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Authors
Didino, Daniele
Taran, Ekaterina
Gorodetski, Kristina
et al.

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ORIGINAL INVESTIGATION

Exploring predictors of life satisfaction and happiness among Siberian older adults living in Tomsk Region

Daniele Didino[1,2] · Ekaterina A. Taran[1] · Kristina Gorodetski[3] · Zarui A. Melikyan[4] · Svetlana Nikitina[1,3] · Ilya Gumennikov[1] · Olga Korovina[1,3] · Fabio Casati[1,3]

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Abstract Despite the growing interest in studying factors affecting subjective well-being of older adults, little research has been conducted on vast territory of Siberia (Russia) with large population. To address this lack of evidence, we explored the relationship between subjective well-being and social aspects (social and emotional support, social network, and social activities), living conditions (standards of living and residence area), self-reported health, and demographic characteristics in older adults living in Tomsk Region, Siberia. Subjective well-being was measured by life satisfaction and happiness (each measured with one 11-point question). Sample included 489 community-dwelling respondents, aged 65 or older. We found that mean life satisfaction and happiness reported by our respondents were lower than those of European countries. Higher quality of social interaction, better standards of living, and being satisfied with own health were associated with higher life satisfaction and happiness. This study provides original data on a region barely investigated and suggests that Siberian older adults receive strong benefits from social support and from social network and that similar factors are related to subjective well-being both in Siberian and Eastern European older adults. Future studies should further explore the relationship between different kinds of social support (e.g., psychological vs. material support) and subjective well-being in different Siberian ethnic groups or regions.

Keywords Subjective well-being · Life satisfaction · Happiness · Older adults · Siberia

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✉ Daniele Didino
daniele.didino@gmail.com

1 Department of Economics, Tomsk Polytechnic University, Tomsk, Russia

2 Department of Psychology, Humboldt-Universität zu Berlin, Rudower Chaussee 18, 12489 Berlin, Germany

3 Department of Information Engineering and Computer Science, University of Trento, Trento, Italy

4 Institute for Memory Impairments and Neurological Disorders, University of California, Irvine, CA, USA

Introduction

The world's population is aging, and by 2050 older adults aged 60 or over will represent roughly 20% of the population (Global AgeWatch Index 2015). The same demographic phenomenon will affect the Russian Federation, where population aged 60 or over will rise from the current 20% to a projected 28% by 2050 (Global AgeWatch Index 2015). These changes will generate socioeconomic and political challenges that will require a better understanding of the factors affecting subjective well-being of this part of the population. A large number of positive outcomes (such as health, positive attitude toward life, and being economically self-sufficient) are related to high levels of subjective well-being (Diener et al. 1999). Therefore, investigating this construct is critical to enhance quality of life of this growing segment of the population. In this study, we aim to investigate the effects of different factors (i.e., social aspects, living conditions, self-reported health, and demographic characteristics) on subjective well-being of older adults living in Tomsk Region. Little research has been conducted in this region, which is part of the Siberian Federal District (total population of about 20 million people; Federal State Statistics Service [Rosstat] 2010), Russia, and thus this paper provides original data concerning subjective well-being of these older adults.

In the last years, the construct of well-being has been extended beyond the traditional objective measures (i.e., health, wealth, etc.) to include subjective aspects (Åberg et al. 2005; Good 2008). In line with the hedonic approach, subjective well-being is thought to consist of a tripartite structure (Delhey 2004; Diener et al. 1999; Ryan and Deci 2001), which includes life satisfaction, pleasant feelings (i.e., positive moods and emotions), and unpleasant feelings (i.e., negative moods and emotions). In this study, we focused on two components of subjective well-being: life satisfaction and happiness (i.e., pleasant feelings). Life satisfaction has been defined as a person's cognitive judgment of own life (Enkvist et al. 2012). Questions about life satisfaction can focus on domain specific or general aspects (Schwarz and Strack 1991). On the one hand, judgments of domain-specific life satisfaction (e.g., satisfaction with work) are based on intra- (i.e., referring to the personal situation) or inter-individual (i.e., referring to the situation of other individuals) comparison processes. On the other hand, judgments of general life satisfaction are based on heuristic strategies, which are used to compare the desired life conditions with actual one's life (Diener et al. 1999). Moreover, these judgments can focus on different time perspectives: past life, the present situation, or the future expectations. In this study, life satisfaction has been investigated adopting a general perspective (i.e., respondent's life as a whole) and focusing on respondent's current life. Happiness is an affective component of well-being (Han 2015; Peiro 2006) and an indicator of positive emotion or mood (Abbott and Sapsford 2006; Delhey 2004). Contrary to life satisfaction, which may require demanding thinking and a complex comparison between desired and actual life situation, happiness reflects an immediate accessible feeling and does not require complex cognitive processing (Inglehart et al. 2008; Steptoe et al. 2015). Life satisfaction, which reflects a cognitive evaluation of one's life, seems to be more strongly associated with living conditions and social needs, whereas happiness, which refers to positive feeling, seems to be more strongly associated with the quality of social interaction (Diener et al. 2010). Since this study aims to provide a preliminary description of the influence of different factors (i.e., social aspects, living conditions, self-reported health, and demographic characteristics) on subjective well-being in older adults living in Siberia, we decided to measure both life satisfaction and happiness. This approach provides a broader description, which includes both a cognitive judgment of and the degree of positive feeling about the respondent's current situation. Although we expected life satisfaction and happiness to be highly correlated, this approach could provide interesting clues about what factors future studies should focus on.

