Ageing and Society **21**, 2001, 25–43. Printed in the United Kingdom

The contribution of socio-demographic and psychosocial factors to life satisfaction

ROCÍO FERNÁNDEZ-BALLESTEROS*,
MARÍA DOLORES ZAMARRÓN* and MIGUEL ANGEL RUÍZ*

ABSTRACT
Life satisfaction continues to be an important construct in the psychosocial study of ageing. It is one of the commonly-accepted subjective conditions of quality of life and seems to be one of the facets of successful ageing, both of which are key concepts in ageing. Research reports that life satisfaction is strongly related to socio-demographic and psychosocial variables. These, however, are mutually dependent interactive variables, and much more attention should be paid to the study of the relative contribution of these two types of factors to life satisfaction. The purpose of the research reported in this article was to discover which socio-demographic conditions and psychosocial factors are the most important, and to decide to what extent they contribute to life satisfaction. A sample of 507 individuals aged 65 and over and representative of the Spanish population in terms of age and gender, were interviewed at home. The results indicate that two socio-demographic characteristics (income and education) influence life satisfaction both directly and also indirectly, through psychosocial factors such as activity (physical activity level, satisfaction with leisure activities, and social contacts), perceived health and physical illness. Among psychosocial factors, activity and health both contribute to explaining life satisfaction. The results are discussed from the point of view of the activity theory of ageing.

KEY WORDS – Life satisfaction, socio-demographic conditions, activity, health, functional abilities, social interactions..

Introduction

Life satisfaction is one of the most well-known constructs in the study of age, ageing and older people (Mannell and Dupuis 1996). There is a substantial body of research on the best predictors of life satisfaction and the external conditions or interventions that can improve or increase wellbeing in old age (for a review see Diener 1984, 2000). More recently, life satisfaction has been considered as the subjective expression of quality of life, and has been used as a dependent variable

* Autónoma University of Madrid, Spain.

in dozens of social programmes (Shin and Johnson 1978, Fernández-Ballesteros *et al.* 1996). Moreover, in the last decade, life satisfaction has been considered to be an important factor in successful ageing, and has been taken as an indicator of efficacy in old age (Freund and Baltes 1998). In spite of the extensive knowledge of life satisfaction as a human characteristic, however, several inconsistencies remain unresolved with regard to its determinants.

Regarding socio-demographic factors, there is contradictory evidence concerning their influence on life satisfaction. For example, several studies have yielded significant and negative relationships between age and life satisfaction (*e.g.* Avia and Vazquez 1998; Klemmack and Roff 1984; Wilson 1967). Age and socio-economic status are related however, and other studies have found that negative relationships between age and life satisfaction disappear when SES is controlled (Avia and Vazquez 1998). There are also inconsistent relationships between life satisfaction and income. While there are studies showing no relationships between these variables (Diener 1984, 2000), people living in rich countries (measured by Gross Domestic Product) report higher indices of subjective wellbeing and satisfaction than people living in poorer ones (Inglehart 1997). However, when basic needs are covered, this relationship seems to disappear (Diener 2000).

Marital status seems to play an important role in life satisfaction: married people report higher life satisfaction levels than widowed, divorced or single people (Wan and Livieratos 1978; Neugarten *et al.* 1961). However, in old age, marital status is associated with gender (Robins and Regier 1991), and gender is associated with income, socio-economic status and education, and these may mediate in apparent relationships between marital status and life satisfaction. In Spain, for example, women are poorer and have less education than men (Diez Nicolás 1996). In summary, because demographic characteristics are strongly related to one another, their influence on life satisfaction needs to be clarified.

As far as psychosocial factors are concerned, there are strong relationships between life satisfaction and a large set of variables, the most important of these being health and illness, functional ability, activity level and social relationships (social network and social support). There is strong evidence that health is one of the best predictors of life satisfaction (*e.g.* Lher 1982): subjects that report poor health, chronic problems or pain also score lower in life satisfaction than healthy people. Nevertheless, in several studies, subjective health is the best predictor of life satisfaction (Mannel and Dupuis 1996; Fernández-Ballesteros *et al.* 1996). In any case, it is also well-known

that health (perceived as well as reported) is strongly related to other psychosocial factors such as functional abilities, and to several socio-economic conditions including income, education and gender (*e.g.* Diez Nicolás 1996; Fernández-Ballesteros 1996; Rowe and Kahn 1997).

It is well known that functional abilities also constitute good predictors of life satisfaction. Dependent people with low scores on measures of ADL I (basic activities of daily living) and ADL II (instrumental activities of daily living) also present low scores in life satisfaction. This group also reports poor health and chronic problems, pain, frequent visits to the doctor, and hospital admittance (Diez Nicolás 1996; Fernández-Ballesteros *et al.* 1996; Penning and Strain 1994).

However, functional abilities are also closely associated with activity. There is strong evidence of positive relationships between activity (physical and leisure activities) and life satisfaction; activity has been considered a better predictor of life satisfaction than health and income (Mannell and Dupuis 1996). Again, however, activity is associated with education and income: compared with those with little education and low income, more educated people with higher incomes report taking part in more sports and more cultural and social activities, etc. Moreover, activity level is strongly related to other psychosocial variables – most activities require not only good health and functional abilities, but also a degree of social interaction.

