
Polina G. Gazizullina¹
Independent Researcher

Socio-economic Determinants of Adolescent Health in Russia

Abstract. The article presents the results of a comprehensive study of the socio-economic determinants of the health of Russian adolescents, performed using quantitative and qualitative methods. The quantitative analysis was carried out on the basis of the data of the Russian Monitoring of the Economic Situation and Health conducted by the Higher School of Economics for 2010-2016 (19th-25th waves) using the logistic regression apparatus. Qualitative data are obtained by conducting 39 semi-structured interviews with adolescents aged 14-17 living in the Republic of Udmurtia and the Moscow Region in two stages: in 2010 and 2013. Within the framework of the study, the complex of socio-cultural determinants of health is separately singled out for the first time and its significance is shown for the health of Russian teenagers. The definition of the most significant socio-economic determinants of adolescent health enabled developing a series of recommendations in the area of public health promotion policy.

Key words: determinants of health, adolescent health, qualitative analysis, socio-cultural factors, Russia

JEL codes: C59, I12, I18, L38

Introduction

The prevalence of chronic non-infectious causes of death in the structure of mortality in developed countries at the end of the 20th century required the development of a new health promotion policy. In 1986, Ottawa hosted the first international conference on health promotion, which identified the key areas of the new health policy. The new policy shaped a complex of determinants of health, which includes not only the financing and management of the healthcare system, but first and foremost a wide range of social and economic factors, including well-being of the population, public recognition of the value of health and the individual's awareness of the responsibility for one's own health. As a result of the implementation of the new health preservation policy in Western countries, the lasting decline in mortality continued, giving the beginning to the fourth phase of the epidemiological transition in a number of Western countries.

¹ Polina Gennadievna Gazizullina, economist. E-mail: apolinnaria@mail.ru.

The influence of unfavourable socio-economic factors is more clearly expressed in the transitional periods of human development, when the body is most sensitive to external influences. One of these periods in a person's life is adolescence. Development of the central nervous system and puberty stimulate the processes of formation of one's own identity, the realization of new patterns of behaviour, including risky self-preserving behaviour [Rich, Ginzburg, 1999; Viner, 2012]. The study of the entire range of socio-economic determinants of adolescent health, including self-preserving behaviour, the socio-cultural environment, material well-being, social and human capital of adolescents, is an important issue in the implementation of policies to promote adolescent health.

Against the backdrop of overall success in reducing the death rate of Russian population (see, for example, [Ivanova, Mikhailov, 2017]), the mortality rate of adolescents in the past two decades also declined after growth in the early 1990s. Since 2009, in addition, there is a stagnation in the incidence rates of adolescents 15-17 years of age, after they have been growing between 1992 and 2009. However, the levels of adolescent mortality and morbidity in Russia remain rather high in comparison with a number of western countries [TransMonEE, Inchley et al., 2016].

A characteristic feature of adolescent mortality is the leading contribution of external causes (including mortality from suicide). Young men are more likely to die from external causes than girls. A significant part of the causes of adolescent morbidity (up to 13%) also refers to external causes. This structure of causes of mortality and morbidity of adolescents is associated with peculiarities of self-protective behaviour of the adolescent. Moreover, according to experts, the emergence and intensity of manifestations of diseases of the digestive system, endocrine system, musculoskeletal system and connective tissue, circulatory system (contribution to the structure of morbidity up to 40%), are influenced by socio-economic determinants.

Since the beginning of the 2000s in Russia, concern for public health is one of the priority areas of socio-economic development, since public health is the basis for building a stable and prosperous society. The high level of adolescent health is the key to the prosperity of society in the near future.

In the literature, the influence of various determinants on the health of Russian adolescents is studied primarily by certain factors, and there is no comprehensive analysis of the socio-economic determinants of health of contemporary Russian adolescents.

The above mentioned considerations make a comprehensive analysis of socio-economic determinants of health of Russian adolescents important and relevant, especially during the period of the active social and demographic policy in Russia: 2016 is the beginning of the third stage of the implementation of the Concept of Population Policy of the Russian Federation until 2025; in 2017, the President of

the Russian Federation Vladimir Putin announced the “Decade of Childhood” program for 2018–2027.

The article consistently presents the results of systematization of theoretical and empirical experience of studying the determinants of health, the author’s classification of health determinants is substantiated, the methodology, data and methods of practical research are characterized, the main results of practical research are given, and a number of recommendations for state policy on adolescent health are given.

Theoretical and empirical experience of studying the determinants of health

Systematization of theoretical concepts identifies three key theoretical approaches to the consideration of the determinants of health: the hierarchical approach, structural approach and behavioural approach. The hierarchical approach is represented by numerous concepts of the aggregate blocks of determinants of health, based on the principle of considering the determinants of health at different levels, which, in a generalized form, can be represented as macro, meso- and microlevels. The structural approach reflects the basic idea of historical transitions in the types of mortality and morbidity associated with changing the structure of causes of mortality and morbidity, which leads to an increase in the personalization of the determinants of health. The behavioural approach suggests considering a system of needs, social conditions and norms that affect self-preserving behaviour, which in turn determines the state of human health, considering the need of the individual for self-preservation as the central element of the concept. In all the highlighted approaches there is a message about the existence of specific features of the effect of determinants of health on certain socio-demographic groups. The main assumptions of theoretical approaches are presented in Table 1.

The approaches are interrelated by the logic of the main messages. In the late stages of the historical transition in mortality and morbidity, the role of determinants affecting health at a micro level and the significance of socio-economic determinants, including socio-cultural factors, are increasing. Less determinants affect a person without his mediated (behavioural) participation.

