



ORIGINAL ARTICLE

Depression and variables associated with quality of life in people over 65 in Spain and Europe. Data from SHARE 2013



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Abstract

Background and objectives: The perception of quality of life (QoL) in people over 65 years of age can be affected by individual clinical and sociodemographic characteristics, and also by the nature of the welfare models in place in particular countries. The objective of this study was to compare the association between clinical/sociodemographic variables and QoL in people ≥ 65 in samples from Spain and from Central-Northern European countries, using data from the SHARE (Survey of Health, Ageing and Retirement in Europe) study.

Methods: Data from 22,189 participants in Wave 5 (2013) of the SHARE study were obtained. Instruments: CASP-12 (quality of life) and EURO-D (depression). Statistical analysis: Bivariate and multiple linear regression and correlations.

Results: In the regression analysis, the variables most closely associated with a lower QoL (CASP-12) in both groups (Spain, $r^2 = 0.586$ and Central-Northern Europe, $r^2 = 0.453$) were high depression ($\beta = 0.444$ vs. 0.361), poor physical health, economic difficulties, and deficits in activities of daily living (ADL); low level of education was relevant only in the Spanish sample. The mean QoL score in Spain was lower than in the other countries (34.8 ± 6.8 vs. 38.5 ± 5.8 , $p < 0.001$; $d = 0.58$) and depression was more frequent (34.9% vs 27.4%, $p < 0.001$; $V = 0.06$).

Conclusions: In all countries, low QoL was associated with high rates of depression and poor physical health. The Spanish sample had lower QoL than their Central-Northern European counterparts. A high rate of depression was the most relevant differential variable.

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Introduction

As the population ages due to the increase in life expectancy and the reduction in birth rates,¹ the health status of the elderly and their quality of life (QoL) have become issues of particular importance.²

In old age, many aspects of health or everyday living take on a special relevance, often for the first time in an individual's life: for example, physical health, functional status,^{3–6} relationships and social support,^{7–10} adequate financial resources,^{11–13} satisfaction with life,^{14–16} presence of depression,^{17–23} age, gender and marital status.^{13,24–33} The present study sets out to analyze the aspects specifically associated with QoL in older adults.

Generally speaking, characteristics of aging such as poorer physical health and greater difficulties in activities of daily living (ADL)^{3–5} tend to have a negative effect on levels of well-being.²⁴ Nevertheless, several authors argue that a healthy lifestyle including regular physical exercise and engagement in leisure activities can raise levels of QoL in older adults, while at the same time attenuating possible depressive symptoms.^{17,19–21} For its part, social support can also mitigate depressive symptoms by favoring increased QoL,⁹ which is associated with higher life satisfaction.^{14,16}

As regards gender, several studies have found that women generally report lower QoL than men.^{3,26–31} Gender also affects the experience of widowhood, suggesting that there are complex couple dynamics that mediate the relationship between marital status and QoL.^{32,33}

It has been proposed that socioeconomic status does not affect QoL in the elderly, but that higher educational level is associated with greater well-being.³⁴ However, other studies maintain that both aspects influence the perception of QoL,^{11–13} while still others propose a relation between QoL and employment status.^{35,36}

Comparing levels of QoL in different geographical settings, some research suggests that the variations between countries depend more on the degree of cohesion of a particular society than on its level of wealth and resources.³⁷ Other studies, however, claim the opposite, suggesting that QoL in older adults is higher in states with more generous welfare systems.^{38,39}

The countries of Eastern and Southern Europe are characterized by greater limitations in social benefits, greater economic inequalities and a lower QoL than in Central and Northern European countries.⁴⁰ As QoL is similar in Spain and in the other countries of Southern and Eastern Europe,³⁹ we thought it would be interesting to contrast the characteristics of the Spanish sample with samples from Central and Northern European countries and to try to identify the variables that were most responsible for the marked differences between these populations.

Thus, the objective of this study was to analyze and compare the relationship of clinical and sociodemographic variables with QoL in the over-65s in Spain and in the Central and Northern European countries participating in the SHARE study.

