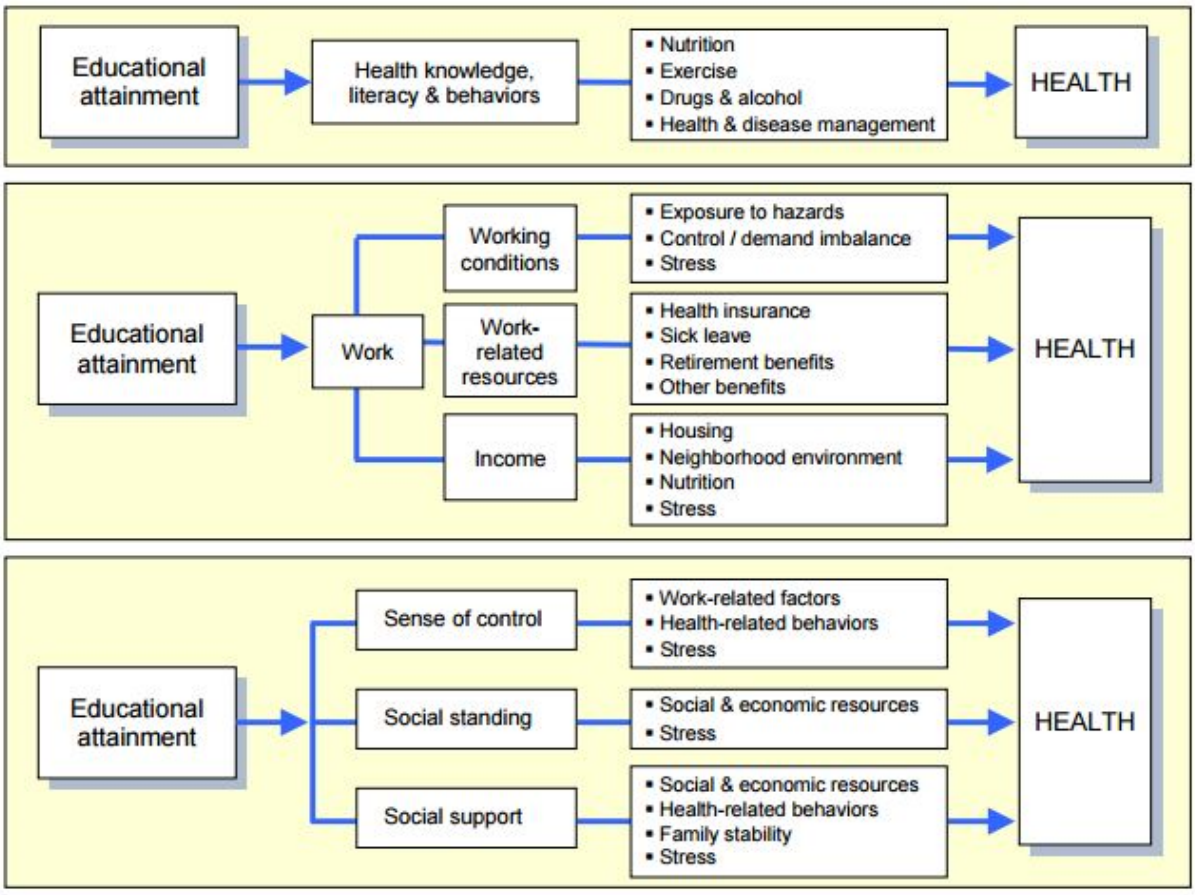

Figure 3. Interrelated pathways through which educational attainment affects health. Source: Egerter S, Braveman P, Sadegh-Nobari T, Grossman-Kahn R, Dekker M. Education matters for health. Exploring the social determinants of health: issue brief no. 6. Princeton (NJ): Robert Wood Johnson Foundation; 2011.

Employment

Employment as a health factor is also linked to the social gradient because there is unequal access to the labor market. The highest unemployment rate is observed in the population with a minimum set of skills, people with disabilities, lone parents, ethnic minorities, older workers and young people. Hiring for work, these segments of the population receive low wages, the unlikely possibility of increasing, often poor working conditions.