The classification of empirical studies of the determinants of public health suggests that researchers either study certain factors that affect adolescent health; or use only one method of research (methods of descriptive statistics, regression methods, qualitative methods); or study the adult population using different methods (Table 2).

Table 1. System of theoretical approaches to the study of the determinants of health

Theoretical approaches	Hierarchical approach	Structural approach	Behavioural approach
Theoretical concepts (examples)	Concepts of the totality of the determinants of health, WHO concept	Theory of epidemiological transition; concept of sanitary transition	The concept of self-preservation behaviour
Main messages of the concept	System of levels of effects of the determinants on health	The shift in structure of causes of mortality and morbidity from predominantly exogenous to predominantly endogenous	Trinity of needs, social conditions and social norms
	Main levels: microlevel, meso level and macrolevel	Increase in the degree of personalization of the determinants of health	The central element is the need for self-preservation
	Features of the impact of determinants of different levels on socio-demographic groups	Features of the impact of determinants on different countries and socio-demographic groups at certain stages of transition	Features of the impact of social conditions and norms for socio-demographic groups
Author(s) of concepts	WHO (1980–2010), Grossman (1972) Dahlgren (1991, 2001) Adler (1993, 2002) Lisitsyn (2002, 2010) Kirby (2004) Radnaeva (2008) Viner (2012) Hosseini Shokouh et al. (2017)	Omran (1971, 1983, 1998) Olshanskiy (1986, 1998) Rogers, Hackenberg (1987) Vallin, Meslé (2002) Semyenova (2005)	Orem (1991) Antonov (1998) Leventhal et al. (1998)

Source: compiled by the author

Table 2. Classification of empirical studies of the determinants of public health

Subject and object of research	Methods	Authors	Determinants (enlarged groups)
The association of one factor or group of factors with health or certain aspects of adolescent health and self-preserving behaviour while controlling some set of lifestyle characteristics	Regression methods of research	Torshheim et al., 2004; Dorling et al., 2007; Vogt Yuan, 2009; Park, 2011; Aminzadeh, 2013; Anderson, 2014; Liu, 2015; Yajun, 2015; Frantz, 2015; Elgar, 2017; Ramadass, 2017; Jansen, 2017 and others	Income level, inequality, living space per person, urbanization, household composition, family situation, social capital, self-preserving behaviour. Combination of factors and relationship of factors
Connection of a complex of factors with the self-esteem of adolescent health	Regression methods of research (RLMS data)	Kisilitsyna, 2011	The type and size of housing, social and human (excluding the health of adolescents) capital, family situation, self-preserving behaviour.
Connection of a complex of factors with the level of health of the adult population	Regression methods of research (RLMS data)	Perlman, Bobak, 2008, Paul, Valtonen, 2016, Burggraf, Glauben, 2016, et al.	Income, education, social capital, self-preserving behaviour.
Connection of a complex of factors with the level of health of the adult population and self-preserving behaviour	A set of regression methods of research (RLMS) and qualitative methods	Nazarova, 2007	Standard of living, education, socio-cultural (gender) determinants, self-preserving behaviour.
Self-protective behaviour of adolescents	Descriptive statistical methods	Arkhangelsky, 2005; Shklyaruk, 2008; Kalachikova, 2012; Inchley et al., 2016; Shmatov, 2017; Zasimova et al., 2017 and others	Professional identity, attitude to health, health of the older generation, values, lifestyle, gender determinants
Self-preserving behaviour and HLS (a set of factors and individual factors) of the adult population, youth and adolescents	Qualitative methods	Kalabikhina, 2008; Lukovitskaya, 2009; Parvizy, 2009; Haraldsson, 2010; Alekseeva, 2015; Shelispanskaya, 2016; Marchenko, 2016	Relations with peers, family relationships, attitudes toward one's own health and prevention issues, attitudes towards the prevention of occupational risk, bad habits, adrenaline leisure, unprotected sex, irregular and fast food, physical activity and sedentary lifestyle, non-compliance with rules of the road by drivers and pedestrians.

Source: compiled by the author

A complex empirical analysis of the determinants of the health of Russian adolescents using the methodology of combining quantitative and qualitative methods was never carried out; it motivated the author to fulfill this task.

Classification of the determinants of adolescent health

Systematization of theoretical studies and generalization of the accumulated Russian and foreign empirical experience in the study of socio-economic determinants of health were used as a basis for the classification of the determinants of adolescent health used in further empirical analysis. Within the framework of the four most common sets of the determinants of health (healthcare, biological, ecological and socio-economic determinants), the author proposes a new composition of the socio-economic determinants of health, consisting of the following blocks: “level of well-being”, “social and human (excluding adolescent health) capital”, “self-preserving behaviour”, “socio-cultural determinants” (Figure 1). A block of socio-cultural determinants of the macrolevel is described; it includes the value of a long and healthy life, gender attitudes, trust in the state, a propensity for individualism, paternalism, and others.

