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Validation of the brief Quality of Life Interview (QoLI): I. Internal structure

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Summary

Background: This paper reports a study of the psychometric properties of the brief version of Lehman's Quality of Life Interview (QoLI), an instrument which evaluates both subjective and objective components of quality of life.

Method: One hundred and twenty eight patients who met DSMIV criteria for schizophrenia were evaluated with the brief QoLI in its French version. The internal structure of the QoLI was explored in terms of an analysis of items, a study of correlations between items and item dimensions, and a principal component analysis of the subjective and item dimensions, and a principal component analysis of the subjective and objective domains. The internal consistency of the scale was evaluated by Cronbach's α .

Results: The individual items all discriminated strongly between subjects. Items showed high correlations with the subscales of which they were part, and much lower correlations with the other subscales, confirming the relevance of the domains defined a priori, particularly for the subjective domains. Principle component analysis also strongly supported the separation between the different domains of quality of life. Analysis of internal consistency did not reveal items that could be dropped from the interview.

Conclusions: This study of internal structure confirmed that the QoLI provides wide coverage of relevant and separable domains of quality of life in an efficient format. If performed effectively in a sample of subjects with schizophrenia.

Key words :

Background

The concept of quality of life has gained currency over the last twenty years as a way of assessing the global outcome of a variety of medical conditions, including psychiatric disorders. It has the advantage of generating an overview based on a number of more specific domains of functioning, activity, and access to resources that together influence people's sense of well-being. Thus deficits in one area may be compensated for by assets in others. Quality of life can be assessed in relation to at least three different perspectives: general quality of life: health-related quality of life; and disease-specific quality of life. The perspective used depends on the researcher's purpose, but, for conditions like severe mental disorders that have major implications for social disablement, a general framework is probably the most appropriate.

Lehman (1)1996) has reviewed the various scales for assessing quality of life in people with long-standing severe mental illness, and emphasised the value of the distinction between subjective and objective aspects. It should however be noted that the supposed objective determinants of quality of life are not that objective: they are based on consensus judgements (2)e.g. Holzinger *et al*., 1997), and their value component is quite clear. The subjective and objective elements do complement each other, but their overlap is incomplete: in other words, the things that might be predicted to contribute to quality of life may not tally exactly with someone's actual sense of well-being. Both subjective and objective dimensions must be taken in to account in assessing health outcomes. Lehman (3)1983) found that adding the patients' subjective evaluations doubled the explanatory power of a model based on demographic characteristics and objective assessments related to quality of life.

There have been a number of attempts to encapsulate quality of life in standardised research instruments. One of the best known for use specifically in psychiatric conditions is the structured Quality of Life Interview (QoLI) of Lehman (4)1983). This covers the eight

life domains of ‘living situation’, ‘family’, ‘social relations’, ‘leisure’, ‘work’, ‘safety’, ‘finances’, and ‘physical health’. Information within each life domain is first obtained about objective quality of life, and only then about the level of life satisfaction. The objective measures relate to either functioning or resources. This pairing of objective and subjective aspects is central to the instrument.

The QoLI is a structured questionnaire, with three types of reply for each life domain: dichotomous replies (yes, no), open responses to reveal objective information such as type of residence, and replies located on a 7-point Likert scale. The scale explores the social dimension of the quality of life in great detail, measuring it in both subjective and objective terms. It also measures perceived health, but makes no attempt to rate other dimensions often included in quality of life indicators. This limitation is reasonable, given the main consequence of severe mental disease is social exclusion.

The original QoLI contains 143 items and takes about 45 minutes to score. This is an appreciable disadvantage when the scale forms part of a larger battery of tests used for research with subjects suffering from severe mental illness. This paper is the first of two in which we report on the performance of an abridged version, designed to reduce the duration of interview and containing only 74 items[1].

