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Influence of self-rated health and related variables on EuroQol-valuation of health states in a Spanish population

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6.1 INTRODUCTION

In the last 5 years, much research has been conducted in order to obtain generic measures of health status comparable between different countries in a standardised way. In addition to the first steps made by the European group of the Nottingham Health Profile (Hunt *et al*, 1991), 2 more instruments are being currently adapted in European countries: the SF-36 (Aaronson, 1992) and the EuroQol (The EuroQol Group, 1990).

The objective of the instruments is different according to the background of the researchers. While the SF-36 is mainly focused on clinical decisions, the EuroQol is intended to aid policy decisions related to the allocation of resources. Thus, the approach to the valuation of the items and scales included in the instruments is different. The SF-36 uses a psychometric approach scoring the items by means of a Likert method, where the measure level of the attribute is the sum of responses to the questions for multiple items (Ware, 1992). The EuroQol has an economic approach that tries to obtain values by means of valuing holistic health states on a rating scale and the total score is the value assigned directly to a whole health state. Previous work of the EuroQol Group has tested the feasibility of the instrument by means of mailing questionnaires to random samples of the population. This research showed that no great differences exist among North-European cultures in valuation of health states included in the EuroQol (Essink-Bot, 1990; Nord, 1991; Brooks, 1991; Kind, 1991). Nevertheless, some methodological aspects of the EuroQol Instrument have been questioned (Car-Hill, 1992; EuroQol, 1992).

One of the most common problems in studies of the valuation of health states is the small number of raters used. In many cases this does not allow differences in health status values to be attributed to socio-demographic or health status characteristics. Several studies have found no differences in values assigned to health states attributable to socio-economic variables such as sex, age, socio-economic level or professional occupation (Carter, 1976; Rosser, 1978; Kaplan, 1976; Patrick, 1985; EuroQol Group, 1990). However, some authors have proved that medical knowledge, experience of illness, and the way that a health state is defined, labelled and presented, may influence the ratings of health states (Llewellyn-Thomas, 1984; Rosser, 1978;

P. Kind et al. (eds.), EQ-5D concepts and methods, 63–80.

Kaplan, 1976; Sackett and Torrance, 1978; Patrick, 1973). Recently some findings indicate that self-perceived health could also influence the ratings of health states (Kind, 1991; Brooks, 1991).

In Spain, 2 health profiles (the Nottingham Health Profile, and the Sickness Impact Profile) have been rigorously translated, the items rescaled by Spanish population samples, and their validity and reliability proved, showing equivalence with the original versions (Alonso, 1990; Badia and Alonso, 1993). But, until now, there have been no instruments suitable for use in cost-effectiveness studies which allow establishment of priorities within the broad spectrum of health interventions. Following the offer of the EuroQol Group (the EuroQol Group, 1990) to further assess the instrument, we chose it as a potential European instrument to produce a figure representing the quality of life that could be added to life years (Nord, 1992a).

The aim of this work was to test the feasibility of EuroQol and to analyse the influence of self-rated health and related variables on valuation of health states in a large sample of the Spanish population.

6.2 MATERIAL AND METHODS

For comparability purposes we used the revised EuroQol with 14 health states provided by 1 member of the EuroQol Group (P. Kind). The revised EuroQol Instrument is a self-administered generic measure of health status which contains 5 dimensions (mobility, self-care, usual activities, pain/discomfort and anxiety/depression) each with 3 items describing 3 different levels of function.

In the process of translating the Spanish version, we used 2 bilingual translators who produced 2 Spanish versions. These versions were back translated into English by 2 different bilingual speakers. The back translations were then evaluated by the translators and the research team. The semantic and conceptual equivalence was satisfactory (Brislin, 1973). Table 6.1 shows the dual English-Spanish layout.

Following a similar methodology developed by the EuroQol Group (1990) we obtained the values of the health states (a health state is a combination of 1 item from each of the 5 dimensions). Fourteen different health states (of 243 possible combinations) were included in the study. The health states were rated between 0 (‘worst imaginable health state’) and 100 (‘best imaginable health state’) on a visual analogue scale (VAS).