The final psychosocial variable that is closely related to life satisfaction is social network (including social support, social integration and interpersonal relationships). Size of social network, number of social contacts and satisfaction with these contacts, are all reported as determinants of life satisfaction (Antonucci *et al.* 1996; Fernández-Ballesteros *et al.* 1996; Krause *et al.* 1992; McCamish-Svensson *et al.* 1999). At the same time however, social network and social support are strongly associated with other relevant psychosocial factors such as health and activity (Mannell and Depuis 1996).

The purpose of the present study is to examine the mutual and relative influence of socio-demographic, and the most important psychosocial, factors on life satisfaction.

Method

The sample consisted of 507 individuals (210 men and 297 women) aged 65 and over. The mean age was 73.9 years (SD = 6.8), ranging from 65 to 95 years. They were recruited at random and are representative by age and gender of the Spanish population in that age

TABLE 1. *The measurement of the theoretical variables*

Theoretical (outcome and predictor) variables	Measures	Number of questions asked
Life satisfaction (outcome variable)	PGCMS	13
	life satisfaction	1
	age satisfaction	1
Health	perceived health	5
	number of illnesses	1
	pains	1
	medicines taken	1
Social support	living with others	1
	social activity	1
	satisfaction with support	1
	sexual relationships	3
	changes in sexual drive	1
Functional abilities	general appraisal	1
	ADL I	6
Activity	physical activity	1
	leisure activities	15
	activity satisfaction	15
Socio-demographic	age	1
	gender	1
	marital status	1
	education	1
	income	1

category. Regarding marital status, 57.6 per cent were married, 35.5 per cent widowed, 5.7 per cent single and 1.2 per cent divorced. Overall, 9.3 per cent of the sample were illiterate, 57.8 per cent had not completed primary education, 25.3 per cent had primary education, 2.8 per cent had high school education and 4.8 per cent had higher education qualifications. The modal income category was 45,000 to 75,000 pesetas per month.

Table 1 lists the theoretical variables. Three measures of life satisfaction were taken. First, it was assessed by means of the 13 items of the Philadelphia Geriatric Center Moral Scale (*PGCMS*), adapted to the Spanish language and culture by Montorio (1994). The reliability of the scale in this study was acceptable (alpha = 0.83) and in accordance with other studies. Also, a four-point scale format ('not-at-all' to 'very much') was used to assess the participant's *life satisfaction* with the question: 'How satisfied are you with your life at present?' A final comparative question referring to *age satisfaction* was asked: 'As you become older, how are things? Better, the same or worse?'. These questions had been used in other studies yielding factor structures similar to our results here (Fernández-Ballesteros *et al.* 1996).

https://doi.org/10.1017/S0144686X01008078 Published online by Cambridge University Press

Two types of health questions were asked: self-reported perceived health and self-reported physical illness. Self-reported *perceived health* was measured using a series of five questions with a three-point scale:

- During the last 12 months, would you say that your state of health has been good, regular, or bad?
- Are you satisfied with your state of health?
- Do you think that your state of health is now better, worse or the same?
- In the coming year, do you expect your state of health will be better, worse or the same?
- Is your state of health better than, worse than or the same, as that of people older than you?

These five items were summed to produce a total perceived health score. They have been used in several samples of the Spanish 65-plus population and have shown reasonably high internal consistency (alpha = 0.74). Factor structures for this measure were similar to those in previous research using elderly populations (Fernández-Ballesteros *et al* 1996). In this study, Cronbach's alpha for these five items was 0.76.

Self-reported physical illness was assessed through three questions regarding *number of illnesses*, number of *pains*, and number of *medicines* being taken. These items were used separately, and they have also been used in several samples of the Spanish 65-plus population (CIRES 1995; Diez Nicolás 1996).

Social support and interaction was assessed using seven items. The first item asked whether the subject was living alone or *living with others*. The second question referred to *social activity*, the number of social contacts: 'How often do you see the following persons: children (not living with you), grandchildren, relatives, friends?' The response format was a five-part multiple-choice checklist ranging from 'Never' to 'Every day'. This was administered separately to each participant. The third question referred to *satisfaction with support*: 'How satisfied are you with the following relationships: spouse, children, grandchildren, relatives, and friends?' The response format for quality of relationships was a three-point scale (satisfied, not satisfied and neither). The fourth question referred to *sexual relationships*, 'Do you have sexual relations?' with a yes/no response format. In the affirmative case, subjects were also asked about the frequency of sexual relations ('How often do you have sexual relations? Regularly, occasionally or almost never?') and about the level of satisfaction with these relationships ('How satisfied are you with these relationships? Satisfied, not satisfied or neither?'). Finally, subjects were asked about *changes in their sexual drive* ('During recent years, have you found changes in your sexual drive?' yes or no).

These questions had been used and tested in several previous studies (CIRES 1995; Diez Nicolás 1996).