Method

Design and study population

The data used were taken from Wave 5 of the Survey of Health, Ageing and Retirement in Europe (SHARE) study, held in 2013. This multidisciplinary and transnational study of 14 European countries and Israel recorded information on the health, socioeconomic status, social and family networks of non-institutionalized elderly people.^{41,42}

The present cross-sectional study compared the data recorded in SHARE for the Spanish sample with the samples from Northern and Central European countries. The final sample comprised 3355 participants over 65 years in Spain and 18,834 from Central Europe (Switzerland, Luxembourg, Austria, Germany, Belgium and France) and Northern Europe (Denmark, Netherlands and Sweden) all countries with welfare models that present better indicators than Spain.⁴³

Variables and Instruments

- a) *Sociodemographic data.* Data regarding age (classified into age groups: 65–69 years, 70–74 years, 75–79 years, ≥80 years), gender, marital status (married, single, divorced, widowed) and educational level (0–5 years of schooling, 6–8 years, 9–12 years, >12 years) were recorded.
- b) *Socioeconomic data.* Employment status (retired, home-maker, in employment, unemployed/disabled) and difficulties making ends meet (with great difficulty, with some difficulty, fairly easily, easily) were recorded.
- c) *Exercise and activities.* The performance of physical exercise and engagement in individual or social activities was assessed.
- d) *Physical health.* Physical health (very good, good, fair, poor) and difficulties with ADL (none, 1–2, >2), were evaluated.
- e) *Depressive symptoms.* The EURO-D scale was used to assess depression. This scale comprises 12 items (presence of depressive symptoms, pessimism, death wishes, guilt, irritability, tearfulness, fatigue, sleep problems, loss of interest and appetite, reduced concentration and loss of the capacity of enjoyment in the last month), using a cut-off point for clinically significant depressive symptomatology of ≥4.^{44,45} The answers were dichotomous (yes/no) and the final score ranged from 0 to 12 points, with higher scores indicating more depressive symptoms. Cronbach's alpha in the Eurodep Study⁴⁶ was moderate, between 0.61 and 0.75, while in the present study it was 0.71.
- f) *Quality of life (QoL).* The CASP-12 scale (Control, Autonomy, Pleasure and Self-realization),^{41,47} the shortened version of the original CASP-19 scale,⁴⁸ was designed specifically for use in SHARE (CASP-12 v.1).⁴⁹ The scale is composed of 12 items covering four areas (control, pleasure, autonomy and self-realization), which are evaluated on a 4-point Likert scale. The score range is 12–48

points; QoL is rated as low (<35 points), moderate (35–37 points), high (38–39 points) and very high (>39 points).⁴⁸ Cronbach's alpha was 0.84 in the analysis of the psychometric properties of the scale,⁴⁸ and 0.80 in the present study.

Procedure

The information was compiled during a 90-min interview at the participant's home which included questions about physical health, risk behaviors, cognitive performance, mental health, employment and pension, family and social relationships, financial issues, housing, family income, consumption, activities and expectations.^{41,47}

Statistical analysis

A descriptive study of the clinical and sociodemographic characteristics of the sample was performed using means and standard deviation for continuous variables and frequencies for categorical variables. The contrasts of the categorical variables were performed using the Chi-square test and those of the continuous variables using Student's *t* and *F* (ANOVA). Data from the Spanish sample were compared with those from their Central-Northern European counterparts.

To complement the significance assessment, the effect size of the differences was calculated. For the difference between two means, we used Cohen's (*d*), whose values indicated weak (<0.5), moderate (0.5–0.8) or strong (>0.8) effects,⁵⁰ and between several means, the eta squared (η^2), which identifies weak (<0.05), moderate (0.06–0.13) or strong (>0.13)⁵¹ effects. To evaluate the effect size of the differences in categorical variables, we used the Cramer *V* (*V*) whose values depend on the degrees of freedom (df 1 = weak: ≤ 0.10 , moderate: 0.11–0.49, strong: ≥ 0.50 ; df 2 = weak: ≤ 0.07 , moderate: 0.08–0.34, strong: ≥ 0.35 ; df 3 = weak: ≤ 0.06 , moderate: 0.07–0.28, strong: ≥ 0.29).⁵⁰

To identify the influence of the independent variables on the QoL in the Spanish and Central-Northern European samples, two adjusted multiple linear regression analyses were performed in which all the variables were introduced in a single step. The coefficient of contribution (CC) of each variable was calculated according to the solution suggested by Guilford & Fruchter⁵²: beta coefficient \times correlation coefficient (Pearson) with the dependent variable.