The primary aim of the current study was thus to evaluate the performance of the QoLI in its abridged version, the psychometric properties of which have yet to be established. There are several ways in which this should be done. The first requirement is an examination of the performance of individual items in the population of interest. Secondly, we need to know if the divisions in the scale, which appear to have good face validity, actually reflect empirical divisions. Thirdly, we require to examine the external validity of the scale in a

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number of ways. Finally, the acceptability of the scale to those being interviewed with it should be assessed. In this first paper, we focus on the instrument's internal structure.

Methods

The subjects taking part in this study were recruited from in- and outpatient samples being evaluated as part of a long-term follow-up programme. The study was located in two psychiatric sectors, located respectively in Marseille and Clermont-Ferrand. In each sector, all the patients of a single psychiatrist were eligible, provided they met the criteria for entry. Subjects were identified following an interview with the SCID (Spitzer et al. 1992), which is designed to serve DSM-IV (APA, 1994). Additional information needed to establish the inclusion criteria was obtained from the medical files. To be included, the patients had to meet the DSM-diagnostic criteria for schizophrenia. They were excluded if they had a primary DSM-IV diagnosis other than schizophrenia, or if French was not their first language. When the patients had given their informed consent to participation in the study, they were interviewed using the abridged QoLI.

This version of the QoLI consists of 74 items divided into eight life domains. The nine subjective were scored on a fixed interval scale from 1 ("I am very unhappy with ...") to 7 ("I am happy with ...".), measures, as was a summary subjective rating of global satisfaction. The eight corresponding objective scales were formed from 24 qualitative items.

The short version was translated into French for use in the current study by RO and MT. Each was responsible for a forward translation, followed by reconciliation of the two versions. The translation was then reviewed by CL and PML (both psychiatrists). This was followed by back translation by a translator whose mother tongue was English. Finally, comparison between the original scale and the back-translation was used to refine the French version. This was then piloted on twenty patients. Small adjustments after this resulted in the finalised translation.

Analysis

In this paper we have conducted analyses of the QoLI in relation to its internal structure and precision. Internal structure was evaluated through analyses of the individual items; of the relationship between items and the various dimensions; of the relationships between the dimensions; and of the factorial validity of the scale.

Item analysis was conducted for the items constituting both the subjective and objective scales. The analysis consisted of observing the distributions of the scores on the individual items, and calculating the Discrimination Index (Nunally & Bernstein, 1994) for each item. Correlation coefficients were calculated for the relationship between items and the various overall dimensions, and between the dimensions. However, measures of association were used for the relationship between dichotomous items and the overall dimensions. Factorial validity was explored by principal component analysis. The object was to confirm the structure of this version of the QoLI, and to verify that the data allowed the identification of the *a priori* subjective and objective dimensions. The precision of the scale was studied by examining its internal consistency using Cronbach α coefficients.

Results

Characteristics of the sample

The sample was recruited from March to July 1997, and consisted of 128 subjects. There were 43 women (34%) and 85 men (66%). Twenty-one patients (17%) were in hospital and the remaining 107 were outpatients. The patients all met the criteria for schizophrenia according to DSM-IV, with 35 cases of the disorganised type (27%), one case of the catatonic type (1%), 39 of the paranoid type (31%), 35 of the undifferentiated type (27%) and 18 of the residual type (14%).

Their mean age was 39.6 years (SD: 10.8), and the mean duration of illness was 15.6 years (SD: 9.8). All patients were receiving neuroleptic treatment at the time of inclusion in the study. The mean age at the time first neuroleptic treatment was 23.8 years (SD: 6.3).

The mean scores for the Lehman quality of life scale are shown in Table 1. None of the sample had been arrested, so the rating of that particular item of the scale was invariably zero. It should be noted that the satisfaction ratings are if anything lower than those identified by Lehman et al. (1982) in their sample with chronic mental illness, and considerably worse than the norms for the US general population. The single exception was for satisfaction with personal safety, which was, as expected, greater in these French patients than in North American samples.