Extensive research has been conducted to examine which factors affect subjective well-being of older adults (Fernández-Ballesteros et al. 2001; Meléndez et al. 2009) with little to no attention to Siberian population. Tomsk Region is an administrative division of the Siberian Federal District with an area of roughly 300,000 km^2 and a population of about 1 million. Approximately 50% of the population of this region lives in the main city, Tomsk. Ten percent (approximately 52,000 people) of Tomsk population and eleven percent (approximately 57,000 people) of the population of the surrounding municipality in the countryside are aged 65 years or older (Federal State Statistics Service [Rosstat] 2010). Since the USSR dissolution (December 1991), Russian older adults experienced a period of extensive social, political, and economic changes (Abbott and Sapsford 2006; Averina et al. 2005). Economic depression, decline of GDP, and the reduced spending in welfare produced an increase in economic inequalities, poverty, and unemployment (Abbott and Sapsford 2006). Moreover, life expectancy declined by several years after the transition (Inglehart et al. 2008). Unsurprisingly, these changes had a negative impact on life satisfaction and happiness of the population (Abbott and Sapsford 2006; Inglehart et al. 2008). Data from the World Values Survey and European Values Study collected from 1981 to 2007 (see Inglehart et al. 2008) show that in the most of the ex-USSR countries, levels of life satisfaction and happiness are lower than those predicted by the country's economic rank. The impact of the USSR dissolution on Russian and Ukrainian adults (aged 18 and over) has been evaluated in a study by Abbott and Sapsford (2006) conducted in 2001. These populations experienced material hardship, lack of social cohesion, lower perceived control over own life, and poor psychophysical health. Abbott and Sapsford concluded that "a majority of citizens in both countries view the social, political and economic situation as having deteriorated" (Abbott and Sapsford 2006, p. 261). Interestingly, respondents reported to be able to rely on high levels of support from relatives and friends. The importance of this support becomes evident when considering the aspects related to the material circumstances and the healthcare system. High percentage of Russian respondents reported to have limited access to basic needs, such as basic food (e.g., bread or sugar for 47.5% of respondents) or essential clothing (63.8%). Moreover, they also reported to have limited access to essential medicines (51.7%) or necessary medical treatments (43.4%). Consistent with these responses, a series of linear regressions showed that personal support from relatives and friends, perceived economic situation and material circumstances, and self-reported health strongly affected life satisfaction and happiness (see tables from 2 to 5 in Abbott and Sapsford 2006).

In the following paragraphs, the factors groups (i.e., social aspects, living conditions, self-reported health, and demographic characteristics) investigated in our study will be introduced. Subsequently, expected results are introduced

based on the consequences of the USSR dissolution and on the differences in the social-economic context between European countries and Russia.

High quality of social relationships has a prevalent impact on maintaining good quality of life in old age (Gow et al. 2007; Gutiérrez et al. 2013; Han 2015; Lou 2010; Lou et al. 2008; Okabayashi et al. 2004; Pinquart and Sörensen 2000; Yeung and Fung 2007). Moreover, high levels of social support and social activity strongly contribute to preservation of cognitive skills (Wang et al. 2002; Zunzunegui et al. 2003) and good health (Stevens-Ratchford and Cebulak 2005), and moderate negative effects of declining physical and mental health (Fratiglioni et al. 2000, 2004; Okabayashi et al. 2004). Receiving social (Aquino et al. 1996; Lou 2010) and emotional support (Gutiérrez et al. 2013; Krause 2004; Lou 2010; Yeung and Fung 2007) and providing social support (Thomas 2010) are associated with a higher level of subjective well-being. Receiving social and emotional support could help older adults maintain or improve their living conditions and fulfill social needs, and could reinforce their expectation of being able to count on friends or relatives if needed (Siedlecki et al. 2014). Providing social support could increase the sense of meaning and purpose of one's life (Taylor and Turner 2001). Moreover, older adults who have a mutual supportive relationship with their adult children appeared to be more satisfied with their life than those without this bidirectional social support (Kim and Kim 2003). The size of the social network decreases with age but the quality of these relations increases (Carstensen 1992, 1995). A network of intimate people could strengthen the feeling of being able to rely on someone under adverse conditions and fulfill the emotional and social needs.

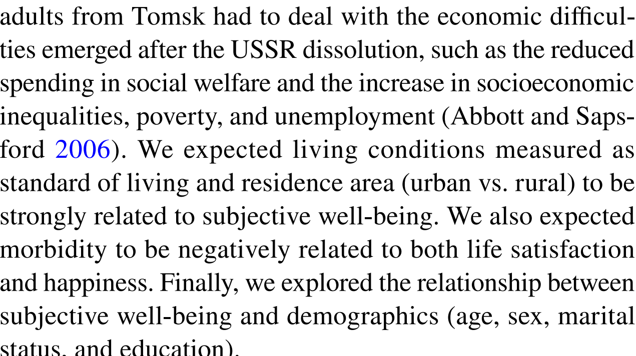
Cross-national studies on older adults living in European countries consistently confirmed the strong impact of social aspects on subjective well-being (Conde-Sala et al. 2017; Ferring et al. 2004; Tomini et al. 2016). A study conducted in six European countries (Austria, Italy, Luxembourg, Sweden, The Netherlands, and UK) in 2002/2003 showed that social support (measured as satisfaction with family/friendship relationships) was, along with health, the strongest predictor of life satisfaction in all countries (Ferring et al. 2004). The relevance of social aspects for subjective well-being of European older adults is also confirmed by the Tomini and colleagues' study (2016). These authors analyzed the fourth wave of the SHARE (Health, Ageing and Retirement in Europe) survey conducted in 2010–2011 on sixteen European countries (*Western-Continental*: Austria, Belgium, Germany, Switzerland, and The Netherlands; *Northern*: Denmark and Sweden; *Eastern post-socialist*: Czech Republic, Estonia, Hungary, Poland, and Slovenia; and *Southern*: Italy, France, Portugal, and Spain). Although respondents from Western-Continental and Northern European countries reported to have a larger network of relatives and friends compared to Eastern post-socialist and Southern countries, no difference emerged between the countries concerning the positive correlation between size of this network and life satisfaction. Therefore, for older adults, this positive relationship seems to be independent or weakly influenced by the specific characteristic of the society, at least in European countries. A study conducted in the USA also showed that the size of the social network and the frequency of contacts were positively related to happiness and negatively to loneliness and anxiety in older adults (Litwin and Shiovitz-Ezra 2011). Although caring for grandchildren is significantly related to quality of life in Southern European countries, in Eastern post-socialist countries this relationship was not significant (fifth wave of the SHARE survey conducted in 2013, see Conde-Sala et al. 2017). Positive impact of caring for grandchildren on quality of life in Southern countries is probably related to the higher role of family support in these countries (Conde-Sala et al. 2017). However, a review examining the relationship between parenthood, life satisfaction, and happiness in different regions of the world (Hansen 2012) showed that Eastern European countries are more pronatalist than other European countries and that in former socialist countries parenthood is related with a higher level of subjective well-being.