Functional abilities were assessed through two questions: *general appraisal* and *ADL I*. The former was assessed by means of the question: 'Can you look after yourself?' and a five-point Likert format, from 'perfectly' to 'very poorly'. ADL I was assessed by asking the subject about his/her difficulties for carrying out six activities – walking, dressing, eating, etc. The response format was four multiple-choice checklists ranging from 'not at all' to 'very much', administered separately for each kind of activity. The score was the sum of the level of difficulty of these six activities. These items have also been used in several samples of the Spanish older population (Fernández-Ballesteros *et al.* 1996). The internal consistency of ADL I in this study was very high (alpha = 0.92).

Activity was assessed through three items about physical and leisure activities and activity satisfaction. *Physical activity* was assessed through the question: 'How would you describe your current physical activity?' on a five-point Likert scale ranging from 'mainly inactive' (*e.g.* reading, watching TV, etc.) to 'physical exercise several times per week'. *Leisure activities* were assessed on a three-point checklist (very often, occasionally, never) with regard to 15 activities (*e.g.* reading books, playing cards, going to the theatre, etc.). *Activity satisfaction* was assessed by asking: 'How much do you enjoy the following activities?' about the same list of leisure activities, using a four-point Likert scale for each activity ('very much' to 'not at all'). These items have been used in several samples of the Spanish 65 plus population, and were loading a general factor called 'activity' (see Diez Nicolás 1996; CIRES 1996; Fernández-Ballesteros *et al.* 1996). In this study the factorial structure of these measures was quite similar to that of previous studies.

Five socio-demographic dimensions were covered: *gender*, *age*, *marital status*, *income* and *education*. The *income* question was: 'Could you tell me your monthly income?'. The response format had nine alternatives ranging from less than 45,000 pesetas to more than 450,000 pesetas. The *education* variable was assessed with nine alternatives ranging from illiterate to university level. These were converted into four levels for analysis: illiterate, literate but no primary education, primary education and higher education).

Descriptive statistical analyses were performed: means and standard deviation were computed for all variables. ANOVAs or t-tests and ANCOVAs were carried out in order to examine the relative impact of socio-demographic variables (age, gender, marital status, education

TABLE 2. *Means and standard deviations of three life satisfaction indicators*

		PGCMS		Life satisfaction		Age satisfaction	
Age	65–69	1.58–0.28	***	2.95–0.72		1.71–0.64	***
	70–74	1.49–0.26		2.78–0.86		1.57–0.64	
	75–79	1.49–0.26		2.74–0.75		1.46–0.57	
	80+	1.45–0.25		2.73–0.81		1.33–0.51	
Gender	male	1.59–0.25		2.97–0.72		1.66–0.68	
	female	1.45–0.27		2.71–0.81		1.46–0.56	
	single	1.57–0.33		2.66–0.81		1.63–0.49	
Marital status	married	1.58–0.25		2.96–0.74		1.63–0.65	
	divorced	1.27–0.14		2.00–0.63		1.50–0.84	
	widowed	1.40–0.26		2.65–0.81		1.30–0.54	
Education	illiterate	1.40–0.28	***	2.57–0.80	***	1.38–0.57	***
	< primary	1.47–0.26		2.78–0.76		1.46–0.60	
	primary	1.57–0.26		2.93–0.82		1.70–0.61	
	high school+	1.70–0.26		3.08–0.75		1.83–0.66	
Income ('000 pesetas)	< 45	1.32–0.27	***	2.31–0.77	***	1.35–0.44	***
	45–75	1.47–0.25		2.80–0.76		1.48–0.60	
	75–100	1.52–0.28		2.83–0.79		1.63–0.69	
	100–150	1.62–0.26		3.09–0.65		1.75–0.60	
	> 150	1.62–0.27		3.00–0.75		1.62–0.68	
Total		1.51–0.27		2.82–0.79		1.54–0.62	

*** $p < .001$

and income). An exploratory factor analysis was conducted using principal components, followed by an oblique Oblimin rotation, in order to test the internal structure of our measures.

In order to test our theoretical model, a full structural equation model was tested using the AMOS with the aim of investigating theoretical links between the outcome variable 'life satisfaction' and the predictor variables: functional ability, social support health, activity and sociodemographics. The analysis was carried out on the correlation matrix between the observed variables. With regard to the multidimensionality of goodness of fit (see Tanaka 1985), the overall fit of the model was evaluated by means of the following indices:

- Chi-square test statistic;
- Goodness of fit and adjusted goodness of fit indices (Jöreskog and Sörbom 1989);
- Parsimony goodness of fit index (Mulaik *et al.* 1989); and
- Parsimony adjustment of the normed fit index (Bentler and Bonet 1980).

Descriptive, inferential, and exploratory analyses were performed using the SPSS 9.0, and the AMOS 3.6. programme was used for confirmatory analysis.

Results

Impact of related socio-demographic factors on life satisfaction

Table 2 presents the means and standard deviations of the three life satisfaction indicators, as a function of the sociodemographic variables: age, gender, marital status, education and income.

The PGCMS and age satisfaction scores yielded significant differences with age (respectively $F = 4.8$, $p < .003$; and 9.7, $p < .001$). In both cases this was due to the younger group (aged 65 to 69) yielding higher scores than the other three groups. No significant differences were found with regard to general life satisfaction. However, when gender, income, education and marital status were controlled as co-variants, these significant differences disappeared (respectively, $F = 1.2$ and 2.5).