Table 1 about here

Internal structure of the QoLI

The scores for 23 out of the 26 items constituting the nine *subjective* dimensions were uniformly distributed. The discrimination index for these 23 items ranged from 0.87 to 0.96, indicating an excellent distribution of the responses to each. The results are shown in Table 2. The three items relating to professional satisfaction (‘job’, ‘working environment’, ‘amount of money earned’) achieved good discrimination, but were very infrequently completed (only 9.4% of the data were exploitable). It was therefore deemed inappropriate to include them in subsequent analyses of the psychometric properties of the QoLI.

Table 2 about here

In contrast, there was a more uneven distribution of scores on the *objective* items. First, the items incorporated in the 'disposable income' score had no upper limit and the distribution was thus relatively unconstrained. In any case, only 42% of the data were exploitable, and we did not retain the score in subsequent analyses.

The dimensions 'family contact' and 'contacts with friends' comprised items with five point scales, and in these the distributions were very even. This was confirmed by discrimination indices varying from 0.79 to 0.94. However the item relating to 'current employment' had a low discrimination index (0.41). We decided to exclude this item from the remainder of the study: not only was its variability low, but it is difficult to interpret because the method of scoring is not adapted to the French context.

Of the dichotomous items, seven of the eight in the 'everyday activities' score had discrimination indices greater than 0.30, the accepted cut-off for this indicator for dichotomous items. The eighth was on the borders of acceptability, at 0.28. In contrast, the seven items constituting the 'finance' and 'aggression' scores had values below 0.30. This was because most respondents answered the same way, and brings into question the utility and formulation of these items for this population. The item for 'arrests' scored consistently zero, and thus does not appear in the remainder of the analysis. These results are shown in Table 3.

Table 3 about here

The next stage in the analysis of the internal structure of the scale was to examine the correlation of individual item scores with the scores on the sub-scale to which that item contributes. The sub-scale scores were calculated after the exclusion of each item being

tested. Thus, where the subscale scores comprised only two items, the correlation of each item was with the other.

The items comprising each of the subjective sub-scales had very high correlations with their own sub-scales, from 0.6 upwards (in four cases, the correlations exceeded 0.9). Some were also significantly correlated with other sub-scales, although these correlations were considerably lower (Table 4). It is of interest that 'satisfaction with life in general' has relatively few significant correlations with other areas of satisfaction, suggesting that the chosen sub-scales make important contributions to the overall Lehman score.

Table 4 about here

However, some of the objective items were dichotomous and this made correlation an invalid measure of relationship. Where the items were polychotomous, we repeated these analyses using Spearman's correlation coefficient. In order to give some idea of the differential associations of the dichotomous items, we used Goodman and Kruskal's (1954) Gamma. We also dropped the section on victimhood because this exercise became meaningless in the fact of such a low rate of endorsement. Despite the necessary reservations about these analyses of the objective items and the overall scores on the different objective dimensions, they again showed that items were most related to their own dimensions, with the exception of disposable monthly income. The latter was understandably related very strongly to family contacts, and also to daily activity (see Table 5). Apart from income, it should be noted the inter-relationships of items with the objective dimensions other than those they formed part of are less marked than with the subjective items of the QoLI.

Table 5 about here

We also found significant correlations between the overall scores on the different dimensions (Table 6). As might be expected from the analysis of individual items in relation to the various dimensions, the strongest relationships were between subjective dimensions. Sizeable correlations between subjective and objective dimensions, and between objective dimensions were considerably fewer. The score for ‘being the victim of aggression’ was not correlated with any of other objective scores, but was, understandably, linked with satisfaction with security. In Figure 1, we summarise the inter-relationships between the various dimensions, based on correlations exceeding 0.3.

Table 6, Figure 1 about here

A principal component analysis was conducted on the items constituting the subjective scores. When the 23 items constituting the nine subjective scores for the QoLI were analysed, the first eight dimensions account for 75.2% of the total variance (Table 7). This analysis confirmed the eight dimensions previously defined by Lehman. Following varimax rotation, the structure remained very stable (Table 8).