Both economic condition (Barger et al. 2008; Fernández-Ballesteros et al. 2001; Han 2015; Han and Hong 2011; Lou 2010) and place of living (Li et al. 2015; Millward and Spinney 2013; Zhang and Liu 2007) have been shown to strongly influence subjective well-being. Cross-national study by Tomini and colleagues (2016) showed that for older adults, income was positively related to life satisfaction in almost all countries (including all Eastern post-socialist countries). The Conde-Sala and colleagues' study (2017) also confirmed that older adults with higher income report a higher quality of life in both Eastern and Southern European countries and that difficulties to cover the expenses were related with lower quality of life in all fourteen European countries included in the study. However, a study comparing 28 European countries (including both European Union members and candidates) and including all age-groups (from younger to older adults) showed that the relationship between financial situation and life satisfaction varies across the countries (Delhey 2004). In fact, in Western–Southern European countries, satisfaction with financial situation was a weak predictor (e.g., in France and Germany) or unrelated (e.g., in Italy and Spain) to life satisfaction. On the other hand, in the most of the Eastern post-socialist countries (e.g., Estonia, Hungary, Latvia, Lithuania, Poland, and Slovenia), satisfaction with financial situation had a very strong impact on life satisfaction. This difference could be due to the negative effects that the USSR dissolution had on economic situation of the Eastern European post-socialist countries. In these countries, the lower level of fulfillment of basic material needs could

explain the stronger impact of living conditions on subjective well-being.

Factors related to poor health (e.g., mobility limitations) are also related to the level of subjective well-being, especially for older adults with higher morbidity prevalence (Steptoe et al. 2015). In fact, self-reported health has been shown to be a strong predictor of subjective well-being (Fernández-Ballesteros et al. 2001; Gana et al. 2013; Han 2015; Han and Hong 2011; Lou 2010). The fact that the strong impact of health on subjective well-being emerges in various cross-national studies on older adults (Angelini et al. 2012; Conde-Sala et al. 2017; Tomini et al. 2016) and adults (Delhey 2004) living in European countries suggests that this could be a universal effect.

Several studies have shown that subjective well-being is also associated with demographic variables, such as age (Chen 2001; Enkvist et al. 2012; Fujita and Diener 2005; Gerstorf et al. 2008; Han 2015; Han and Hong 2011), sex (Han 2015; Han and Hong 2011; Pinquart and Sörensen 2001), marital status (Barger et al. 2008; Enkvist et al. 2012; Eshkoor et al. 2014; Han 2015; Han and Hong 2011), and education level (Eshkoor et al. 2014; Fernández-Ballesteros et al. 2001; Han 2015; Lou 2010). Cross-national surveys administered to European older adults also confirm the relevance of these factors and show that age (life satisfaction is positively associated with age, see Angelini et al. 2012; Tomini et al. 2016), sex (lower life satisfaction for female compared to male, see Ferring et al. 2004), and education (higher education is associated with higher life satisfaction, see Conde-Sala et al. 2017; Tomini et al. 2016) influence subjective well-being.

To address the lack of research on Siberian older adults, we investigated the relationship between life satisfaction and happiness and the factors that emerged in literature as the most relevant. We included social factors (receiving and providing support, emotional support, number of intimate people, and taking care for children and grandchildren), living conditions (standard of living and residence area), self-reported health, and demographic characteristics (age, sex, marital status, and education). Although no studies directly assessed the impact of social aspects on subjective well-being in Russian older adults, based on studies of Russian adults (Abbott and Sapsford 2006) and of European older adults (Conde-Sala et al. 2017; Ferring et al. 2004; Tomini et al. 2016), we expect quality of social relationships could have an impact on Siberian older adults. Given similarities in social, political, and economic context between our sample and Eastern European countries, we expected to find comparable results. Namely, we expected a strong influence of social support, network size, and caring for children and grandchildren on life satisfaction and happiness. Consistent with these studies, we also expected living conditions to be an important determinant of life satisfaction. Older

adults from Tomsk had to deal with the economic difficulties emerged after the USSR dissolution, such as the reduced spending in social welfare and the increase in socioeconomic inequalities, poverty, and unemployment (Abbott and Sapsford 2006). We expected living conditions measured as standard of living and residence area (urban vs. rural) to be strongly related to subjective well-being. We also expected morbidity to be negatively related to both life satisfaction and happiness. Finally, we explored the relationship between subjective well-being and demographics (age, sex, marital status, and education).