Finally, to assess the main indicators of QoL and depression in Central and Northern Europe, each country participating in the study was analyzed individually, assessing the mean scores of CASP-12 and EURO-D, the frequency of scores ≥ 4 on the EURO-D and the correlations between the CASP-12 and the main variables. Correlations were assessed using the Pearson coefficient, whose values indicate weak (<0.35), moderate (0.35–0.50) and strong (>0.50)⁵³ effects.

In all the analyses population-weighted data was used, with the weights provided by SHARE in the specific module "gv_weights", which compensate for the unequal selection probabilities of the population parameters.⁴²

The level of statistical significance for the contrasts of hypotheses was 0.05. Statistical analysis was performed using SPSS v22.0 for Windows (SPSS Inc., Chicago).

Results

Clinical and sociodemographic data of the sample

The study population consisted of 22,189 participants, with a mean age of 74.9 ± 7.1 years. Women comprised 53.5% of the sample, 67.8% of participants were married and 19.6% were widowed; most were retired (86.9%), 20.9% had difficulties making ends meet, 49.8% took some physical exercise and 86.4% engaged in some individual and/or social activity. Table 1 shows the clinical and sociodemographic data for the Spanish and Central-Northern European samples.

The greatest differences between the samples were in level of education; the Spanish sample had fewer years of schooling than their Central-Northern European counterparts ($\leq 8 = 69.9\%$ vs. 26.4%, $V = 0.43$). The percentage of retired people was lower in Spain (65.2% vs 91.8%, $V = 0.33$). The Spanish sample reported more economic difficulties (45.6% vs. 20.2%, $V = 0.25$), and lower levels of participation in individual and/or social activities (56.8 vs. 92.1%, $V = 0.38$).

As regards depression, the mean overall EURO-D score in Spain was 2.9 ± 2.7 points, with 34.9% of the sample presenting clinically significant depressive symptomatology (≥ 4). In the Central-Northern European sample the mean score was 2.4 ± 2.1 points, and clinically significant depressive symptoms were found in 27.4%.

As for QoL (measured by CASP-12), the mean overall scores were 34.8 ± 6.8 in Spain and 38.5 ± 5.8 in Central-Northern Europe ($p < 0.001$, $d = 0.58$).

Variables associated with specific levels of QoL

The bivariate analysis (Table 2) indicated lower levels of QoL with higher ages in both samples, with a moderate effect size in Spain. As for gender, women had lower QoL in both groups, as did the widowed participants in Spain and the non-married participants in Central-Northern Europe. However, the results showed a weak effect size.

Less schooling was associated with a lower QoL, with a moderate effect size in Spain, as was being unemployed or disabled. In Central and Northern Europe, lower QoL was also associated with less schooling (≤ 8 years) and unemployment, although in this group the effect sizes were not significant.

In both samples, engaging in individual or social activities and taking physical exercise were associated with a higher QoL, with moderate effect sizes.

The variables with the most negative influence on the perception of QoL were economic difficulties, ADL deficits, physical health and depression, which all presented strong effect sizes. Effect sizes were always higher in the Spanish sample. The complete results are shown in Table 2.

Table 1 Clinical and sociodemographic data of the sample.