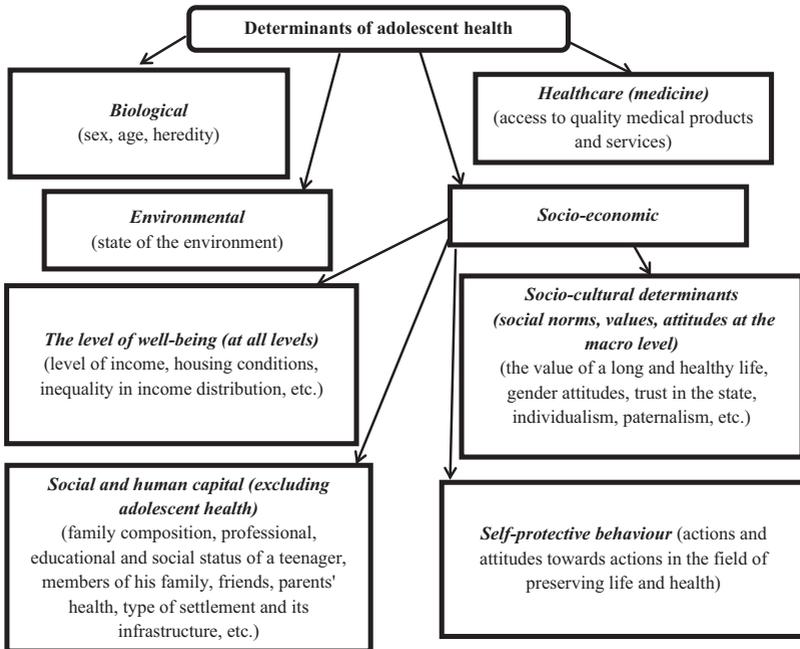


Fig. 1. Classification of the determinants of adolescent health

Source: compiled by the author

Within the framework of empirical analysis, we consider a set of socio-economic determinants of adolescent health.

Methodology of empirical research

To date, literature has accumulated several methodological formats for carrying out combined quantitative and qualitative research, which consist of two parts (two stages) of research performed in parallel or sequentially [Shorten, Smith, 2017]. We propose a step-by-step methodology for combining qualitative and quantitative methods, which enables using the conclusions of each next stage of analysis to improve the results of the entire study: when formulating and reformulating research hypotheses, specifying the sample specification and interpreting specific results. The study was conducted in four stages (Figure 2).

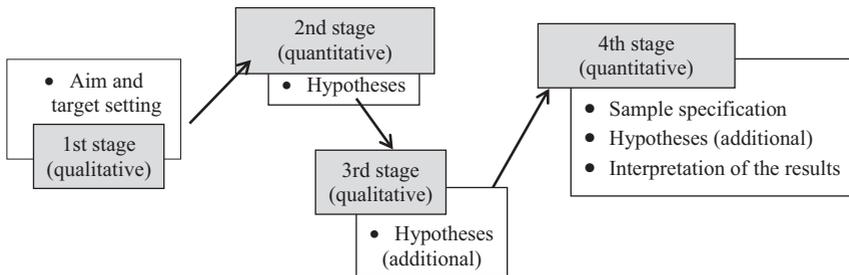


Fig. 2. Scheme of the step-by-step methodology of combining quantitative and qualitative methods. **Source:** compiled by the author

Quantitative methods and qualitative methods (based on the data of two stages of semi-structured interviews conducted by the author in two regions of Russia different in terms of mortality and morbidity of adolescents in 2010 and 2013) successfully supplemented each other. Within the framework of the research, the quantitative research database was gradually expanded and specified; the hypotheses were refined; the script of the interview and the procedure for coding the texts were clarified; the interpretation of the results of the quantitative stage was modified.

Data and methods of empirical research

Data and methods of quantitative research stages. Based on the data of the Russian Longitudinal Monitoring Survey conducted by the Higher School of Economics (hereinafter - RLMS [Russian Monitoring ...]) in 2010-2016 (19th -25th waves) using the logistic regression apparatus, an analysis of socio-economic determinants

of health of Russian boys and girls aged 15-17 was carried out. Each round of RLMS contains two blocks of data obtained using an individual questionnaire and a household questionnaire. They contain detailed socio-economic characteristics of the respondents and households in which they live, including data on the self-preservation behaviour of adolescents. In the final quantitative stage, 1,384 respondents participated, including 666 boys (48.1%) and 718 girls (51.9%). The sample was formed only by adolescents who were interviewed in private, because the available quantitative and qualitative data (obtained in the past qualitative research stage) allowed to propose and partially confirm the hypothesis that adolescents underestimate some indicators of risk behaviour due to the presence of other members of the household during the interview.

The main measure of health was a dichotomized self-evaluation of adolescent health: good (“very good”, “good”) and aggravated (“average, not good, but not bad”, “bad”, “very bad”) health; additional - a binary variable of the presence of at least one chronic disease in adolescents. This approach has been tested in the literature.

A set of independent regression analysis variables is presented in Table 3. The second column indicates the designations of the variables, which are then used to describe the detailed quantitative results of the regression analysis. The third column contains brief descriptions of the independent variables.

Table 3. Independent variables of regression analysis, RLMS, 2010-2016.

Set of determinants of health	Designation of the variable	Brief description of the variable
Level of well-being	Income	Logarithm of per capita income
	Low level of savings	The level of relative household savings for 2 weeks or less is 1, other is 0
	Unsatisfactory welfare dynamics	Unsatisfactory assessment of the dynamics of the material situation of the household for the last 12 months is 1, other is 0
	Dissatisfaction with the material situation	A low degree of satisfaction with the material situation ("not at all satisfied", "not very satisfied", "yes and no") is 1, other is 0
	Welfare ladder	Low self-esteem of the position on the "welfare ladder" (1-4 steps out of 9) is 1, other is 0
	Living space	Logarithm of the amount of living space per person
	Rent/hostel	Accommodation in a rented dwelling or hostel is 1, other is 0