Cultural complexity of Russian society (i.e., a multiethnic and multicultural population living on a vast territory; see Strizhitskaya 2016) provides a useful setting to evaluate the cross-cultural validity of the finding emerged in studies on Western older adults. In fact, the Siberian population is subjected to a mixed influence of Western and Asian cultural values. This is the first study of subjective well-being of Siberian older adults; it will provide evidence on factors associated with life satisfaction and happiness in old age in this geographical area. Since the aim of this study is to provide a first illustration of the relationship between subjective well-being and the factors described above, we reported the results for both life satisfaction and happiness, which have been analyzed separately.

Materials and methods

Sample

Study inclusion criteria were: age 65 years or older, being a native Russian speaker, and not having any neurological/psychiatric diagnosis by self-report. Out of 600 questionnaires administered to Russian older adults, 111 were excluded from the analysis due to missing data. Therefore, the final sample included 489 respondents. Table 1 shows the demographic characteristics and the self-reported satisfaction. Average age of respondents was 74.4 years (SD = 6.9, range = 65–92). In our sample, women were overrepresented (women = 324; men = 165), which is consistent with the different life expectancy in the two sexes. In fact, in the Russian Federation, life expectancy at birth for male is 64.7 years, whereas for female it is 76.3 years (World Health Organization 2015). In the Siberian Federal District, life expectancy at birth is 63.6 and 75 years for male and female, respectively (Federal State Statistics Service [Rosstat] 2010). Most of the respondents had high school (35%) and paraprofessional levels of education (41%). More than half of them were widowed (55%). About 60% of the final sample lived in an urban area. Forty-four percent of the respondents reported to be satisfied with their health (Table 1).

Table 1 Demographic characteristics and self-reported health satisfaction of the sample

Variable	Mean (SD) or %	Range or *N*
Residence area		
Urban area	58	283
Rural area	42	206
Health satisfied		
Yes	44	217
No	56	272
Age	74.4 (6.9)	65–92
Sex		
Male	34	165
Female	66	324
Marital status		
Married/cohabiting	33	160
Not-married/divorced	12	59
Widowed	55	270
Education		
Primary or less	6	26
High school	35	172
Paraprofessional	41	202
University	18	89

Sample size (*N*) = 489

Procedure

A cross-sectional study was conducted in Tomsk Region (Siberian Federal District, Russia). Two hundred eighty-three respondents were recruited in Tomsk and in Seversk (a city close to Tomsk), and 206 in small villages in the countryside in Tomsk Region. Inhabitants of Tomsk and Seversk (a city at approximately 15 km from Tomsk and with approximately 110,000 inhabitants) were classified as dwelling in an urban area. Older adults living in the villages and hamlets around Tomsk were classified as dwelling in a rural area. These villages and hamlets (10 in total) had on average 5561 inhabitants (range: 193–24,567) and were on average 129 km away from Tomsk (range: 9–458). Door-to-door interviews were administrated within randomly selected neighborhoods and streets of Tomsk and Seversk or in randomly selected villages around Tomsk. Interviewers were instructed to ask whether one of the people living in the residence was aged 65 or over and whether this person agreed to participate in the study. Data were collected through face-to-face interviews administered in the respondents' homes. In each family unit, only one older adult was interviewed. All interviews were conducted in Russian by mother-tongue speaking interviewers. Each interview lasted 40–60 min. Verbal informed consent was obtained from all respondents prior to the interview. Each respondent received a standard gift (e.g., tea, chocolate, etc.) for the participation. Interviews were administered between August and September 2015 by an organization with experience in survey research–*Research center "Context"* [*Исследовательский центр "Контекст"*].

Measurement

Fifteen items for this analysis were selected from a larger pool of 99 questions, assessing different aspects of older adults' life, previously used and validated in Russia by the international surveys (Gallup World Poll; European Values Survey; European Quality of Life Survey; European Social Survey) except for questions about social activities, which were translated into Russian using the standard method of back translation. Translation was performed by two Russian mother-tongue translators (first translation) and by two English mother-tongue translators (back translation). We ensured to reach equivalence between the original English and final Russian versions. Questionnaire also included standard sociodemographic variables such as sex, age, education, and others. All the questions were piloted on ten older adults.

Life satisfaction and happiness

Life satisfaction was measured by the question: "All things considered, how satisfied are you with your life as a whole these days? Use a 0 to 10 scale, where 0 is dissatisfied and 10 is satisfied." Happiness was measured by the question: "Taking all things together, how happy would you say you are?" Respondents used a scale from 0 (extremely unhappy) to 10 (extremely happy). Both questions were selected from the Russian version of the European Social Survey (2014).

Receiving/providing social support, emotional support, and social network

Received social support was measured by the question: "To what extent do you receive help and support from people you are close to when you need?" Provided social support was measured by the question: "To what extent do you provide help and support to people you are close to when they need it?" Both questions had a scale ranging from 1 (no help) to 7 (all the help needed). Emotional support was measured with the question: "To what extent do you feel appreciated by the people you are close to? ('appreciated' in the sense of 'valued, recognized, respected and acknowledged'). Please use a 0 to 10 scale, where 0 is not at all and 10 is completely." Size of the network of intimate people was measured with the question: "How many people, if any, are there with whom you can discuss intimate and personal matters? None, 1, 2, 3, 4–6, 7–9, 10 or more." These questions were selected from the Russian version of the European Social Survey (2014).