Table 6.1 Layout of the English and Spanish EuroQol

Mobility (Movilidad)
I have no problems in walking about No tengo problemas para caminar
I have some problems in walking about Tengo algunos problemas para caminar
I am confined to bed Estoy siempre en la cama
Self-Care (Cuidado-Personal)
I have no problems with self-care No tengo Droblemas con el cuidado personal
I have some problems washing or dressing myself Tengo algunos problemas para lavarme o vestirme solo
I am unable to wash or dress myself Soy incapaz de lavarme o vestirme solo
Usual Activities (Actividades Cotidianas)
I have no problems with performing my usual activities No tengo problemas para realizar mis actividades cotidianas
I have some problems with performing my usual activities Tengo algunos problemas para realizar mis actividades cotidianas
I am unable to perform my usual activities Soy incapaz de realizar mis actividades cotidianas
Pain/Discomfort (Dolor/Malestar)
I have no pain or discomfort No tengo dolor o malestar
I have moderate pain or discomfort Tengo moderado dolor o malestar
I have extreme pain or discomfort Tengo extremo dolor o malestar
Anxiety/Depression (Ansiedad/Depresión)
I am not anxious or depressed No estoy ansioso o deprimido
I am moderately anxious or depressed Estoy moderadamente ansioso o deprimido
I am extremely anxious or depressed Estoy extremadamente ansioso o deprimido

A questionnaire was designed consisting of 5 pages. The first page included socio-demographic information and the self-descriptive part of the EuroQol Instrument. Individuals were required to mark the level of each dimension that they believed applied to them. On the second page, individuals were asked to: 1) score their own health on a VAS ranging from 0 to 100; 2) value 8 health states on a VAS ranging from 0 ('worst imaginable health state') to 100 ('best imaginable health state') by drawing a line from each health state to a point on the scale. On the third page, individuals valued 6 other health states; the best health state (11111) and the worst health state (33333) were repeated to check consistency in the ratings. On the fourth page the respondents were invited to go back to the second and third pages to mark the state "dead" on the VAS. On the fifth page, there were questions about level of education, experience of illness, experience of questionnaires, degree of difficulty in the valuation task and an open space to write opinions.

To test the feasibility of the questionnaire and especially the valuation task, we carried out a pilot study comprising 10 patients and 10 healthy people who attended a centre for disabled people. People with low socio-cultural levels were not able to fully understand the task of valuation of the states (50% of the sample). On the other hand, no-one had any difficulty in filling in the self-rating part of the EuroQol. The results of the pilot study and the low rates of response in postal surveys in Spain (Soriano, 1992), led us to consider alternative approaches to random sampling by mailed questionnaire.

We used a quota sampling method (Abrahamson, 1990) according to the following variables of stratification: gender (50% female); age (16-45, 50%; 46-60, 30%; > 60, 20%); occupational class (Domingo and Marcos, 1989) (classes I to III, 40%; classes IVV, 60%); and patient/non patient status (patients, 40%; non patients, 60%). We considered as a "patient" any person attending for a medical consultation due to an acute illness in the previous 7 days without prescription or due to a chronic illness in the previous 3 months; this included a request for medication for chronic pathology. A "non patient" was considered to be any person asking for prescriptions for a family member, asking about a family member's health, requesting a family member's illness certificate or attending a consultation for other administrative reasons.

Sample size was fixed at 600 valid questionnaires in order to detect differences between means of health states scores with a type I error of 1% and a statistical power of 90%.

The study was carried out in a Primary Health Care Centre in l'Hospitalet del Llobregat (Barcelona). In order to assign the potential respondents to a particular quota, the doctors involved in the study filled in a form with socio-demographic information obtained orally from potential candidates. Afterwards the doctor proposed participation in the study and, if the individual agreed to participate, he or she was sent to an

adjacent room to perform the valuation task under the supervision of a trained nurse. Individuals who did not understand the task were substituted (12% of the sample) by another person in the same quota. The criteria used by the research team to decide such substitutions were: 1) large inconsistencies in rating health states (10%) ranking a determined health state in a non-logical way (e.g. 22213 valued higher than 11211), and 2) omission (2%) of valuation of 1 or more health states.

