SELF-PERCEIVED HEALTH OF THE ELDERLY: ECONOMIC AND SOCIODEMOGRAPHIC INEQUALITIES

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Given the rapid increase in the number and share of the elderly in the total population, good health and healthy ageing are an important factor in the socio-economic development of ageing societies. Self-perceived health is one of the most important health and well-being indicators. The article presents the results of research on self-perceived elderly health based on data from "Household Budget Survey" for 2006-2015 (NBS). The study reveals a slow increase in life expectancy and healthy life expectancy, as well as time spent in good health. The life expectancy without chronic illness is lower than healthy life expectancy. There is a positive rise in the self-assessment of the elderly for both sexes and at different ages after 60 years. The regression analysis of factors influencing self-perceived health (age, sex, education level, welfare level, degree of disability and civil status), demonstrates that among the most important factors with which self-responding health is associated, as bad and very bad were highlighted the low level of education and material welfare, as well as the presence of behavioural vices (smoking).

Keywords: *healthy life expectancy, self-perceived health, elderly, determinant factors.*

În condiţiile creşterii rapide a numărului şi ponderii vârstnicilor în totalul populaţiei, starea bună de sănătate şi îmbătrânirea sănătoasă prezintă un factor esenţial de dezvoltare socioeconomică a societăţilor îmbătrânite. Sănătatea auto-percepută este unul din cei mai importanţi indicatori ai sănătăţii şi bunăstării. În articol sunt prezentate rezultatele cercetării cu privire la sănătatea auto-percepută a vârstnicilor în baza datelor din „Cercetarea bugetelor gospodăriilor casnice" pentru anii 2006-2015 (BNS). Studiul relevă o creştere lentă a speranţei de viaţă şi speranţei de viaţă sănătoasă, precum şi a timpului petrecut într-o stare bună de sănătate. Speranţa de viaţă fără boli cronice este mai scăzută decât speranţa de viaţă sănătoasă. Se constată creşterea pozitivă a autoaprecierii sănătăţii persoanelor vârstnice pentru ambele sexe şi la diferite vârste după 60 de ani. Analiza regresională a factorilor care influenţează sănătatea auto-percepută (vârsta, sex, nivelul de educaţie, nivelul de bunăstare, gradul de invaliditate şi starea civilă) demonstrează că printre cei mai importanţi factori cu care se asociază autoraportarea sănătăţii ca rea şi foarte rea s-au reliefat nivelul de studii scăzut şi cel al bunăstării materiale, precum şi prezenţa viciilor comportamentale (fumatul).

Cuvinte-cheie: *speranţa de viaţă sănătoasă, autoaprecierea sănătăţii, vârstnici, factori determinanţi.*

В условиях быстрого роста численности и доли пожилых людей в общей численности населения хорошее здоровье и здоровое старение являются важными факторами, способствующими социально-экономическому развитию стареющего общества. Самооценка здоровья представляет собой один из важных показателей здоровья и благополучия. В статье представлены результаты исследования самооценки здоровья пожилых людей на основе данных «Обследования бюджетов домашних хозяйств» за 2006-2015 годы (НБС). Полученные результаты демонстрируют медленное увеличение продолжительности жизни и ожидаемой продолжительности здоровой жизни, а также увеличение времени, прожитого в хорошем

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состоянии здоровья. Продолжительность жизни без хронических заболеваний несколько ниже, чем ожидаемая продолжительность здоровой жизни. Наблюдается рост положительной самооценки здоровья пожилыми людьми для обоих полов и разных возрастов после 60 лет. Регрессионный анализ факторов, влияющих на самооценку здоровья (возраст, пол, уровень образования, уровень благосостояния, наличие группы инвалидности, семейное положения) показал, что наиболее важными факторами, ассоциирующимися с плохой самооценкой здоровья, являются низкий уровень образования и материального благосостояния, а также наличие поведенческих зависимостей (курение).