Unstable employment is associated with increased risk of deterioration of physical and mental health, entailing the illness absence at work, and then the lack of work. Generally, the diseases associated with employment are psychological disorders and diseases of the musculoskeletal system. The relationship between health and employment close, strong and both-way and is based either on unemployment or on the harsh working conditions.

Unemployment can affect health in three ways. Firstly, the financial problems, as a consequence of unemployment, may lead to a deterioration of living conditions, which can reduce the social inclusion and self-esteem. Secondly, unemployment causes a mental disorder, feelings of envy towards others, and depression. Job loss in a peculiar way symbolizes the loss

of the determining role associated with a sense of identity and uniqueness. Thirdly, unemployment affects the way of life - decline in physical activity, use of tobacco and cigarettes[20].

Adverse working conditions also have an impact on an individual's health: physical danger, or unstable long working hours, shift work, work-related injuries and sedentary work harm the employee's health.

In the context of globalization, technological progress and economic growth pose in front of an employee the new types of tasks, requiring greater flexibility, while reducing the stability and security of work, increasing its tempo and duration of the working day. Most of the workers are in a rigid hierarchy system, without being able to make their own decisions. All this adversely affects the physical and psychological health of the individual, leading to a general deterioration of health, depression, diseases of the cardiovascular system, pathologies of the musculoskeletal system[21].

Income and wealth

The link between low income and poor health is firmly established. People with low incomes indulge in the consumption of goods and/or services to support and strengthen health, buying cheaper products/services, often causing irreparable damage to health. In addition, low-income people also limit themselves to social inclusion, which may contribute to the emergence of a sense of "uselessness". This relationship can work in both directions: a low income can lead to poor health and poor health could reduce earnings. Income and wealth levels may be associated with health levels, as they are markers of socioeconomic status, which has a significant impact on health[22].

Changes in the income level impact significantly on the psychological health of individual: it is empirically shown that income growth leads to an increase in psychological state and reduces feelings of anger and depression[23]. The more people have debts, the more likely a mental disorder[24].

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[20] Maier R, Egger A, Barth A, Winker R, Osterode W, Kundi M, Wolf C, Ruediger H (2006) Effects of short- and long-term unemployment on physical work capacity and on serum cortisol. International Archives of Occupational and Environmental Health 79(3): 193-8.

[21] Stuckler D, Basu S, Suhrcke M, Coutts and McKee M (2009) The public health effect of economic crisis and alternative policy responses in Europe: An empirical analysis. The Lancet 374(9686): 315-323.

[22] Marmot M (2004) The status syndrome: How social standing affects our health and longevity. New York: Owl Books.

[23] Taylor M, Sacker A and Jenkins S (2009) Financial capability and wellbeing: Evidence from the BHPS. Financial Services Authority. http://www.fsa.gov.uk/pubs/occpapers/op34.pdf

[24] Fitch C, Hamilton S, Basset P and Davey R (2009) Debt and Mental Health. London: Royal College Psychiatrists.

There is also an empirical evidence that income inequality in the country negatively affects not only the poor but also to society as a whole. The countries and regions most exposed to severe income inequality are not only a lower level of public health, but also a higher level of crime and have other negative social consequences[25].

Stress

Stress and stress situations have significant consequences for the health of the individual from his very birth. For example, some researches suggest that experiencing stressful events during pregnancy, a woman may give birth prematurely. The constant exposure to female stress in childhood or adulthood before pregnancy may also cause premature birth[26]. This risk can adversely affect the baby: prematurity is a powerful risk factor not only for infant mortality, but also for serious chronic diseases.

In childhood and adolescence stress increases the risk of deterioration of psychological and physiological health[27]. In addition, more researches currently associate stressful situations of children with serious health problems in adulthood (diabetes, heart attack) [28].

Stress in adulthood associated generally with problems at work in the research works are posed as a serious risk factor for diseases of the cardiovascular system[29].

Community

Living conditions

Unsuitable housing conditions, such as leaky faucet, poor ventilation, dirty carpets or insects in the house, can lead to the spread of mold, mites, and other allergens associated with a low level of health. These and other allergens, along with poor housing conditions lead to the spread of respiratory diseases, including asthma. Exposure to low temperatures dwelling leads to a weakening of health, and the emergence of diseases of the cardiovascular system. Constant temperature drops in the house adversely affect the health of the elderly[30].

