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Quality of life predictors in the aging European population: a multigroup model based on SHARE

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Abstract

The objective of this research is to analyze several predictors of quality of life in aging people in different European regions. This is a cross-sectional study with the sixth wave of the SHARE project (Survey of Health, Ageing and Retirement in Europe). Several sociodemographic and economic indicators were utilized, as well as the CASP-12 (QoL), EURO-D (depressive symptoms), and SPHEU (self-perceived health). Analyses were performed by structural equation modelling techniques. Ten multigroup models were estimated. Results showed significative difference in the predictive capacity in all variables except for chronic diseases. The best predictor of quality of life in all European regions was absence of depression, followed by income, and self-perceived health. No significative differences among the predictive capacity of the number of chronic diseases was found among the assessed groups, although, perceiving ones' health as good and being able to make ends meet were heavy predictors of quality of life. Our results suggest that although QoL might be unevenly predicted by different factors across the four European regions, they all concur in these three main factors: absence of depression, income, and self-perceived health. These findings might be useful to contribute to the development of customized policies targeting the main factors for the improvement of QoL to ensure successful aging.

Keywords

European population, depression, productive aging, quality of life.

Predictores de la calidad de vida en personas mayores europeas: un modelo multigrupo basado en SHARE

Resumen

El objetivo de esta investigación es analizar los predictores de la calidad de vida en personas mayores en diferentes regiones europeas. Se trata de un estudio transversal con la sexta olea del proyecto SHARE (Survey of Health, Ageing and Retirement in Europe). Se utilizaron varios indica-

dores sociodemográficos y económicos, así como el CASP-12 (QoL), EURO-D (síntomas depresivos) y SPHEU (salud autopercibida). Los análisis se realizaron mediante técnicas de modelado de ecuaciones estructurales. Se estimaron diez modelos multimuestra. Los resultados mostraron diferencia significativa en la capacidad predictiva en todas las variables excepto en las enfermedades crónicas. El mejor predictor de la calidad de vida en todas las regiones europeas fue la ausencia de depresión, seguido de los ingresos y la salud autopercibida. No se encontraron diferencias significativas entre la capacidad predictiva del número de enfermedades crónicas entre los grupos evaluados, aunque tener una buena salud se muestra como un factor importante para la calidad de vida. Nuestros resultados sugieren que, aunque la calidad de vida podría predecirse de manera desigual por diferentes factores en las cuatro regiones europeas, todos coinciden en estos tres factores principales: ausencia de depresión, ingresos y salud autopercibida. Estos hallazgos podrían ser útiles para desarrollar políticas personalizadas dirigidas a los principales factores para la mejora de la calidad de vida con el fin de promover un envejecimiento exitoso.

Palabras clave

Población europea, depresión, envejecimiento activo, calidad de vida.

Predictors de la qualitat de vida en persones grans europees: un model multigrup basat en SHARE

Resum

L'objectiu d'aquesta recerca és analitzar els predictors de la qualitat de vida en persones grans i en diferents regions europees. Es tracta d'un estudi transversal amb la sisena fase del projecte SHARE (Survey of Health, Ageing and Retirement in Europe). Es van utilitzar diversos indicadors sociodemogràfics i econòmics, així com el CASP-12 (QoL), EURO-D (símptomes depressius) i SPHEU (salut autopercebuda). Les anàlisis es van dur a terme mitjançant tècniques de modelatge d'equacions estructurals. Es van estimar deu models multimostra i els resultats van assenyalar una diferència significativa en la capacitat predictiva en totes les variables excepte en les malalties cròniques. El millor predictor de la qualitat de vida en totes les regions europees va ser l'absència de depressió, seguit dels ingressos i la salut autopercebuda. No es van trobar diferències significatives entre la capacitat predictiva del nombre de malalties cròniques dels grups avaluats, encara que tenir una bona salut esdevé un factor important per a la qualitat de vida. Els resultats obtinguts suggereixen que, encara que la qualitat de vida es podria predir de manera desigual considerant diferents factors en les quatre regions europees, tots coincideixen en tres factors principals: absència de depressió, ingressos i salut autopercebuda. Aquestes troballes podrien ser útils a l'hora de desenvolupar polítiques personalitzades dirigides als principals factors per a la millora de la qualitat de vida amb la finalitat de promoure un bon envelliment.