Ключевые слова: *ожидаемая продолжительность здоровой жизни, самооценка здоровья, пожилые люди, определяющие факторы.*

JEL Classification: I10, I15, N3.
UDC: 316.346.32-053.9

Introduction. The continuous growth in the number and proportion of elderly in the total population dynamics and potential implications for society will be increasingly salient. Therefore, there is an increased need to study further the health and functional status of this population, and provide the argumentation for appropriate policies for ensuring quality of life for elderly people and an active ageing.

Improved health is associated with national wealth; and the contribution of better health to economic growth has been recognised only recently. There is evidence that improved health can promote earnings and the labour supply. Poor health, on the other hand, increases the likelihood of early retirement. All these provide powerful arguments for investing in health, both as an objective in its own, and because it is an important determinant of economic growth and competitiveness [5, 18].

The health status of the ageing population is essential not only to those who comprise this age group, but also to the broader population because of the impacts on social and economic systems. Understanding the problems of older populations' health it is critical to plan health care services and social support systems and to design health policies to population.

Self-perceived health is one of the main indicators of health and well-being used by WHO for monitoring the population's health and quality of life n and is also on the list of health indicators of European countries. Self-perceived health remains a cornerstone of health and epidemiological studies and presents a subjective measure of overall health and well-being. Perception of individual state of health is based on the general feeling of life, including the parameters of the physical and non-physical health, and it is associated with a wide range of health indicators: medical, psychological, social and behavioural health outcomes. Among adults, the subjective indicators of health are closely related to availability and use of health care services, rates of morbidity and mortality.

The existing research demonstrates the importance of self-perceived health, presenting a predictor of chronic disease, a characteristic of the physical capabilities of people and opportunities to work, a demand for medical services and welfare and mortality [15]. There is an extensive evidence of considerable social inequalities in the health of older people in Europe [23, 278, 25].

Data on public health are less reliable and comparable than data on mortality and age structure of the population. Most countries face a lack of such data. The situation improves due to selective research of the population. Currently, the Republic of Moldova has limited data regarding the age-specific health and disability, necessary to determine basic population health parameters. It is difficult to understand the trajectory of elderly morbidity, if it follows − expansion of morbidity, where people are living longer with disease and disability [10, 24], compression of morbidity, with delays the age at onset and progression of disease [6], or a dynamic equilibrium, where disability increases but is not severe [13, 14].

The present study seeks to fill these gaps by providing new evidence from the Republic of Moldova. Our objective is to analyse recent trends in self-perceived health (SPH), and to assess the factors that have been associated with it. Exploring elderly's health will help us understand better the trends in its dynamics. To get a clearer picture of the determinants of SPH, such variables as education level, economic and marital status of the elderly were analysed.

This article is a continuation of our previous work on Healthy Adjusted Life Expectancy (HALE) in the Republic of Moldova [7].

Data and methods. This analysis is based on the Household Budget Survey (HBS), which is the only source in the Republic of Moldova which includes questions about SPH with two variables: self-perceived health and presence of chronic diseases (self-reported chronic morbidity). The survey covers all types of households, with the exception of those individuals living in institutions (e.g., nursing homes,

prisons, monasteries). It is restricted to a single calendar year, and is designed as a sequence of four quarterly interviews of the same sample of households. The survey questionnaire contains a number of variables, including health (e.g. the influence of health on the ability to work, health self-evaluation, the ability to get dressed without assistance, medical visits, expenditures on medical service); demography (e.g. age, sex, place of residence), socioeconomics (e.g. education, income), and lifestyle (e.g. smoking).

The calculations of the HALE indicator were done by using the prevalence-based method, methodology developed by Sullivan [11]. The years lived are divided in HALE (self-rated very good/good and fair health) and LE in bad/very bad health (loss of healthy years). Life tables were computed based on the adjusted population estimates [16] regarding usual residence population (exposure population). Life tables were combined with data regarding the subjective assessment of health from the HBS (2006-2015).

