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Analysis of life satisfaction of the older population in Russia based on the RLMS-HSE microdata

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Abstract

Presently, population ageing is one of the main demographic trends in developed countries, including Russia. The article analyzes changes in life satisfaction of individuals aged 45–72 and reflects the main factors influencing this indicator. The research method employed in the study is econometric analysis based on data of the 21st, 23rd, 25th and 27th rounds of the annual Russian Longitudinal Monitoring Survey – Higher School of Economics (RLMS-HSE). The analysis showed that such indicators as self-assessment of health, income, having a pension and a permanent marital partner had a significant positive impact on life satisfaction for older individuals. It has been revealed that for both sexes an important factor of life satisfaction is the employment status, while the kind of activity turned out to be not statistically significant. The family status and family composition do not have any significant impact on life satisfaction for men, but they do for women.

Keywords

older age, employment, life satisfaction, panel data, pension reform, RLMS-HSE, Russia

JEL codes: J11, J14, J26, I31

Introduction

Population ageing is one of the most striking modern demographic trends in Russia. Thus, according to the high version of the forecast presented by the Russian Federal State Statistic Service (Rosstat 2019), by 2036 the population aged 40–55 years will make up the largest share of the total population. In such circumstances, studying the life satisfaction level among older population and its influencing factors is of particular interest.

According to the World Health Organization, over the last 10 years, life expectancy at the age of 60 has been steadily increasing in Russia, which may indicate an improvement in the health care system and, as a result, the ability of people to work longer. In addition, according to the forecast of the Ministry of Economic Development of the Russian Federation (Ministry of Economic Development 2018), a gradual increase in the workforce is expected by 2036 due to the pension reform. The mentioned pension reform was adopted in 2019 and is aimed at raising the retirement age. Since people will have to work longer, it would be interesting to know how the employment status of the older population affects the life satisfaction levels. The answer to the question is not unambiguous.

Some people have to work upon reaching retirement age, as their income in the form of a pension is not sufficient to maintain their everyday lifestyle. For such employees, having a job can adversely affect the life satisfaction levels. However, there are people who prefer to work at an advanced age in order to maintain social connections, transfer their experience or for other reasons. Usually, such people have better health, they consciously make their choices and, as a result, feel happier.

The relevance of this topic for Russia arises from to the relatively low quality of life of older people. According to the rating of the countries by the quality of life of older people (HelpAge International 2015), as of 2015, Russia was ranked only 65th out of 96 countries.

The purpose of this paper is to assess the impact of employment status on the level of life satisfaction of the older population. The study examines a subjective assessment of the individual well-being of individuals aged 45–72 years old. Given the possibility of early retirement for certain groups, this study includes both middle and older age groups into older population, seeing them as representatives of pre-retirement and retirement ages.

This paper has the following structure: the first part reviews the theoretical literature and reveals the main relationships between indicators under consideration. In the second part, the authors construct an empirical model. In the final part, the main conclusions are drawn from the modelling results.

Literature Review

Many researchers see life satisfaction as an element of subjective well-being (Diener, 2009). According to the *Guidelines on Measuring Subjective Well-being* published by the Organisation for Economic Co-operation and Development (OECD) (OECD 2013), subjective well-being is related to aspects of life the evaluation of which can only be obtained from a subject itself – an individual. As defined by OECD, subjective well-being includes three basic concepts: 1) life evaluation; 2) positive and negative affects (feeling joy, anxiety, sadness); 3) and eudemonistic well-being (self-perception, sense of meaning and purpose in life).

Subjective well-being can be influenced by individual characteristics such as income, health status, social status, education. However, their evaluation is subjective, as it is obtained in the course of the population survey. The survey requirements are also specified in the recommendations (OECD 2013).

Demographic characteristics: age, sex, place of residence

Numerous studies have shown a U-shaped relationship between age and the satisfaction level. This is explained by the fact that at a certain stage of life occur such significant life events as wedding, birth of children, retirement and others (Frey and Stutzer 2002). In the work of Andrew Clark (Clark 2007) is provided an analysis of how belonging to a certain generation can influence life satisfaction. Basing on the panel data of 14 waves of the *British Household Panel Survey* (BHPS), the author has built a fixed-effects model and a pooled regression. When controlling for cohort effects, the researcher identified a U-shaped relationship between life satisfaction and age. In thier article, Wencke Gvozdz and Alfonso Sousa-Poza (Gwozdz and Sousa-Poza 2010) tested the hypothesis about the relationship of age and life satisfaction based on the *German Socio-Economic Panel* (GSOEP). The researchers revealed a U-shaped dependence: people aged 16–19 and 70–74 are most satisfied with life, and in older ages the satisfaction level decreases significantly. However, when fixed effects were included, the influence of age was neutralized. Life satisfaction is stable over time, and it only declines among the population aged over 85.

In the work of Rosa Kutubaeva (Kutubaeva 2019), life satisfaction is analyzed in three countries – Sweden, Austria and Spain. This study bases on the panel data from four waves of the *Survey of Health, Ageing and Retirement in Europe* (SHARE 2018). Satisfaction is graded on a scale from 0 – "total dissatisfaction" to 10 – "total satisfaction". The study was conducted separately for men and women. The author built several models – ordinary OLS and panel regressions with fixed effects (with and without control variables). As a result of the analysis, the age effect was confirmed only for Sweden. In other countries, a stable relationship between age and life satisfaction has not been identified.