Regarding gender, men were significantly more satisfied than women on all three indicators. The t-scores were 5.59 for PGCMS, 3.75 for current life satisfaction; and 3.53 for age satisfaction. Again, however, when age, marital status, education and income were controlled as co-variants, no significant differences due to gender were obtained ($t = 1.96$; 1.90; 1.87 respectively).

Table 2 also shows significant differences due to marital status in the three life satisfaction indices. In PGCMS and age satisfaction, married and single people reported greater life satisfaction than the widowed and the divorced (respectively, $F = 16.5$, $p < .001$; and 8.7, $p < .001$). For the single question about current life satisfaction, married people reported higher life satisfaction than the other three groups ($F = 6.8$, $p < .001$). When age, gender, income and education were controlled as covariants, significant differences continued to be significant for PGCMS and the current life satisfaction ($F = 3.4$, $p < .02$; and 3.2, $p < .03$), but the significant differences for age satisfaction disappeared ($F = 0.4$).

Table 2 also presents data on education and life satisfaction. Highly educated people reported significantly higher scores in the three life satisfaction indicators: PGCMS ($F = 12.0$, $p < .001$), current life satisfaction (4.0, $p < .007$) and age satisfaction (8.5, $p < .001$). When we controlled for age, gender, marital status, and income, significant differences continued to be found for PGCMS and age satisfaction (respectively, $F = 4.8$, $p < .003$ and 2.5, $p = .06$), but the significant differences for current life satisfaction disappeared ($F = 0.4$).

Finally, income had a significant impact on our three indicators of life satisfaction (see Table 2). Subjects with higher incomes reported higher life satisfaction than people with lower ones. PGCMS ($F = 9.5$, $p < .001$), current life satisfaction ($F = 7.3$, $p < .001$) and age

TABLE 3. *Exploratory factor analysis (principal component with Oblimin rotation)*

	Factor				
Variable	Satisfaction	Functional ability	Social and physical activity	Social status	Physical illness
Life satisfaction	.801	−.155	.210	−.256	−.298
Age satisfaction	.765	−.071	.056	−.122	−.372
PGCMS	.761	−.229	.262	−.298	−.611
Perceived health	.670	−.275	.122	−.306	−.587
Activity satisfaction	.598	−.302	.392	.014	−.135
General appraisal	.323	−.804	.223	.059	−.251
ADL 1	−.083	.721	−.116	.060	.286
Leisure activities	.454	−.666	.213	−.318	−.313
Changes in sexual drive	.329	−.200	.655	−.251	−.255
Living with others	.164	.284	.640	−.355	−.130
Physical activity	.197	−.239	.544	−.077	−.285
Social activity	.075	−.206	.517	.307	.158
Income	.207	.151	.152	−.806	−.146
Education	.204	−.353	.113	−.753	−.195
Number of illnesses	−.408	.299	−.124	.175	.866
Pains	−.452	.351	−.118	.199	.865
Medicine intake	.308	−.147	.208	−.106	−.789
Eigenvalues	5.26	1.63	1.37	1.19	1.02
Correlation components					
Physical illness	−.377	.215	−.114	.225	1.000
Social status	−.189	−.010	−.075	1.000	
Social and physical activity	.241	−.151	1.000		
Functional ability	−.219	1.000			
Satisfaction	1.000				

satisfaction ($F = 5.4$, $p < .001$). After controlling age, gender, marital status, and education as covariants, significant differences continued to be found for PGCMS and current life satisfaction ($F = 3.3$, $p < .01$, and 3.9, $p < .004$, respectively). Significant differences for age satisfaction disappeared when the other socio-demographic variables were controlled as covariants ($F = 1.5$).

Exploratory factor analysis

In order to explore the relationships and internal structure among all the variables used in the study, a factor analysis was performed. Table 3 shows that the exploratory factor analysis (principal components, Oblimin rotation) yielded five factors, accounting for 61.6 per cent of the total variance.

The first factor was called *satisfaction*, because all satisfaction variables (PGCMS, life satisfaction and age satisfaction) loaded it. However, it should be emphasised that this factor is also loaded by perceived health and activity satisfaction. This first factor explains nearly one third of the variance.

The second factor is called *functional ability*. It is loaded by general appraisal of functional abilities and ADL I, but also by leisure activities. The third factor, *social and physical activity*, is loaded by perceived changes in sexual drive, living with others, physical activity and social activity. The fourth factor, *social status*, is loaded by two socio-demographic variables, monthly income and educational level. Finally, our fifth factor is called *physical illness*, is loaded by number of illnesses, pains and medicine intake.

Comparing our exploratory factor analysis with the theoretical variables (Table 1), it can be seen that the latter (life satisfaction, functional abilities, social support, health, activity, and socio-demographics) have empirical support, but with two exceptions. First, social support (social activity, living with others, sexual drive) and physical activity are both loading the third factor. Secondly, perceived health, instead of loading the same factor as the other indicators of physical health, loads the general satisfaction factor.