The most important relationship between health indicators and socioeconomics has a dependent form - "the better economic situation, the better health" and "the better education, the better health".

To assess the association between a number of socioeconomic, demographic, and lifestyle variables and self-perceived health, we used a binary logistic regression model. This was based on the primary data of the Health Status Module included in the HBS (2016). The regression was performed on the sub-sample of people aged 60+. Thus, 770 cases were included in the regression analysis. The independent variables included in the model comprised several areas: socio-economic (welfare quintiles, study level, marital status), demographic (age, sex, place of residence), health (disability grade, chronical diseases, visit the family doctor, health problems during the last 4 weeks, beneficiary of medical services during the last 4 weeks), lifestyle (smoking).

The dependent variable ***„bad" self-perceived health*** was built on two alternative answers on self-perceived health-*bad and very bad.*

The dependent variables introduced in the model are as follows:

Socio-economic variables. Three variables were usedwhich refer to the socio-economic field: the level of education and the quintile of well-being. These two variables are categorical. The level of education is measured by three categories: primary / no education, secondary level and tertiary level. The welfare level is presented by the five quintiles, the first of which is the poorest and the last one is the richest.

Demographic variables: age, sex, type of residence, and marital status. The marital status was recodified and measured only by two categories: 0 for married or living in consensual unions, and 1 for single, divorced or widowed.

The variables which characterize lifestyle. Based on regression basic model, only the smoking variable was extracted from the base sample, and recoded. Thus, people who did not smoke were coded with 0, and smokers with 1. In the second regression model, some variables were also introduced which explain the behaviour of smokers: the age at which they started smoking, how many years they smoked and the number of cigarettes smoked over a day. The variables included in the second regression model were of the continuous type.

Variables that describe health. In the regression analysis, 5 dependent variables were included: the degree of disability, the existence of chronic diseases, the visit to the doctor during the last 12 months, the existence of health problems during the last 4 weeks and the use of medical services during the last 4 weeks. Of all variables included in the model, only the degree of disability is categorical. The other variables are measured on two levels.

The summary statistics for all independent variables are shown in table 1.

Table 1

Descriptive statistics for sample included in regression model

		Frequency	**%**
Quintiles	I quintile (lowest income)	128	16.6
	II quintile	205	26.6
	III quintile	197	25.6
	IV quintile	131	17.0
	V quintile (highest income)	109	14.2
Disability grade	No	670	87.0
	I grade	16	2.1
	II grade	71	9.2
	III grade	13	1.7

		Frequency	%
Study level	Primary/no studies	85	11.0
	Secondary	598	77.7
	Tertiary	87	11.3
Marital status	Single	336	43.6
	Married	434	56.4
Type of residence	Urban	228	29.6
	Rural	542	70.4
Sex	Male	287	37.3
	Female	483	62.7
Smoking	Yes	59	7.7
	No	711	92.3
Chronical diseases	Yes	657	85.3
	No	113	14.7
Visit the family doctor	Yes	618	80.3
	No	152	19.7
Health problems in last 4 weeks	Yes	599	77.8
	No	171	22.2
Beneficiary of medical services in last 4 weeks	Yes	342	44.4
	No	428	55.6
Total		**770**	**100**

Sources: Author's calculations based on the NBS data.

The main results. There is a slight increase in life expectancy at the age of 60 for men as well as of HALE. Thus, between 2006 and 2015, these indicators increased from 14 to 14.5 years and from 9.1 years to 10.7 years. The proportion of time spent in good health (up to 74%) has also increased. For women, these indicators are more significant. Life expectancy at the age of 60 increased from 17.6 years to 18.8 (by 1.2 years) and HALE from 9.9 years to 11.8 years or 1.9 years. However, the proportion of time spent in good health for women is lower, accounting for only 63%. This gap is explained by the longer life span compared to men, including the presence of various chronic diseases. The gender aspect is evident in life expectancy and HALE. Women have a higher life expectancy than men, although, inevitably, longer life does not lead to more years in better health (table 2).