Paraules clau

Població europea, depressió, envelliment actiu, qualitat de vida

INTRODUCTION

The general increase in life expectancy is consolidating the emergence of an incipient aging population. The improvement of sanitary assistance and public health, the incorporation of security policies and occupational health, and other social, economic, and demographic factors are some of the causes associated with this phenomenon (Mathers et al., 2015). Since the end of the 20th century, life expectancy has notably increased (WHO, 2019), although scientific literature points out some significant inequalities based on the country of residence (Cobbinah et al., 2015). The increase in life expectancy does not necessarily come along with an increase in quality of life (QoL), thus, it presents a number of special challenges regarding the attention given to the novel needs created in this specific group (Rowe et al., 2016).

Research interest in QoL in Europe has increased due to the need for public policies that guarantee the well-being of the aging population. The WHOQOL group (1995) defined QoL as the individual's perception of one's position in life, in their cultural context, their values, and the relationship with one's objectives, expectations, standards and worries. Despite the numerous definitions of this construct, most authors concur in the convergence of objective and subjective factors which conform all individual wellbeing spheres and the satisfaction a person experience from them (Bognar, 2005).

Quality of life has commonly been conceptualized as a subjective perception, similar to the conceptualization of the World Health Organization (WHOQOL, 1995, p. 1403). The conception of QoL in the current paper is mostly based on Maslow's hierarchy of needs (Maslow, 1968), composed by four dimensions: control, autonomy, self-realization, and pleasure. Control and autonomy are natural prerequisites for feeling involved and participating in society. The extent to which people feel they can get involved is captured by the domains of self-actualization and pleasure (Wiggins et al., 2008). To reinforce this subjective perspective, it should be noted that our approach to QoL, among its four dimensions, includes

pleasure, which is closely aligned with subjective wellbeing theories (Eid & Diener, 2004).

Recent research on QoL has mainly focused on very specific populations (Bojanić et al., 2018), on the development of assessment tools (Mueser et al., 2017), and on factors associated with the increase or decrease of QoL (Halkett et al., 2015). When it comes to QoL in aging populations, Lawton (1991) built a wide conceptual framework for QoL in aging people based on behavioral competences, objective environment, psychological wellbeing and perceived QoL, in which social determinants imply a highly predictive factor. A number of factors converge when predicting QoL, in such a way that when considered all together, the direct effect of age disappears. Tobiasz-Adamczyk et al. (2017) found gender differences in QoL in people more than 50 years old in three different European countries (Finland, Poland, and Spain) based on social support, social involvement, trust, and loneliness, where males appeared to benefit more from social support and social networks, while women benefitted more from social involvement. Along the same lines, loneliness and a lack of social support were found to be determinant in predicting QoL in old people (Hawton et al., 2011). Furthermore, deficient social networks have consistently been related with deterioration of mental and physical health (Gallicchio et al., 2007).

Additionally, morbidity has frequently been associated with depression and with low QoL (Marengoni et al., 2011). Both depression and chronic diseases are considered some of the main causes of discomfort, and the absence of both predicts successful aging (Navarro-González et al., 2017). Similarly, several investigations indicate that depression in aging people increases the risk of death and impacts negatively on QoL (Hohls et al., 2019; Sivertsen et al., 2015). Gilbar et al. (2001) found that elderly people suffering from cancer had significantly lower QoL than their healthy peers, although there were no significant differences in depression. Nevertheless, self-perceived health has also been found to be a predictor of QoL in aging people (Bilgili & Arpaci, 2014).

Studies which analyze QoL in older people point out that the place of residence is a relevant factor. Thus, QoL in adults depends on the wellbeing policies and other factors associated with their country of residence (Conde-Sala et al., 2017). Income has also been found to have a positive effect on QoL, according to studies by Brünner (2019) and Von Dem Knesebeck et al. (2007), performed with the fifth wave of SHARE (Börsch-Supan, et al., 2008). Additionally, Delhey and Dragolov (2016), pointed out that differences also depend on the degree of social cohesion of each society rather than their socio-economical level.

The objective of this study is to examine and compare the predictive capacity of a number of QoL predictors, specifically, number of chronic diseases, self-perceived health, depression, income, living with a partner, and having received and having given help were extracted from the database. Their predictive weight is compared among different European regions of participants in the SHARE (Survey of Health, Ageing and Retirement in Europe) study in order to assess similarities and differences between relevant factors that predict QoL in Europe, with the purpose of contributing information useful for tailored protocols on successful aging.