	Spain	Europe (C & N)
	<i>n</i> = 3.355	<i>n</i> = 18.834
Age		
Mean (SD)	74.9 (7.1)	74.9 (7.1)
Range	65-104	65-102
<i>t</i> (<i>p</i>) <i>df</i> ; <i>d</i>	(<0.001) 1; 0.00	
Age, groups, %		
65-69 years	30.5	27.8
70-74 years	19.6	25.5
75-79 years	23.0	19.7
≥80 years	26.9	27.0
χ^2 (<i>p</i>) <i>df</i> ; <i>V</i>	(<0.001) 3; 0.05	
Gender, %		
Men	43.3	43.4
Women	56.7	56.6
χ^2 (<i>p</i>) <i>df</i> ; <i>V</i>	(<0.001) 1; 0.00	
Marital status, %		
Married	61.5	62.5
Widowed	26.4	23.3
Single	8.8	4.9
Divorced	3.3	9.3
χ^2 (<i>p</i>) <i>df</i> ; <i>V</i>	(<0.001) 3; 0.10	
Educational level, groups, %		
0-5 years	39.5	5.6
6-8 years	30.4	20.9
9-12 years	17.6	41.8
>12 years	12.5	31.7
χ^2 (<i>p</i>) <i>df</i> ; <i>V</i>	(<0.001) 3; 0.43	
Employment status, %		
Retired	65.2	91.8
Housework	30.4	5.3
Working	1.4	2.4
Unem./Disabled	3.0	0.5
χ^2 (<i>p</i>) <i>df</i> ; <i>V</i>	(<0.001) 3; 0.33	
Economic difficulties, %		
Great difficulty	15.0	3.7
Some difficulty	30.6	16.6
Fairly easily	30.5	31.4
Easily	23.9	48.3
χ^2 (<i>p</i>) <i>df</i> ; <i>V</i>	(<0.001)3; 0.25	
Exercise, %		
Yes	33.5	48.3
No	66.5	51.7
χ^2 (<i>p</i>) <i>df</i> ; <i>V</i>	(<0.001) 1; 0.11	
Activities, %		
No	43.2	7.9
Yes	56.8	92.1
χ^2 (<i>p</i>) <i>df</i> ; <i>V</i>	(<0.001) 1; 0.38	

Table 1 (Continued)

Physical health, %		
Very good	12.4	18.1
Good	35.2	39.7
Fair	32.7	31.3
Poor	19.7	10.9
χ^2 (<i>p</i>) <i>df</i> ; <i>V</i>	(<0.001) 3; 0.11	
ADL difficulties, %		
No	79.8	81.6
1-2	9.3	10.9
>2	10.9	7.5
χ^2 (<i>p</i>) <i>df</i> ; <i>V</i>	(<0.001) 2; 0.04	
EURO-D		
Range 0-12 M (SD)	2.9 (2.7)	2.4 (2.1)
<i>t</i> (<i>p</i>) <i>df</i> ; <i>d</i>	(<0.001) 1; 0.19	
Cut-off point, %		
<4	65.1	72.6
≥4	34.9	27.4
χ^2 (<i>p</i>) <i>df</i> ; <i>V</i>	(<0.001) 1; 0.06	
CASP-12		
Range 12-48 M (SD)	34.8 (6.8)	38.5 (5.8)
<i>t</i> (<i>p</i>) <i>df</i> ; <i>d</i>	(<0.001) 1; 0.58	

t = Student test; χ^2 = Chi-squared. Effect size: Cohen's *d* = weak (<0.50), moderate (0.50-0.80); *V* = Cramer (*df* 1 = weak: ≤0.10, moderate: 0.11-0.49, strong: ≥0.50; *df* 2 = weak: ≤0.07, moderate: 0.08-0.34, strong: ≥0.35; *df* 3 = weak: ≤0.06, moderate: 0.07-0.28, strong: ≥0.29). Moderate and strong effect sizes are shown in bold.

CASP-12 = quality of life; EURO-D = depression; ADL = activities of daily living.

Europe (C & N): Denmark, the Netherlands, Switzerland, Luxembourg, Austria, Sweden, Germany, Belgium, France.

Multivariate analysis of variables associated with QoL (CASP-12)

Two linear regression analysis were adjusted, one for Spain and one for Central-Northern Europe (Table 3). All the independent variables were introduced in a single step: age, gender, marital status, educational level, employment status, activities, level of exercise, economic difficulties, ADL deficits, physical health and depression. Variables with a high degree of collinearity and/or low coefficient of contribution ($\beta < 0.07$) were eliminated. The final model comprised the following variables: depression, physical health, economic difficulties, ADL deficits, educational level and physical exercise.

The variables associated with a lower QoL in both samples were the presence of depressive symptoms, poor physical health, difficulties making ends meet, and ADL deficits. Depression was the variable with the greatest difference between the two samples ($\beta = 0.444$ vs. 0.361), with Spain's coefficient of contribution being 10 points higher (30.1% vs 20.1%). Economic difficulties, ADL deficits and years of schooling had a slightly greater weight in Spain, while

Table 2 Quality of life (CASP-12) and associated variables.