Table 2

Life expectancy, healthy life expectancy and healthy to life expectancy ratio at ages 60, 65 and 70 in Moldova, by sex, 2006-2015

	Male			Female		
	2006	**2010**	**2015**	**2006**	**2010**	**2015**
Age 60						
LE (in years)	14.0	13.7	14.5	17.6	17.5	18.8
HALE (in years)	9.1	9.3	10.7	9.9	10.0	11.8
HALE/LE (in %)	64	68	74	56	57	63
S.E.	0.1	0.3	0.4	0.3	0.4	0.5
Age 65						
LE (in years)	11.3	11.2	11.9	14.3	14.2	15.1
HALE (in years)	6.8	7.1	8.3	7.3	7.5	8.9
HALE/LE (in %)	60	63	70	51	53	59
S.E.	0.3	0.2	0.3	0.3	0.4	0.4
Age 70						
LE (in years)	9.1	8.9	9.7	11.3	11.1	11.9
HALE (in years)	5.1	5.3	6.1	5.1	5.3	6.4
HALE/LE (in %)	55	59	63	46	48	54
S.E.	0.3	0.2	0.2	0.4	0.4	0.3

Sources: Author's calculations based on the NBS data.

LE – life expectancy; HALE – healthy adjusted life expectancy; S.E. – standard error of the HALE estimated (p=0.05).

A positive dynamics is observed for the ages of 65 and 70, but the increase in indicators of life expectancy and HALE is lower. At the same time, the gender gap has minimum values. With ageing, the proportion of time spent in good health decreases, constituting about 63% for men aged 70 and for women – 54% (in 2015).

The prevalence of most chronic conditions also rises with age. What is particularly startling in older people, particularly the oldest old, is the prevalence of co-morbidities. The risk of being disabled and dependent increases significantly with the presence of two or more chronic conditions.

If we compare the life expectancy computed by using data for SPH and life expectancy based on the presence of a chronic disease (self-reported morbidity), we notice that the estimated life expectancy without a chronic disease is lower. At the same time, increasing life expectancy in good health is accompanied by a reduction in the time without chronic illness. Gender differences in life expectancy are observed, and also when we compare the number of years lived without chronic disease. Women's longer life means in many cases a longer life with chronic and incapacitating disease (figure 1). Older women suffer longer and are highly dependent. At the same time, older disabled women are more likely to live alone than older disabled men. However, older women pay more attention to health issues than older men, and to an extent that they often visit medical institutions for disease prevention. In addition, they show healthier habits concerning alcohol and tobacco. Older women also tend to be more aware of healthy nutrition than men [26].