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[25] Wilkinson R and Pickett K (2009) The Spirit Level: Why more equal societies almost always do better. London: Allen Lane.

[26] Dominguez TP, Denkel-Schetter C, Glynn LM, Hobel C, Sandman CA. Racial differences in birth outcomes: The role of general, pregnancy, and racism stress. Health Psychology 2008;27(2):194-203.

[27] Larson K, Russ SA, Crall JJ, Halfon N. Influence of multiple social risks on children's health. Pediatrics 2008;121(2):337-44.

[28] Lehman BJ, Taylor SE, Kiefe CI, Seeman TE. Relationship of early life stress and psychological functioning to blood pressure in the CARDIA study. Health Psychol 2009;28(3):338-46.

[29] Belkic KL, Landsbergis PA, Schnall PL, Baker D. Is job strain a major source of cardiovascular disease risk? Scand J Work Environ Health 2004;30(2):85-128.

[30] Shaw M. "Housing and Public Health." Annu Rev Public Health, 25: 397-418, 2004.

Overcrowded house also has a negative impact on the physical health, contributing to the development of infectious diseases - tuberculosis and respiratory illnesses, as well as having a negative impact on the psyche of both children and adults.

Neighbors and habitat

An important role in the life of every person plays his family. And the family support has a significant impact on an individual's health. For example, married people have better health than single. It is less likely that a married man will be subjected to any physical or mental illness. Marriage is also changing the way of life of man:

- reducing smoking and alcohol consumption;
- reducing drug use;
- contributes to more frequent checks on cholesterol and physical activity;
- contributes to more frequent visits to the dentist and a gynecologist as well as more frequent physical activity[31].

Accommodation in a given area depends on the family's material well-being. Accommodation near forests, parks and green spaces improves mental and physical health, regardless of social class. The presence of green areas also promotes socialization: provides a place for physical activity and games, improves air quality and reduces the temperature in the urban heat island[32].

Air pollution also causes significant damage to public health. Each year in the UK due to respiratory infections die prematurely from 12 to 24 thousand people. 66% of the carcinogenic chemicals are released into the atmosphere in areas where concentrated 10% of the least well-off population[33].

Behavior

Lifestyle of the individual in the context of this work is determined by his self-preservation behavior: nutrition, presence or absence of dependency, and physical activity. Alcohol, tobacco, drugs, obesity and the lack of regular exercise have a negative impact on the psychological and physical health of the individual.

Transport

The relationship between transport and health level is complex and ambiguous.

[31] Miller G.E., Pylypchuk I. (2014) Marital Status, Spousal Characteristics, and the Use of Preventive Care. J Fam Econ Iss (2014) 35:323–338

[32] Porritt J, Colin-Thomé D, Coote A, Friel S, Kjellstrom T and Wilkinson P (2009) Sustainable development task group report: health impacts of climate change. Task group submission to the Marmot Review

[33] FOE (2001) Pollution and poverty-Breaking the link.

On the one hand, transport provides easy access to education, work, society, goods and services, reducing stress levels[34]. However, on the other hand vehicles pollute the air; huge popularity of cars creates bottlenecks, causing conflicts and psychological disorders. Avoiding the use of a personal or public transport, the transition to an eco-friendly type of transport contributes to an active lifestyle and improves the health of the individual[35].

Work plan

In the course of this research it is planned to study **the nature and types of social determinants of health**, analyze and **compare the results** of international research in the field of social determinants of health of the senior population and to **estimate the classification** of the social determinants of health of the elderly population.

The study of the seniors' health requires the collection of specific data: testing, data collection and analysis of biomarkers. Modern surveys provide the opportunity to explore the data.

The study of health and yield characteristics of retirement (Health and Retirement Study, HRS) [36], conducted by the University of Michigan with the support of the National Institute on Aging (the National Institute on Aging) in the United States since 1992, is a longitudinal panel survey, every two years, providing a sample of about 20 000 respondents aged 50 years. This study investigates the changes in the labor force and the level of health of individuals who are retiring. During the survey information on income, employment, assets, retirement planning, health insurance, disability, health and physical functioning, cognitive abilities and health expenditure is collected. Features of the study allow to analyze trends of individual aging, differences in populations, to investigate the causes of these differences and to develop the concept of policy measures in the field of older people's health.