Social activities

Respondents were asked: "In general, how often are you involved in any of the following activities outside of work?" Items included "*caring for your children*" and "*caring for your grandchildren*." For both questions, the answer options were: "*every day*", "*several days a week*", "*once or twice a week*", "*less often*", "*never*", and "*don't have children*." These questions were selected from the European Quality of Life Survey (Eurofound 2013) and translated into Russian by our group. For the analysis, these answers were encoded in two different ways. First, the answers were grouped as follows: "*with children*" ("*Every day*", "*Several days a week*", "*Once or twice a week*", "*Less often*", "*Never*") and "*without children*" ("*don't have children*"), and "*with grandchildren*" ("*Every day*", "*Several days a week*", "*Once or twice a week*", "*Less often*", "*Never*") and "*without grandchildren*" ("*don't have grandchildren*"). Second, the answers in the subgroups "with children" and "with grandchildren" were analyzed as ordinal scale: 1 = "*Never*", 2 = "*Less often*", 3 = "*Once or twice a week*", 4 = "*Several days a week*", 5 = "*Every day*".

Living conditions

Satisfaction with standard of living was measured with the question: "Are you satisfied or dissatisfied with your standard of living, all the things you can buy and do?" (0 = *dissatisfied*, 1 = *satisfied*). This question was selected from the Russian version of the Gallup World Poll (see Deaton 2008). Respondents were asked to report their residence area: 0 = *rural*, 1 = *urban*.

Self-rated health and demographic variables

Perceived health was measured using the question: "Are you satisfied or dissatisfied with your personal health?" (0 = *no*, 1 = *yes*). This question was selected from the Russian version of the Gallup World Poll (see Deaton 2008). Demographic variables were: age, sex (0 = *female*, 1 = *male*), education (1 = *primary or less*, 2 = *high school*, 3 = *paraprofessional*, 4 = *university*), and marital status ("*single*", "*married*", "*divorced*", "*widowed*", and "*cohabiting*"). For the marital status variable, since "*single*" was reported only by seven respondents and "*cohabiting*" only by six, they have been merged with "*divorced*" and "*married*", respectively. Therefore, the analysis has been performed on the following categories: "*married or cohabiting*", "*not-married or divorced*", and "*widowed*".

Analyses

Given the exploratory nature of this cross-sectional study, the effect of each independent variable (i.e., receiving and providing social support, emotional support, social network, caring for children and grandchildren, having children or grandchildren, standard of living, residence area, self-reported health, age, sex, marital status, and education) on the dependent variables (i.e., life satisfaction and happiness) was analyzed using bivariate analyses. Both the strength of association (Spearman's correlation tests for the ordinal variables and point-biserial correlation tests for the dichotomous variables) and mean differences (t tests and ANOVAs for categorical variables and linear regressions for ordinal variables) have been analyzed for all the independent variables, with the exception of marital status (i.e., a non-ordered categorical variable with more than two categories) which has been analyzed only by mean of ANOVAs. All p values have been corrected with Bonferroni method. Skewness and excess kurtosis (i.e., the value 3 subtracted by the kurtosis value) have been measured for both dependent variables. A standard normal distribution has a skewness and an excess kurtosis equal to zero. Statistical significance is evaluated using 0.05 as a cutoff level. All analyses were performed using R-project software (R Core Team 2015) and RStudio software (RStudio Team 2015).

Results

Table 2 shows the descriptive statistics for subjective well-being variables, social factors, and standard of living. In our sample of older adults, the mean value of life satisfaction (5.9, SD = 2.4, range = 0–10) is very similar to that of happiness (6.2, SD = 2.1, range = 0–10). The skewness value is − 0.06 for life satisfaction and − 0.01 for happiness, whereas the kurtosis value is − 0.80 for life satisfaction and − 0.61 for happiness. These values do not noticeably deviate from those of a normal distribution.

Table 3 shows the correlations between life satisfaction, happiness, and the other ordinal variables. As expected, life satisfaction and happiness are highly correlated ($r_s = 0.55$, $p < 0.001$). Life satisfaction and happiness significantly positively correlate with receiving social support (life satisfaction: $r_s = 0.26$, $p < 0.001$; happiness: $r_s = 0.30$, $p < 0.001$), providing social support (life satisfaction: $r_s = 0.19$, $p < 0.01$; happiness: $r_s = 0.29$, $p < 0.001$) and emotional support (life satisfaction: $r_s = 0.35$, $p < 0.001$; happiness: $r_s = 0.48$, $p < 0.001$), as well as size of the network of intimate people (life satisfaction: $r_s = 0.21$, $p < 0.001$; happiness: $r_s = 0.27$, $p < 0.001$). Older adults providing or receiving more support have a higher level of life satisfaction and happiness, compared to those providing or receiving

Table 2 Descriptive statistics for the dependent variables (life satisfaction and happiness) and variables measuring social aspects and standard of living

Variable	Mean or %	SD or *N*	Median	Mode	Range
Life satisfaction	5.90	2.4	5	5	0–10
Happiness	6.22	2.1	6	5	0–10
Receive help	5.97	1.5	7	7	1–7
Provide help	5.69	1.8	6	7	1–7
Emotional support	7.73	2.5	9	10	0–10
Intimate people	2.94	1.2	3	2	1–7
Caring for children					
Every day	25	122			
Several days a week	11	55			
Once or twice a week	13	65			
Less often	25	121			
Never	16	80			
No children	10	46			
Caring for grandchildren					
Every day	21	103			
Several days a week	11	52			
Once or twice a week	10	51			
Less often	23	112			
Never	22	109			
No grandchildren	13	62			
Satisfied living standard					
Satisfied	31	149			
Dissatisfied	69	340			

$N = 489$

less support. Participants who feel highly appreciated (i.e., receiving more emotional support) are more satisfied with life and happier than those who feel modestly appreciated if at all. Moreover, the larger the intimate people network, the more satisfied and happier respondents are. Life satisfaction and happiness are also significantly positively associated with satisfaction with standards of living (life satisfaction: $r_{pb} = 0.30$, $p < 0.001$; happiness: $r_{pb} = 0.26$, $p < 0.001$) and self-reported health satisfaction (life satisfaction: $r_{pb} = 0.29$, $p < 0.001$; happiness: $r_{pb} = 0.29$, $p < 0.001$). Older adults satisfied with their standard of living and with their health are more satisfied with life and happier than other respondents. On the other hand, caring for children or grandchildren, place of living, age, sex, and education are not correlated with either life satisfaction or happiness.