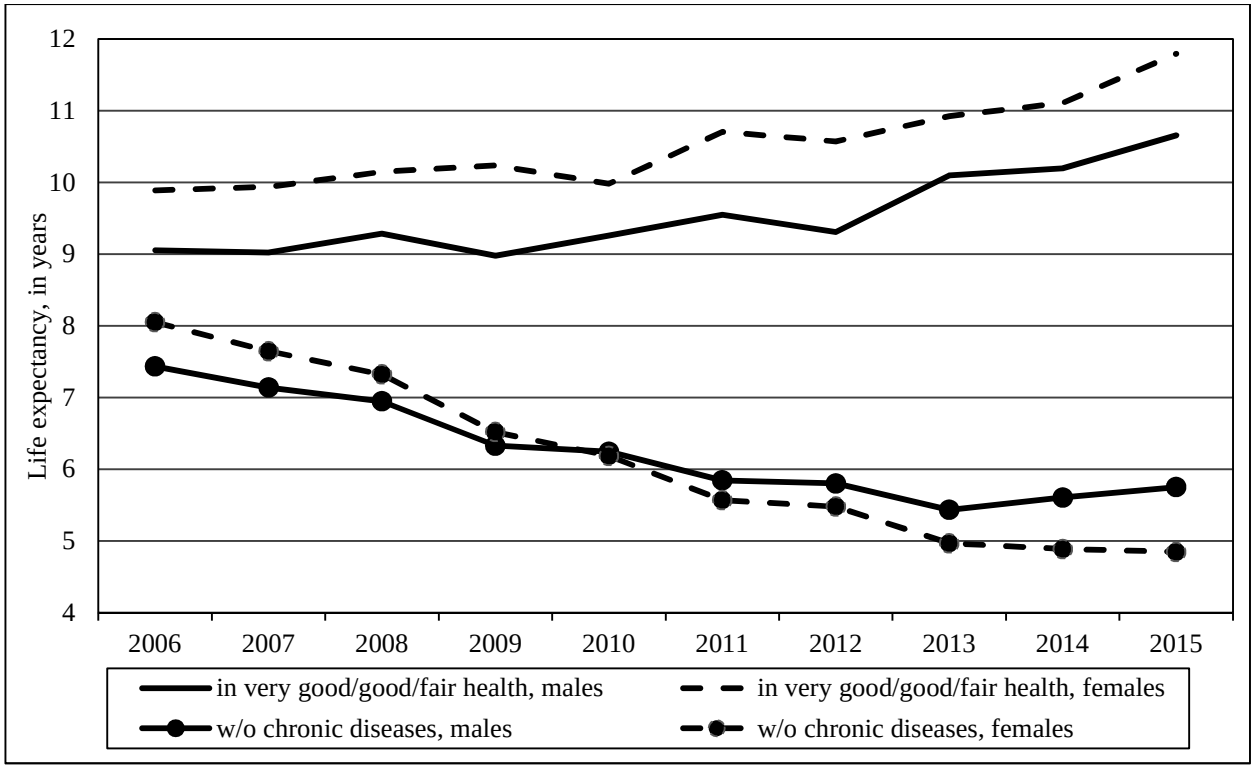

Figure 1. LE in very good/good/fair health and LE without chronic diseases, 60-64 age group, by sex, 2006-2015

Source: Author's calculations based on the NBS data.

The results of the regression analysis have shown that the variables whicht have the most significant impact on the formation of the negative SPH are represented by the variables in the categories lifestyle (smoking), socioeconomic (welfare quintile, level of study) and demographic (sex, area of residence, age) (table 3).

For the Republic of Moldova, the importance of standard of living as a factor which influences the SPH is relevant. High financial well-being reduces the risk of poor SPH. People in the last quintile of well-being are at the lowest risk of reporting poor health compared to other groups. The risk of bad health reporting is three times lower in this group than the risk observed for the second quintile of well-being and four times the lowest quintile.

Table 3

Logit regression of „bad" self-perceived health (95% standard errors)

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 (a)	Marital status	-0.040	0.008	28.041	1	0.000	0.960
	Primary/no studies*			1,648.084	2	0.000	
	Secondary	0.632	0.016	1,628.597	1	0.000	1.881
	Tertiary	0.300	0.011	779.809	1	0.000	1.350
	I quintile (the poorest)*			9,982.246	4	0.000	
	II quintile	0.773	0.013	3,625.023	1	0.000	2.166
	III quintile	0.132	0.011	134.264	1	0.000	1.141
	IV quintile	0.329	0.011	912.801	1	0.000	1.389
	V quintile (the richest)	-0.355	0.012	895.383	1	0.000	0.701
	Area of residence	0.119	0.007	268.504	1	0.000	1.127
	Age	0.072	0.001	20,259.020	1	0.000	1.075
	Sex	0.684	0.008	6,646.579	1	0.000	1.982
	Smoking	0.723	0.014	2,515.823	1	0.000	2.061
	No disability grade*			40,124.172	3	0.000	
	I grade	-3.587	0.036	9,806.016	1	0.000	0.028
	II grade	-1.800	0.041	1,905.968	1	0.000	0.165
	III grade	-1.620	0.037	1,895.031	1	0.000	0.198
	Chronical diseases	-1.255	0.017	5,568.171	1	0.000	0.285
	Visit the family doctor	-0.564	0.012	2,122.042	1	0.000	0.569
	Health problems during the last 4 weeks	-0.833	0.011	5,752.191	1	0.000	0.435
	Beneficiary of medical services during the last 4 weeks	-0.485	0.008	4,055.989	1	0.000	0.616
	Constant	-0.119	0.060	3.909	1	0.048	0.888