The mean, standard deviation and median of health states ratings were computed. Since ratings of health states for a given construct are assumed to be normally distributed, we compared average health state scores by means of Student's t-test and one-way analysis of variance when appropriate (Armitage, 1987). The chi-square test was performed to assess the relationship between socio-demographic characteristics and health state variables. Furthermore, multiple linear regression was used to control for confounding factors and to determine partial effects (Kleinbaum *et al*, 1988). The significance level was established at 0.01.

6.3 RESULTS

The average self-rated overall health status of the study population on the VAS was 76 (median 80) and ranged between 10 and 100. Tables 6.2 and 6.3 show the relationships of socio-demographic and health-related variables with self-rated overall health. No differences were found in self-rated overall health status between sex and occupational class. A pattern of decreasing ratings with increasing age was seen. Individuals with intermediate-university level of education rated their health higher than the group with only primary studies ($p < 0.001$), as did individuals who had no difficulty in carrying out the valuation task ($p < 0.00l$). Individuals with some kind of experience of illness rated self-perceived overall health lower ($p < 0.001$) (Table 6.3). Individuals who described themselves as being in state 11111 rated their overall self-perceived health better than those in another health state ($p < 0.001$). No differences were found between patients/non patients.

When all the above variables were considered simultaneously in a multivariate analysis, age, experience of illness, degree of difficulty of the valuation task and self-described state 11111 were associated with self-rated overall health. Since only 15 individuals in the sample had previous experience of questionnaires, this variable was not used in the analysis.

Table 6.2 Self-rated overall health status by socio-demographic variables

	N	(%)	Mean	(SD)	Median	p	*
All respondents	600	(100)	76.1	(16.6)	80		
Gender							
Males	300	(50.0)	76.6	(15.5)	80		
Females	300	(50.0)	75.7	(17.7)	80	0.518	
Age (years)							
16-30	185	(30.8)	86.9	(11.1)	90		
31-45	115	(19,2)	80.9	(12.4)	80		
46-60	180	(30.0)	73.5	(14.2)	75		
61-75	114	(19.0)	59.1	(15.7)	60		
> 76	6	(1.0)	55.0	(15.7)	52	< 0.001	**
60 yrs	480	(80.0)	80.4	(13.9)	70		
> 60 yrs	120	(20.0)	58.9	(15.6)	60	< 0.001	
Occupational Class							
I-III	240	(40.0)	75.7	(17.3)			
IV-V	360	(60.0)	76.3	(16.3)		0.718	
Level of education #							
Primary school	335	(56.2)	71.3	(17.3)	70		
High School-Univ	261	(43.8)	82.7	(13.1)	85	< 0.001	
Degree of difficulty in the task							
Difficult	398	(66.4)	74.0	(17.6)	80		
Not difficult	201	(33.6)	80.5	(13.5)	80	< 0.001	

* Student's t-test

** One way analysis of variance

SD Standard deviation

\# Four missing values

Table 6.3 Self-rated overall health status by health-related variables

	N	(%)	Mean	(SD)	Median	p*
Patient/non patient						
Patient	240	(40.0)	76.2	(17.1)	80	
Non patient	360	(60.0)	76.1	(16.4)	80	0.937
Respondent's own experience of illness $						
Yes	70	(11.8)	56.5	(19.1)	50	
No	525	(88.2)	78.9	(14.4)	80	< 0.001
Respondent' s experience of illness in family						
Yes	212	(35.5)	68.1	(17.1)	70	
No	385	(64.5)	80.6	(14.7)	85	< 0.001
Respondent's experience in others &						
Yes	60	(10.1)	79.0	(16.0)	80	
No	534	(89.9)	75.9	(16.7)	80	0.167
Some experience of illness						
Yes	258	(43.0)	68.6	(18.0)	70	
No	342	(57.0)	81.8	(12.9)	85	< 0.001
Self-declared health state						
11111	310	(51.7)	86.5	(9.4)	90	
Other	290	(48.3)	65.0	(15.6)	70	< 0.001

* Student's t-test

$ Five missing values

\# Three missing values

& Six missing values

The mean, standard deviations and median valuations of the 16 states of EuroQol are presented in Table 6.4. A consistent pattern between the states and the ratings is present. No differences were found between the repeated states (11111 and 33333). The standard deviations were greater in the intermediate states.