Table 4 shows the results of *t* tests, ANOVAs, and linear regressions with life satisfaction and happiness as dependent variables. These results mirror those of the correlation analyses. Receiving social support (life satisfaction: $B = 0.308$, $p < 0.001$; happiness: $B = 0.341$, $p < 0.001$), providing social support (life satisfaction: $B = 0.211$, $p < 0.05$; happiness: $B = 0.286$, $p < 0.001$), emotional support (life satisfaction: $B = 0.311$, $p < 0.001$; happiness: $B = 0.403$, $p < 0.001$), and network of intimate people (life satisfaction: $B = 0.383$, $p < 0.001$; happiness: $B = 0.441$, $p < 0.001$) emerge as significant predictors of both dependent variables in the linear regression analyses. Satisfaction and happiness are also related to both satisfaction with standard of living (life satisfaction: $t(487) = 7.05$, $p < 0.001$, Cohen's $d = 0.71$; happiness: $t(487) = 5.91$, $p < 0.001$, $d = 0.58$) and self-reported health satisfaction (life satisfaction: $t(487) = 6.70$, $p < 0.001$, $d = 0.61$; happiness: $t(487) = 6.60$, $p < 0.001$, $d = 0.60$). Unsurprisingly, older adults satisfied with their health and with their standard of living are more satisfied with life and happier than other respondents. However, having children or grandchildren, caring for children or grandchildren, place of living, age, sex, marital status, and education do not affect the levels of happiness or life satisfaction.

Discussion

This study is aimed at investigating the relationship of two measures of subjective well-being (life satisfaction and happiness) with social factors, living conditions, self-reported health, and demographics characteristics, in a sample of older adults living in Tomsk Region, Siberia. Mean life satisfaction (5.9) and happiness (6.2) reported by our respondents are lower than those of European countries (life satisfaction = 7.03, happiness = 6.97, see Eurofound 2013; life satisfaction = 7.56, see Tomini et al. 2016, Table 1). Our results suggest that for Russian older adults, social support is related to the level of subjective well-being. Respondents who provide or receive higher social support report to be more satisfied with their life and happier. Receiving emotional support is also positively related to both life satisfaction and happiness. In fact, respondents who feel more appreciated by the people they are close to report to be more satisfied with their life and happier. The size of the network of intimate people is also positively related to both life satisfaction and happiness. Finally, both satisfaction with the standard of living and self-reported health are positively associated with both life satisfaction and happiness. Respondents who report to be satisfied with their standard of living and with their health are also happier and more satisfied with their lives. We did not find evidence for a relationship between subjective well-being and caring for children or grandchildren (i.e., frequency of contacts), having children or grandchildren, residence area, and demographic characteristics (age, sex, marital status, and education).

Consistent with our results, mean life satisfaction reported in Tomini and colleagues (2016, Table 1) for Eastern post-socialist countries was also below the European mean reported in that study (Czech Republic = 7.34,

Table 3 Spearman's correlation coefficients for the ordinal and interval-scaled variables and point-biserial correlation coefficients for dichotomous variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Life satisfaction	–													
2. Happiness	**0.55*****	–												
3. Receive help	**0.26*****	**0.30*****	–											
4. Provide help	**0.19****	**0.29*****	0.40***	–										
5. Emotional support	**0.35*****	**0.48*****	0.51***	0.36***	–									
6. Intimate people	**0.21*****	**0.27*****	0.19**	0.16*	0.32***	–								
7. Caring for children	− 0.05	0.05	− 0.02	0.27***	0.07	0.10	–							
8. Caring for grandchildren	0.04	0.04	− 0.01	0.25***	0.09	0.02	0.65***	–						
9. Living standard	**0.30*****	**0.26*****	0.15*	0.18**	0.18**	0.14	− 0.01	0.02	–					
10. Living place	0.14	0.06	0.02	0.11	0.04	0.05	0.02	< 0.01	0.06	–				
11. Health satisfied	**0.29*****	**0.29*****	0.11	0.16*	0.20**	0.03	0.05	0.07	0.22***	0.09	–			
12. Age	0.12	0.06	0.10	− 0.13	0.05	< 0.01	− 0.21***	− 0.24***	0.30***	0.06	0.03	–		
13. Sex	< 0.01	0.02	− 0.03	− 0.04	< 0.01	− 0.04	< 0.01	0.05	0.03	0.02	0.09	− 0.06	–	
14. Education	0.06	0.02	− 0.13	0.15*	− 0.03	0.04	− 0.01	< 0.01	0.03	0.10	0.03	− 0.29***	0.02	–

$N = 443$ for Caring for Children; $N = 427$ for Caring for Grandchildren; $N = 489$ for the other variables. Ordinal or interval-scaled variables: life satisfaction, happiness, age, receive help, provide help, intimate people, caring for children, caring for grandchildren, emotional support, and education. Dichotomous variables: living standard, living place, health satisfied, and sex. Coefficients of variables that significantly correlate with life satisfaction and happiness are in bold

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4 Linear models (ordinal or interval-scaled variables), *t* tests and ANOVAs (categorical variables) with life satisfaction and happiness as dependent variables