Factor 1 consist of the questions for evaluating the ‘amount of money’ available. All the questions close to that axis had factorial co-ordinates greater than 0.82. Factor 2 consists of items relating to ‘satisfaction with safety’, and the questions close to that axis had factorial co-ordinates greater than 0.79. Factor 3 constitutes the ‘satisfaction with place of residence’ dimension. The items had factorial co-ordinates greater than 0.68. Factor 4 is ‘satisfaction with life in general’, and the constituent items had factorial co-ordinates greater than 0.79. Factor 5 consists of three items, all with factorial co-ordinates greater than 0.72, and represents the score for ‘satisfaction with friendships’. Factor 6 consists of two items

describing ‘satisfaction with family relationships’ with factorial co-ordinates of 0.88 and 0.89. Factor 7 is the score for ‘satisfaction with state of health’. One of the three component items, “How would you assess your emotional well-being?”, is not well related to the factor, and seems to project better onto the fourth factor, ‘satisfaction with life in general’. Factor 8 consists of items relation to ‘satisfaction with leisure activities’. The factorial co-ordinates are somewhat lower for the component items of this factor, ranging from 0.47 to 0.79. Because of the method of scoring of some of the objective items, a principal component analysis could not be conducted on the objective section of the QoLI.

Table 7 and 8 about here

Internal consistency

The internal consistency of the QoLI was studied using Cronbach’s ✂ coefficients. The coefficients were calculated for each of the thirteen scores used in the factorial analysis. Consistency for all the subjective scales was high (0.69 to 0.88), and there were no items whose deletion would have increased internal consistency.

However the consistency of two of the five objective scales was weak. Cronbach’s ✂ for ‘everyday activities’ was 0.55, and the deletion of “Have you read a book, magazine or newspaper?” would increase internal consistency by 0.01.

Cronbach’s ✂ for ‘victims of aggression’ was particularly low (0.29), but this was connected with the low response rate for the two items constituting this dimension: there were only 4.4 % and 11.4% positive endorsements, respectively.

Discussion

This study constitutes, to our knowledge, the first aimed at establishing the psychometric properties of the abridged Lehman QoL scale. The abridgement has the advantage, over the

extensive version generally used, of reducing the information to a smaller number of items (74 instead of 143), while maintaining all eight fields (living situation, family relationships, relationships with friends, leisure activities, professional activities, finances, personal safety and health). This reduction in the number of items reduces considerably the time taken to complete the scale. Thus, the long version requires at least 45 minutes, while this abridged version takes about 20 minutes. This is an indubitable advantage when the scale is used to evaluate the state of health of patients presenting with chronic psychiatric disease, whose tolerance of assessment procedures may be low.

The current study is also the first to have evaluated the properties of the QoLI scale in a population consisting only of patients with schizophrenia. The QoLI was initially constructed for patients with chronic psychiatric disorders, and most of the studies published by Lehman (0) include both patients with schizophrenia and those with other psychiatric disorders, such as chronic depression. Although certain authors (e.g. Carpiniello *et al*., 1997) have shown that quality of life varies little from one chronic psychiatric disease to another (mainly schizophrenia and chronic depression), we considered it of interest to evaluate the QoLI more specifically in a population with schizophrenia, since such patients in any case constitute the majority of those enrolled in the initial studies validating the extensive version of the QoLI. One of the main differences compared to the initial studies by Lehman consists in the fact that patients at various stages of the disease were included in our study. Finally, the factorial stability of the scale has never been documented before.