	Mean (SD)		Differences Cohen's <i>d</i>
	Spain	Europe (C & N)	
<i>Age</i>			
65–69 years	36.5 (5.9)	39.9 (5.4)	0.60
70–74 years	35.9 (6.7) ^a	39.2 (5.6) ^a	0.53
75–79 years	34.6 (6.6) ^{b,d}	38.4 (5.8) ^{b,d}	0.61
≥80 years	32.1 (7.2) ^{c,e,f}	36.7 (6.1) ^{c,e,f}	0.68
<i>F(p) η²</i>	(<0.001) 0.06	(<0.001) 0.04	
<i>Gender</i>			
Male	36.1 (6.2)	39.0 (5.7)	0.48
Female	33.8 (7.1)	38.2 (5.9)	0.67
<i>t(p) d</i>	(<0.001) 0.34	(<0.001) 0.13	
<i>Marital status</i>			
Married	35.5 (6.4)	39.2 (5.5)	0.62
Single	36.7 (7.2) ^a	37.2 (6.1) ^a	0.07
Divorced	34.3 (7.9) ^{b,d}	37.4 (6.1) ^{b,d}	0.43
Widowed	32.5 (6.8) ^{c,e,f}	37.5 (6.3) ^{c,e,f}	0.76
<i>F(p) η²</i>	(<0.001) 0.04	(<0.001) 0.02	
<i>Education level</i>			
0–5 years	32.4 (6.8)	37.6 (6.6)	0.77
6–8 years	35.8 (6.4) ^a	37.2 (6.0) ^a	0.22
9–12 years	36.4 (6.2) ^{b,d}	38.5 (5.8) ^{b,d}	0.34
>12 years	38.5 (5.4) ^{c,e,f}	39.7 (5.2) ^{c,e,f}	0.22
<i>F(p) η²</i>	(<0.001) 0.10	(<0.001) 0.02	
<i>Employment status</i>			
Working	38.7 (5.1)	41.6 (4.8)	0.58
Retired	36.0 (6.2) ^a	38.6 (5.7) ^a	0.43
Housework	32.8 (7.1) ^{b,d}	38.3 (6.1) ^{b,d}	0.83
Unem./Disabled	28.2 (6.3) ^{c,e,f}	34.4 (6.4) ^{c,e,f}	0.97
<i>F(p) η²</i>	(<0.001) 0.07	(<0.001) 0.00	
<i>Activities</i>			
No	32.3 (6.9)	34.6 (6.9)	0.33
Yes	36.7 (6.1)	39.0 (5.5)	0.39
<i>t(p) d</i>	(<0.001) 0.67	(<0.001) 0.70	
<i>Exercise</i>			
Yes	37.2 (5.2)	40.2 (4.9)	0.59
No	33.6 (7.2)	37.0 (6.2)	0.50
<i>t(p) d</i>	(<0.001) 0.57	(<0.001) 0.57	
<i>Economic difficulties</i>			
Great difficulty	29.8 (6.8)	33.4 (6.8)	0.52
Some difficulty	33.3 (6.2) ^a	35.1 (5.9) ^a	0.29
Fairly easily	35.6 (6.3) ^{b,d}	38.4 (5.2) ^{b,d}	0.48
Easily	38.7 (5.2) ^{c,e,f}	40.4 (5.1) ^{c,e,f}	0.33
<i>F(p) η²</i>	(<0.001) 0.17	(<0.001) 0.13	
<i>ADL difficulties</i>			
No	36.5 (5.9)	39.6 (5.2)	0.55
1–2	29.8 (5.5) ^a	35.2 (5.5) ^a	0.98
>2	26.6 (5.8) ^{b,d}	31.6 (6.1) ^{b,d}	0.84
<i>F(p) η²</i>	(<0.001) 0.25	(<0.001) 0.16	

Table 2 (Continued)

