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Psychological and physical dimensions explaining life satisfaction among the elderly: A structural model examination

Juan Carlos Meléndez [a,*], José Manuel Tomás [b], Amparo Oliver [b], Esperanza Navarro [a]

[a] Department of Developmental Psychology, Faculty of Psychology, University of Valencia, Av. Blasco Ibáñez, 21, 46010 Valencia, Spain
[b] Department of Methodology for the Behavioral Sciences, Faculty of Psychology, University of Valencia, Av. Blasco Ibáñez, 21, 46010 Valencia, Spain

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ABSTRACT

The aim of the present paper is to analyze the effects of psychological well-being, physical functioning and socio-demographic factors on life satisfaction. Both a bivariate and a multivariate level of analyses have been used. Finally, a structural model explaining life satisfaction has been developed and validated. With respect to bivariate relations, there was evidence of significant positive relations between psychological well-being dimensions and life satisfaction and between physical conditions and life satisfaction as well. Also, as age increased there was a slow decrease in life satisfaction. Educational level was positively related to life satisfaction. A structural model gave valuable information about the pattern of multivariate relationships among the variables. A first result of the model was the large effect of physical and psychological well-being on life satisfaction, albeit it was psychological well-being the major predictor of life satisfaction. A second result was that the effects of socio-demographic variables on life satisfaction were low and they operated through the effects that maintain either on psychological well-being (or its individual indicators) or on physical conditions. The role gender or age played was indirect rather than direct.

1. Introduction

In recent years, gerontology research has focused on explicative variables of what has been called "successful aging", which it is related to healthy ways to get older that could buffer the effects of pathological aging. Old age is a moment of development in which psychological and physical losses are likely and adaptation to new situations may play a pivotal role for this successful aging. Successful aging is sustained in an adequate optimization of the three dimensions of life quality: psychological, social and physical functioning (Reig, 2003). Recently, life satisfaction has been considered the subjective expression of quality of life (Fernández-Ballesteros et al., 2001) and it is therefore an indicator of successful aging. In other words, an adequate development of the aforementioned three dimensions determines life satisfaction (Cabañero et al., 2004).

A considerable amount of research has been devoted to explain life satisfaction in the elderly (Diener, 2000). Thus, there is growing empirical evidence on best predictors of life satisfaction, and life satisfaction has been used as a dependent variable in dozens of social programmes (Fernández-Ballesteros et al., 1996). In spite of the load of information available, there are still some inconsistencies about the role and relative importance that predictors play on the explanation of life satisfaction.

Among the socio-demographic characteristics, several factors have been pointed out as explanatory variables of life satisfaction. Specifically, age, gender, income and educational level have been extensively associated to life satisfaction. Ferring et al. (2004) found slight negative effects of age on general life satisfaction, and a slightly higher life satisfaction for men. Avia and Vázquez (1998) also found a negative relationship between age and life satisfaction. On the contrary, Subasi and Hayran (2005) found that neither age nor gender were positively associated to life satisfaction. Pinquart (1998) in a review of cross-sectional studies found contradictory results, although, results slightly favored a comparable evaluation of life satisfaction across different age groups. Delhey (2004), in a large study on 25 European countries, found only a slight effect of income on life satisfaction. Diener (1984, 2000) found no relationships between income and life satisfaction. However, Veenhoven (2000) related income to life satisfaction at the national level, and found a large effect of income. Same positive result was found by Inglehart (1997) at country level. A multivariate structural model by Fernández-Ballesteros et al. (2001) found moderate positive effects of socioeconomic status, including

* Corresponding author. Tel.: +34 963 983844; fax: +34 963 864671.
E-mail address: melendez@uv.es (J.C. Meléndez).

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income and educational level, on life satisfaction. Finally, Subasi and Hayran (2005) also found statistically significant effects of educational level on life satisfaction.

Regarding psychological factors, Ryff and Keyes (1995) found consistent association between well-being factors and life satisfaction. In concret, there were strong positive associations of life satisfaction with self-acceptance and environmental mastery and modest relationships with purpose in life, positive relations with others, personal growth and autonomy. Keyes et al. (2002) also found a strong positive relationship between psychological well-being, as measured by the six factors in Ryff's scale, and life satisfaction. Psychosocial variables strongly related to life satisfaction are size of social network, social support and positive social relations (Krause et al., 1992; Antonucci et al., 1996). In Spanish context, Triadó (2003) and Villar et al. (2005) found statistically significant correlations among the factors of well-being measured in Ryff's scale and life satisfaction. These relationships were moderate to large for self-acceptance, purpose in life and personal growth, but low for autonomy, environmental mastery and positive relations with others.