The valuation of the health states according to self-rated overall health is shown in Table 6.5. No clear differences were found according to self-rated health among the majority of health states. However, individuals rating perceived health higher rated states 22211 and 33321 higher ($p < 0.01$ in all cases), and 22322 and 'dead' somewhat lower.

Table 6.4 Average scores for the EuroQol Spanish study (n = 600)

Health state	Mean	SD	Median
11111	98.3	5.0	100
11111 R	98.6	4.7	100
11121	76.6	10.6	80
11112	75.8	10.9	80
21111	72.0	10.4	75
11211	70.6	10.9	70
11122	53.9	9.6	55
12111	52.6	10.7	50
21232	35.6	9.8	35
22322	22.3	10.5	30
22233	20.9	7.8	20
32211	12.7	12.1	10
33321	8.3	8.0	5
Dead-1	6.6	5.7	8
Dead-2	7.4	6.1	9
Unconscious	2.0	4.0	0
32333	2.3	4.5	0
33333 R	2.5	5.4	0

Table 6.5 Ratings of health states by self-rated overall health

	< 50 (n = 80)		51-75 (n = 178)		76-100 (n = 342)		
	Mean Median	(SD)	Mean Median	(SD)	Mean Median	(SD)	p*
11111	98.6	(5.3)	97.7	(6.2)	98.4	(4.1)	0.231
	100.0		100.0		100.0		
11111 R	98.8	(4.5)	98.1	(5.7)	98.7	(4.0)	0.299
	100.0		100.0		100.0		
11121	77.2	(11.9)	75.9	(10.7)	76.7	(10.2)	0.588
	80.0		80.0		80.0		
11112	76.2	(9.8)	75.1	(12.0)	76.1	(10.4)	0.575
	80.0		80.0		80.0		
21111	73.4	(9.7)	72.2	(8.6)	71.5	(11.4)	0.355
	75.0		75.0		74.0		
11211	72.4	(10.2)	70.5	(10.8)	70.3	(11.0)	0.293
	75.0		70.0		70.0		
11122	53.7	(8.9)	54.4	(9.2)	53.7	(9.9)	0.756
	55.0		55.0		55.0		
12111	53.2	(11.6)	51.9	(9.0)	52.8	(11.3)	0.583
	50.0		50.0		50.0		
21232	36.4	(10.2)	34.8	(9.4)	53.7	(9.9)	0.444
	35.0		35.0		35.0		
22322	34.8	(11.6)	33.5	(8.8)	31.1	(10.8)	0.002
	35.0		35.0		30.0		
22233	21.7	(7.5)	20.8	(7.8)	20.7	(7.8)	0.581
	20.0		20.0		20.0		
32211	9.4	(10.3)	11.5	(9.8)	14.1	(13.3)	0.002
	5.0		10.0		10.0		
33321	6.1	(6.0)	8.3	(7.7)	8.7	(8.4)	0.027
	5.0		5.0		5.0		
Dead-1	7.5	(6.7)	7.5	(5.2)	5.9	(5.6)	0.002
	8.0		8.0		6.0		
Dead-2	8.3	(7.0)	8.2	(5.5)	6.8	(6.1)	0.014
	10.0		10.0		8.0		
Unconscious	2.1	(6.7)	2.3	(5.9)	2.7	(6.4)	0.638
	0.0		0.0		0.0		
33333	1.7	(3.9)	2.1	(4.0)	2.6	(4.8)	0.199
	0.0		0.0		0.0		
32333 R	1.8	(3.5)	3.0	(4.2)	2.9	(6.1)	0.065
	0.0		0.0		0.0		

* One way analysis of variance

SD Standard deviation

Further analyses were conducted to assess the potential relationship between other variables and the valuation of health states, focusing on socio-demographic and health variables. Individuals over 60 or with low levels of education rated most of the states slightly higher. In most of the states, the differences reached the 1% level of statistical significance (Tables 6.6 and 6.7), although the magnitude of the observed differences were small. The level of education was related to the degree of understanding the valuation task. 76% of the individuals with low levels of education found the task difficult or very difficult compared with 60% of individuals with intermediate or high levels of education ($p < 0.00l$). Table 6.8 shows the values of health states by degree of difficulty of the task. The EuroQol health state (derived from the 5 dimensions) was not strongly associated with the valuation of health states (Table 6.9).