	Mean (SD)		Differences Cohen's <i>d</i>
	Spain	Europe (C & N)	
<i>Physical health</i>			
Very good	40.0 (4.6)	42.6 (4.0)	0.60
Good	37.5 (5.4) ^a	40.0 (4.7) ^a	0.49
Fair	34.1 (5.7) ^{b,d}	36.8 (5.4) ^{b,d}	0.48
Poor	27.9 (6.2) ^{c,e,f}	32.1 (6.3) ^{c,e,f}	0.67
<i>F(p) η²</i>	(<0.001) 0.32	(<0.001) 0.25	
<i>EURO-D</i>			
<4	37.7 (5.0)	40.2 (4.8)	0.51
≥4	29.4 (6.5)	34.0 (6.0)	0.73
<i>t(p) d</i>	(<0.001) 1.43	(<0.001) 1.14	

F = ANOVA; Bonferroni post hoc contrast: ^a1–2, ^b1–3, ^c1–4, ^d2–3, ^e2–4, ^f3–4; *t* = Student test; effect size: eta-squared (η^2) = weak (<0.05), moderate (0.06–0.13), strong (>0.13); Cohen *d* = weak (<0.50), moderate (0.50–0.80), strong (>0.80); CASP-12 = quality of life; EURO-D = depression. ADL = activities of daily living; moderate and strong effect sizes are shown in bold.

Table 3 CASP-12. Multiple linear regression.

CASP-12	Spain				
	<i>r</i> ² = 0.586	β	<i>p</i>	<i>r</i>	CC
EURO-D, depression	(Higher)	0.444	<0.001	0.679	30.1
Physical health	(Lower)	−0.200	<0.001	−0.546	10.9
Economic difficulties	(More)	0.205	<0.001	0.423	8.7
ADL difficulties	(More)	0.121	<0.001	0.461	5.6
Education	(Lower)	−0.085	<0.001	−0.335	2.8
Exercise	(No)	0.021	<0.001	0.238	0.5
<i>F(df), p</i>	629.2 (6, 3013) <0.001				
Collinearity: Tol./VIF	0.65–0.88/1.13–1.53				
CASP-12	Europe (C & N)				
	<i>r</i> ² = 0.453	β	<i>p</i>	<i>r</i>	CC
EURO-D, depression	(Higher)	0.361	<0.001	0.557	20.1
Physical health	(Lower)	−0.221	<0.001	−0.493	10.9
Economic difficulties	(More)	0.217	<0.001	0.362	7.8
ADL difficulties	(More)	0.123	<0.001	0.355	4.4
Education	(Higher)	0.003	<0.001	0.144	0.0
Exercise	(No)	0.076	<0.001	0.275	2.1
<i>F(df), p</i>	2137.7 (6, 17322) <0.001				
Collinearity: Tol./VIF	0.71–0.92/1.06–1.40				

F, ANOVA; *r*², coefficient of determination; β , standardized beta coefficient >0.07; *t*, Student's test; *r*, Pearson correlation (order-zero); CC, coefficient of contribution (%), [($\beta \times r$) \times 100]. Tol, tolerance; VIF, variation inflation factor. CASP-12 = quality of life.

physical exercise exerted a greater weight in the Central-Northern European countries.

Main indicators of QoL and depression in Europe

The differences in QoL mean scores (CASP-12) between the countries were moderate. The highest scores were recorded in Denmark, the Netherlands and Switzerland, and the lowest in Spain, France and Belgium (Table 4).

The differences in EURO-D mean scores between the countries had a weak effect size, while the differences in the percentages of population with clinically significant depressive symptomatology (≥ 4) had a strong effect size. The highest percentages of depression were recorded in Spain, France, Belgium and Luxembourg and the lowest in Denmark, the Netherlands, Switzerland and Sweden.

The correlations between the CASP-12 and the EURO-D were moderate or strong in all countries ($r = -0.59$), and were somewhat lower with other variables: physical health ($r = 0.51$), ADL deficits ($r = -0.40$) and economic difficulties

Table 4 Principal indicators of QoL and depression in Europe.