Many studies hypothesize the relationship between place of residence and life satisfaction in older ages. In the work of Salman Zaidi and co-authors (Zaidi et al. 2009), the authors concluded that residents of metropolitan areas are less happy than residents of small towns.

Health assessment

Studying the effects of health on life satisfaction level is of particular interest to many researchers. The analysis of such relationship is highly relevant when assessing the level of life satisfaction of the older population. In their work, Anne Berg and co-authors (Berg et al. 2006) assessed the level of life satisfaction among the population over the age of 80. It turned out that having a diagnosed disease did not have a significant impact on life satisfaction level. However, self-assessment of individual health affects subjective well-being. The study by Ann Bowling and co-authors (Bowling et al. 1996) revealed that self-assessment of health, as a subjective factor of health status, is one of the main factors influencing life satisfaction level. The same relationship has been found for populations aged 65–89 with reduced self-care ability (Borg et al. 2006). In Europe, health plays an important role for older populations. In the study of Rosa Kutubaeva (Kutubaeva 2019), self-assessment of health turned out to be a significant variable which positively affects individual subjective well-being in all models. Similar results were obtained in the study by Wencke Gvozdz and Alfonso Sousa-Poza (Gwozdz and Sousa-Poza 2010).

Education, family status

Most studies use factors such as gender, education, having a job, income and family status as control variables while estimating the level of life satisfaction. These factors alone may not be significant. However, in a large number of studies, separate analysis of results, for example for men and women, can show different results. Thus, Silvia Meggiolaro and Fausta Ongaro (Meggiolaro and Ongaro 2015) used panel data coming from two waves of the *Aspects of Daily Life* survey conducted by ISTAT in their research, and estimated linear regressions controlling for different factors. It turned out that in Italy, for the population aged over 65, the high level of education is equally important for men and women, but the parameter becomes insignificant for women when controlled for health status. Also, the authors revealed that older couples living apart from their children feel happier than those living with them. Some studies (Takashi 2012) indicate that for women family status is more important than for men. At the same time, men, after getting divorced or widowed, rate their well-being lower. However, estimates of the family status impact for both genders show that it is a significant factor. Generally, people living with partners show higher levels of life satisfaction (Buber and Engelhardt 2008). Gennady Voronin and co-authors (Voronin et al. 2018) conducted an analysis of the life satisfaction among individuals older than working age living without a family or a partner on the basis of the questionnaires of the Russian Longitudinal Monitoring Survey – Higher School of Economics (RLMS-HSE). The elderly living alone were found to be less satisfied with life than those living with family, and their incomes were lower. Both single men and single women who reach retirement age strive to continue their work activities longer than those who have families. Single women are more likely to have chronic diseases and evaluate their health lower than single men.

Income

A number of studies have shown that income also has a positive impact on the life satisfaction levels of older people (Fernández-Ballesteros et al. 2001). However, the scale of such influence varies across the studies. The study by Martin Pinquart and Silvia Sörensen (Pinquart and Sörensen 2000) identified a weak relationship between income and life satisfaction. It is assumed that, over age, people often limit their needs and adjust them to their current financial capacity, which weakens the relationship between income and subjective wellbeing.

Employment status

The question of how much life satisfaction depends on the employment status has interested many researchers. The study by Yanni Hao (Hao 2008) analyzes the impact of having a job on the rate of mental state decline among people of older age. The study was conducted in the United States basing on the *Health and Retirement Study* (HRS), a longitudinal survey of the population of groups born in 1931–1941. The author considered individuals who took part in all rounds of the survey from 1996 to 2002 (the survey was conducted every 2 years). A growth curve model was used to conduct regression analysis. According to the results of the study, employment has a positive effect on the mental state of the individual. The author compared three types of employment: full employment, partial employment, and volunteerism. At the first round of the survey, there was no significant difference in the life satisfacti-

on levels between individuals with different types of employment. However, over time, those who worked full-time showed slower mental health decline. Participation in volunteering also has a positive effect on well-being, although to a lesser extent than work.

In the study by Andrew Clark and co-authors (Clark et al. 1996), the authors identified a U-shaped relationship between job satisfaction and age. For older persons, together with regular income in the form of wages, the availability of work also has significant non-monetary benefits such as public recognition and social connections. Also, older men often hold senior positions. However, benefits may vary by the type of employment. Those who work full-time are more likely to receive bonuses, as well as lucrative benefits in the form of health and pension insurance, compared to those who work part-time (Bosse 1990).

However, some studies have found an inverse relationship between life satisfaction and work (Wallace 2008). Older non-working individuals feel higher levels of life satisfaction compared to those who continue to work. Perhaps this is due to the type of activity of the individuals under review.

One of the local studies of the life satisfaction level of older persons (Kolosnitsyna et al. 2017) analyzes the influence of different groups of factors on the subjective well-being of individuals of retirement age. The authors hypothesized that life satisfaction of Russians in older ages depends on the following variables: gender, age, place of residence (type of settlement), health, education, income, employment, social status and family characteristics.