Note: All variables included in the model are statistically significant. Statistical significance – Sig <0.01
**the marked variables included in the model were declared categorized. Thus, each category was compared to the first. For example, each subsequent quintile was compared to the first one.*

Socio-economic differences are an important factor influencing SPH. This is determined by the correlation between the state of health and the socio-economic inequality of individuals [1, 2, 17, 18]. Income level determines differences in living standards: the quantity and quality of goods and consumed services. These, at their turn, influence the caloric content, variety and balance of diet, safety and sanitary properties of clothing and footwear, the convenience and comfort of the habitat. Differences in living conditions form unequal adaptive capacities, resistance to physical and emotional stress. Inequality in the standard of living determines the inequality of chances in using effective measures and methods to combat health deviations. Volume of income and inequality in its distribution are significant factors in determining public health. Economic inequality has both current and prolonged health effects. The long-term influence of the poor financial situation determines the likelihood of "losing" more health [17].

The existence of health inequalities is best illustrated by the gap in life expectancy between people from low socioeconomic groups and those from high ones. In many European countries, men in higher socioeconomic groups can expect to live up to six years longer than men in lower ones [4]. People with a higher income or higher standard of living have a better health and experience less disability [3]. Older persons belonging to lower socio-economic groups have a 30-65% higher risk of almost all chronic diseases than those in more privileged social groups. Whilst this is true across all countries, the gap between the best off and the worst off is particularly acute in Central and East European countries [25].

At the same time, the risk of reporting poor health decreases while the level of education increases. Thus, people with higher education are less at risk of assessing personal health as being worse than people with lower levels of education.

It is known that income gaps also reflect differences in education levels. In many countries, educational status is used as the main indicator that determines the position of individuals in the socio-economic hierarchy, as well as an indicator that characterizes the quality of human potential. Apart from

the above mentioned, the level of education can be considered as an indicator which characterizes the human capacity to perceive information, to make reasonable and competent decisions regarding the self-protection behaviour, the preservation and the maintenance of health. Obviously there is a relationship between income and occupation. Small incomes, as a rule, are associated with unskilled work, which is characterized by an increased risk of accidents, heavy working conditions, etc. Thus, it is difficult to identify the net effect of health education. Often higher education is associated with higher incomes, with changing personality characteristics.

People with upper secondary, tertiary and post-secondary education spend more time in very good/good and fair health than those with pre-primary education or no education. This can be explained by the fact that it can be related to better access to information among the educated people [21, 9].

Ageing leads directly to the increased risk of worse SPH. Sex is an important factor that differentiates SPH considerations. A higher risk of reporting poor health is noted for women, they are practically twice as likely to assess their health as poor, comparatively to men.

Another risk factor in self-assessment of health is the type of residence. Thus, people in rural areas appreciate their own health worse than urban people do.

It is known that married people live longer than the unmarried. During recent decades, new data have piqued interest in the distribution of life expectancy by health status for men and women. Partnered people, both men and women, are healthier than singles. However, these differences in unhealthy life are varied. For the length of healthy life, the effect of disability dominates the effect of mortality for women strongly and for men weakly, while the effect of mortality is more important for the length of unhealthy life of women. Populations in Eastern Europe are more disadvantaged than those in Western Europe with respect to length of life and of healthy life; these differences are larger for singles and lower for the partnered [17]. Marriage is found to be protective insofar as partners can help each other economically, emotionally, and in diverse aspects of everyday life [22]. The link between mortality and marital status was researched by Lund et al. – who concluded, that single persons experienced a significantly higher mortality compared to individuals living with somebody/married [12].