Table 6.6 Ratings of health states by age

	≤ 60 years (n=480)		> 60 years (n=120)		
	Mean	(SD)	Mean	(SD)	p*
11111	98.1	(5.2)	99.1	(4.1)	0.013
11111 R	98.4	(5.0)	99.4	(3.2)	0.006
11121	76.4	(10.7)	77.2	(10.5)	0.472
11112	73.4	(11.1)	77.7	(9.9)	0.037
21111	71.3	(10.9)	74.6	(7.9)	< 0.001
11211	70.2	(11.2)	72.4	(9.4)	0.025
11122	54.0	(10.0)	53.7	(7.9)	0.775
12111	52.8	(10.9)	51.6	(9.8)	0.246
21232	35.2	(10.1)	37.3	(8.7)	0.019
22322	31.8	(10.5)	34.3	(9.9)	0.017
22233	20.5	(7.9)	22.1	(7.5)	0.045
32211	13.4	(12.6)	10.0	(9.9)	0.002
33321	8.7	(8.5)	6.3	(5.1)	< 0.001
Dead-1	6.3	(5.9)	7.9	(5.0)	0.002
Dead-2	7.0	(6.2)	8.9	(5.5)	0.003
Unconscious	2.8	(6.8)	1.4	(3.5)	0.002
33333	2.4	(4.5)	2.0	(4.4)	0.377
33333 R	2.7	(5.5)	1.8	(4.7)	0.090

* Student's t-test

Table 6.7 Ratings of health states by level of education

	Primary school (n = 335)		High School/ University (n = 261)		
	Mean	(SD)	Mean	(SD)	p*
11111	98.8	(4.1)	97.6	(5.9)	0.004
11111 R	99.2	(3.3)	97.8	(6.0)	0.001
11121	77.6	(9.6)	75.1	(11.7)	0.006
11112	76.8	(9.8)	74.4	(12.0)	0.008
21111	72.6	(10.7)	71.2	(10.2)	0.117
11211	71.8	(9.9)	69.3	(12.0)	0.007
11122	54.0	(8.7)	53.8	(10.7)	0.777
12111	51.4	(10.0)	54.2	(11.4)	0.002
21232	35.8	(9.9)	35.3	(9.8)	0.513
22322	33.4	(9.6)	30.8	(11.3)	0.003
22233	21.3	(7.9)	20.4	(7.8)	0.153
32231	10.4	(9.3)	15.9	(14.5)	< 0.001
33321	6.9	(5.9)	10.1	(9.8)	< 0.001
Dead-1	6.9	(5.3)	6.2	(6.3)	0.120
Dead-2	7.8	(5.7)	6.9	(6.6)	0.087
Unconscious	2.1	(5.1)	3.1	(7.6)	0.051
33333	2.0	(4.1)	2.7	(5.0)	0.082
33333 R	2.3	(5.6)	2.8	(5.0)	0.270

