Original Research Article

Quality of Life in an Adult Population of More than 60 Years of Age without Cognitive Impairment

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Abstract

Objectives: To analyse the quality of life (QoL) of persons over 60 years of age in Bizkaia (Basque Country, Spain), not institutionalised and without cognitive impairment, and the relation and possible influence of the perception of the state of health with the cognitive level and the activities that they carry out. **Subjects and Methods:** Evaluation of a sample of 317 persons that belong to a longitudinal study. In 269 cases, there was a reliable informant. The general cognitive state was evaluated by means of the Mini-Mental State Examination (MMSE) and the Global Deterioration Scale (GDS). Two GDS, one of the family member (GDSf) and another of the evaluator (GDSe), were used and memory was evaluated by the Text Memory subtest of the Barcelona Test. The QoL was assessed with the SF-36 Health Survey and the mental, physical and social activities that they carry out were recorded. **Results:** In the SF-36, the participants showed values that exceed the reference values of the Spanish population in all dimensions of the SF-36, except in that of bodily pain. There were low correlations between the dimensions of the SF-36 and the mental, physical and social activities. A low correlation was observed between the memory tests and the SF-36. In 59.3% of the cases, there were no differences between the GDSf and the GDSe. **Conclusions:** The participants of this study present a better perception of their state of health than the Spanish population, but this perception is not observed to be influenced by the type or by the quantity of activities that they carry out or by their cognitive state. The informants present a vision very close to the cognitive state of their family members.

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Introduction

Ageing entails an increase in chronic illnesses and in disabled persons [1]. In our region, there are many persons who reach advanced ages, but it is not known exactly with what quality of life (QoL) they do so. QoL, according to the World Health Organisation, is the perception that an individual has of his place of existence, in the context of culture and of the system of values in which he lives in relation to his expectations, his rules and his concerns, and it is influenced in a complex way by the physical health of the subject, his psychological state, his level of independence, his social relations, as well as by his relation with the essential elements of his environment.

Many studies have been conducted on the QoL of persons with different illnesses [2, 3], few studies on older adults [4], and very few on independent older adults [5]. For this reason, the objective of this study is to describe and analyse the characteristics of a group of persons over 60 years of age living in Bizkaia (Basque Country, Spain), not institutionalised, independent and without cognitive impairment, and to establish an association between the QoL, the cognitive state and performing leisure activities.

Subjects and Methods

Collection of Data

This is a longitudinal study directed by the Hospital Universitario de Basurto (Basque Country, Spain) that began in 2007 and that currently continues in centres for retired persons of Bizkaia belonging to the Bilbao Bizkaia Kutxa (Kutxabank) or in those of the Associations of Retired Persons of Bilbao.

The persons comprising our sample were elderly, had no cognitive impairment, participated voluntarily and lived independently in their homes. The inclusion criteria were: being over 60 years of age, not having suffered a stroke, not suffering any psychiatric or neurological illness and not having suffered a sensory problem or any other that makes impossible the administering of the tests, being independent, leading an autonomous lifestyle and wanting to participate voluntarily by means of signing an informed consent form. They presented a score on the Mini-Mental State Examination (MMSE) over the 25th percentile [6].

Subjects

The analysed sample was comprised of 317 persons: 81 men (25.6%) and 236 women (74.4%), over 60 years of age, with a mean age of 74.16 years and a mean of 7.8 years of schooling. The majority either lived with their spouse or alone (with spouse 46.4%, alone 30.3%; table 1). Of these 317 persons, there was a reliable informant in 269 of the cases. The persons that comprise our sample presented a mean score of 27.45 on the MMSE.

Instruments

Risk factors of cognitive deterioration [7–13] were collected, such as arterial hypertension, hypercholesterolaemia, diabetes mellitus, currently being a smoker or having been a smoker, heart disease, and family history of cognitive deterioration or dementia. The cognitive level was evaluated using the MMSE [14] and the Text Memory subtest of the Revised Barcelona Test [15], and the QoL was assessed by means of the Spanish version 1.4 of the SF-36 Health Survey [16], the activities carried out in their free time or leisure activities (LA) [17] divided into social, physical and intellectual activities, and the Global Deterioration Scale (GDS) [18]. The GDS score was obtained from a reliable informant referred to as the GDS of the family member (GDSf) scored according to the information provided by the latter, and