The study was conducted on the basis of panel data of the Russian Longitudinal Monitoring Survey – Higher School of Economics (RLMS-HSE), rounds 18–21. Russians aged over 55 were included in the sample. Ordered logit models, as well as OLS models with fixed and random effects were used to obtain empirical results. According to the results of the study, belonging to a particular gender is not a significant variable itself, however, gender factors to some extent affect the well-being of men and women. In Russia, married men tend to be happier than married women while ageing. Having children for men is not a significant factor, and for women it has a weak and negative effect on subjective well-being. In other studies (Buber and Engelhardt 2008), older men living in Europe and having up to three children were proved to have significantly lower rates of depression compared to those with no children or with four and more children.

For older women, the most important factors are employment status, education and health self-assessment. The level of education is significant for women and has a positive impact on their well-being, while for men the factor has a weak negative effect. With age, working women also feel much happier than their male counterparts. Perhaps this is because, for women in older ages, work is not so much about income as it is about being able to communicate with others and build social relations.

Thus, the literature review identified the following groups of factors potentially determining the level of life satisfaction of the older population: (1) age, gender and place of residence; (2) health and its self-assessment by individuals; (3) characteristics of socioeconomic status: education, income, employment status, type of occupation; (4) family and family bonds defined by the number of children, the marriage status and the number of household members.

The following hypotheses are tested within this study:

1. Having a job has a significant positive impact on life satisfaction of the older population.
2. There are differences in the life satisfaction level between individuals with different occupational status.

3. The presence of a pension as a source of income has a positive impact on life satisfaction in older ages.

This study is based on examining the impact of the individual employment characteristics on the level of life satisfaction of older persons. This choice is justified by the observed gradual increase in the labour supply among the population aged over 45. The pension reform is expected to enhance this trend in the coming years, which is why employment status may be one of the most significant factors influencing the subjective assessment of the individual well-being. Besides, the authors suggest that the type of occupation may have an additional significant impact on the level of life satisfaction due to the existing differences in the type of job and labour conditions, as well as in the type of employment.

Thus, the distinguishing feature of this study is the inclusion of the employees' qualification level.

Data

The study bases on the data from the annual Russian Longitudinal Monitoring Survey – Higher School of Economics (RLMS-HSE). The survey is conducted on the basis of repeated sample with split-panel, which allows to ensure the representativeness of each wave for the population of Russia and simultaneously maintain the maximum size of the panel sub-sample.

The authors took the data coming from the 21st, 23rd, 25th and 27th rounds, which corresponds to the questionnaires of the years 2012, 2014, 2016 and 2018. This study considers a subsample of individuals of both sexes whose age ranges from 45 to 72 during the whole observation period.

Respondents who did not participate in all four rounds, as well as individuals who lacked necessary data for analysis were excluded from the final sample. Moreover, zero-income respondents being retired or employed were also omitted, as well as individuals whose experience after retirement was more than 28 years, as they could be attributed to statistical outliers and such answers could be linked to misperceptions of the survey questions. The final consisted of 8,436 observations: 2,109 individuals in each of the four rounds under review. All variables were extracted from individual RLMS files, however, data on the numbers of household members were taken from household files. Subsequently, all discrete variables, except self-assessment of health and life satisfaction, were converted to binary.

The authors treat employed individuals, as well as individuals being on maternity leave or on any other paid leave as working, and all others as not working. The education level is considered within three categories: no secondary education (unfinished secondary education), secondary education and higher education.

Data on the occupational status of respondents were divided into five groups according to the International Standard Classification of Occupations ISCO-08: armed forces occupations (ISCO 0), highly skilled workers (ISCO 1–3), clerks and employees (ISCO 4–5), skilled workers (ISCO 6–8), elementary occupations (ISCO 9). The life satisfaction variable was left unchanged in the form of a discrete value from 1 (fully satisfied) to 5 (not satisfied at all). The Appendix 1 contains the description of the variables used in the study.

The results of preliminary data analysis (descriptive statistics) for the variables under consideration are presented in Tables 1a-b.

Table 1a. Descriptive statistics of the sample, nominal variables

Variable	Mean	Standard deviation	Minimum	Maximum
Age	58.33	6.34	45	72
Income	19,633	17,800	0	312,392
Child (number of children)	1.90	0.82	1	9
Stageposl (experience after retirement in years)	2.41	4.11	0	28
Fam_num (number of family members)	2.94	1.70	1	16

Source: calculations of the authors based on RLMS-HSE data of the 21st, 23rd, 25th and 27th rounds.