The study of the psychometric properties of the abridged Lehman QoLI enables the individual contribution of life domains to be reviewed. Our analyses indicate very clearly that the items that compose a given dimension are most closely correlated with the overall score in that dimension. In other words, the different life domains can clearly be distinguished from each other. Likewise, the principal component analysis conducted on both the subjective and

objective scores strongly confirmed the life domains initially identified by the author. These results were corroborated by the internal consistency study. As measured by Cronbach's ✂, most of the life domains show good internal consistency. These results cohere with those for the extensive version reported by Lehman. The internal consistency of that version ranged from 0.79 to 0.88 (median: 0.85) for the satisfaction scales, and from 0.44 to 0.82 (median: 0.68) for the objective scales. According to Lehman *et al*. (1995), Cronbach's ✂ coefficients for the subjective scales were as follows: living situation (0.83), everyday activities (0.83), family (0.88), social relationships (0.71), finances (0.84), safety (0.84) and satisfaction with life in general (0.74). For the objective scales, the ✂ coefficients were as follows: everyday activities (0.62), enough money (0.78), family contacts (0.69), contacts with friends (0.72). Only the objective evaluation of aggression is open to question in the abridged version of the scale, at least in the population studied. The safety and aggression conditions may well constitute less salient aspects of quality of life for French patients than for those in a North-American environment.

The conceptual distinction between subjective and objective dimensions appears also to be an empirical one. The correlations between the objective and subjective life domains of the QoLI were modest in our study, and variable from one sub-group to another. The subjective dimensions (with the exception of 'working conditions') always correlated better with 'satisfaction with life in general' than the objective scales did. The relationships between the various dimensions are summarised in Figure 1. There appears to be a core of subjective measures with quite strong interrelationships: satisfaction with family relationships, with social relationships, with residence, with health, and with leisure. Interestingly, general life satisfaction, which one might expect to act as a summary variable for all the life domains, correlates only with 'satisfaction with health' and 'satisfaction with leisure'. Thus brief measures of quality of life based solely on general satisfaction are likely

to miss much of the variance underlying the overall domain of things that contribute to the conception of quality of life. In our sample, 'satisfaction with safety' correlated significantly only with residence, a relationship that has intuitive credibility. 'Satisfaction with disposable income' appeared to have an important link only with the objective measure of 'available finance'. It appears, surprisingly in a relatively impoverished group, as though money is not of great relevance to many life satisfactions. It does seem to have direct links with the other *objective* measures covered by the QoLI, and this emphasises the attenuated general relationships between the objective attributes of people's lives and the way they felt about things. Others have found that the relationship between satisfaction within specific life domains and global life satisfaction is often quite tenuous (Kemmler *et al*., 1997). Nevertheless, satisfaction in various life domains appears to be a better predictor of global satisfaction than objective measures of quality (Roder-Wanner *et al*., 1997.)

Our results stress the importance of taking into account the subjective experience of people with schizophrenia in evaluating the efficacy of treatment and care programmes. The weak correlations between objective scores and satisfaction with life in general, and between subjective and objective scores reflect the discordance between the sentiments of the patients and the consensus of clinicians about what *ought* to determine quality of life.

In conclusion, we have demonstrated that the QoLI has a very strong and stable internal structure, which was most marked for the subjective dimensions. It might be questioned whether the objective dimensions of the QoLI add materially to the information acquired through their subjective counterparts. Psychometrically the objective scores are less consistent and coherent. They could be substituted by other instruments that tap the objective circumstances held to underpin quality of life. However, in the QoLI, the objective questions have the virtue of orientating the patients, and this might be lost if other instruments were used instead.

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Table 1: ***Scores on the Lehman QoLI***

	Number	Range	Mean (CL)
Subjective Scales			
Satisfaction with life in general	128	1-7	4.5 (1.6)
Satisfaction with living situation	128	1-7	4.7 (1.3)
Satisfaction with leisure time	128	1-7	4.6 (1.0)
Satisfaction with family relationships	121	1-7	4.3 (1.5)
Satisfaction with social relations	127	1-7	4.6 (1.2)
Satisfaction with disposable income	128	1-7	4.2 (1.5)
Work satisfaction	12	1-7	4.7 (0.8)
Satisfaction with personal safety	128	1-7	5.0 (1.3)
Satisfaction with physical and mental health	128	1-7	4.7 (1.1)
Objective scales			
Everyday activity	128	0-1	0.5 (0.2)
Family contact	128	0-5	3.3 (1.5)
Social contacts	128	0-5	2.3 (1.1)
Monthly money	128	0-1	0.8 (0.3)
Monthly disposable income (FF)	54	0-6000	1426 (1221)
Currently employed	128	0-2	0.3 (0.7)
Victim of aggression	128	0-1	0.1 (0.2)
Number of arrests	126	0-1	0.0 (0.0)