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Table 1. Descriptive data of the sample

Gender	
Male	81 (25.6%)
Female	236 (74.4%)
Total	317
Inhabitation	
Couple, marriage	147 (46.4%)
Alone	96 (30.3%)
Spouse and children	31 (9.8%)
With son/daughter	28 (8.8%)
Son/daughter and grandchildren	3 (0.9)
Others	12 (3.8%)
Total	317

from the GDS of the evaluator (GDSe) scored by taking into account information from the subject, from the informant and the score on the Deferred Memory Texts of the Barcelona Test and GDSf. The reliable informant is a family member with whom regular contact is maintained reporting on the state of the study participant by telephone; importantly, the informant does not present any psychiatric or neurological problem that disables him/her as an informant. As for the SF-36 survey, it is comprised of 36 items that evaluate the following dimensions or scales of the health-related QoL: physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and mental health. In addition, two sums, the physical health component and the mental health component, were considered. The items generate a scale for each dimension that goes from 0 to 100 and is administered by means of an interview [19, 20]. Blood was also extracted to form part of the Genetic Bank of the Hospital Universitario de Basurto, after having signed an informed consent form.

Statistical Analysis

The statistical analysis was conducted with the SPSS v. 15.0 program for Windows. Descriptive analyses of all the sociodemographic variables, risk factors and other information collected on the persons included in our sample, as well as the frequencies, percentages, means and standard deviations were included.

Data were collected of the eight areas of the SF-36, for the total sample as well as divided by gender. The dimensions and sums of the SF-36 were correlated with the activities carried out in their free time.

The difference between the two GDS (GDSd) was calculated in order to find the level of awareness of the family member with respect to the cognitive state of the subject and correlations of the GDSd with the memory tests. The correlations of the memory tests, MMSE and Immediate Texts and Deferred Texts of the Barcelona Test were also calculated with the dimensions of the SF-36 and with the different activities that are performed by the participants.

Results

Among the risk factors of cognitive deterioration, the presence of arterial hypertension stands out in 53.3%, while 38.5% presented hypercholesterolaemia, 14.5% diabetes mellitus, 4.1% had been smokers and 22.4% were suffers or had suffered a heart disease. As for the number of activities that they carry out in their free time (table 2), the activities that most perform are the physical and intellectual activities (45.1% carry out a physical activity and 37.2% an intellectual activity).

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Table 2. Number and percentage of individuals carrying out different activities in their free time

Number of activities	Social activities	Physical activities	Intellectual activities
0	292 (92.1%)	71 (22.4%)	65 (20.5%)
1	19 (6%)	143 (45.1%)	118 (37.2%)
2	5 (1.6%)	73 (45.1%)	82 (25.9%)
3	1 (0.3%)	21 (6.6%)	36 (11.4%)
4		8 (2.5%)	10 (3.2%)
5		1 (0.3%)	4 (1.3%)
6			2 (0.6%)

Table 3. Mean scores ± SD of the dimensions of the SF-36 Health Survey

Dimensions of the SF-36	Mean score ± SD	Reference values
Total		
Physical functioning	79.9±18.4	65.7±29.8
Role-physical	75.3±37.8	73.3±41.1
Bodily pain	64.0±29.8	68.4±29.9
General health	65.9±20.1	55.9±21.5
Vitality	66.7±20.9	60.5±24.7
Social functioning	93.4±15.3	79.2±28.0
Role-emotional	80.5±34.5	84.8±32.9
Mental health	72.4±18.3	68.3±22.3
Women		
Physical functioning	77.1±19.2	60.5±28.6
Role-physical	71.6±39.8	68.5±40.4
Bodily pain	59.6±29.8	62.8±28.9
General health	64.8±20.4	53.2±20.0
Vitality	63.1±21.1	55.9±23.3
Social functioning	92.2±16.9	74.9±27.9
Role-emotional	75.9±37.1	80.3±34.3
Mental health	69.1±18.2	62.9±21.4
Men		
Physical functioning	88.0±12.8	72.5±30.2
Role-physical	86.1±29.0	79.7±41.2
Bodily pain	77.0±26.0	75.7±29.8
General health	69.1±19.0	59.3±23.3
Vitality	77.2±16.3	66.4±25.5
Social functioning	97.0±8.4	84.8±26.9
Role-emotional	93.8±20.4	90.7±29.2
Mental health	81.9±14.8	75.3±21.6