Table 1b. Descriptive statistics of the sample, categorical variables

Variable	Value labels	Sample %	Number of observations
Life satisfaction level, self-assessment on five-point scale	Fully satisfied	5	436
	Rather satisfied	41	3443
	Both yes and no (partially satisfied)	25	2089
	Not very satisfied	22	1849
	Not at all satisfied	7	619
Education	Unfinished secondary education	11	953
	Secondary education	66	5609
	Higher education	22	1874
Type_set (place of residence)	City or regional center	60	5040
	Village or small town	40	3396
Marriage (marital status)	Single or widowed	30	2518
	Married or lives with a partner	70	5918
Sex	Male	34	2896
	Female	66	5540
Work (employment status)	Working	50	4204
	Not working	50	4232
Pension (having a pension)	Yes	68	5749
	No	32	2687
Disabled (having a disability category)	Yes	89	7538
	No	11	898
Health self-assessment on five-point scale	Very good	0.4	30
	Good	15	1260
	Medium	68	5773
	Bad	15	1277
	Very bad	1	96
Occupation	Armed forces occupations	0	2
	Highly skilled workers	21	1803
	Clerks and employees (*wclerk*)	11	921
	Skilled workers	13	1066
	Elementary occupations	5	412

Source: calculations of the authors based on RLMS-HSE data of the 21st, 23rd, 25th and 27th rounds.

The average age of the respondents in the sample is 58 years. The share of respondents living in the city or regional center is 60%, and the share of women reaches 66%. 50% of respondents work, 68% receive a pension. Average individual income is 19,635 RUB per month. In general, individuals assess their health by 3.02 points – according to the scale used in the survey, the value of 3 stands for average, which is "neither good nor bad." Average life satisfaction in the sample is 2.85 points, because respondents believe that they are equally satisfied and dissatisfied with their lives. The average length of experience after retirement is approximately 2.4 years.

The correlation matrix (Appendix 2) shows that there is a negative relationship between age and work – employed people are on average younger than those who are non-working. We can also note that life satisfaction level is higher among respondents with higher income, i.e. potentially among those who are still working. There is a relatively high correlation ratio between the life satisfaction level and self-assessment of health. It is logical to assume that healthier people are happier. Such variables as gender, place of residence, number of children and age are virtually uncorrelated with life satisfaction levels; the correlation coefficients are lower than 0.1.

To see what proportion of men and women attribute themselves to the most or least satisfied with their life, we can take a look at Fig. 1.
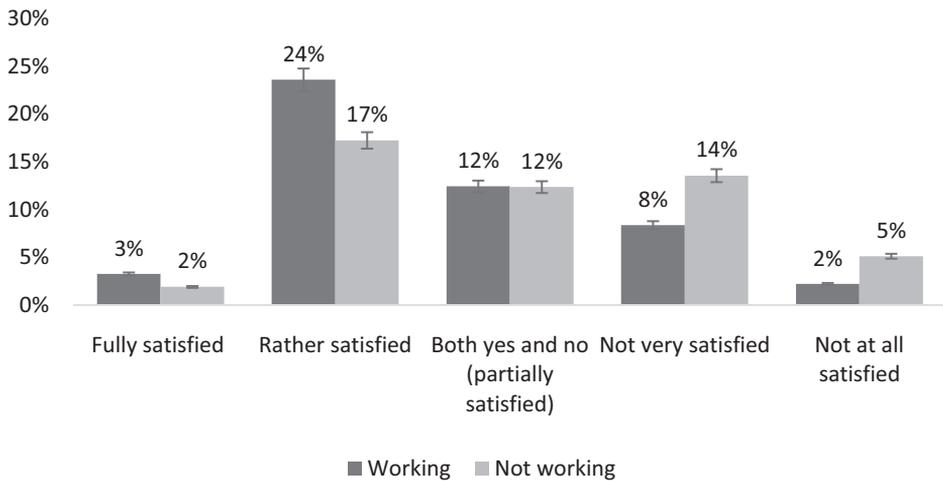

Figure 1. Distribution by life satisfaction level among working and non-working men and women of older age. *Source*: calculations of the authors based on RLMS-HSE data of the 21st, 23rd, 25th and 27th rounds.

Most respondents are rather satisfied with their life, and life satisfaction is higher among working individuals of both sexes. Based on the results of preliminary data analysis, it can be assumed that older persons who are unemployed have a lower level of life satisfaction than those who keep working. Now, let's move on to econometric modelling in order to assess the impact of employment status on the level of life satisfaction among older population.

Methods

To test the study hypotheses we used the variables described above, and also created five new ones that were calculated as the product of a binary employment status and the occupation type in order to estimate the life satisfaction dependence from the characteristics of employment. It should be noted that the *wclerk* variable, which is responsible for individuals who are clerks and service and retail employees, was not included in the models in order to avoid multicollinearity. The clerks themselves stand for a reference group.

OLS models with fixed and random effects

Given the panel structure of the data, we estimate the OLS model with fixed and random effects first, along with a pooled regression. Hausman test showed that the model with fixed effects was more preferable, and the results of its estimation are presented in Table 2. Since residence and gender remain unchanged in time, the effect of their influence is attributed to fixed effects.

Table 2. Results of the estimation of OLS-regressions with fixed effects (in brackets under coefficients there are robust standard errors; asterisks located to the right of coefficients indicate the significance of variables: *** significant at a 1% level, ** significant at a 5% level, * significant at a 10% level).