Longitudinal study of aging in the UK[37] since 2002, is a source of information on the health characteristics, welfare, social and economic situation of the population of England at the age of 50 years. The survey is conducted through personal interviews every two years, accompanied by an assessment of health indicators every four years. In the survey, objective

[34] Department of the Environment, Transport and the Regions (2004) Social exclusion and the provision of public transport.
[35] Department for Transport (2009) A safer way – Making Britain's roads the safest in the World
[36] National Institute on Aging, Growing Older in America: The Health and Retirement Study, Washington, DC, National Institutes of Health, 2007. http://hrsonline.isr.umich.edu/
[37] Steptoe A, Breeze E, Banks J, Nazroo J (2012) Cohort Profile: The English Longitudinal Study of Ageing. Int. J. Epidemiol. (2013) 42 (6): 1640-1648. http://www.elsa-project.ac.uk/

and subjective data on health and disability, biomarkers of disease, data on economic status of the respondent, his involvement in the society and general welfare is gathered. The information gathered is used to analyze a wide range of issues, including those related to health trajectories, economic well-being factors, the links between socio-economic status and health. The fact that the survey is multidisciplinary and longitudinal allows to study the complex relationship and identify the causes of the various processes.

A European study of health, aging and retirement (The Survey of Health, Ageing and Retirement in Europe, SHARE) [38] is a multi-disciplinary and inter-ethnic panel microdata base. The sample consists of 123,000 observations about respondents older than 50 years of the twenty countries in Europe and Israel. The survey is conducted every two years, starting from 2004 - 2016 there are five waves of the study. These waves contain information about health (self-reported health, health status, physical and cognitive ability, use of services healthcare system), biomarkers (compression strength, body mass index, peak expiratory flow), psychological health (life satisfaction, general mental health) , economic status (occupation, job characteristics, the ability to work after retirement, sources of income, wealth and consumption, housing, education) and social situation (interaction with family, transfers, social inclusion, volunteering). SHARE survey can be compared with the American and English (HRS and ELSA) studies. Questioning in Korea, China, India, Japan and Brazil, designed by analogy with SHARE.

Regarding to data on the seniors in Russia, at the moment there is no comparable research to those in America and Europe. The only longitudinal research is the study of WHO's global aging of the population and the health of the elderly (WHO's Study on Global Ageing and Adult Health, SAGE). The basic data used for the analysis of health status and socio-economic situation of older people in Russia are statistical collections and sample surveys of relevant topics[39]. Other sources of information are the Russian monitoring the economic situation and public health HSE[40] - a series of annual national representative household surveys, and the survey "Parents and children, men and women in family and society"[41], conducted by the Independent Institute for Social Policy. However domestic research studies all age groups with no emphasis on the senior population.

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[38] Börsch-Supan, A., Brandt, M., Hunkler, C., Kneip, T., Korbmacher, J., Malter, F., Schaan, B., Stuck, S., Zuber, S. (2013). Data Resource Profile: The Survey of Health, Ageing and Retirement in Europe (SHARE). International Journal of Epidemiology. http://www.share-project.org/

[39] http://www.gks.ru/

[40] RLMS-HSE http://www.cpc.unc.edu/projects/rlms http://www.hse.ru/rlms

[41] http://sophist.hse.ru/db/oprosy.shtml?ts=204&en=0

The literature review showed that the main focus of research is on the future, rather than the elderly generation. In addition, the majority of surveys are devoted to foreign experience, but not domestic. One of the potential reasons may be stated that for the analysis of the current situation in Russia lacks statistical data.

The basis for current analysis is a longitudinal study of the World Health Organisation on global aging of the population and the health of the elderly (WHO's Study on Global Ageing and Adult Health, SAGE)[42]. The survey collects data on the adult population (mostly aged 50+ years) of the following countries: Ghana, India, China, Mexico, Russia, South Africa.