End of table 3

Set of determinants of health	Designation of the variable	Brief description of the variable
Social and human capital (excluding adolescent health)	Number of households	Number of people in the household
	A non-native parent	Accommodation with two parents, at least one of which is non-native is 1, other is 0
	One parent	Accommodation with one native or non-native parent is 1, other is 0
	Without parents	Accommodation without parents is 1, other is 0
	Nuclear family	Residing in a nuclear family is 1, other is 0
	Less than two brothers / sisters	Accommodation with less than two brothers and sisters is 1, other is 0
	City	Accommodation in the city is 1, other is 0
	Regional center	Accommodation in a regional center is 1, other is 0
Socio-cultural determinants	Ladder of Power	Low self-esteem of the position on the "welfare ladder" (1-4 steps out of 9) is 1, other is 0
	Ladder of Respect	Low self-esteem of the position on the "ladder of respect" (1-4 steps out of 9) is 1, other is 0
Self-preserving behaviour	Smoking in the past	Smoked, but gave up is 1, other is 0
	History of smoking of one year and more	History of smoking in the present or past during a year or more is 1, other is 0
	>20 grams of pure alcohol	In the past month I consumed over 20 grams of pure alcohol is 1, other is 0
Self-preserving behaviour	Sports	During the last year I have been doing sports on average less than 8 times a month and (on average) no more than 45 minutes at a time is 1, other is 0
	Physical culture	Does not exercise daily or does not exercise intensively at least three times a week for at least 15 minutes is 1, other is 0
	Type of nutrition	Eats out 1-3 times a week on average and / or adhered to a diet 12 months before the survey is 1, other is 0
	Regularity of nutrition	Eats irregularly or rather irregularly is 1, other is 0
	Excess body weight	Has excess weight is 1, other is 0

Source: compiled by the author on the basis of RLMS data

Data and methods of qualitative research stages. To conduct qualitative research stages, Moscow Region was selected as a region with average mortality and morbidity rates and the Republic of Udmurtia as a region with high mortality and morbidity rates. When considering the mortality of adolescents in Udmurtia, attention is drawn to the superhigh mortality from suicide (and external causes in general). The specific features of morbidity in Udmurtia in the period under review is the excess of the average national levels for the class of diseases associated with pregnancy, childbirth and the puerperium, diseases of the circulatory system, infectious diseases, neoplasms, nervous and genitourinary systems, respiratory and digestive organs.

A total of twenty-four teenagers living in Udmurtia and fifteen teenagers from Moscow region were selected to conduct a qualitative study, with each of whom a semi-structured interview was conducted. The qualitative study was conducted in two stages: 2010 and 2013. The interview scenario covered a set of socio-economic determinants of adolescent health according to the modified scheme of the determinants of adolescent health. The analytical approach was based on the method of thematic content analysis.

The complex of socio-economic determinants used in qualitative research is implemented as follows. The level of well-being was expressed through a self-assessment of the level of well-being (referring oneself to the group of the “rich”, “average” or “poor”), type of ownership, number of rooms, the fact of spending a holiday with the entire family abroad or at Russian resorts. The determinants of social and human capital (excluding the health of adolescents) included: composition of the family (including living in an incomplete, extended, large family), education, profession and employment of parents, employment of a teenager, and type of settlement. Among the socio-cultural determinants studied were: gender attitudes (in particular, masculine behaviour), trust in the state, attitude towards suicide, the value of a long and healthy life, dependence on the fellowship with which the adolescent communicates (the value of individualism). The aspects of the adolescent’s self-contained behaviour included: smoking, drinking of alcohol, drug use, attitudes toward abortion, sexual relations, self-preserving behaviour in the field of traffic, participation in fights and extreme leisure, physical activity and rest, nutrition, attitude towards preventive measures and treatment in medical institutions, responsibility for one’s health.

Results of the empirical study

During the quantitative analysis, a number of logistic regressions were constructed in order to assess the comparative influence of factors on self-assessment of health and the presence of chronic diseases in adolescents.

For the proposed complex of variables, models of their simultaneous impact on self-assessment of health and ascertainment of the presence of chronic

diseases for boys and girls separately, as well as jointly, with the inclusion of interaction variables were evaluated. The “gender” variable takes the value of 1 if the gender of the respondent is male, and 0 is female. For the evaluation, the logistic regression apparatus was used. The model also added a number of dummy variables for each year of observation.

Detailed quantitative results of the evaluation are presented in Table 4. Each cell indicates the Odds Ratio (OR) and a 95% confidence interval. The significance of the coefficients for $p \leq 0,001$, $p \leq 0,01$ and $p \leq 0,05$ are designated as ***, ** and *, respectively. The bottom line shows the used sample size N (minus the missing values) for each model.

Table 4. Multifactorial models of the connection of socio-economic determinants with self-assessment of adolescent health and their assertion of chronic diseases, RLMS, 2010-2016.

Factor	Medium / low self-esteem of health			Assertion of the presence of chronic diseases		
	Boys	Girls	All	Boys	Girls	All
Sex	-	-	**	-	-	*
Income	1.21 (0,44-3,32)	1.10 (0,41-2,97)		1.32 (0,50-3,51)	0.73 (0,28-1,91)	
Low level of savings	1.44 (0,87-2,37)	1.14 (0,71-1,83)		1.31 (0,82-2,10)	0.97 (0,61-1,55)	
Unsatisfactory welfare dynamics	2,22* (1,14-4,30)	1.32 (0,78-2,23)		1.71 (0,93-3,13)	1.01 (0,61-1,68)	
Dissatisfaction with the material situation	0.98 (0,55-1,73)	0.82 (0,49-1,36)		1.01 (0,59-1,72)	0.97 (0,59-1,60)	
Welfare ladder	0.78 (0,42-1,75)	0.99 (0,55-1,80)		0.80 (0,44-1,44)	0.91 (0,51-1,63)	
Living space	1.17 (0,26-5,29)	0.33 (0,10-1,07)		0.66 (0,16-2,75)	1.03 (0,33-3,22)	
Rent/hostel	0.89 (0,38-2,09)	0.77 (0,35-1,68)		0.51 (0,24-1,33)	0.62 (0,28-1,40)	
Number of households	0.40 (0,15-1,07)	1.77 (0,75-4,18)		0.79 (0,31-1,98)	2.04 (0,88-4,71)	
A non-native parent	1.58 (0,78-3,16)	1.35 (0,71-2,55)		1.16 (0,59-2,28)	1.04 (0,56-1,93)	
One parent	1.08 (0,58-2,01)	1.64 (0,92-2,93)		1.68 (0,96-2,94)	1.19 (0,68-2,08)	
Without parents	1.40 (0,53-3,72)	2,24* (1,02-4,89)		1.36 (0,54-3,44)	0.65 (0,28-1,51)	