Table 3 shows the results of the eight dimensions of the SF-36 compared to the reference values of the Spanish version of this test in a population over 60 years of age [21]. In all the dimensions, values above the reference values were presented except in the dimension of bodily pain. The dimensions with the greatest difference with respect to the reference values are physical functioning and social functioning. In the bodily pain dimension, a lower score was found, which would indicate that they suffer less pain. As for the gender-based data, the women presented better scores in all the dimensions except in the role-emotional and bodily pain dimensions, and in the case of the men, higher scores were presented in all the scales.

As for the LA, in the physical activities a mean of 1.23 was observed, in the intellectual activities, 1.46 and in social activities, 0.10. The correlations of the eight dimensions of the

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Table 4. Correlations of the eight dimensions and the two sums of the SF-36 with the activities carried out in the free time

	Pearson	Physical activities	Intellectual activities	Social activities	Total number of activities
PF	correlation	0.195**	−0.061	0.013	0.076
	sig. (bilateral)	0.000	0.282	0.820	0.178
RF	correlation	0.193**	0.067	−0.041	0.153**
	sig. (bilateral)	0.001	0.237	0.466	0.006
BP	correlation	0.124*	0.032	0.056	0.109
	sig. (bilateral)	0.028	0.571	0.319	0.052
GH	correlation	0.165**	0.064	0.034	0.151**
	sig. (bilateral)	0.003	0.254	0.550	0.007
VT	correlation	0.189**	0.020	−0.023	0.121*
	sig. (bilateral)	0.001	0.723	0.687	0.031
SF	correlation	0.105	0.158**	0.011	0.177**
	sig. (bilateral)	0.063	0.005	0.840	0.002
RE	correlation	0.085	0.232**	−0.043	0.206**
	sig. (bilateral)	0.132	0.000	0.443	0.000
MH	correlation	0.066	0.184**	0.034	0.178**
	sig. (bilateral)	0.240	0.001	0.545	0.002
PCS	correlation	0.214**	−0.071	0.023	0.082
	sig. (bilateral)	0.000	0.204	0.685	0.146
MCS	correlation	0.048	0.250**	−0.017	0.202**
	sig. (bilateral)	0.391	0.000	0.768	0.000

PF = Physical functioning; RP = role-physical; BP = bodily pain; GH = general health; VT = vitality; SF = social functioning; RE = role-emotional; MH = mental health; PCS = physical component sum; MCS = mental component sum. * $p = 0.05$ (bilateral); ** $p = 0.01$ (bilateral). Number of participants: n = 317.

SF-36 and its two sums with the different LA as well as with their total score were significant but low in some cases (table 4).

Considering the difference between the GDSf and GDSe, the family members have a good perception of the study subjects since of the 269 persons with informants, 188 (58.3%) presented a difference between the two GDS of 0 points; 76 cases showed 1 point (24%) and only 5 cases 2 points (1.6%) (table 5a). The correlations of the GDSd with the memory tests are significant but weak. The strongest is a negative correlation with the Deferred Texts (−0.742) (table 5b).

As for the neuropsychological tests, the MMSE and the Immediate and Deferred Texts of the Barcelona Test, and the correlations of these with the dimensions of the SF-36 and their sums are very weak (table 6). In the case of the MMSE, only three correlations are very significant: those with the dimension of role-emotional, mental health and the sum of the mental health component. The correlation of Immediate Text is only significant with the dimension of mental health and the correlation of Deferred Text is significant with vitality, mental health and with the sum of the mental health component.

Discussion

In this study, good scores in the SF-36 dimensions were expected as it dealt with persons without cognitive impairment and who were independent; the scores obtained for the mental health and functional capacity are considered the factors that most influence the perception

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Table 5. GDS score and the correlation with the memory tests

a Score of the two GDS and the difference between them

	Number	Percentage
GDSe		
1	195	61.5
2	112	35.3
3	10	3.2
Total	317	
GDSf		
1	239	75.4
2	29	9.1
3	1	0.3
Total	269	
GDSd		
0	188	59.3
1	76	24.0
2	5	1.6
Total	269	

b Correlation of the GDSd with the memory tests

	MMSE	IT	DT
GDSd			
Pearson correlation	−0.324**	0.415**	−0.730**
Sig. (bilateral)	0.000	0.000	0.000
Number	269	269	269

IT = Immediate texts without questions; DT = deferred texts without questions. ** p = 0.01 (bilateral).