* Student's t-test

Table 6.8 Ratings of health states by degree of difficulty of the task

	Very Difficult Difficult (n = 398)		Easy Very Easy (n = 201)		
	Mean	(SD)	Mean	(SD)	p*
11111	98.8	(3.8)	97.1	(6.6)	0.001
11111 R	99.2	(2.9)	97.3	(6.8)	< 0.001
11121	77.7	(9.5)	74.2	(12.2)	< 0.001
11112	77.0	(9.7)	73.4	(12.5)	< 0.001
21111	73.8	(9.0)	68.4	(11.9)	< 0.001
11211	71.9	(10.1)	68.0	(12.0)	< 0.001
11122	53.7	(9.0)	54.3	(10.7)	0.054
12111	52.0	(9.6)	53.4	(12.6)	0.109
21232	35.2	(9.2)	36.2	(10.9)	0.289
22322	33.9	(8.9)	29.1	(3.2.3)	< 0.001
22223	20.6	(7.5)	21.2	(8.4)	0.394
32211	10.4	(9.5)	17.3	(15.1)	< 0.001
33321	6.9	(6.3)	10.9	(10.0)	< 0.001
Dead-1	6.9	(5.6)	6.0	(5.9)	0.106
Dead-2	7.8	(6.1)	6.7	(6.1)	0.030
Unconscious	2.1	(6.1)	3.3	(6.8)	0.027
33333	1.7	(3.9)	3.3	(5.4)	< 0.001
33333 R	1.8	(3.9)	3.7	(7.2)	0.001

* Student's t-test

Table 6.9 Ratings of health states by respondent's health state

	Health state 11111 (n = 310)		Rest of health states declared (n = 290)		
	Mean	(SD)	Mean	(SD)	p*
11111	98.0	(5.0)	98.5	(5.0)	0.295
11111 R	98.4	(4.8)	98.7	(4.5)	0.447
11121	76.0	(11.0)	77.1	(10.1)	0.150
11112	75.0	(11.7)	76.8	(10.0)	0.041
21111	71.3	(10.7)	72.7	(10.1)	0.094
11211	70.0	(11.4)	71.2	(10.3)	0.182
11122	52.6	(9.8)	55.3	(9.2)	0.001
12111	52.0	(10.8)	53.2	(10.6)	0.186
21232	34.7	(10.1)	36.4	(9.4)	0.031
22322	31.2	(10.3)	33.5	(10.5)	0.006
22233	20.3	(7.6)	2114	(8.0)	0.075
32211	13.0	(12.1)	12.4	(12.2)	0.553
33321	8.8	(8.7)	7.7	(7.0)	0.079
Dead-1	5.9	(5.7)	7.3	(5.7)	0.003
Dead-2	6.6	(6.0)	8.2	(6.1)	0.001
Unconscious	2.7	(6.4)	2.3	(6.3)	0.404
33333	2.3	(4.3)	2.3	(4.7)	0.941
33333 R	2.6	(5.4)	2.3	(5.3)	0.484

* Student's t-test

Sex, occupational class, patient/non patient status and previous experience of illness did not have a relevant influence (not more than 2 health states per variable were statistically different) in ratings of health states (data not shown).

The multivariate analysis carried out for each of 16 health states showed that the degree of difficulty of the task and age were associated with most of the health states valued. In addition to the previous variables, educational level and experience of illness were also associated for states 11111, 33321 and 32211.

6.4 DISCUSSION

There were some problems with the feasibility of EuroQol in the Spanish population. The instrument was administered to a sample of 600 individuals from the general population recruited through a quota sampling method. This was chosen due to the low rates of response in postal surveys in Spain, as well as difficulty in carrying out the valuation task. The difficulty of understanding the valuation task was shown in the pilot study and confirmed in the present study (most individuals rated the task of valuation as difficult and only 15 out of the 600 individuals had previous experience in filling out questionnaires). On the other hand, bivariate and multivariate analysis showed that age, level of education, experience of illness and especially the degree of difficulty of the valuation task was associated with the valuation of health states. Nevertheless, the differences were small and no consistent pattern were seen in the meaning or direction of these differences.

One of the weaknesses observed in previous studies which aimed to achieve values of health states was the small number of raters used. The maximum size of 10 selected studies of valuation of health states reviewed recently by Nord (1992b) was 121 raters, and most studies employed "selected" health-care personnel as raters. In this review, only 1 study was carried out in the general population (Nord, 1991) and 1 study with patients (Llewellyn-Thomas, 1984). As a result of this limitation, it is uncertain whether socio-demographic or perceived health variables influence the valuation of health states.