Independent variables	Life satisfaction	Happiness
Receive help	B = **0.308**, $p < 0.001$, SE = 0.07, CI = (0.17, 0.44), R = 0.04	B = **0.341**, $p < 0.001$, SE = 0.06, CI = (0.22, 0.46), R = 0.06
Provide help	B = **0.211**, $p < 0.05$, SE = 0.06, CI = (0.10, 0.33), R = 0.02	B = **0.286**, $p < 0.001$, SE = 0.05, CI = (0.18, 0.39), R = 0.06
Emotional support	B = **0.311**, $p < 0.001$, SE = 0.04, CI = (0.23, 0.39), R = 0.11	B = **0.403**, $p < 0.001$, SE = 0.03, CI = (0.34, 0.47), R = 0.22
Intimate people	B = **0.383**, $p < 0.001$, SE = 0.08, CI = (0.22, 0.54), R = 0.04	B = **0.441**, $p < 0.001$, SE = 0.07, CI = (0.30, 0.58), R = 0.07
Caring for children	B = − 0.086, $p > 0.1$, SE = 0.08, CI = (− 0.23, 0.06), R = 0.0006	B = 0.061, $p > 0.1$, SE = 0.07, CI = (− 0.07, 0.19), R = 0.0004
Caring for grandchildren	B = 0.044, $p > 0.1$, SE = 0.08, CI = (− 0.11, 0.19), R = 0.002	B = 0.058, $p > 0.1$, SE = 0.07, CI = (− 0.07, 0.19), R = 0.0006
Children		
With children	5.90 (2.4)	6.28 (2.1)
Without children	5.85 (2.5)	5.65 (2.2)
Grandchildren		
With grandchildren	5.94 (2.4)	6.32 (2.1)
Without grandchildren	5.58 (2.2)	5.52 (2.1)
Living standard		
Satisfied	**6.99** (2.2)	**7.05** (2.0)
Dissatisfied	**5.42** (2.3)	**5.85** (2.1)
Living place		
Urban area	6.18 (2.4)	6.33 (2.1)
Rural area	5.51 (2.3)	6.06 (2.2)
Health satisfied		
Yes	**6.67** (2.2)	**6.90** (2.0)
No	**5.28** (2.3)	**5.67** (2.1)
Age	B = 0.041, $p > 0.1$, SE = 0.02, CI = (0.01, 0.07), R = 0.01	B = 0.018, $p > 0.1$, SE = 0.01, CI = (− 0.009, 0.045), R = 0.001
Sex		
Female	5.90 (2.5)	6.18 (2.2)
Male	5.90 (2.2)	6.29 (2.1)
Marital status		
Married/cohabiting	5.91 (2.2)	6.34 (2.1)
Not-married/divorced	5.97 (2.2)	6.10 (2.1)
Widowed	5.88 (2.5)	6.17 (2.1)
Education		
Primary or less	5.78 (2.3)	6.15 (3.0)
High school	5.70 (2.4)	6.10 (2.2)
Paraprofessional	6.06 (2.3)	6.35 (2.0)
University	5.99 (2.4)	6.16 (2.0)

N = 489. Analyses refer to ANOVAs (marital status and education), *t* tests (health satisfied, living standard, sex, living place, having children, and having grandchildren), or linear regression (age, receive help, provide help, intimate people, emotional support). Mean (standard deviation) life satisfaction and happiness are reported as a functions of the categorical variables. For statistically significant tests, means and coefficients are in bold. For linear models, the following values are provided: B = unstandardized coefficient; SE = standard errors; CI = 95% confidence intervals; R = Adjusted R-squared

Estonia = 6.66, Hungary = 6.69, Poland = 7.39, and Slovenia = 7.43). Inglehart and colleagues (2008) also showed that the levels of subjective well-being for post-socialist countries were lower than those expected considering their economic rank. This could be due to the social, political, and economic changes that affected these societies after the

dissolution of USSR (see also Abbott and Sapsford 2006; Inglehart et al. 2008) and to the negative impact that this transition had on life satisfaction and happiness. Similarly, material hardship, lack of social cohesion, lower perceived control over one's own life, and poor psychophysical health reported by the Russian adult population in the Abbott and Sapsford's study (2006) probably also influenced the quality of life of last decades of older adults living in Siberia. In fact, current Russian older adults witnessed these changes since the USSR dissolution.

Despite the peculiarities of Russian society and culture, our results on social aspects are very similar to those reported in European countries. Consistent with European cross-national studies on older adults (Conde-Sala et al. 2017; Ferring et al. 2004; Tomini et al. 2016), we showed that social support and size of the network of intimate people are positively related to subjective well-being of older adults living in Siberia. Positive relationship between social aspects and subjective well-being in our sample is probably related to two factors. First, research showed that high-quality social relationships are associated with a broad set of positive outcomes. For example, they contribute to preservation of cognitive skills (Wang et al. 2002; Zunzunegui et al. 2003), maintenance of good health (Stevens-Ratchford and Cebulak 2005), moderate negative effects related to declining physical and mental health (Fratiglioni et al. 2000, 2004; Okabayashi et al. 2004). Second, social support and network of intimate people could have helped older adults to reduce the negative impact of the social and economic difficulties (e.g., limited access to basic needs or to necessary medical treatments) they encountered after the USSR dissolution.