Confirmatory structural model

From our introductory review of other research, the position and associations of the socio-demographic and psychosocial factors could be inferred, but the configuration of these factors was not established. Therefore, a complete path analysis with all the variables was undertaken. In order to reach the final model, we proceeded step by step, testing different simple sub-models (Zamarrón 1999, Zamarrón and Fernández-Ballesteros 2000). In fact, the strategy followed was, first, to check the possible models involving only two of the relevant variables. From those two-variable models that fit the sample data, more complex, three-variable models were developed. In this way, the number of variables in the model was increased at each step. The final model is that which best fits all the significant variables measured in our research.

As will be shown, several of the hypothetically relevant variables dropped out from this final model including three of the socio-demographic conditions – age, gender, and marital status. Of the psychosocial variables, functional abilities dropped out, due either to

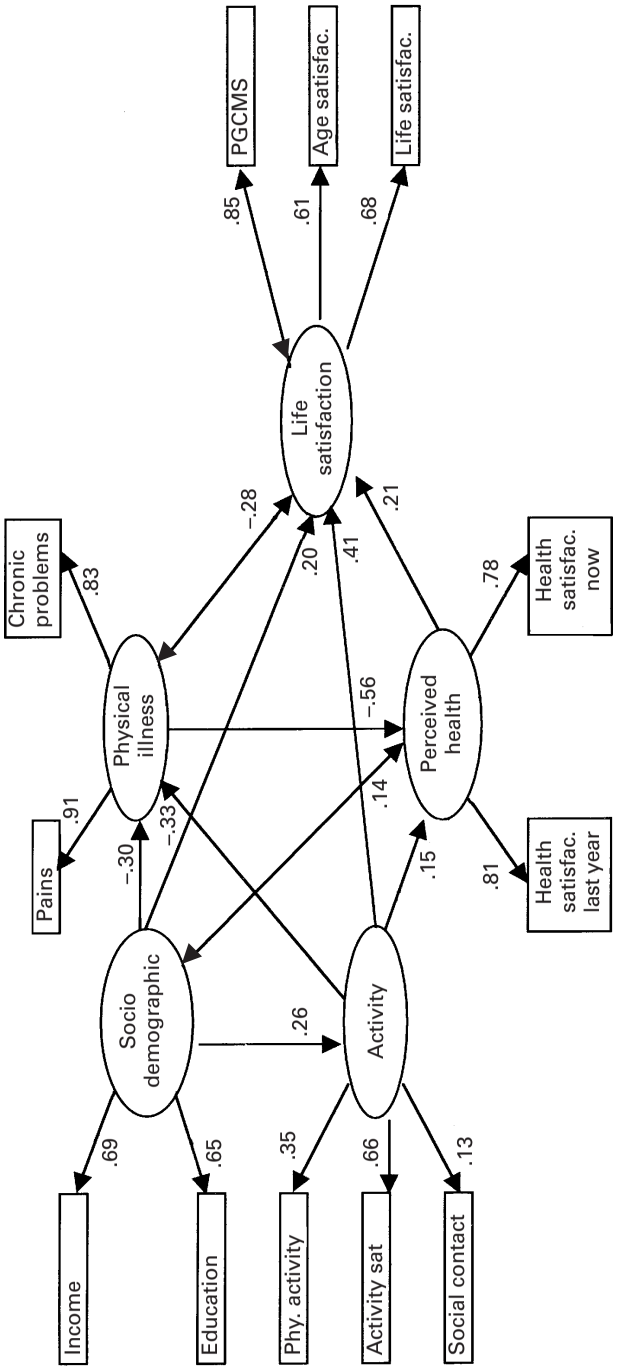

Figure 1. Life satisfaction confirmatory analysis

https://doi.org/10.1017/S0144686X01008078 Published online by Cambridge University Press

TABLE 4. *Measurement model: latent variable constructs*

Item description	Factor Loading
Physical Illness	
1. Pains	.91
2. Chronic Problems	.83
Perceived Health	
1. Health satisfaction last year	.81
2. Health satisfaction now	.78
Activity	
1. Physical activity	.35
2. Activity satisfaction	.66
3. Social activity	.13
Satisfaction	
1. PGCMS	.85
2. Life satisfaction	.68
3. Age satisfaction	.61
Socio-demographic	
1. Income	.69
2. Education	.65

Table entries are completely standardised factor loadings (constrained to 1.0 in the unstandardised solution).

lack of fit, to the fact that they did not load with other variables in the model, or because their effect was blurred by the presence of other variables. Moreover, social support also dropped out of the model, except for social activity (or social contact), which fitted into the activity factor. Health was split into two factors: physical illness and perceived health. This final model should be seen as the only one with theoretical support. It includes the larger number of initially proposed variables, and has an adequate level of statistical fit.

Figure 1 presents this theoretical model. Socio-demographic characteristics (measured by educational level and monthly income) are the antecedents of all factors included in the model. Socio-demographic conditions not only have an important total effect on life satisfaction: they also affect other psychosocial factors included in the model. Among the psychosocial factors, activity (including social activity) has the most important total effect on life satisfaction, but activity also has a direct effect on physical illness and perceived health and, through these factors, it also has an indirect effect on life satisfaction. Finally, physical illness and perceived health themselves also have important effects on life satisfaction.

Results of the model indicate a reasonable fit of the model to the data. It explains 69 per cent of the life satisfaction variance.