Table 6. Correlations of memory tests with the dimensions and sums of the SF-36

	PF	RP	BP	GH	VT	SF	RE	MH	PCS	MCS
MMSE										
Pearson correlation	0.134*	0.117*	0.106	0.063	0.129*	0.091	0.165**	0.198**	0.176**	0.066
Sig. (bilateral)	0.017	0.037	0.059	0.261	0.022	0.106	0.003	0.000	0.002	0.244
IT										
Pearson correlation	−0.043	−0.015	−0.064	−0.027	−0.052	0.021	0.014	0.110*	−0.087	0.075
Sig. (bilateral)	0.449	0.794	0.254	0.626	0.352	0.703	0.801	0.049	0.123	0.181
DT										
Pearson correlation	0.117*	0.025	0.063	0.081	0.123*	0.081	0.066	0.193**	0.039	0.137*
Sig. (bilateral)	0.038	0.661	0.267	0.152	0.029	0.149	0.240	0.001	0.492	0.015
Number	317	317	317	317	317	317	317	317	317	317

IT = Immediate texts without questions; DT = deferred texts without questions; PF = physical functioning; RP = role-physical; BP = bodily pain; GH = general health; VT = vitality; SF = social functioning; RE = role-emotional; MH = mental health; PCS = physical component sum; MCS = mental component sum. * p = 0.05 (bilateral); ** p = 0.01 (bilateral).

of the state of health and QoL [4, 22]. The general sample of this study conducted in Bizkaia presents a better state of health and perception of their QoL compared to the Spanish population aged more than 60 years [21]. The men as well as the women generally presented better scores than those established as a reference for their gender, and the men showed a

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worse score than the Spanish reference in only one of the dimensions, bodily pain, by reporting more pain.

It was observed that the women presented a worse perception of their QoL than the men, as is also seen in other studies [5], while only in one of the dimensions, bodily pain, did the men show worse health than the women.

Despite expecting a strong relation between each type of activity with the related dimensions of the QoL test [23, 24], we did not find significant correlations between the QoL perceived by the sampled persons and the activities they carry out. This may be due to the fact that on average the number of activities performed by the participants does not reach 2 per person; therefore, there will be individuals who carry out many activities, which may give them a better perception of their health, but other persons barely carry out any activity at all, and for this reason, the good perception of their state of health cannot be attributed to the performance of activities. It should also be taken into account that the study does not include intensity [25] and frequency with which they carry out the activities [26] as well as the type of exercise they do, for example, if it is aerobic [23], or if they have abandoned any of the activities. The recording of more years would be needed in order to analyse whether the persons that keep being physically [27] and mentally active as they age show a better performance of the activities, better health and therefore also a better QoL [28, 29] and do not deteriorate cognitively [30], or whether this might actually accelerate the process of cognitive impairment, as some studies suggest [31].

The perception of the family members that served as informants is well adapted to the cognitive state of the study participants, which agrees with the studies that state that the information provided by the informants may identify early deterioration [32]. There are very few informants who present different results to those of the evaluator; in those cases where they did, it is due to the score the subjects obtained in the memory tests, where they did not state any problem in their daily activities, but their cognitive level had actually commenced to decrease. We believe that having conducted the GDS test of the family members (GDSf) mostly by telephone did not influence the results like in other studies [33], because the evaluator was the same for all cases and contacted the informants after having evaluated the subjects; therefore, he knew the subjects' state of health and combined the information provided by the informants with the objective memory measurements [32].

As for the cognitive state, contrary to other studies that related carrying out activities with an improvement in memory and with cognitive performance [23, 34], we did not find a relation between not presenting any deterioration in the memory tests and the perception that each one has of his/her QoL or the LA they carry out. It would be necessary to compare the data of the sample of different years to analyse the beneficial effects [17].

In summary, the sampled older adults had a good perception of their health; however, it is necessary to analyse what variables influenced their perception since, as has been seen, in this case the cognitive state and the activities performed did not have a great influence. It is also necessary to compare the QoL of these persons and how they evolve over various years, identifying the causes of possible changes.

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