Variables	Dependent variable – Life satisfaction level		
	FE both sexes	FE men	FE women
Marriage (marital status)	−0.255***	−0.141	−0.277***
	(0.066)	(0.173)	(0.072)
Education	0.066	0.111*	0.005
	(0.053)	(0.067)	(0.085)
Age	−0.029	−0.101	0.006
	(0.040)	(0.067)	(0.052)
Age^2 (age squared)	0.000	0.001	−0.000
	(0.000)	(0.001)	(0.000)
Work (employment status)	−0.300***	−0.225**	−0.326***
	(0.060)	(0.102)	(0.074)
Child (number of children)	−0.085	0.047	−0.232***
	(0.059)	(0.078)	(0.086)
Pension (having a pension)	−0.121***	−0.152**	−0.121**
	(0.042)	(0.063)	(0.057)
Health (self-assessment of health)	0.189***	0.214***	0.173***
	(0.025)	(0.043)	(0.031)
Disabled (having a disability category)	0.111	0.314**	0.007
	(0.088)	(0.149)	(0.106)
Stageposl (experience after retirement)	−0.011	−0.022	−0.007
	(0.007)	(0.013)	(0.008)

Variables	Dependent variable – Life satisfaction level		
	FE both sexes	FE men	FE women
Fam_num (number of family members)	−0.010	−0.009	−0.012
	(0.015)	(0.025)	(0.018)
Log_income	−0.042***	−0.047***	−0.035**
	(0.011)	(0.016)	(0.015)
Wvoen (employed in armed forces)	0.227	–	0.246
	(0.443)		(0.449)
Wmanag (employed highly skilled worker)	−0.029	−0.134	0.008
	(0.064)	(0.125)	(0.074)
Wrab (employed skilled worker)	0.048	−0.036	0.118
	(0.074)	(0.112)	(0.113)
Wnequal (employed in elementary occupations)	−0.005	−0.249	0.052
	(0.087)	(0.173)	(0.101)
Constant	3.978***	5.430***	3.424**
	(1.171)	(1.903)	(1.555)
Number of observations	8,436	2,896	5,540
Number of i	2,109	724	1,385
LSDV R-squared	0.605	0.603	0.604

Source: estimates based on RLMS-HSE data of the 21st, 23rd, 25th and 27th rounds.

Note: *Wclerk* is a reference group when considering the occupation type.

Estimates of the OLS model with fixed effects show that such indicators as marriage and employment status, pension and income have a significant positive impact on life satisfaction level among older persons of both sexes. Health self-assessment also significantly affects life satisfaction – life satisfaction level decreases with the decline in health. The coefficients estimates for variables *age* and *age squared* are not statistically significant, suggesting that age has no effect on life satisfaction. This may be explained by the use of fixed effects, which include the factor of belonging to a particular generation and neutralize the influence of age.

Estimating the same model separately for men and women reveals the following differences. Unlike men, for whom family status is not a statistically significant factor, for women marital status has a positive impact on life satisfaction. Also having a child in the family makes a woman happier, while the influence of this factor on life satisfaction among men is absent. Most likely, the insignificance of the variables standing for family status and having children for men might be explained by the fact that in Russia the traditional family pattern, in which women pay more attention to family and household, is predominantly preserved. Disability has a significant negative impact on life satisfaction level for men, when for women we do not observe this correlation. According to our assumption, this may also be related to patriarchalism – the official disability status can negatively affect men's activities, reduce

their business activity and lead to difficulties in maintaining the status of the head of the family. The education level turns out to be significant at a 0.1 level, but only in the male sub-sample, and this factor has a weak negative effect on individual life satisfaction.

Logit model with fixed effects

The literature analysis showed, that quite a number of authors use probability models since in some cases they are better suited for population surveys. Taking into account the panel data structure, we have estimated binary logit models with fixed effects for each gender. The dependent variable *life satisfaction* was transformed into a binary form, where 0 is attributed to individuals satisfied with their life (answers 1, 2 or 3), and 1 to those not satisfied (answers 4 and 5). The estimates of this model are given in Table 3.

In the logit model with fixed effects, statistically significant variables are marital and employment status, availability of pension and income level; all of them positively affect life satisfaction level. In addition, when assessing the sample for both sexes, we find the number of household members to be significant at a 10% level – the more members of one household live together, the higher is the level of life satisfaction of the respondent. However, this result is not robust; when considering each gender individually, we find this factor to be statistically insignificant.

Table 3. Results of the estimation of logit-models with fixed effects (in brackets under coefficients there are robust standard errors; asterisks located to the right of coefficients indicate the significance of variables: *** significant at a 1% level, ** significant at a 5% level, * significant at a 10% level).

Dependent variable –Life satisfaction in binary form		
	Logit FE	Logit FE	Logit FE
Variables	**all**	**men**	**women**
Marriage (marital status)	−0.561***	0.289	−0.697***
	(0.198)	(0.580)	(0.214)
Education	−0.047	0.157	−0.244
	(0.207)	(0.306)	(0.283)
Age	−0.075	−0.445*	0.124
	(0.141)	(0.239)	(0.180)
Age^2 (age squared)	0.001	0.004*	−0.001
	(0.001)	(0.002)	(0.002)
Work (employment status)	−0.692***	−0.399	−0.824***
	(0.185)	(0.337)	(0.224)
Child (number of children)	−0.164	0.175	−0.523**
	(0.172)	(0.247)	(0.250)
Pension (having a pension)	−0.414***	−0.452*	−0.456**
	(0.157)	(0.269)	(0.198)
Health (self-assessment of health)	0.445***	0.661***	0.340***
	(0.083)	(0.146)	(0.102)