The measurement portion of the estimated model is presented in

Table 4. As shown, except for social activity, all regression loadings were higher than 0.35, indicating reasonable measurement quality of the latent constructs (values for the more traditional Cronbach's alpha coefficients confirm this result).

Table 5 shows the decomposition of total effects and direct effects. Examining first the total effects of all relevant variables fitting the model, both socio-demographics and activity have positive and significant ($p < .001$) total effects on life satisfaction (respectively .61 and .74). As expected, physical illness has a negative and significant total effect on life satisfaction (-0.37, $p < .01$), and perceived health has a positive total effect on it (.23, $p < .05$).

Like Figure 1, Table 5 shows that socio-demographic factors have significant total effects on life satisfaction (.61, $p < .001$), but also on physical illness ($-.50$, $p < .001$), on perceived health (.44, $p < .001$), and on activity (.26, $p < .05$). Among the psychosocial conditions it is activity that presents the highest total effect on life satisfaction (.74, $p < .001$), both directly (.41, $p < .001$), and also through physical illness and perceived health. The activity factor has a negative significant total effect on physical illness ($-.45$, $p < .001$) and on perceived health (.39, $p < .001$). Finally, perceived health and physical illness are two distinct psychosocial factors determining life satisfaction; physical illness has the most important weight ($-.37$, $p < .001$) and perceived health has the lowest weight (.21, $p < .05$) of the variables considered.

Discussion

The present study improves our understanding of life satisfaction in old age with its data indicating the importance of differentiating between socio-demographic and psychosocial determinants and the linkage between socio-demographic and psychosocial variables.

As expected, people vary in their life satisfaction depending on their socio-demographic conditions. Age, gender, marital status, education and income differentiate subjects' life satisfaction. Younger people, men, and married, highly-educated and high-income subjects report higher scores in life satisfaction measures than older people, women, the widowed and divorced, and poorly-educated and low-income subjects. Our results are in accordance with those of Bradburn (1969), Diener (1984, 2000), Inglehart (1997), Kelly (1993), Krause *et al.* (1992), MacNeil and Teague (1987), Mannell and Dupuis (1996) and Penning and Strain (1994).

TABLE 5. *Causal model: decomposition of total effects*

Dependent variable Independent variables	Direct effect	Total effect
Physical Illness		
1. Socio-demographic	−.30 **	−.50 ***
2. Activity	−.33 **	−.45 ***
Perceived Health		
3. Socio-demographic	.14	.44 ***
4. Activity	.15	.39 ***
5. Physical Illness	−.56 ***	−.56 ***
Activity		
6. Socio-demographic	.26 *	.26 *
Satisfaction		
7. Physical Illness	−.28 **	−.37 **
8. Perceived Health	.21 *	.21 *
9. Activity	.41 ***	.74 ***
10. Sociodemographic	.20 **	.61 ***

* $p < .05$; ** $p < .01$; *** $p < .001$.

However, socio-demographic variables are strongly interrelated. In this study, when income and education were controlled, differences due to age and gender disappeared, though this finding could be a cultural effect. Differences in education are extremely high among older cohorts in Spain, born before compulsory education legislation and demographic transition. As a result there is a corresponding mediating effect on differences due to age and gender. Such results cannot be generalised to other cultures, populations or time periods and, as has been pointed out, life satisfaction, wellbeing and other psychosocial conditions appear, in general, to be variables that are strongly related to cultural and generational factors (Diener 2000; Inglehart 1997; Schaie 1996).

Nevertheless, our aim here is to highlight not only national results, but also the importance of the relationships between different types of socio-demographic factors. In our data, two socio-economic conditions, education and income, are more important than age and gender for reported life satisfaction. As Diez Nicolás (1996) and Heikkinen *et al.* (1993) among others have pointed out, age and gender as independent variables – isolated from other socio-demographic variables – may give a misleading picture, so that experimental or statistical control analysis should be performed to avoid confusing their effects with those of other relevant variables.

On performing an exploratory factor analysis, five factors emerged to account for 61.6 per cent of the total variance. They reproduced closely

our set of socio-demographic and psychosocial variables. Satisfaction is the first factor loaded by our three life satisfaction measures, but it is also loaded by perceived health and by satisfaction with leisure activities. As several authors stress, perceived health usually coincides with the life satisfaction construct since, in older people, subjective health is closely associated with life satisfaction and is the best predictor for quality of life (Bisconti and Bergeman 1999; Fernández-Ballesteros *et al.* 1996; Lher 1982, 1993).

Functional ability is the second factor, loaded by the appraisal of functional ability, by ADL and by leisure activities items. As pointed out in the introduction, it is extremely difficult to distinguish between functional abilities or ADL and the number of leisure activities a person performs, as functional ability is a prerequisite for involvement in other leisure activities.