End of table 4

Factor	Medium / low self-esteem of health			Assertion of the presence of chronic diseases		
	Boys	Girls	All	Boys	Girls	All
Nuclear family	3,28** (1,47-7,30)	1.01 (0,54-1,87)		1.83 (0,94-3,57)	1.15 (0,62-2,11)	
Less than two brothers / sisters	5,12** (1,89-13,86)	0,49* (0,26-0,92)		2.17 (0,97-4,86)	0.69 (0,37-1,27)	
Less than two brothers / sisters * sex	-	-	**	-	-	-
City	0.83 (0,41-1,69)	2,16* (1,12-4,15)		1.00 (0,52-1,94)	1.71 (0,93-3,15)	
Regional center	1.58 (0,87-2,87)	1.63 (0,92-2,88)		1.67 (0,96-2,92)	0.86 (0,49-1,49)	
Ladder of Power	1,23* (1,07-2,26)	1.73 (0,97-3,08)		1.53 (0,97-2,67)	1.58 (0,89-2,79)	
Ladder of Respect	1.22 (0,61-2,43)	0.73 (0,40-1,35)		1.22 (0,64-2,31)	0.82 (0,46-1,46)	
Smoking in the past	2,48* (1,06-5,83)	0.70 (0,23-2,13)		1.24 (0,56-2,78)	0.72 (0,22-2,34)	
History of smoking of one year and more	1.40 (0,70-2,80)	3,42* (1,36-8,56)		1.68 (0,89-3,17)	1.69 (0,68-4,22)	
>20 grams of pure alcohol	0,43* (0,19-0,99)	0.83 (0,40-1,83)		1.04 (0,51-2,09)	1.71 (0,84-3,47)	
Sports	2,28** (1,33-3,93)	0.96 (0,56-1,65)		1.34 (0,83-2,17)	0.77 (0,46-1,29)	
Physical culture	1.06 (0,62-1,81)	1,82* (1,00-3,41)		0.83 (0,51-1,36)	3,15** (1,64-6,07)	
Type of nutrition	2,87** (1,56-5,31)	2,32** (1,41-3,84)		2,09* (1,19-3,68)	2,51*** (1,53-4,13)	
Type of nutrition * sex	-	-	p=0,307	-	-	p=0,423
Regularity of nutrition	1.22 (0,63-2,37)	1,99* (1,16-3,43)		1.23 (0,67-2,28)	1.23 (0,74-2,16)	
Excess body weight	0.99 (0,41-2,44)	2,23* (1,00-4,97)		0.68 (0,28-1,64)	2.37 (1,07-5,25)	
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	462	474	936	462	475	937

Source: calculated by the author on the basis of RLMS data, 2010-2016.

The chances of boys to assess their health as average or poor are significantly increased by non-positive assessment of the dynamics of the material situation of the household over the last 12 months, living in a nuclear family, living with fewer than two brothers and sisters, a low position on the “ladder of power”, smoking in the past, poor level of physical activity (during the last year the boy engaged in sports on average less than 8 times a month and no more than 45 minutes at a time on average), unfavorable type of behaviour in the field of nutrition (eats out 1-3 times per week on average and / or sticks to a diet, understood as “any change in usual meals for the purpose of losing weight, grow meager, maintain or improve health”, in the period of 12 months prior to the survey). The self-assessment of health, in addition, significantly increases with the use of over 20 grams of pure alcohol in the preceding month.

Girls’ chances to assess their health as average or poor are significantly increased by their living in the city, without parents, with two or more brothers and sisters, smoking for a year or more, lack of physical activity (do not exercise daily, or do high intensity exercise at least three times a week for 15 minutes or more), an unfavorable type of behaviour in the field of nutrition (eating out an average of 1-3 times a week and/or adhering to a diet 12 months prior to the survey), irregular or rather irregular nutrition, excess weight.

The chances of boys to declare the presence of chronic diseases are significantly increased by the presence of an unfavourable type of nutrition. In addition, at a significance level of $p < 0.07$, there is a connection with living in the regional center, with one parent, in a nuclear family, and with fewer than two brothers and sisters.

The chances of girls to assert the presence of chronic diseases are significantly increased by the presence of an unfavourable type of diet, as well as a lack of physical activity (do not exercise daily or do high-intensity exercise at least three times a week for 15 minutes or more).

The results of the qualitative research demonstrated the impact of the socio-economic determinants integrated in three blocks of the author’s classification on the adolescent health. These are: social and human capital (excluding the health of adolescents), socio-cultural determinants, and self-preserving behaviour. Qualitative analysis did not prove link between the level of well-being and adolescent health.

The impact of the determinants of social and human capital (excluding the health of adolescents) is manifested through the composition of the family, the characteristics of parents and grandparents and the type of settlement. The poor health of elderly family members leads to the unwillingness of adolescents to live long. The influence of the type of settlement is manifested through the views and actual behaviour of the respondents. Rural adolescents see the senility line coming earlier (40-50 years) than urban adolescents (60-70 years). The level of

self-preserving behaviour of rural teenagers in the field of traffic and fights is lower than the level of self-preserving behaviour of urban adolescents.