Dependent variable –Life satisfaction in binary form			
	Logit FE	**Logit FE**	**Logit FE**
Variables	**all**	**men**	**women**
Disabled (having a disability category)	0.056	0.296	−0.123
	(0.284)	(0.451)	(0.371)
Stageposl (experience after retirement)	−0.010	-0.017	−0.011
	(0.024)	(0.045)	(0.028)
Fam_num (number of family members)	−0.084*	−0.108	−0.081
	(0.050)	(0.091)	(0.061)
Log_income	−0.097***	−0.103**	−0.086**
	(0.031)	(0.046)	(0.044)
Wvoen (employed in armed forces)	12.08	-	11.54
	(619.7)		(446.8)
Wmanag (employed highly skilled worker)	−0.302	−0.419	−0.253
	(0.224)	(0.456)	(0.260)
Wrab (employed skilled worker)	−0.269	−0.534	−0.129
	(0.236)	(0.370)	(0.356)
Wnequal (employed in elementary occupations)	−0.085	−0.575	0.038
	(0.267)	(0.599)	(0.300)
Number of observations	4,168	1,340	2,828

Source: estimates based on RLMS-HSE data of the 21st, 23rd, 25th and 27th rounds.

Note: Wclerk is a reference group when considering the occupation type.

Differences in the results obtained for the logit model with fixed effects estimated separately for men and women are partly similar to those of the OLS model – marital status is insignificant in the male sub-sample, and having children has a positive impact on women's life satisfaction. In addition, the employment status loses its significance for men, which we associate with the possible error growth due to the shift to a binary model.

Discussion of the results

The results of the estimation allow us to confirm the hypothesis that there is a positive impact of work on life satisfaction level for both sexes. The positive impact of obtaining a pension, which is additional income, on life satisfaction is also confirmed. The hypothesis on differences in life satisfaction between individuals with different occupational status is not confirmed: the occupation does not have a significant impact on life satisfaction.

The results obtained in the course of the study largely confirm the results previously obtained by other authors. Thus, high income and job availability have a positive effect on life satisfaction of older people in Russia (Fernández-Ballesteros et al. 2001; Hao 2008). At the

same time, the level of education has no significant impact on the level of subjective well-being (Kolosnitsyna et al. 2017). Marital status has a significant impact on life satisfaction, in particular married older women feel much happier (Buber and Engelhardt 2008; Voronin et al. 2018). In most studies under review, self-assessment of health has a significant positive effect on the level of subjective well-being (Bowling et al. 1996; Gwozdz and Sousa-Poza 2010), which is also confirmed in this study. However, since both factors are subjective estimates, it cannot be unequivocally argued that there is only a unilateral effect of health self-assessment on life satisfaction level.

Still, some of our results differ from those previously published by other authors. Having children increases life satisfaction among older women, which is inconsistent with other results (Kolosnitsyna et al. 2017; Meggiolaro and Ongaro 2013). This difference might probably be explained by the frequency and quality of communication with the children. However, due to the lack of individual data on family relationships, the authors cannot verify the validity of this assumption.

The peculiarity of this study is that it aims to examine in more detail the relationship between employment and life satisfaction in older ages. The work confirmed a positive relationship between employment status and life satisfaction: on average, a person who has a job is more likely to be happy. This can be explained by the fact that employed people usually lead a more active social life, give a better assessment of their health, and are busy most of the time.

According to the results of this study, the Russian state should actively develop a set of measures aimed at improving the quality of life of older people. In particular, pensions should be monitored and indexed in a timely manner in order to maintain constant purchasing power; social and health care expenditure should be raised for persons of older age. Given the importance of the employment factor, attention should also be paid to stimulating the economic activity of older persons. This requires making employment more accessible to the older population, increasing labour market flexibility, expanding retraining programs and expanding opportunities for self-employment. The implementation of a set of such measures will have a positive impact on the factors of subjective well-being of older persons.

Limitations of the study

A number of limitations should be taken into account when considering and interpreting the results of this study.

Subjectivity of estimates

In order to determine the health level of individuals, as well as their level of life satisfaction, we examine the indicators subjectively assessed by each of the respondents. Using health self-assessment as a proxy-variable can produce biased estimates of real health level. However, the use of a subjective indicator enables seeing direction and assessing the importance of health influence on the level of well-being of older individuals.

The decrease in accuracy of the results when building a logit model

The transformation of a categorical dependent variable into a binary one for the logit regression could lead to a decrease in the accuracy of the obtained results. Within the current ana-

lysis, the dependence of life satisfaction level on major significant factors persists in different specifications, including those with a binary variable. However, in future studies, ordered logit model can be constructed to preserve the discreteness of the dependent variable.

Accounting for the frequency qualification change

The study does not take into account the frequency of changing individual qualifications. However, this indicator is of great interest since the concept of *lifelong learning* is now spreading actively. Continuing education is provided by the state by creating opportunities for the development of competences and changing qualifications at any age. Such changes in the labour sector can have a significant impact on the subjective level of individual well-being. Therefore, studying the influence of the frequency of changing qualifications may be the next step in analyzing older people's life satisfaction.