Current research paper is focused on health indicators, determinants of health and their impact on populations. The WHO's survey results provide data on aging, adult health and welfare of people in low- and middle-income countries, and questionnaires allow to compare the results with similar surveys in high-income countries (HRS, ELSA, SHARE).

The existing definition of health does not allow to determine the set of objective indicators, through which health can be monitored and measure. There is no universal scale for measuring health. Therefore, in this research, based on materials of international surveys it is planned to develop **a composite indicator of health** of the elderly population which is applicable to researches carried out in Russia.

Using a composite health indicator data of the elderly population surveys in Russia and methods of econometric modeling, we plan **to develop a model** that describes the relationship of social determinants and health of older people in Russia and to consider the various modifications of the model. Among **the possible hypotheses** for verification which can be identified, are for example, the following:

- With the deteriorating socio-economic conditions, decreases the level of the individual's health;
- The determinants of health have not only social, but also an age gradient;
- Social determinants of health have different effects on men and women;
- Social determinants of health have different effects on people in rural and urban areas.

Based on the simulation results it is planned to offer a classification of risk **factors for specific groups** of elderly people. Furthermore, simulation results can be used **to develop a program of policy measures** to support the elderly population in Russia.

[42] Chatterji, Somnath, and Paul Kowal. WHO Study on Global AGEing and Adult Health (SAGE): Wave 1, 2007-2010. ICPSR31381-v1. http://www.who.int/healthinfo/sage/en/

Another area of research could be **the development of profiles of longitudinal survey** of elderly people's health in Russia similar to the foreign surveys in order **to conduct a comparative analysis** of the simulation results among different countries.

Conclusion

Resulting from the transition from high to low fertility, as well as increase in life expectancy of the population, a problem of an aging population arises, which is relevant for most countries in the world. At the same time the socio-economic conditions of individual countries or groups of the population have a significant impact on health and life of the individual, creating inequities in health.

Individual health is determined not only by his choice, but largely depends on the conditions in which people are born, grow, live, work and aging - the social determinants of health. Among the social determinants of health can be stated: the living conditions in early childhood, education, employment, income and wealth, stress, community (including housing, neighborhood and environment, especially the behavior of self-preservation, transport).

It is worth noting that the relationship between health and its determinants is multidirectional: several factors may have a cumulative effect on health, interacting with each other, while health can also affect one or more factors. That is, the physical and psychological health of person depends on his performance in these areas of life, while multiple negative factors combine, providing much greater effect on the well-being of the individual.

At the global, national and regional levels, there are different sets of measures to improve the quality of life of older people. The Russian example of a policy for older persons presented a number of legislative acts, the main of which is the Action Strategy for the elderly until 2025. This document is the basis for the creation of the federal program in the field of policies aimed at improving the health of the elderly. Thus, public policy in the interests of senior citizens in Russia is under development. Policies developed by public authorities, should be presented taking into account the elimination of inequities in health, as well as have an impact on various social determinants of health.