Countries	<i>n</i>	CASP-12 Mean (SD)	EURO-D		CASP-12 correlations				EURO-D correlations		
			Mean (SD)	≥4(%)	EURO-D	Health	ADL	Econ. Diff.	Health	ADL	Econ. Diff.
					<i>r</i>	<i>r</i>	<i>r</i>	<i>r</i>	<i>r</i>	<i>r</i>	<i>r</i>
Denmark	1.901	41.2 (5.1)	1.6 (1.7)	15.8	-0.57	0.52	-0.42	-0.28	-0.45	0.33	0.17
Netherlands	2.113	40.5 (5.4)	1.8 (1.9)	17.7	-0.54	0.44	-0.29	-0.32	-0.39	0.26	0.21
Switzerland	1.611	40.5 (4.9)	1.9 (1.7)	19.1	-0.43	0.42	-0.29	-0.36	-0.37	0.23	0.13
Luxembourg	655	39.6 (5.4)	2.5 (2.2)	29.4	-0.53	0.46	-0.35	-0.26	-0.48	0.33	0.12
Austria	2.278	39.3 (5.8)	2.1 (2.0)	22.5	-0.57	0.49	-0.36	-0.34	-0.49	0.34	0.20
Sweden	2.765	39.1 (5.2)	2.0 (1.8)	19.1	-0.47	0.47	-0.28	-0.33	-0.42	0.22	0.21
Germany	2.545	38.6 (5.7)	2.3 (2.0)	24.5	-0.54	0.47	-0.36	-0.40	-0.42	0.35	0.20
Belgium	2.632	37.7 (6.1)	2.4 (2.2)	27.8	-0.54	0.49	-0.38	-0.31	-0.47	0.35	0.19
France	2.334	37.5 (6.1)	3.0 (2.3)	37.9	-0.59	0.53	-0.43	-0.33	-0.46	0.33	0.18
Spain	3.355	34.8 (6.8)	2.9 (2.7)	34.9	-0.68	0.56	-0.46	-0.42	-0.50	0.47	0.27
<i>F/χ²; p</i>		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Effect size		η² = 0.07	η ² = 0.03	V = 0.16–0.59	0.51	-0.40–0.41	-0.46	0.37	0.23		
Central-North.	18.834	38.5 (5.8)	2.4 (2.1)	27.4	-0.57	0.50	-0.38	-0.37	-0.44	0.33	0.20
Spain	3.355	34.8 (6.8)	2.9 (2.7)	34.9	-0.68	0.56	-0.46	-0.42	-0.50	0.47	0.27
<i>t/χ²; p</i>		<0.001	<0.001	<0.001							
Effect size		d = 0.58	d = 0.20	V = 0.06							

F = ANOVA; χ^2 = Chi-squared. *t* = Student's test; *r* = Pearson's correlation; effect size: eta-squared (η^2) = weak (<0.05), moderate (0.06–0.13), strong (>0.13); *V* = Cramer, *df* 1 = weak (≤ 0.10), moderate (0.11–0.49), *df* > 5 = moderate (0.13–0.22), strong (>0.22); correlation: weak (<0.35), moderate (0.35–0.50), strong (>0.50); Cohen's *d* = weak (<0.50), moderate (0.50–0.80), strong (>0.80). Moderate and strong effect sizes are shown in bold.

CASP-12 = quality of life; EURO-D = depression. Physical health. Econ. Diff. = economic difficulties; ADL = difficulties in activities of daily living.

($r = -0.41$). The Spanish sample showed the highest correlations between QoL and all the variables, with a particularly high correlation between CASP-12 and EURO-D ($r = -0.68$).

The correlations of the EURO-D with the variables analyzed in all the countries taken together had a lower effect size than those of the CASP-12, and the relationship between depression and economic difficulties was not very significant. In Spain, the same trend occurred, although the correlations of EURO-D with health ($r = -0.50$) and ADL difficulties ($r = 0.47$) continued to have a relevant effect. The complete data are shown in Table 4.

Years of education showed notable differences between Spain and the rest of the countries. While in Spain the correlation with the CASP-12 was 0.33, in the rest of countries it had a very weak value of 0.14. The correlations of years of education with EURO-D were low in all countries.

Discussion

Relationship between clinical and sociodemographic variables and QoL

The first objective of the study was to explore the relationship between clinical and sociodemographic variables and QoL in people older than 65 years in samples from Spain and from Central-Northern European countries. The analysis showed that the most relevant variables associated with a lower QoL in both samples were the presence of depressive symptoms, poor physical health, difficulties performing ADL,

economic difficulties and not engaging in social activities and/or physical exercise.