The relationship between both components of subjective well-being and receiving social and emotional support could be due to positive effect that these factors have on the quality of life of older adults. In fact, receiving social support might help older adults have stable living conditions, fulfill social needs, and reinforce the expectation of being able to rely on someone when needed. Emotional support might enhance the feeling of having rewarding social interactions. Providing support to close people might increase the feeling of being useful to others and the sense of meaning and purpose of one's life. Positive relationship between size of the network of intimate people and both life satisfaction and happiness reflects the fact that this network can satisfy both social needs, by providing people on whom rely in adverse situations, and emotional needs, by providing people who can give comfort and psychological support. Moreover, the relevance of a network of intimate people might be due to the fact that its size could be reduced by two factors. First, the low life expectancy might reduce the number of intimate friends. Second, the high internal migration rate (young relatives tend to move to the city) could reduce the number of intimate relatives (Mkrtchyan 2015). Our indicators of social and emotional support adopted a general prospective. Therefore, follow-up studies could include questions concerning different kinds of social support (e.g., economic support) and related to different intimate people (i.e., spouse/partner, children, relatives, friends, etc.) to investigate the relationship between these social aspects, life satisfaction and happiness in greater depth.

Eastern European countries are pronatalist, and in post-socialist countries parenthood in older age is related to a higher level of subjective well-being (Hansen 2012). Given the cultural similarities between Russia and Eastern European post-socialist countries, it may be expected that in both regions, parenthood and grandparenthood are positively related to subjective well-being by providing a sense of meaning and purpose of one's life. However, contrary to what expected, our results do not provide evidence for a relationship between subjective well-being and frequency of contacts with children and grandchildren or having children and grandchildren. In Conde-Sala and colleagues' study (2017), in Eastern post-socialist countries, relationship between caring for grandchildren and quality of life also did not reach statistical significance. A factor that we did not consider in our study is the distance between relatives' and older adults' residence area. Future studies could include this aspect to investigate whether the relationship between subjective well-being, parenthood, and grandparenthood is mediated by distance.

Consistent with other studies (Barger et al. 2008; Fernández-Ballesteros et al. 2001; Han 2015; Han and Hong 2011; Lou 2010), we found that the economic situation is related to subjective well-being. In European countries, economic condition is a strong predictor of subjective well-being in adults (Delhey 2004) and older adults (Conde-Sala et al. 2017; Tomini et al. 2016). Moreover, in a sample of Russian adults, Abbott and Sapsford (2006) also found that material circumstances (e.g., economic situation) were strongly related to both life satisfaction and happiness. Our data show that this association is maintained in later life in a Siberian sample of older adults. In our sample, as well as for European post-socialist countries, the relationship between material circumstances and subjective well-being could be reinforced by the lower level of fulfillment of basic material needs. Both in Europe (Angelini et al. 2012; Conde-Sala et al. 2017; Fernández-Ballesteros et al. 2001; Tomini et al. 2016) and worldwide (Gana et al. 2013; Han 2015; Han and Hong 2011; Lou 2010), health status seems to be a universal predictor of subjective well-being in older adults. Our results replicate the strength of this relationship. This result is consistent with the fact that self-perceived health status is more strongly associated with subjective well-being compared to medically evaluated health (Enkvist et al. 2012).

Our sample of older adults is more culturally homogeneous than Russian population in general (Strizhitskaya 2016).

However, in this paper, we provided novel empirical data to develop a first understanding of the factors (social aspects, living conditions, self-reported health, and demographic characteristics) that may be associated with subjective well-being in this population. The concept of well-being could be culturally defined, which means that the factors related to subjective well-being might vary among countries (Ryan and Deci 2001). Since Russian older adults living in Siberia have been influenced by a combination of Western and Eastern values, finding based on studies on European countries may be not valid for Siberian older adults (Strizhitskaya 2016). However, our preliminary findings suggest that subjective well-being of older adults is related to the same factors both in Eastern European countries and in Russia. This could be due to the fact that in the last decades, all these countries have been subjected to similar cultural, economic, and social changes, which deeply influenced the quality of their life (Abbott and Sapsford 2006; Averina et al. 2005; Conde-Sala et al. 2017). Future studies should try to extend these results and investigate in more detail how these factors are related to subjective well-being in Russian older adults. For example, the relationship between subjective well-being and receiving and providing support could vary based upon the closeness of the relationship with other people (e.g., spouse/partner, children, relatives, friends, etc.). Moreover, a comparison between older adults belonging to different ethnic groups and living in different Siberian regions could provide a clearer comprehension of what factors may be positively or negatively associated with quality of life.

Life satisfaction and happiness showed very similar results. This study did not aim to evaluate the differences between these two components of subjective well-being, but it aspired to provide a broader description of subjective well-being for a population barely studied. Therefore, we decided to report both indicators and thus to provide an exploratory evaluation of the relationship between different factors and subjective well-being. There are some limitations in this study. First, our sample size was modest and recruited in one of Siberia's regions; therefore, it may not be representative of the general population of older adults living in Siberia. However, it is worth noting that collecting data of a sample representative of Siberia is complex, due to the low population density and its geography. Second, this was a cross-sectional study, which makes it difficult to interpret the causal relationship between the variables we used. Future studies could collect longitudinal data to further investigate the causality link of life satisfaction or happiness with other variables. Finally, we used single-item measures of life satisfaction and happiness. Despite these questions being reliable and valid indicators of subjective well-being (see, for example, European Social Survey 2014; Kroll 2011; Mikucka 2014), future studies could assess respondent's subjective well-being with a multidimensional measurement, which is less subjected to situational factors, like the mood during the interview (see Schwarz and Strack 1999).

This study sheds light on factors related to subjective well-being in older adults living in Siberia. This geographical area received little attention and we provided the first piece of evidence on the relationship between different factors (social aspects, living conditions, self-reported health, and demographic characteristics) and life satisfaction and happiness. This research indicates that social factors, standard of living, and self-reported health satisfaction are related to both the cognitive and emotional components of subjective well-being. Despite further research is needed, in line with a large amount of evidence from different countries, this finding suggests that Siberian older adults receive strong benefits from social support and from their social network and that similar factors are related to subjective well-being both in Siberian and Eastern European older adults.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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