Table 2: ***Discrimination index of subjective scales***

	N	DI
Life in General		
Satisfaction with life in general (A1)	128	0.95
Satisfaction with life in general (JI)	123	0.94
Residence		
Condition of life in locality (B4a)	128	0.90
Familiarity with local area (B4b)	128	0.93
Wish to stay in area (B4c)	128	0.96
Leisure activities		
Ways of spending leisure time (C3a)	128	0.93
Ability to enjoy pleasurable activities (C3b)	128	0.91
Number of pleasant experiences (C3c)	128	0.87
Amount of relaxation	128	0.90
Family relations		
Overall attitude of family members to each other (D3a)	121	0.94
Mode of relationship with family members (D3b)	121	0.95
Social relations		
Activities with others (E2a)	127	0.90
Amount of time spent with others (E2b)	127	0.92
Contacts outside the family (E2c)	127	0.92
Disposable income		
Amount of money in hand (F5a)	128	0.95
Perceived standard of living (F5b)	127	0.94
Discretionary income (F5c)	128	0.95
Job satisfaction		
Work (G5a)	12	0.74
Work colleagues (G5b)	12	0.89
Adequacy of payment (G5c)	12	0.94
Personal security		
Security of the area (H3a)	128	0.91
Security of residence (H3b)	128	0.90
Level of protection against theft and aggression (H3c)	128	0.90
State of Health		
Health in general (I2a)	128	0.90
Physical health (I2b)	128	0.88
Emotional well-being (I2c)	128	0.91

Table 3: ***Discrimination Index of Objective Scales***

	N	DI
Daily activities		
Taking a walk (C1a)	128	0.36
Taking part in a course (C1b)	128	0.34
Going to a restaurant or cafe (C1c)	128	0.53
Reading a book, magazine or newspaper (C1d)	188	0.30
Making a bus or car journey (C1e)	126	0.48
Carrying out a favourite pastime (C1f)	127	0.28
Playing sport (C1g)	128	0.33
Going to the park (C1g)	127	0.38
Family contacts		
Speaking with a family member (D1)	126	0.94
Meeting a family member (D2)	121	0.91
Social contacts		
Paying a visit (E1a)	128	0.87
Speaking on the telephone (E1b)	128	0.87
Taking part in an organised activity (E1c)	128	0.84
Spending time with a partner (E1d)	124	0.79
Monthly budget		
Food (F4a)	126	0.16
Clothes (F4b)	128	0.23
Rent (F4c)	124	0.19
Transport (F4d)	126	0.23
Entertainment (F4c)	127	0.19
Discretionary income		
Money remaining after board and lodging (F3)	54	-
Work		
Current employment (G1)	128	0.41
Victim of aggression		
Violent aggression (H1a)	128	-0.02
Victim of non-violent crimes (H1b)	128	0.03
Arrests		
Number of arrests in previous six months (H2)	126	0.04

Table 4: ***Spearman's correlations between individual subjective items and subjective life domains***