METHOD

Participants

The sample comprised 48,838 participants, of which 19,853 were men and 23,980 women, with a mean age of 71.94 years (SD= 8.15) and a range of 60 to 105 years old. Participants completed a survey which included demographic variables, as well as several psychological, economic, social, and medical variables. In order to facilitate the interpretation of results, European countries were divided into four regions based on UNSD M49 criteria (2018): Occidental or Western, Southern or Meridional, Northern or Septentrional, and Oriental or Eastern Europe (Table 1). For the

Table 1. Number of participants of each country from the four European regions

	N		N		N		N
Occidental	15726	**Meridional/South**	17933	**Septentrional/North**	9975	**Oriental/East**	5204
Germany	3071	Croatia	1632	Sweden	3397	Poland	1307
Austria	2755	Greece	3558	Finland	–	Czech Republic	3897
Belgium	3883	Slovenia	3161	Estonia	4147	Slovakia	–
France	2861	Italy	3819	Lithuania	–	Hungary	–
Luxemburg	990	Malta	–	Ireland	–	Romania	–
Netherlands	–	Portugal	1265	Denmark	2431	Bulgaria	–
Switzerland	2166	Spain	4498	Latvia	–		

sake of simplicity, these nouns will be used indistinguishably. Groups from different regions are also described separately, for the same reason: the Western subsample was composed of 45.7% men and the rest women, with a mean age of 72 years. The Southern subsample was composed of 46.2% men and 53.8% women, with a mean age also of 72 years. The Northern subsample was composed of 43.5% men and 56.5% women, with a mean age of 72 years. And finally, the Eastern subsample was composed of 57.8% women, and 42.2% men, with a mean age of 71 years. All descriptive statistics of involved variables are presented in Table 2.

Instruments

Instruments and variables utilized in this study were the following:

Sociodemographic and economic data: sex; age; income by the indicator "if they are able to make ends meet" measured as an ordinal variable; social support, measured by the combination of two binary indicators – if they have given help, and if they have received help from other people; living with a partner, coded as a binary variable, and the number of chronic diseases as a quantitative variable.

Table 2. Descriptive statistics of examined variables in the totality and subsamples

		N	Mín.	Max.	Mean	SD
CASP: QoL	Totality of sample	45,327	12	48	36.86	6.43
	Occidental	14,776	13	48	39.06	5.66
	Meridional / South region	16,465	12	48	34.65	6.56
	Septentrional / North region	9,290	15	48	38.00	6.21
	Oriental / East region	4,796	12	48	35.46	5.76
Number of chronic diseases	Totality of sample	48,730	0	8	1.37	1.27
	Occidental	15,701	0	8	1.26	1.23
	Meridional / South region	17,891	0	8	1.45	1.27
	Septentrional / North region	9,945	0	8	1.31	1.28
	Oriental / East region	5,193	0	8	1.53	1.29
Self-perceived health - US version	Totality of sample	48,754	1	5	3.32	1.04
	Occidental	15,699	1	5	3.15	.990
	Meridional / South region	17,901	1	5	3.42	1.02
	Septentrional / North region	9,958	1	5	3.26	1.16
	Oriental / East region	5,196	1	5	3.57	.96
Depression scale EURO-D	Totality of sample	46,133	0	12	2.48	2.29
	Occidental	15,092	0	12	2.34	2.08
	Meridional / South region	16,613	0	12	2.70	2.56
	Septentrional / North region	9,488	0	12	2.34	2.08
	Oriental / East region	4,940	0	12	2.49	2.24
Income (Making ends meet)	Totality of sample	47,250	1	4	2.85	1.02
	Occidental	15,200	1	4	3.28	.85
	Meridional / South region	17,356	1	4	2.36	1.01
	Septentrional / North region	9,685	1	4	3.08	.96
	Oriental / East region	5,009	1	4	2.84	.92

Table 2 (cont.). Descriptive statistics of examined variables in the totality and subsamples.

		Yes	No
Living with partner	Totality of sample	68.9%	31.1%
	Occidental	67.2%	32.8%
	Meridional / South region	72.4%	27.6%
	Septentrional / North region	67.0%	33.0%
	Oriental / East region	65.0%	35.0%
Have received help	Totality of sample	24.3%	75.5%
	Occidental	24.3%	75.6%
	Meridional / South region	19.0%	80.8%
	Septentrional / North region	28.3%	71.3%
	Oriental / East region	35.3%	64.5%
Have given help	Totality of sample	23.7%	76%
	Occidental	29.2%	70.5%
	Meridional / South region	14.2%	85.6%
	Septentrional / North region	30.2%	69.4%
	Oriental / East region	27.6%	72.2%

Perceived QoL assessed by CASP-12 (Wiggins et al., 2008). This is a scale which assesses the degree to which older adults have their needs met, conceptualized by psychosocial factors rather than biological or medical factors. It comprises 12 items over 4 domains: control, autonomy, self-realization, and pleasure, in a Likert scale of four points, with a total score of between 12 and 48, where a higher score indicates higher QoL. Reliability indexes of this scale vary from .74 to .79.