The manifestations of the socio-cultural determinants of health and self-preserving behaviour of adolescents in Udmurtia and Moscow region are different and are shown in Table 5. The “-” sign in the cell means negative relationship of the determinant with health (low level of self-preservation activity, negative influence of socio-cultural attitudes, perceptions, and norms on health). The sign “+” means positive relationship. The sign “n.d.” means neutral or not defined relationship (multidirectional trends, including the mismatch of actual behaviour and attitudes, do not enable singling out a single vector).

Table 5. Relationship between socio-cultural determinants of health, self-preserving behaviour and health of adolescents in Udmurtia and Moscow Region (qualitative research results, 2010 and 2013).

Determinant of health	Republic Udmurtia	Moscow region
SOCIO-CULTURAL DETERMINANTS		
Attitude to suicide as a "norm" and low value of a long life	-	n.d.
Low value of good health	-	n.d.
Masculine behaviour	-	n.d.
Mistrust to the state	-	-
Influence of fellowship (low value of individualism)	-	n.d.
SELF-PRESERVING BEHAVIOUR		
Smoking	n.d.	-
Alcohol consumption	-	-
Drug use	n.d.	-
Non-notification of parents of pregnancy and abortion (choice in favour of avoiding conflict, not health)	-	n.d.
Frequent change of sexual partners, ignorance of sexually transmitted diseases	n.d.	-
Low level of self-preserving behaviour in the area of traffic	-	n.d.
Participation in fights and extreme leisure	-	n.d.
Physical activity and rest	+	n.d.
Low value of a healthy diet	-	-
Negative attitude towards preventive measures and treatment in medical institutions	-	n.d.
Low responsibility for one's own health	-	n.d.

Source: author's estimates based on qualitative research data

The presented differences are combined with differences in the morbidity and mortality of adolescents in the two regions. The higher levels of morbidity and mortality of adolescents in general and the classes of diseases and causes of death in Udmurtia correspond to a more negative socio-cultural context and negative features of self-preserving behaviour. The lower level of self-preserving behaviour of Udmurt teenagers in the field of traffic, participation in serious fights with the use of weapons is combined with higher mortality rates of Udmurt teenagers from external causes. The lower level of self-preserving behaviour of Moscow region teenagers in the field of drug use can correlate with the increased mortality of suburban adolescents from causes related to blood circulation diseases. The ordinary attitude of adolescents towards suicide and the weakened value of a long life can contribute to the high mortality of Udmurt teenagers from suicide.

The four main directions of influence of socio-cultural determinants on adolescent health are as follows:

- for Udmurt teenagers, unlike those of Moscow region, suicide is perceived almost as a norm, and the value of a long and healthy life is reduced. The low value of good health for adolescents was revealed when discussing a number of areas of self-preservation behaviour: a mode of work and rest, the relation to abortions, attitudes to preventive measures;
- adolescents in both regions (in the Udmurt Republic more than in the Moscow region), especially boys, demonstrate masculine behaviour (a combination of alcohol, smoking, physical activity, non-recognition of existing health problems, negative attitudes towards prevention);
- state measures to improve health and self-preservation behaviour (social advertising, educational measures at school), according to adolescents, are used only in order to compete with other countries - in cases the percentage of healthy people increases;
- the influence of the fellowship in which the adolescent communicates on his self-preserving behaviour is manifested, among other things, in the low value of individualism, rigid intra-group regulation of behaviour (everyone drinks the same alcoholic beverage, refusal is unacceptable, it is impossible to quit smoking and stay in the fellowship).

The combination of quantitative and qualitative research enables identifying a complex of socio-economic determinants of health of Russian adolescents. A number of determinants turned out to be significant when using both a quantitative and qualitative approach, other determinants turned out to be significant only at one level, quantitative or qualitative. The entire complex is presented in Table 6.

Nutrition is the only factor that found a significant connection with all four dependent variables of regression analysis, that is, self-assessment of health and statement of presence of chronic diseases in boys and girls. Periodic meals outside the home, irregular eating habits and dieting “for weight loss, improving or

maintaining health” the year before the survey are negatively associated with self-assessment of health. A qualitative study has shown that nutrition is not included in the adolescents’ views on a healthy lifestyle, adolescents do not pay special attention to healthy food.

Physical activity is positively associated with self-assessment of adolescent health according to quantitative research. Within the framework of qualitative research, teenagers were dissatisfied with the school physical education lessons, the prevalence of the value of study and work on the value of recreation, as well as the combination of sports with smoking and drinking alcohol (masculine behaviour).

Table 6. The complex of socio-economic determinants of adolescent health (according to quantitative and qualitative research)

Block	Determinants	Connection with health from the results of quantitative analysis	Connection with health according to the results of qualitative analysis
Level of well-being	Positive adolescent assessment of the dynamics of the material situation of the household in the last 12 months	+	No data
Social and human capital	Living without parents	-	Not detected
	Extended family	+ (for boys)	Not detected
	Large family	+ (for boys) - (for girls)	Not detected
	Poor health of an elderly family member	Not detected	-
	Accommodation in the city (except for regional centers), not in the village	- (for girls)	Not detected
Socio-cultural determinants	Low self-assessment of the position on the "ladder of power" (1-4 steps)	-	No data
	Attitude to suicide as a "norm" and low value of a long life	No data	-
	Low value of good health	No data	-
	Masculine behaviour	-	-
	Mistrust to the state	No data	-
	The influence of fellowship attitudes and environment (low value of individualism)	No data	-