Our study shows there is a correlation between SPH and marital status. Married or living in consensual unions people are less likely to perceive their health as poor compared to those who are single, divorced or widowed. Thus, the risk of reporting poor health is lower for people living with someone, being about 10% less compared to single people. In our research, we notice that the married people from both rural and urban types of residences perceive their health better.

The variables from health category form a negative link with the dependent variable - negative self-perception of health. The most significant impact, in this regard, is due to - receiving medical services during the last 4 weeks (0.616), visiting the family doctor (0.569) and the existence of health problems over the last 4 weeks (0.435). Thus, receiving health care during the last 4 weeks and visiting a family doctor increases the risk of reporting a poor health by about 6%, and the existence of health problems over the last 4 weeks causes a 4% increase of risk. Thus, being a beneficiary of medical services is a characteristic of unsatisfactory health and the need to visit medical institutions.

The predictor variable – the existence of chronic disease has a lower impact on the risk of reporting poor health (0.285). However, people who have mentioned that they have a chronic illness more often appreciate their health negatively than those who have said they don't have chronic diseases.

The degree of disability has the lowest impact on the formation of a negative health assessment. People who have declared the third group of disability are only 2% more at risk of reporting poor health than those who have no disability. In this context, we should mention that there is a high level of the population disability in the Republic of Moldova. In the total number of pensioners, people receiving pensions on grounds of disability account for about 20% [24]. The high share of people with a certain degree of disability is not a relevant indicator for population health and is explained by the conjunctural-motivational factors, namely by decreasing the real incomes of the population and the substantial reduction of the employment opportunities. One of the opportunities to survive in such conditions for citizens is to use all the available sources of income, including social security.

People with a degree of disability benefit from some compensations, such as free medication, free public transport, and facilities to pay communal services. People who have chosen their old-age pension are not deprived of the benefits and compensations in case of a disability degree. Thus, at present, "achieving" a disability degree is an opportunity for the poorest segments of the population and the unemployed to maintain the standard of living.

Behavioural factors are a determinant of health. Thus, the risk of reporting bad health is higher for smokers than for non-smokers.

Thus, the formation of a negative self-perception of health is more influenced by factors which are not directly related to the health of the respondent, but by the factors which influence it subjectively, indirectly, such as socio-economic, demographic characteristics, and the most important is, of course, the lifestyle.

Conclusions

In the context of declining mortality and demographic ageing, information on changes in the health and functional status of the elderly is especially important, including objective biomedical data. Research in this area is an important scientific priority.

The compression of morbidity observed in the Republic of Moldova will have social consequences in the future. With the shift of morbidity toward older ages, the number of elderly people who need support will increase in the coming years.

The excess of premature mortality distinguish the Republic of Moldova from the advanced industrialized countries. The lag in the life expectancy and healthy life expectancy from EU countries is largely due to higher mortality among the working-age population, wich especially affects men.

Among all the variables considered, wealth and education appears to be the most important factors associated with self-perceived health. A clear educational gradient was found in both men and women.

Although the healthcare system in the Republic of Moldova was improving in the last decade, which had contributed to reducing mortality and increasing life expectancy, there are serious problems with access to health services. This particularly applies to socially vulnerable people, including the elderly, who do not ask for help when they need it [24]. The lack of sufficient material resources to support and maintain health at the appropriate level is an important issue for a large proportion of the elderly. Therefore, the main purpose of social policy in this area should be to limit the impact of poverty and income inequality on health and to increase the accessibility of high quality medical services for socially vulnerable groups.

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Recommended for publication: 10.05.2017