Social and physical activity appears as our third factor, loaded by sexual, physical and social activities. As other authors have emphasised (Mathias *et al.* 1997), sexual activity is strongly related to social opportunities (social activity, and living with others) but, from our exploratory factor analysis, our third factor comprises not only sexual and social relationships, but also physical activity. This fact accords with the proposal of some authors that there is a linkage between activity and social networks (Kelly 1993; Antonucci *et al.* 1996; Mannel and Dupuis 1996). For them, activity, because it is necessarily mediated by functional abilities and, at the same time, strongly linked to social interactions, is a psychosocial variable that is closely related to other psychosocial conditions. Therefore, when a facto analysis is performed, activity – measured by various indicators such as physical activity and number of leisure activities performed – appears to be spread across two factors: functional abilities and social (and physical) activity (MacNeil and Teague 1987).

Our fourth factor could be considered to be 'social status', and is loaded by income and education. Finally, our fifth factor, physical illness, loaded by chronic illness, reported pain and medicine intake, can be considered to be the more 'objective' side of health. As in other studies, physical illness appears to be distinct from subjective and perceived health (Diez Nicolás 1996; Heikkinnen *et al.* 1993).

In sum, from this exploratory factor analysis four findings have been highlighted:

- Psychosocial and socio-demographic conditions load different factors, and the set of variables selected was supported by our exploratory factor analysis.
- Satisfaction emerges as the first factor. As in other studies on life

satisfaction in old age, perceived health is strongly linked to satisfaction.

- There is some overlap among the psychosocial variables. Social condition and physical activity are strongly linked, while leisure activities load the same factor as functional ability and ADL.
- Health variables are also spread across two factors: subjective health is loading the satisfaction first factor, but physical illness appears in the fifth factor, in accordance with the findings of many other studies.

When a confirmatory analysis was conducted, both socio-demographic and psychosocial factors were found to explain 69 per cent of life satisfaction variance. Socio-demographic conditions (income and education) have a direct influence on life satisfaction, but also they have an important indirect influence through activity, physical illness and perceived health. As in other studies (Fernández-Ballesteros, in press; Heikkinen *et al.* 1993; Rowe and Khan 1997), socio-demographic factors are good predictors of health and activity, and these psychosocial conditions are also posited as explanatory factors of life satisfaction (Mannel and Dupuis 1996).

Among psychosocial variables, it is *activity* that has the strongest direct impact on life satisfaction. It is important to emphasise that our activity factor is made up of physical activities, satisfaction with these activities and social relationships. This result is in accordance with the idea that social and physical activities are strongly related in predicting life satisfaction in old age; all of these activities have been posited in this model as independent structural conditions. Therefore, in order to maintain a positive view of the self and to be satisfied with life in old age, people should maintain high social and physical activity levels (as argued by activity theory: Havighurst 1963; Atchley 1999). Also, activity has an important impact on both physical illness and perceived health. As pointed out in several studies, activity (physical and social) is one of the best predictors of successful ageing and wellbeing (Rowe and Khan 1997).

Finally, in accordance with many other studies, health – physical illness and perceived health – is also posited as an explanatory variable of life satisfaction (Heikkinen *et al.* 1993; Lher 1982). Several authors emphasise the importance of subjective health as against objective measures of physical illness as a predictor of psychological wellbeing in old age (Kovar 1987; Lher 1993). All of our data have been collected by means of interviews – which means that they are self-reported measures – but in the interview there are both questions referring to subjective health and others asking about objective characteristics.

Both types of health measure are posited as explanatory variables of life satisfaction. In other words, life satisfaction is a subjective condition that can be explained by other subjective events, but also by objective factors.

Acknowledgement

This study has been supported by the National Institute of Social Services of Spain.

References

Antonucci, T. C., Sherman, A. M. and Akiyama, H. 1996. Social networks, support, and integration. In Birren, J. E. (ed), *Encyclopaedia of Gerontology*, Volume 2. Pergamon Press, San Diego CA.

Atchley, R. C. 1999. *Continuity and Adaptation in Aging: Creating Positive Experiences*. J. Hopkins University Press, Baltimore.

Avia, M. D. and Vázquez, C. 1998. Optimismo inteligente. *Alianza Editorial*. Madrid.

Bentler, P. M. and Bonett, D. G. 1980. Significance test and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, **88**, 588–606.

Bisconti, M. A. and Bergeman, C. S. 1999. Perceived social control as a mediator of the relationships among social support, psychological well-being, and perceived health. *The Gerontologist*, **39**, 94–103.

Bradburn, N. M. 1969. *The Structure of Psychological Well-Being*. Aldine, Chicago.

CIRES, 1995. *La Realidad Social Española 1992–1994*. Centro para la Investigación de la Realidad Social, Madrid.

Diener, E. 1984. Subjective well-being. *Psychological Bulletin*, **95**, 542–75.

Diener, E. 2000. Subjective well-being. *American Psychologist*, **55**, 34–43.

Diez Nicolás, J. 1996. *Los Mayores en la Comunidad de Madrid*. Caja Madrid, Madrid.

Fernández-Ballesteros, R. and Maciá, A. 1993. Calidad de vida en la vejez. *Intervención Social*, **5**, 77–94.

Fernández-Ballesteros, R., Zamarrón, M. D. and Maciá, A. 1996. Calidad de vida en la vejez en distintos contextos. *Imserso*, Madrid.

Fernández-Ballesteros, R. In press. Quality of life, education and health among the elderly: some empirical results. *Psicothema*.