Depressive symptoms, measured by EURO-D (Prince et al., 1999). This scale is composed of 12 items measured with a dichotomic answer (yes/no) and measures depressive symptoms, including depression, pessimism, guilt, irritability, and tearfulness. Alpha of this scale ranges from .61 to .75.

Self-perceived health (SPHEU) was represented by the ordinal item: "Would you say your health is…", measured in a Likert scale of 1-5 points (1 = very good health, 5 = very bad health), and the score was eventually inverted (Mehrbrodt et al., 2019).

Procedure

The research is a cross-sectional poll with data from the sixth wave of SHARE (2018). SHARE is a multidisciplinary and cross-national panel database which gathers a number of variables on health, socioeconomic status, and social and family networks among people over 50 years old. Samples from each country are drawn using probabilistic methods by computer-assisted interviews and the completion of self-administered questionnaires. Sample extraction protocol is comprised of four phases. Details on sampling methods of the SHARE study can be found in Malter and Börsch-Supan (2017). Participants had to be more than 50 years old, with a permanent residence in the country of interest; people who were in jail, hospital, or out of the country were excluded from the sample, as were candidates who did not speak the official language of the country or had an unknown address. Participants who lived in the countries of interest based on the M49 criteria, and who had data regarding the variables of interest were included.

More specifically, regarding country selection, this specific subsample was based on the UNSD M49 criteria (2018). This divides Europe into four regions composed of 27 countries. In this subsample, we had information based on SHARE regarding 17 countries from this division, and these countries were used for the analyses.

Data Analysis

In order to evaluate the predictive capacity of each of these variables, ten structural equation models (SEM) were estimated, particularly, multigroup path analysis: first, a reference model with the entire sample was estimated; secondly, a multigroup model with all parameters constrained to be equal, and subsequently, a parameter was liberated with every estimated model. This procedure allows assessment of the differences in predictive power of every single parameter affecting QoL in the four regions. All variables were treated as observed variables. MLR, a robust estimator, was used for all the models to overcome the non-normality of the items (Hancock & Mueller, 2013). Criteria for acceptable model fit were CFI above .90 (better fit above .95), and RMSEA and SRMR below .08 (Marsh et al., 2004). In large samples,

as is the case here, chi-square indexes tend to always be significative (Tabachnick & Fidell, 2007), which raises the need to evaluate models by the aforementioned alternative fit indexes. Additionally, in multigroup cases, it is also necessary to assess models comparatively, in other words, to compare different models with fixed parameters to decide which model has the best fit maintaining the best possible parsimony. For this reason, chi-square tests were also performed. Internal consistency was estimated with Cronbach's alpha. Alphas and correlations were calculated in SPSS 24 and Structural Equation Models with Mplus 8.3 (Muthén & Muthén, 1998-2017).

RESULTS

Ten multigroup path models were specified and estimated; the first model was a base model in which all parameters were fixed, and served as reference for the rest. All models aimed to predict QoL in different European regions and assess differences in predictive power in the following variables: gender, age, living with partner, social support, number of chronic diseases, if the family makes ends meet, and self-perceived health.

The procedure started with the baseline model in which all parameters were fixed, and subsequently we made each parameter free for estimation one at a time, until all of them were free to be estimated. Ten models were estimated, as well as the chi-square difference tests, and the fit indexes are represented in Table 3. Liberation of all predictor estimates improved the fit of the model significatively except for chronic diseases. The best fitting model was model 9, in which all parameters were free to be estimated except for chronic diseases. The structural coefficients of model 9 are presented in Table 4.