Conclusion

The study found that the main determinants of older people's life satisfaction are the characteristics of their socioeconomic status: income level, employment status, marital status and health self-assessment. There are some gender differences, in particular, marital status has a significant impact on women's life satisfaction, and men are less happy when they have an officially stated disability. The results of this study may be useful in developing for the development of the state support measures aimed at improving the quality and standard of living of older people.

In the future, it is possible to improve this study by including factors of satisfaction with working conditions and work schedules. Amid the constraints caused by the COVID-19 pandemic, there are many citizens of working age forced to work remotely. In the future, this situation could lead to an increase in the number of people working from home, including older people. In this regard, there is an interest in studying the impact of remote work on life satisfaction of older persons.

References

Berg AI, Hassing LB, McClearn GE, Johansson B (2006) What matters for life satisfaction in the oldest–old? Aging & Mental Health 10(3): 257–264. https://doi.org/10.1080/13607860500409435 [Accessed on 12.09.2020]

Borg C, Hallber IR, Blomqvist K (2006) Life satisfaction among the older people (65+) with reduced self–care capacity: the relationship to social, health and financial aspects. Journal of Clinical Nursing 15(5): 607–618. https://doi.org/10.1111/j.1365-2702.2006.01375.x [Accessed on 12.09.2020]

Bosse R, Aldwin CM, Levenson MR, Workman–Daniels K, Ekerdt DJ (1990) Differences in social support among retirees and workers: findings from the Normative Aging Study. Psychology and Aging 5(1): 41–47. https://doi.org/10.1037/0882-7974.5.1.41 [Accessed on 12.09.2020]

Bowling A, Farquhar M, Grundy E (1996) Associations with changes in life satisfaction among three samples of elderly people living at home. International Journal of Geriatric Psychiatry 11(12): 1077–1087. https://doi.org/10.1002/(SICI)1099-1166(199612)11:12<1077::AID-GPS466>3.0.CO;2-D [Accessed on 12.09.2020]

Buber I, Engelhardt H (2008) Children's impact on the mental health of their older mothers and fathers: findings from the Survey of Health, Ageing and Retirement in Europe. European Journal of Ageing. 5(1): 31–45. https://doi.org/10.1007/s10433-008-0074-8 [Accessed on 12.09.2020]

Clark A, Oswald A, Warr P (1996) Is job satisfaction U-shaped in age? Journal of Occupational and Organizational Psychology. 69(1): 57–81. https://doi.org/10.1111/j.2044-8325.1996.tb00600.x [Accessed on 12.09.2020]

Clark AE (2007) Born to be mild? Cohort effects don't (fully) explain why well-being is U-shaped in age. In: Rojas M (Ed.) The Economics of Happiness. Springer, Cham. https://doi.org/10.1007/978-3-030-15835-4_17 [Accessed on 12.09.2020]

Diener E (2009) Subjective well-being: the science of happiness and life satisfaction. In: Lopez S, Snyder C (Eds) The Oxford handbook of positive psychology. Oxford University Press, New York, 63–73.

Fernández–Ballesteros R, Zamarrón M, Ruíz M (2001) The contribution of socio-demographic and psychosocial factors to life satisfaction. Ageing and Society 21(1): 25–43.

Frey BS, Stutzer A (2002) Happiness and economics. Princeton University Press, New Jersey, 220 pp.

Gwozdz W, Sousa–Poza A (2010) Ageing, health and life satisfaction of the oldest old: an analysis for Germany. Social Indicators Research 97(3): 397–417. https://doi.org/10.1007/s11205-009-9508-8 [Accessed on 12.09.2020]

Hao Y (2008) Productive activities and psychological well–being well-being among older adults. Journal of Gerontology 63(2): 64–72. https://doi.org/10.1093/geronb/63.2.S64 [Accessed on 12.09.2020]

HelpAge International (2015) Global AgeWatch Index 2015 Insights. https://nonews.co/wp-content/uploads/2018/10/AgeWatch2015.pdf [Accessed on 12.09.2020]

Kolosnitsyna M, Khorkina N, Dorzhiev H (2017) Determinants of life satisfaction in older Russians. Ageing International 42: 354–373. https://doi.org/10.1007/s12126-017-9297-3 [Accessed on 12.09.2020]

Kutubaeva RZh (2019) Analysis of life satisfaction of the elderly population on the example of Sweden, Austria and Germany. Population and Economics 3(3): 102–116. https://doi.org/10.3897/popecon.3.e47192 [Accessed on 12.09.2020]

Meggiolaro S, Ongaro F (2015) Life satisfaction among older people in Italy in a gender approach. Ageing & Society 35(7): 1481–1504. https://doi.org/10.1017/S0144686X14000646 [Accessed on 12.09.2020]

Ministry of Economic Development (2018) Forecast of socio-economic development of the Russian Federation for the period up to 2036. https://www.economy.gov.ru/material/directions/makroec/prognozy_socialno_ekonomicheskogo_razvitiya/prognoz_socialno_ekonomicheskogo_razvitiya_rossiyskoy_federacii_na_period_do_2036_goda.html [Accessed on 12.09.2020] (in Russian)