References

1. Belkic KL, Landsbergis PA, Schnall PL, Baker D. Is job strain a major source of cardiovascular disease risk? Scand J Work Environ Health 2004;30(2):85-128.
2. Commission on Social Determinants of Health (2008) CSDH Final Report: Closing the gap in a generation: Health equity through action on the social determinants of health. Geneva: World Health Organization.
3. Dahlgren G., Whitehead M. 1991. Policies and Strategies to Promote Social Equity in Health. Stockholm: Institute for Futures Studies
4. Department for Transport (2009) A safer way – Making Britain's roads the safest in the World
5. Department of the Environment, Transport and the Regions (2004) Social exclusion and the provision of public transport.
6. Dominguez TP, Denkel-Schetter C, Glynn LM, Hobel C, Sandman CA. Racial differences in birth outcomes: The role of general, pregnancy, and racism stress. Health Psychology 2008;27(2):194-203.
7. Egerter S, Braveman P, Sadegh-Nobari T, Grossman-Kahn R, Dekker M. Education matters for health. Exploring the social determinants of health: issue brief no. 6. Princeton (NJ): Robert Wood Johnson Foundation; 2011.
8. Feinstein L (1999) Preschool educational inequality? British children in the 1970 cohort. London: Centre for Economic Performance and University College.
9. Feinstein L and Duckworth K (2006) Development in the Early Years, Centre for Research on the Wider Benefits of Learning, Research Report 20.
10. Fitch C, Hamilton S, Basset P and Davey R (2009) Debt and Mental Health. London: Royal College Psychiatrists.
11. FOE (2001) Pollution and poverty-Breaking the link.
12. World Bank Open Data http://data.worldbank.org/indicator/SP.DYN.LE00.IN?order=wbapi_data_value_2013+wbapi_data_value+wbapi_data_value-last&sort=asc
13. World Health Organization – Social Determinants of Health http://www.who.int/hia/about/glos/en/index1.html
14. Huijts T, Eikemo TA, Skalicka V. Income-related health inequalities in the nordic countries: examining the role of education, occupational class, and age. Soc Sci Med. 2010;71: 1964–72.
15. Lahelma E, Martikainen P, Laaksonen M, Aittomäki A. Pathways between socioeconomic determinants of health. J Epidemiol Community Health. 2004;58:327–32.
16. Larson K, Russ SA, Crall JJ, Halfon N. Influence of multiple social risks on children's health. Pediatrics 2008;121(2):337-44.
17. Lehman BJ, Taylor SE, Kiefe CI, Seeman TE. Relationship of early life stress and psychological functioning to blood pressure in the CARDIA study. Health Psychol 2009;28(3):338-46.
18. Lexmond J and Reeves R (2009) Building Character. London: Demos.

19. Mackenbach JP. Socio-economic health differences in the Netherlands: a review of recent empirical findings. Soc Sci Med. 1992;34: 213–26.;
20. Maier R, Egger A, Barth A, Winker R, Osterode W, Kundi M, Wolf C, Ruediger H (2006) Effects of short- and long-term unemployment on physical work capacity and on serum cortisol. International Archives of Occupational and Environmental Health 79(3): 193-8.
21. Marmot M (2004) The status syndrome: How social standing affects our health and longevity. New York: Owl Books.
22. Marmot M, Bell R. Fair society, healthy lives. Public Health 2012
23. Miller G.E., Pylypchuk I. (2014) Marital Status, Spousal Characteristics, and the Use of Preventive Care. J Fam Econ Iss (2014) 35:323–338
24. Piha K, Laaksonen M, Martikainen P, Rahkonen O, Lahelma E. Interrelationships between education, occupational class, income and sickness absence. Eur J Public Health. 2010;20: 276–80.
25. Porritt J, Colin-Thomé D, Coote A, Friel S, Kjellstrom T and Wilkinson P (2009) Sustainable development task group report: health impacts of climate change. Task group submission to the Marmot Review
26. Reaching for a healthier life: Facts on socioeconomic status and health in the U.S. MacArthur Foundation Research Network on Socioeconomic Status and Health; 2010. http://www.macses.ucsf.edu/downloads/Reaching_for_a_Healthier_Life.pdf
27. Ross CE, Mirowsky J. Refining the association between education and health: the effects of quantity, credential, and selectivity. Demography 1999;36(4):445-60. ; Low MD, Low BJ, Baumler ER, Huynh PT. Can education policy be health policy? Implications of research on the social determinants of health. J Health Polit Policy Law 2005;30(6):1131-62.; Mirowsky J, Ross CE. Education, social status, and health. Hawthorne, NY: Aldine de Gruyter; 2003.
28. Shaw M. "Housing and Public Health." Annu Rev Public Health, 25: 397-418, 2004.
29. Stuckler D, Basu S, Suhrcke M, Coutts and McKee M (2009) The public health effect of economic crisis and alternative policy responses in Europe: An empirical analysis. The Lancet 374(9686): 315-323.
30. Taylor M, Sacker A and Jenkins S (2009) Financial capability and wellbeing: Evidence from the BHPS. Financial Services Authority. http://www.fsa.gov.uk/pubs/occpapers/op34.pdf
31. Why Population Aging Matters: A Global Perspective Department of State and the Department of Health and Human Services, National Institute on Aging, National Institutes of Health http://2001-2009.state.gov/g/oes/rls/or/81537.htm
32. Wilkinson R and Pickett K (2009) The Spirit Level: Why more equal societies almost always do better. London: Allen Lane.