	Life domains: satisfaction with:-							
Items	**life in general**	**living situation**	**leisure time**	**family relatonships**	**social relations**	**disposable income**	**personal safety**	**physical & mental health**
A1	**0.92*** **	0.08	0.36***	-0.04	0.14	0.11	-0.03	0.43***
J1	**0.91*** **	0.22*	0.48***	0.16	0.34***	0.32***	0.11	0.55***
B4a	0.18*	**0.76*** **	0.29**	0.40***	0.21*	0.18*	0.30**	0.20
B4b	0.09	**0.86*** **	0.25**	0.17	0.24**	0.10	0.28**	0.07
B4c	0.13	**0.84*** **	0.27**	0.13	0.23**	0.04	0.21*	0.14
C3a	0.35***	0.36***	**0.73*** **	0.20*	0.29**	0.13	0.14	0.37***
C3b	0.34***	0.15	**0.74*** **	0.17	0.39***	0.14	0.16	0.45***
C3c	0.37***	0.14	**0.75*** **	0.22*	0.25**	0.24*	0.14	0.22*
C3d	0.27**	0.28**	**0.67*** **	0.33***	0.03	0.17	0.14	0.36***
D3a	0.10	0.28**	0.34***	**0.94*** **	0.27**	0.27**	0.18*	0.14
D3b	0.04	0.25**	0.26**	**0.95*** **	0.27**	0.29**	0.16	0.11
E2a	0.24**	0.22*	0.34**	0.20*	**0.80*** **	-0.03	0.12	0.42***
E2b	0.28**	0.20*	0.27**	0.30**	**0.83*** **	0.09	0.09	0.36***
E2c	0.14	0.26**	0.21*	0.19*	**0.83*** **	0.19*	0.15	0.16
F5a	0.15	0.00	0.14	0.19*	0.01	**0.89*** **	0.03	0.08
F5b	0.22*	0.07	0.26**	0.30**	0.15	**0.88*** **	0.15	0.12
F5c	00.20*	0.25**	0.23**	0.29**	0.12	**0.88*** **	0.13	0.12
H3a	0.03	0.26***	0.19*	0.06	0.20*	0.08	**0.89*** **	0.11
H3b	0.00	0.28**	0.13	0.18*	0.10	0.09	**0.91*** **	0.02
H3c	0.01	0.31***	0.23**	0.23*	0.09	0.13	**0.88*** **	0.15
I2a	0.42***	0.12	0.42***	0.12	0.33***	0.14	0.10	**0.87*** **
I2b	0.35***	0.12	0.29**	0.10	0.17	0.05	0.10	**0.76*** **
I2c	0.50***	0.17	0.46***	0.09	0.41***	0.10	0.04	**0.78*** **

*p<0.05 **p<0.01 ***p<0.001

Table 5: ***Correlations and measures of association between objective items and objective dimensions***

Measure	Items	Daily activity	Family contacts	Social contacts	Disposable monthly income
Gamma	C1a	**0.79*** **	0.21	0.23	0.22
	C1b	**0.56*** **	0.49***	0.02	-0.02
	C1c	**0.77*** **	0.32	0.24	-0.11
	C1d	**0.53*** **	0.28	0.16	0.22
	C1e	**0.83*** **	0.31*	0.35*	0.31
	C1f	**0.63*** **	0.23	0.13	0.31
	C1g	**0.73*** **	0.39*	-0.12	-0.11
	C1h	**0.57*** **	0.12	0.05	-0.38
Spearman's rho	D1	0.23*	**0.92*** **	0.25**	0.10
	D2	0.06	**0.83*** **	0.20*	0.20*
	E1a	0.32***	0.33***	**0.81*** **	0.21*
	E1b	0.42***	0.26**	**0.80*** **	0.37***
	E1c	0.42***	0.18*	**0.75*** **	0.27**
	E1d	0.25 **	0.02	**0.73*** **	0.34***
Gamma	F4a	0.52**	0.93***	0.79	**1.00*** **
	F4b	0.42**	0.95***	0.56*	**0.32**
	F4c	0.44**	0.90***	0.93**	**0.13**
	F4d	0.55***	0.95***	0.71*	**0.15**
	F4e	0.27*	0.97***	0.67**	**0.38**

*p<0.05 **p<0.01 ***p<0.001

NB: Where Gamma has been used, the significance level is derived from a χ^2 test or from Fisher's exact test as appropriate.