In model 9, gender was a significative variable to predicting QoL in Western, Northern, and Eastern Europe,

Table 3. Fit indexes of all estimated models

	χ^2	gl	p<	CFI	RMSEA	SRMR	SF	$\Delta\chi^2$	Δ gl	p<
M0	389.07	27	.001	.986	.035	.049	1.029			
M1	354.22	24	.001	.987	.035	.049	1.026	35.06	3	.001
M2	296.73	21	.001	.989	.035	.048	1.028	57.69	3	.001
M3	282.303	18	.001	.990	.037	.047	1.029	14.24	3	.01
M4	255.457	15	.001	.991	.038	.049	1.036	25.99	3	.001
M5	212.985	12	.001	.992	.039	.047	1.051	41.81	3	.001
M6	209.915	9	.001	.992	.045	.047	1.058	1.71	3	ns
M7	139.921	9	.001	.995	.036	.018	1.041	72.46	3	.001
M8	80.504	6	.001	.997	.034	.013	1.019	58.58	3	.001
M9	9.915	3	.001	1	.015	.003	1.041	71.92	3	.001

Note. ns= non-significant. Fit of models was assessed by: a) chi-square; b) Comparative Fit Index (CFI); c) Root Mean Square Error of Approximation (RMSEA) with its 90% confidence interval; d) the Standardized Root Mean Residual (SRMR); e) Scaling Factor (SF).

Table 4. Standardized structural coefficients of model 9

	Western region	Southern region	Northern region	Eastern region
Gender	.041*	.009	.076*	.026*
Age	-.037*	-.097*	-.093*	-.089*
Living with partner	.043*	.002	.024*	.006
Have given help	.026*	.043*	.015	.095*
Have received help	-.021*	-.058*	-.029*	-.009
Chronic diseases	-.026*	-.022*	-.024*	-.026*
Depression	-.400*	-.411*	-.371*	-.340*
Income	.226*	.287*	.267*	.203*
Self-perceived health	.242*	.138*	.243*	.187*

Note. *=p<.05, gender was coded as 0=male, 1=female.

but not in the Southern region, showing that being a woman contributes slightly and positively to QoL in the Western, Northern, and Eastern regions of Europe. Age was a significative and negative predictor of QoL in all four regions, while living with a partner had a positive impact on QoL in Western and Northern Europe, but not in the Southern and Eastern regions. Regarding social support, to have given help to others was a positive and significative predictor in all regions except Northern Europe, while receiving help was a negative predictor of QoL in all regions except Eastern Europe. Regarding chronic diseases, it was the only predictor of all that did not have significative differences across the four regions, since it was significative, and with almost the same predictive power everywhere, impacting negatively on QoL. Depressive symptoms was the predictor with the highest weight in predicting QoL in Europe, with its strongest impact in Western and Southern Europe, while it was slightly lower in Northern and Eastern Europe. Income and self-perceived health were both the next most relevant predictors in this model, in which both impacted, positively, in all four regions of Europe. Regarding the predicted variance of QoL, model 9 was able to predict the 43.3% of QoL variance in the Occidental subsample, the 45.6% of variance in the Southern subsample, the 52.5% of variance in the Northern subsample, and the 35.3% in the Oriental subsample.

DISCUSSION

This study analyzes the differences between several predictors of QoL in aging adults in four European regions. Being conscious of some economic inequalities and their impact on subjective wellbeing and QoL is of paramount importance to validate models useful for comparing successful aging processes across countries (Rowe et al., 2016; Veenhoven, 2015).

Predictive capacity of gender, age, living with a partner, having received and given help, number of chronic diseases, depression, and if the household is able to make ends meet was assessed in ten models. In accordance with previous research, this study supported a significative effect of the assessed predictors on QoL (Marengoni, et al., 2011; Sirgy, 2012). Results from this study match results obtained by Bilgili and Arpaci (2014), who found that income, depression, and self-perceived health had particulare relevance in predicting QoL in older people, as well as results from Navarro-González et al. (2017), who found that depression and chronic diseases are considered some of the main causes of discomfort and the absence of both predicts successful aging.

For Park et al. (2014), depression appeared to be the heaviest predictor of QoL in elderly European adults. Along the same lines, results from Hegeman et al. (2012) showed a high prevalence of depression in this collective and pointed out differences in symptomatology compared to other age ranges. Fiske et al. (2009) pointed out that sleeping problems, appetite loss, fatigue and cognitive deficits are the most characteristic symptoms of depression in later stages of life, related to a decrease of QoL and increase in mortality (Sivertsen et al., 2015). Additionally, results from Sentandreu-Mañó et al. (2019) show the impact of frailty on health and QoL in aging people, while Bilgili and Arpaci (2014) highlighted the relevance of self-perceived health. For this reason, results from this study stress the need for deeper research into this topic.