End of table 6

Block	Determinants	Connection with health from the results of quantitative analysis	Connection with health according to the results of qualitative analysis
Self-preserving behaviour	Smoking	-	-
	Alcohol consumption	+	-
	Drug use	No data	-
	Non-notification of parents of pregnancy and abortion (choice in favour of avoiding conflict, not health)	No data	-
	Frequent change of sexual partners, ignorance of sexually transmitted diseases	No data	-
	Physical activity and rest	+	+
	Low level of self-preserving behaviour in the area of traffic	No data	-
	Fights and extreme leisure	No data	-
	Periodic eating out, irregular meals, dieting for weight loss	-	-
	Attitude towards preventive measures and treatment in medical institutions	Not detected	-
	Low level of responsibility for one's health	No data	-

Source: compiled by the author

On a quantitative level, a connection between the position of the adolescent on the “ladder of power” and his self-assessment of health was found. The low position on the “ladder of power”, that is, the sense of powerlessness, lack of influence, presumably primarily in the family and among peers, is negatively related to health. The qualitative analysis has disclosed the lack of confidence in the state’s educational measures in the area of health and self-preserving behaviour, the feeling of a diminished human value for the state, the negative influence of fellowship on self-preserving behaviour of adolescents (the reduced value of individualism), the tendency to masculine behaviour (high health rating under poor real health in combination with the recognition of the use of significant amounts of alcohol), the attitude to suicide as an element of everyday life among Udmurt adolescents. All these are manifestations of the socio-cultural determinants of health.

At the level of self-preservation behaviour, qualitative research has revealed a number of features, the quantitative data on which are not contained in the

RLMS survey. These are a loyal attitude towards drug use, low level of self-preservation behaviour in the field of traffic, extreme leisure, participation in fights with weapons among Udmurt teenagers, common attitude to criminal abortions and insufficient awareness of adolescents about sexually transmitted diseases.

The level of welfare turned out to be a significant determinant on a quantitative level. A teenagers' positive perception of the dynamics of the material situation of the household, in which he lives, 12 months before the survey, is positively associated with self-evaluation of health. On the qualitative level, connections were not revealed.

Connection between social capital and the health of adolescents is proved both by quantitative and qualitative research. In the framework of quantitative analysis, the effect of socio-demographic characteristics of household on self-assessment of health were revealed: living without parents and living in a large family are negatively associated with self-assessment of health in girls, living in an extended and large family is positively related to the health of boys. The qualitative analysis has not revealed connection between living in a large family and self-assessment of the health of boys and girls, but an additional correlation was found: poor health of elderly family members is a factor in the unwillingness to live long in adolescents. Thus, the consequences of population ageing can affect the health of adolescents. The lack of focus on these consequences, lack of adaptation of psychology and infrastructure, the use of the potential of older people has drawn attention in literature [Kalmykova et al., 2017, Safarova, 2014].

Living in the city, not including the regional centers, and not in villages, turned out to be a significant favourable determinant of health (for girls) within the quantitative approach, in contrast to qualitative research. Within the framework of qualitative research, a number of attitudes, perception and actual behaviour of rural teenagers in Udmurtia were identified, which makes it difficult to unequivocally determine the vector of possible health effects. Rural adolescents, in contrast to urban, tend to think of ecology as affecting health more than behaviour, both positively and negatively. Rural adolescents see the senility line coming earlier (40-50 years) than urban adolescents (60-70 years). The level of self-preserving behaviour of rural teenagers in the field of traffic and fights is lower than the level of self-preserving behaviour of urban adolescents.

Discussion and conclusions

The identified determinants of adolescent health give grounds to conclusions addressed to socio-demographic policy.

We support traditional approaches related to the promotion of a healthy lifestyle, the prevention of diseases, the improvement of material well-being of families with children, and we suggest strengthening and supplementing these measures.

First, taking into account the different risks to adolescents' health due to the type and composition of the family, it is necessary to strengthen the targeting of socio-demographic policies for different types of families with children on the basis of family typology. For example, to increase access to material resources for large families in order to maintain the health of girls, to strengthen the choice in favour healthy lifestyles for adolescents in single-parent families without other relatives.

Secondly, when developing social policies, it is important to take into account the presence of negative gender stereotypes that affect adolescent health in order to mitigate masculine behaviour, equalize access to resources pending on one's sex in households of different types, improve self-preservation behaviour and improve the value of health for boys and girls.

Working with the socio-cultural determinants of adolescent health requires inclusion of special measures in all types of social policies. For example, limiting gender stereotypes in various areas of life will reduce negative masculine behaviour that negatively affects the health of boys, improve living conditions of girls in large families, if the "value" of girls is lower than the "value" of boys as future "bread-winners".

Thirdly, when implementing the "Decades of Childhood" program, the practice of adolescents' participation in decisions affecting their interests should be expanded to increase the self-assessment of the position on the "ladder of power", to increase the value of a healthy and long life, increase trust in the state and society, develop individualism, reduce paternalistic attitudes and increase responsibility for one's own health.

Understanding the importance of self-preservation behaviour requires comprehensive work to involve adolescents in participating in decisions about their health and lifestyle, as well as participation in the life of communities and educational institutions [Kalabikhina et al., 2014], promoting healthy lifestyles and health values, developing alternative health-saving leisure activities in conjunction with adolescents. It is important to create activities aimed at developing trust in medical institutions and expanding the network of youth-friendly clinics [Krotin et al., 2006]. Participation of adolescents in making decisions affecting their interests will enhance their self-esteem of the position on the "ladder of power", respect and improve self-preserving behaviour of adolescents.