OECD (2013) OECD Guidelines on Measuring Subjective Well-being. OECD Publishing, 290 pp. http://dx.doi.org/10.1787/9789264191655-en [Accessed on 12.09.2020]

Pinquart M, Sörensen S (2000) Influences of socioeconomic status, social network, and competence on subjective well–beingwell-being in later life: a meta–analysis. Psychology and Aging 15(2): 187–224. https://doi.org/10.1037//0882-7974.15.2.187 [Accessed on 12.09.2020]

Rosstat (2019) Rosstat presented a refined demographic forecast until 2036. https://www.gks.ru/folder/313/document/72529 [Accessed on 12.09.2020] (in Russian)

Takashi O (2012) Gender differences in the associations of life satisfaction with family and social relations among the Japanese elderly. Journal of Cross-Cultural Gerontology 27: 259–274. https://doi.org/10.1007%2Fs10823-012-9169-y [Accessed on 12.09.2020]

Voronin GL, Zakharov VY, Kozyreva PM (2018) Lonely old aged: surviving or living an active life? Sotsiologicheskii zhurnal [Sociological Journal] 24(3): 32–55. https://doi.org/10.19181/socjour.2018.24.3.5992 [Accessed on 12.09.2020] (in Russian)

Wallace TJ (2008) Life satisfaction in individuals age sixty–five years of age and older. Dissertation, Oklahoma, USA: Oklahoma State University. https://shareok.org/bitstream/handle/11244/7610/School%20of%20Teaching%20and%20Curriculum%20Leadership_322.pdf?sequence=1 [Accessed on 12.09.2020]

Zaidi S, Alam A, Mitra P (2009) Satisfaction with life and service delivery in Eastern Europe and the former Soviet Union. World Bank, Washington, D.C. https://doi.org/10.1596/978-0-8213-7900-4 [Accessed on 12.09.2020]

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Appendix 1. Variables used in the study analysis and their description.

Indicator	Designations in models	Unit of measure	Description
Life satisfaction	Satisfaction	Discrete value from 1 to 5	Answer to the question: "How satisfied are you with your life as a whole nowadays?" 1 – fully satisfied 2 – rather satisfied 3 – both yes and no 4 – not very satisfied 5 – not at all satisfied
Place of residence	Type _set	Dummy	1 – city, regional center; 0 – village, urban-type settlement
Age	Age	Years	Number of full years (year of interview, minus year of birth of respondent)
Age squared	Age^2	Age squared	Number of full years squared to check for the presence of a nonlinear relationship of age and life satisfaction level.
Sex	Sex	Dummy	1 – female; 0 – male
Employment status	Work	Dummy	1 – employed; 0 – not employed
Marital status	Marriage	Dummy	1 – is married/living with a partner; 0 – not married/widow (widower)
Education	Education	Discrete value from 0 to 2	0 – unfinished secondary; 1 – finished secondary; 2 – higher education
Number of children	Child	Number of children	Answer to the question: "How many children do you have?"
Availability of pension	Pension	Dummy	1 – yes; 0 – no
Health self-assessment	Health	Discrete value from 1 to 5	Answer to the question "How do you assess your health. Is it...": 1 – very good; 2 – good; 3 – medium, nei her good nor bad; 4 – bad; 5 – very bad
Disability	Disabled	Dummy	Answer to the question "Do you have any disability group assigned to you? ": 1 – yes; 0 – no

Indicator	Designations in models	Unit of measure	Description
Income	Income	Number	The answer in rubles to the question: "How much money have you personally received during the last 30 days, considering everything: salary, pensions, bonuses, profits, benefits, financial assistance, casual earnings and other cash receipts?"
Number of family members	Fam_num	Number	Number of household members named by a respondent
Work experience after retirement	Stageposl	Years	Number of years of work experience after retirement named by a respondent
Type of employment		Discrete value from 1 to 9	ISCO–08 Profession Code
Armed forces occupations (ISCO-0)	Voen		
Highly skilled workers (ISCO 1-3)	Manag		
Office workers and employees (ISCO 4-5)	Clerk		
Skilled workers (ISCO 6-8)	Rab		
Elementary occupations (ISCO-9)	Nequal		

Source: estimates based on RLMS-HSE data of the 21st, 23rd, 25th and 27th rounds.

Appendix 2. Correlation matrix for the whole sample.

Variables	Satisfaction	Type_set	Marriage	Educ	Age	Sex	Work	Health	Disabled	Income
Satisfaction	1.00									
Type_set	−0.02	1.00								
Marriage	−006	−008	1.00							
Educ	−0.12	0.07	0.00	1.00						
Age	0.10	0.07	−0.10	0.02	1.00					
Sex	0.02	0.04	−0.34	0.09	0.07	1.00				
Work	−0.24	0.04	−0.02	0.10	−0.53	−0.04	1.00			
Health	0.29	−0.02	−0.14	−0.11	0.25	0.15	−0.27	1.00		
Disabled	0.13	0.02	0.03	−0.12	0.19	−0.02	−0.28	0.35	1.00	
Income	−0.28	0.14	−0.04	0.23	−0.07	−0.03	0.44	−0.17	−0.09	1.00

Source: estimates based on RLMS-HSE data of the 21st, 23rd, 25th and 27th rounds.