Income assessed by the capacity of making ends meet was the second most important variable to predict QoL in southern, northern, and eastern regions of Europe. These results are in line with results from Von Dem Knesebeck et al. (2007) and Brünner (2019), who utilized a previous wave of SHARE and found a relationship between income and QoL in Austria, Denmark, France, Germany, Greece, Italy, Netherlands, Spain, and Sweden, but not in Switzerland. Nordic countries are characterized by better social provisions and protection than the other European regions, although also higher isolation and suicide rates. Southern and eastern European countries are characterized by higher economical inequalities and more limited social wellbeing, with the family nucleus providing the services which are not provided by the state (Niedzwiedz et al., 2014; Whelan & Maître, 2010).

Regarding the two predictors related to social support (giving help and receiving help from others), they were both significative as predictors of QoL in most European regions, except for giving help in Northern Europe, and receiving help in Eastern Europe. Some researchers have pointed out that social networks and social support have a positive influence on wellbeing, physical, and mental health (Ellwardt et al., 2015; Hawton et al., 2011; Kelly et al., 2017; Pinquart & Sorensen, 2000). The promotion of social networks becomes essential in this age range, as scientific literature indicates that social support often diminishes with aging (Fuller-Iglesias et al., 2015).

In recent years, there has been an increase in studies exploring the relationship between QoL and different chronic diseases (Marengoni et al., 2011). A systematic review performed by Megari (2013) concludes that most studies evidence a loss in QoL as a consequence of suffering from disease. In this sample, as in previous literature, chronic diseases were a negative predictor of QoL, although it seems that the perception of the effects of the disease is more relevant in the persons' subjective experience than the disease itself.

In this study, the proportion of QoL predicted ranged between 35.3% and 52.5%. The region where it was best predicted was the Northern European region, while the region in which it was the least was the oriental or eastern region. These results suggest that policies based on the aforementioned predictors would be most effective in Northern Europe. This might be due to the fact that

there could be other relevant predictors for QoL in Eastern European that were not examined in this study.

This study significatively contributes to fundamental knowledge on successful aging given that it is performed with a representative sample of Europe, comprising 43,833 participants from the sixth wave of SHARE released in 2017; these characteristics of the sample suggest that the results can be reliably generalized. Additionally, although many researchers have used this database for research purposes, as far as we are concerned there has been no other study which compares the weight of different QoL predictors while at the same time segregating by the main European regions in a multivariate context. These findings might be useful in contributing to the development of customized policies targeting the main factors for the improvement of QoL in each region, as Reig (2003) pointed out, there is a need for the optimization of these QoL dimensions in order to ensure successful aging.

However, this study still has several limitations to be improved upon in following studies: first, the income measures used are different in this study and studies examined: making ends meet, socioeconomic level, Standard and Poor's index (8 variables from SHARE), etcetera. This fact makes comparison among them less reliable since we are comparing similar, but not the same constructs. Second, the concepts of QoL and wellbeing could generate confusion. This study uses EURO-D as a measurement for depressive symptoms and CASP-12 as a measurement of perceived QoL. These were the available variables in the database; however, alternative approaches are admissible. Third, to predict QoL, this research combines objective indicators such as number of chronic diseases, income, living or not with a partner, giving help, receiving help, age, and gender with rather subjective measures based on perceptions of self-perceived health or depression. Although both types of measures simultaneously contribute to QoL prediction, a limitation of this research is not including more subjective measures which may be relevant to QoL prediction. And lastly, some factors such as loneliness, lack of mobility, or degree of social cohesion in the society, while not in our objectives and not included in the research, could shed light on the topic in further research when considered in multivariate contexts.

Findings from this study suggest that although QoL might be unevenly predicted by different factors across the four European regions, they all concur in these three main factors: absence of depression, income, and self-perceived health. Hence, future research should focus on the study of depressive patterns in aging people in order to elaborate prevention and treatment programs for this collective. Wu et al. (2004) suggested that chronic illnesses have an impact on depression in the elderly, meaning that focusing on improving health condition in aging adults with chronic illnesses could reduce depressive symptoms and, in turn, increase QoL. We also suggest that future research should continue to investigate the promotion of successful aging, understood as something more than an increase of life expectancy, and also considering health and QoL (WHO, 2015). Results from this study should be considered and the relationships between depression, self-perceived health, and income should be further studied in this type of population. For this, longitudinal studies are required in order to assess the evolution variables and to be able to develop effective strategies to better promote QoL in the aging European population.

Conflict of interest

The authors declare there is no conflict of interest in publishing this article.

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