It is necessary to introduce special prevention programs and tools for diagnosing suicidal risk, adapted to the socio-cultural context of adolescents' living, including representatives of indigenous peoples, since qualitative interviews in Udmurtia confirmed the negative impact of abundance of suicides on suicide risk. WHO identifies the issue of dislocation and inculturation among risk factors for adolescent suicide [WHO, 2014: Preventing Suicide]. Abandonment of the traditional way of life, national culture and language, coupled with distrust of the

state social protection and health services, do not allow to effectively overcome depressive disorders, isolation and discrimination among adolescents.

The development of a new socio-culturally adapted toolkit for diagnosing suicidal risk should be related to:

- 1) regular qualitative and quantitative monitoring of the relevance of the toolkit for diagnosing suicidal risk and the existence of social and socio-cultural factors, which justify application of this technique;
- 2) inclusion in the assessment of the expected economic effects of not only the “price” of the rescued lives of adolescents, but also the “price” of the prevented destabilizing social and economic effect, especially in small settlements. The social and economic effect of the introduction of effective programs for the prevention of adolescent suicide is not limited to the number of a person’s additional years of high-quality life, but is estimated to be much higher due to a positive impact on the family and the environment.

Prevention of suicide is beneficial not only to improve the level of health of the population, but also for the economy. For example, according to one of the latest WHO studies [Investing ..., 2016], every US dollar invested in scaling up treatment for depression and anxiety disorders turns into USD 4 in the form of improved health and ability to work. Governments currently spend 3% of their health budgets on mental healthcare on average. A study of 36 countries with different per capita income levels showed that the estimated costs for the expansion of treatment in 2016–2030, primarily for psychosocial counselling and treatment with antidepressants, will amount to USD 147 billion, but the effect will far exceed costs and will lead to a five per cent increase in the working-age population and productivity (estimated at USD 399 billion), and improved health will generate an additional USD 310 billion in these countries.

Adolescent health research is impossible without increasing the number of qualitative studies, sampling quantitative studies with a broader set of questions about motivation and factors of self-preservation behaviour, and the collection of sex-differentiated statistics on the determinants of adolescent health as part of the implementation of state policy on improving adolescent health.

Reference list

1. Inchley J et al. 2016. Growing up unequal: gender and socioeconomic differences in young people’s health and well-being. Health Behaviour in School-aged Children (HBSC) study: international report from the 2013/2014 survey. Copenhagen, WHO Regional Office for Europe, (Health Policy for Children and Adolescents, No. 7). — Access mode: <http://www.hbsc.org/publications/international/>
2. Investing in treatment for depression and anxiety leads to fourfold return. 2016. WHO: Media Center. Access mode: <http://www.who.int/mediacentre/news/releases/2016/depression-anxiety-treatment/ru/> (reference date: 08.09.2018) (in Russian)

3. Ivanova A.E., Mikhailov A.Y. 2017. Assessment of population policy aimed at reducing mortality at the regional level in Russia. *Social Aspects of Public Health*. 57 (5). Access mode: <http://vestnik.mednet.ru/content/view/914/30/> (date of reference: 08.09.2018). DOI: 10.21045/2071-5021-2017-57-5-1 (in Russian)
4. Kalabikhina I.E. et al. 2014. Methodical recommendations on the development of the participation of children in making decisions affecting their interests in municipalities. Moscow. Foundation to support children in difficult life situations (in Russian)
5. Kalmykova N.M., Kostanyan A.A., Mayorova E.A., Sheresheva M.Y. 2017. Formation of support institutions for older people and use of their potential in the interests of Russian society. In Sheresheva M.Y. (ed.) *Institutional Changes in the Social Area of Russian Regions*. Faculty of Economics, Lomonosov Moscow State University. Moscow. Pp. 204-228. (in Russian)
6. Krotin P.N., Kulikov A.M., Kozhukhovskaya T.Y. 2006. Clinics that are friendly to young people. Saint-Petersburg. UNICEF, MAPO. (in Russian)
7. Rich M., Ginsburg K.R. 1999. The Reason and Rhyme of Qualitative Research: Why, When, and How to Use Qualitative Methods in the Study of Adolescent Health // *Journal of adolescent health*. N 25. P. 371-378. Access mode: [http://www.jahonline.org/article/S1054-139X\(99\)00068-3/fulltext](http://www.jahonline.org/article/S1054-139X(99)00068-3/fulltext)
8. «Russian Longitudinal Monitoring Survey of the NRU-HSE (RLMS-HSE)», conducted by the National Research University «Higher School of Economics» and «Demoscope» Ltd. with the participation of the Population Center of the University of North Carolina in Chapel Hill and the Institute of Sociology of RAS. (RLMS-HSE survey websites: <http://www.cpc.unc.edu/projects/rlms> и <http://www.hse.ru/rlms>)
9. Safarova G.L., Safarova A.A., Lisenenkov A.I. 2014. Gender aspects of population aging in Russia / *Advances in Gerontology*. Volume 4, Issue 4, pp 331–336. Access mode: <https://link.springer.com/article/10.1134/S2079057014040195>
10. Shorten, A., Smith, J. 2017. Mixed methods research: expanding the evidence base // *Evidence-Based Nursing*. N 20. Pp.74-75. — Access mode: <http://ebn.bmj.com/content/20/3/74>
11. Viner, R. M. et al. 2012. Adolescence and the social determinants of health // *The Lancet*, Volume 379, Issue 9826, pp.1641–1652. — Access mode: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(12\)60149-4/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)60149-4/abstract)
12. World Health Organization. 2014. Preventing suicide: a global imperative. Geneva, WHO.