In addition, the low rate of response obtained with postal questionnaires may be a source of bias. All previous EuroQol studies have used a postal questionnaire in a representative sample of the population and low response rates were obtained. Moreover, the usable responses of the studies for analysis were even lower (37% in The Netherlands, 23% in the UK and 21% in Sweden) (EuroQol Group, 1990). Older people and individuals with low levels of education were also under-represented in the samples (Essink-Bot, 1990; Kind, 1991). Furthermore, while in the North-European EuroQol studies approximately 60% of respondents described the task as easy or very easy, 66.3% of the Spanish respondents rated it as difficult or very difficult. This might be explained by selection bias: the questionnaires were only returned by the individuals who understood (or believed they understood) the valuation task while those considering it to be difficult did not return the questionnaires.

In the present study we have tried to obtain values from a large sample of the general population, previously determining the characteristics of the sample (quota sampling). Although this approach did not provide a representative sample of the general population, it served to guarantee the presence of respondents with different characteristics thus trying to avoid non-response bias. So, a strength of this study is the large number and wide spectrum (including patients) of respondents included.

We found significant differences in self-rated overall health when respondents were grouped according to the remaining variables. As expected, the main differences were found by age, level of education, experience of illness and self-described health state. We did not find differences according to sex or occupational class or patient/non patient status or self-perceived overall health. A possible explanation might be the low level of severity of disease of the patients included in this study (e.g. hypertension). Control for these factors was not possible since the level of severity of the disease was not requested.

The rank order of health states scored followed a logical pattern and incongruences were not found. Individuals considered a drop in the level of health on self-care, usual activities and mobility to be more important than pain/discomfort or anxiety/depression. This would indicate that an impairment in a self-care dimension is considered as more relevant than in pain, which is rated lower (76 versus 52 respectively). Thus the different contribution of each dimension in the average score of a determined health state should be taken into account in future research.

As previously observed by other authors, extreme forms of combined disability and distress lead to lower values, even values worse than death (Rosser, 1978; Kaplan, 1976; EuroQol Group, 1990). This concern has been discussed elsewhere and remains an open debate (Sintonen, 1981).

The influence of socio-demographic and health variables in valuation of health states is controversial. Froberg (1989) states that "the literature on rater differences suggests that while age and experience with health state being rated (not general health status) may influence raters' valuations, the effects of most other demographic and experiental/medical variables are small or inexistent".

In the Spanish sample studied, self-rated overall health, self-rated health state, age, and level of education had a different degree of influence on values of health states. While differences by age and level of education were found, fewer differences arose from self-rated health variables. Similar results were obtained by Sackett (1978) in 240 individuals from the general population. But the variable that had the greatest influence in the valuation of health states was the self-declared degree of difficulty of the task. Individuals who declared difficulty had a low socio-economic level, low level of education and were older ($p < 0.00l$).

Few studies have explored the influence of self-rated health on valuation of health states. Llewellyn-Thomas *et al* (1984) found that self-rated health had no influence on a sample of 64 cancer patients. Churchill *et al* (1984) found no differences regarding past experience of hospitalization, serious illness, history of severe pain, or family history of serious illness. Recently, Kind (1990) and Brooks (1990) using the EuroQol in the general population found that people who rated their health better val-

ued the "preferable" health states higher and the "bad" health states lower. In the present study, self-rated health states had significant differences in only 4 health state values. Individuals who described themselves as being in "perfect health" (state 11111) in the 5 dimensions of the instrument gave the 4 health states a lower score than the individuals who described themselves as having some problem in at least 1 dimension.

The results obtained suggest that to achieve values for health states from the general population suitable for application in policy decision-making we should be sure that the method employed is understood by the raters. Variations of health state values according to socio-demographic variables could be explained by the self-perceived difficulty of the required task. Thus stratification by socio-demographic variables is not important. This would be different if the goal were to obtain values from patients to be applied in clinical decision-making where such values would be influenced by the condition itself, the severity, and the prognosis of the condition (Torrance, 1987), thus sampling patients with selected characteristics would be necessary.

However, differences cannot be explained only by socio-demographic and health status characteristics. Further research concerning biases in judgement (Tversky, 1974) and the method used (VAS) is necessary to clarify their impact on health state values.

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6.5 REFERENCES

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