With regards to physical condition, there is a substantial body of evidence positively relating health with life satisfaction. Among the health measures used in the literature, illness, functional ability, activity level, chronic problems or pain have had large effects on life satisfaction (Lehr, 1982; Fernández-Ballesteros et al., 1996; Mannell and Dupuis, 1996). Functional abilities, such as basic activities of daily living, systematically predict life satisfaction (Penning and Strain, 1994; Díez-Nicolás, 1996). A multivariate structural model by Fernández-Ballesteros et al. (2001) has found significant positive effects of activity level, perceived health on life satisfaction, and negative effects of physical illness on life satisfaction.

Thus there are quite a lot of variables identified as influent in life satisfaction, but the results are sometimes contradictories, and there is not enough research on the mechanisms or the processes in which they affect life satisfaction.

The aim of the present paper is to analyze the effects of psychological well-being, physical functioning and socio-demographic factors on life satisfaction. Both a bivariate and a multivariate level of analyses have been used. Finally, a structural model explaining life satisfaction has been developed and validated.

2. Materials and methods

2.1. Sample

The sample consisted of 181 retired men and women living in the Valencian Community (Spain). Their ages ranged from 65 to 94 years, with a mean age of 75.6 and standard deviation of 7.05. Regarding gender, 59.1% were women, 50% were married at the time of the study, 40.9% were widows and the resting 9.2% were in other categories (single or divorced). With respect to educational level, percentages were as follow: no studies: 31.8%; primary studies: 51.7%; secondary studies: 10.8%; university studies: 4%. 88.6% of the sample were parents, and the average number of children was 2.6 ± 1.6 ($\pm$SD).

2.2. Measures

The study was based on a questionnaire survey responded by the sample of elderly. Among the variables included in the survey instrument are those used in present study: socio-demographic information, Barthel index (Mahoney and Barthel, 1965), Life satisfaction index (LSI-A, Neugarten et al., 1961) and Ryff's psychological well-being Scale (Ryff, 1989).

Among the socio-demographic indicators, gender, age, income and educational level have been included in the study. Income was measured with a four-point ordinal indicator from 1 = less than 600 Euros per month to 4 = more than 1500 Euros. Educational level was also measured with an ordinal variable from 1 = no studies to 4 = university studies.

Barthel index assesses 10 activities of daily living, and it ranges from 0 = minimum level of physical autonomy to 100 = maximum level of physical autonomy. It can also be used as an ordinal indicator with four categories of dependency from severe to light. A Spanish version adapted from the original by Baztan et al. (1993) has been used in this study.

Life satisfaction has been measured with the LSI-A in its Spanish version developed by Stock et al. (1994) and it comprises 20 Likert type items. Cronbach alpha in the sample was 0.823.

Finally, psychological well-being has been measured with Ryff's 84 items scale (Ryff, 1989). This scale has six related factors of psychological well-being: autonomy ($\alpha = 0.78$); environmental mastery ($\alpha = 0.78$); personal growth ($\alpha = 0.76$); positive relations with others ($\alpha = 0.83$); self-acceptance ($\alpha = 0.78$); and purpose in life ($\alpha = 0.75$).

2.3. Analyses

Two levels of analysis were performed: (i) bivariate analyses to address relationships between the independent variables and LSI-A calculated with SPSS 14; (ii) multivariate structural equation models to explain life satisfaction simultaneously considering all the independent variables.

Structural models were estimated using maximum likelihood techniques, within the statistical program EQS 6.1 (Bentler, 2005). Although maximum likelihood assumes multivariate normality, the data did not departed very much from this assumption, with a Mardia's normalized estimate of 2.5, below the recommended cut-off criteria of 3, and maximum likelihood has been repeatedly found robust under these circumstances (Curran et al., 1996). For the assessment of model fit, a selection of the better performing indices (for example, Hu and Bentler, 1999) was used. In terms of absolute fit indices, the chi-square statistic, standardized root mean-square residual (SRMR), and the goodness-of-fit index (GFI). The SRMR should approximate or be less than 0.08 to be indicative of adequate fit of the model to the data. GFI index the relative amount of the observed variances and covariances accounted for by a model, with values of about 0.9 considered adequate. From the range of incremental fit indices, those comparing against a null model, the comparative fit index (CFI) has been used. 0.9 has been proposed as minimum value of the CFI for model acceptance. Finally, the root mean square error of approximation represents closeness of fit and values approximating 0.06 and zero demonstrate close and exact fit of the model to the data. A value up to 0.08 indicates a reasonable error of approximation. In addition, the normalized χ^2 (the ratio of the χ^2 divided by its degrees of freedom) has also been reported in order to detect over-fitted models with values less than 1 (Schumacker and Lomas, 1996), and also considering ratio values of 3 or less as usual cut off criteria of model adequacy (Bollen, 1989).

3. Results

3.1. Bivariate relationships

Table 1 shows zero-order correlations among the quantitative predictors and the life satisfaction index. The pattern of bivariate relationships shows that most of these potential predictors are indeed significantly related to the LSI, with the exception of