Table 6: ***Matrix of correlations between dimensions***

Life domains	***Satisfaction with:-***								***Actual -***			
	Life in General	**Residence**	**Leisure activities**	**Family relations**	**Social relations**	**Disposable income**	**Security**	**Health**	**Everyday activities**	**Family contacts**	**Social contacts**	**Disposable income**
Satisfaction with:-												
Residence	0.21*	-										
Leisure activities	0.43***	0.36***	-									
Family relations	0.09	0.37**	0.28**	-								
Social relations	0.28**	0.33***	0.36***	0.30**	-							
Disposable income	0.26**	0.13	0.23**	0.28**	0.10	-						
Security	0.03	0.30**	0.22*	0.15	0.19*	0.14	-					
Health	0.55***	0.20*	0.51***	0.13	0.39***	0.18*	0.11	-				
Actual:-												
Everyday activities	0.17	0.10	0.21*	0.14	0.16	0.17	0.07	0.15	-			
Family contacts	-0.10	-0.10	-0.02	0.23*	-0.11	0.17	-0.02	0.00	0.18*	-		
Social contacts	0.17	0.03	0.17	0.29**	0.26**	0.19*	0.22*	0.15	0.45***	0.25**	-	
Disposable income	0.12	0.17	0.15	0.30**	0.05	0.54***	0.09	0.11	0.34***	0.14	0.37***	-
Victim of aggression	0.17	-0.02	-0.07	-0.11	0.00	0.05	-0.24**	0.07	-0.04	-0.10	-0.02	-0.01

*p<0.05 **p<0.01 ***p<0.001

Table 7: ***Variance explained by factors obtained by principal components analysis of subjective items***

Factor	**Eigen value**	**Variance %**	**Cumulative Variance %**
1	5.79	25.2	25.2
2	2.49	10.8	36.0
3	2.13	9.2	45.3
4	1.86	8.1	53.3
5	1.58	6.9	60.2
6	1.34	5.8	66.0
7	1.17	5.1	71.1
8	0.94	4.1	75.2
9	0.81	3.5	78.7
10	0.69	3.0	81.7

Table 8: ***Association of items with factors following varimax rotation***

	Factors							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
F5a	**0.90**	-	-	-	-	-	-	-
F5b	**0.85**	0.13	-	0.10	-	0.16	-	-
F5c	**0.82**	-	0.25	0.11	-	0.14	-	-
H3a	-	**0.88**	-	-	0.17	-	-	-
H3b	-	**0.89**	0.13	-	-	-	-	-
H3c	0.11	**0.79**	0.18	-	-	0.13	0.16	0.16
B4a	-	0.21	**0.68**	0.18	0.11	0.37	0.14	-0.11
B4b	-	0.14	**0.86**	-	-	-	-	-
B4c	-	0.11	**0.79**	-	-	-	-	0.17
J1	0.21	-	0.12	**0.84**	0.15	-	0.13	.19
A1	-	-	-	**0.79**	-	-0.15	0.21	-
E2a	-0.10	-	0.14	-	**0.72**	-	0.42	014
E2b	-	-	-	0.15	**0.73**	0.33	-	-
E2c	0.18	-	0.19	-	**0.81**	-	-0.11	0.11
D3a	0.14	-	0.12	-	0.12	**0.88**	-	0.13
D3b	0.18	-	0.12	-	0.15	**0.89**	-	-
I2a	-	-	-	0.41	0.18	-	**0.83**	-
I2b	-	-	-	0.18	-	-	**0.75**	-
I2c	-	-	-	0.60	0.31	0.12	**0.26**	0.25
C3a	-	0.11	0.41	-	-	-	0.37	**0.52**
C3b	-	0.19	-	0.20	0.34	-	0.29	**0.66**
C3c	-	-	-	0.36	0.12	0.10	-0.19	**0.79**
C3d	-	-	0.23	0.21	-0.22	0.36	0.27	**0.47**

Kaiser-Meyer-Olkin MSA = 0,7131

Bartlett Test of Sphericity = 1221,2244; Significance = 0.0001