Freund, A. and Baltes, P. B. 1998. Selection, optimization, and compensation as strategies of life management: correlations with subjective indicators of successful aging. *Psychology and Aging*, **13**, 531–43.

Havighurst, R. 1963. Successful aging. In Williams, R. H., Tibbitts, C. and Donahue, W. (eds), *Process of Aging*. Atherton, New York.

Heikkinen, E., Era, P., Jokela, J., Jylha, M., Lyyra, A. and Pohjolainen, P. 1993. Socioeconomic and life style factors as modulators of health and functional capacity with age. In Schroots, J. J. F. (ed), *Aging, Health and Competence*. Elsevier, Amsterdam.

Inglehart, R. 1997. *Modernization and Postmodernization: Cultural, Economic, and Political Change in Societies*. Princeton University Press, Princeton, NJ.

Jöreskog, K. G. and Söborn, D. 1989. *LISREL 7 User's Reference Guide*. Scientific Software, Mooresville, Indiana.

Kelly, J. R. (ed). 1993. *Activity and Aging: Staying Involved in Later Life*. SAGE, Newbury Park, C.

Klemmack, D. L. and Roff, L. L. 1984. Fear of personal aging and subjective well-being in later life. *Journals of Gerontology*, **39**, 356–8.

Kovar, M. G. 1987. Health assessment. In Maddox, G. L. (ed), *The Encyclopedia of Aging*. Springer, New York.

Krause, N., Herzog, A. R. and Baker, E. 1992. Providing support to others and well-being in later life. *Journals of Gerontology*, **47**, 300–11.

Lher, U. 1982. Socio-psychological correlates of longevity. *Annual Review of Gerontology and Geriatrics*, **3**, 102–47.

Lher, U. 1993. A model of well-being in old age and its consequences for further longitudinal studies. In Schroots, J. J. F. (ed), *Aging, Health and Competence*. Elsevier, Amsterdam.

MacNeil, R. and Teague, M, (eds), 1987. *Aging and Leisure: Health and Competence*. Prentice Hall, Englewood Cliffs, NJ.

Mannell, R. C. and Dupuis, S. 1996. Life satisfaction. In Birren, J. E. (ed), *Encyclopaedia of Gerontology*, Volume 2. Pergamon Press, San Diego CA.

Mathias, R. E., Lubben, J. E., Atchinson, K. A. and Schweitzer, S. O. 1997. Sexuality and satisfaction among very old adults: results from a community dwelling Medicare population survey. *The Gerontologist*, **37**, 6–14.

McCamish-Svensson, C., Samuellson, G., Hagberg, B., Svensson, T. and Dhelin, O. 1999. Social relationships and health as predictors of life satisfaction in advanced old age. *International Journal of Aging and Human Development*, **48**, 301–24.

Montorio, I. 1994. La persona mayor, guía aplicede de evaluación psicológive. Imserso, Madrid.

Mulaik, S. A., James, L. R., Van Alstine, J., Bennett, N., Lind, S. and Silwell, C. D. 1989. Evaluation of goodness-of-fit indices for structural equation models. *Psychological Bulletin*, **105**, 430–45.

Neugarten, B. L., Havinghurst, R. J. and Tobin, S. S. 1961. The measurement of life satisfaction. *Journals of Gerontology*, **16**, 134–43.

Penning, M. J. and Strain, L. A. 1994. Gender differences in disability, assistance, and subjective well-being in later life. *Journals of Gerontology*, **49**, 202–8.

Robins, L and Regier, D. (eds), 1991. *Psychiatric Disorders in America*. Free Press, New York.

Rowe, J. W. and Khan, R. L. 1997. Successful aging. *The Gerontologist*, **37**, 433–40.

Schaie, K. W. 1996. Generational differences. In Birren, J. E. (ed), *Encyclopaedia of Gerontology* Volume 2. Pergamon Press, San Diego CA.

Shin, D. D. and Johnson, D. M. 1978. Avowed happiness as an overall assessment of the quality of life. *Social Indicators Research*, **5**, 475–92.

Tanaka, J. S. and Huba, G. J. 1985. A general coefficient of determination for covariance structure models under arbitrary GLS estimation. *British Journal of Mathematical and Statistical Psychology*, **42**, 233–9.

Wan, T. and Livieratos, B. 1978. Interpreting a general index of subjective well-being. *Health and Society* (Milbank Memorial Fund Quarterly), **56**, 531–56.

Wilson, W. 1967. Correlates of avowed happiness. *Psychological Bulletin*, **67**

Zamarrón, M. D. 1999. *Bienestar Subjetivo en la Vejez*. Doctoral dissertation. Autonoma University of Madrid, Madrid.

Zamarrón, M. D. and Fernández-Ballesteros, R. 2000. Satisfacción con la vida en personas mayores que viven en sus domicilios y en residencias. Factores determinantes. *Revista Española de Geriatría y Gerontología*, **35**, 17–29.

Accepted 26 October 2000

Address for correspondence:
Professor Rocío Fernández-Ballesteros, Department of Psychobiology and Health Psychology, Faculty of Psychology, Autónoma University of Madrid, 28049-Madrid (Spain).
e-mail: r.fballesteros@uam.es