These results corroborate those of previous studies which have indicated negative correlations between depression and QoL.^{9,10} Regarding physical health, several studies have found an association between poor physical health and a higher presence of depressive symptoms, greater functional decline and more difficulties performing ADL.^{3–6} Studies of the practice of leisure activities indicate that they improve QoL,^{21–23} decreasing the risk of marginalization and/or loneliness in older adults.^{20,54} Likewise, the practice of physical exercise appears to be associated with better cognitive functioning, a reduction in depressive symptoms, and better well-being and higher QoL in the elderly.^{17,19} Finally, economic difficulties are an obstacle to high QoL, due to the associated feelings of anxiety and insecurity.^{11–13}

Differential aspects in QoL in Spain and Europe

The associations of certain variables with QoL present differences between the samples from Spain and Central-Northern Europe. While older age, unemployment and lower educational level are related with a lower QoL in Spain, in Central-Northern Europe these associations were not significant. Our results for the Spanish sample are in agreement with previous studies which associated younger age, employment and high levels of schooling with higher QoL.^{3–6,11–13,24,35,36,56}

On the other hand, poor physical health, ADL deficits and more economic difficulties were more strongly associated

with a lower QoL in Spain than in the other countries analyzed. Some authors attribute the differences in the variables associated with depression and QoL between countries to the social welfare models in place.^{39,55} Other studies associate economic difficulties with poor health and the presence of depression, especially in southern Europe, stressing that social welfare models may be able to mitigate and/or reverse the effects of these variables on QoL in older adults.⁵⁷

Some authors relate possible differences in the perception of QoL with national characteristics and cultural factors,⁵⁸ while others emphasize economic aspects and education as the key determining variables.³⁸ The type of social policies implemented in different countries, and specifically their level of generosity, may also influence the differences in perceptions of QoL.⁵⁹ In their study of the variables affecting loneliness and depression in different European regions, Van Tilburg and Dykstra⁶⁰ concluded that social welfare models should be taken into account as well as individual and cultural aspects.

In a study using data from the 2002 World Health Survey to compare seven social welfare models (Conservative, South-east Asia, Eastern Europe, Latin America, Liberal, South and Social Democratic), respondents from countries in Southern Europe were more likely to have presented depressive symptoms in the last 12 months.⁶¹ Also coinciding with the trend found in the present study, other research has found associations between economic income and social inequality and depression and lower QoL, with worse results in Spain, Italy and Greece.⁶²⁻⁶⁵

However, although the indicators suggest lower QoL in Spain, the suicide rate in older people ($\times 100.000$) is lower (50-69 years = 9.6/ ≥ 70 years = 13.9) than in the European countries analyzed (50-69 years = 19.8/ ≥ 70 years = 20.9).^{39,66} Some authors attribute this to the greater strength of the family system in Spain which may act as a protective factor.⁶⁷

Quality of life and depression

The analysis of the data highlights the important association between depression and QoL in all the countries analyzed, and particularly in the Spanish sample. They are two different constructs, although it could be said that the assessment of the QoL encompasses a wider scope than the depression itself, being more closely related to the analyzed variables, for example, the economic difficulties in the whole of the countries analyzed, and other variables such as the years of education in Spain.

Limitations and future lines of research

Our study has a number of limitations. First, because of the data collection methodology used in the SHARE project, no additional professional evaluation is available; this means that the subjective perceptions recorded cannot be assessed objectively.

Second, cognitive aspects of QoL have not been taken into account in this paper, even though cognitive performance influences and conditions the possible presence of depressive symptoms and consequently QoL. Therefore, a

future line of research would be the study of cognitive aspects to evaluate the variables associated with lower performance and their relation to depression and QoL itself.

Finally, the differences in the family system in the countries analyzed and their repercussions in the care of the elderly may well have implications for the perception of QoL and should be assessed in more depth in future studies.

Conclusions

The main variables associated with a lower QoL in Spain and in Central-Northern Europe were the presence of clinically significant depressive symptoms, poor physical health, difficulties with ADL, economic difficulties and not engaging in social activities or physical exercise. Depression also showed a significant correlation with lower physical health and ADL deficits, although but not with economic difficulties.

As differential aspects, the Spanish sample showed more deficient values in all the variables associated with QoL, emphasizing the high inverse correlation between QoL and depression and the high direct correlation between QoL and years of education.

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Conflict of interest

The authors declare that there is no conflict of interest.

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