Quality of life in schizophrenia: development, reliability and internal consistency of the Lancashire Quality of Life Profile – European Version

EPSILON Study 8

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Background This paper, part of the European Psychiatric Services: Inputs Linked to Outcome Domains and Needs (EPSILON) Study, reports the development, reliability and internal consistency of the Lancashire Quality of Life Profile – European Version (LQoLP–EU) in a representative sample of people with schizophrenia from five European sites.

Method The LQoLP–EU was administered to a total sample of 404 patients to check its internal consistency, and a sub-sample of 294 patients was interviewed a second time within 7–15 days to verify its test–retest reliability.

Results Internal consistency of the total domains, perceived QoL scale (Life Satisfaction Scale, LSS) was good at 0.87. Of the nine subjective QoL domains Work and Leisure showed the lowest internal consistency (0.30 and 0.56 respectively), the values of the remaining sub-scales ranging between 0.62 and 0.88. The pooled ICC score for LSS was 0.82, and for the nine subjective QoL domain sub-scales it ranged from 0.61 (Safety) to 0.75 (Living Situation). There were significant differences between the sites in α and ICCs for sub-scales, but not for the LSS.

Conclusion The LQoLP–EU has good internal consistency and reliability in the five European centres.

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The interest in studying quality of life in persons with schizophrenia started as concern was increasing about the role played by the chronically mentally ill in the community. This was evident after the de-institutionalisation process which took place in the 1960s and 1970s in western countries (Bachrach, 1970; Lamb, 1979). Although there is no consensus between researchers on the definition of the concept of 'quality of life', it seems that certain patients' characteristics, such as family and social relations, safety, employment and finances, have been identified as the main determinants of quality of life in mentally ill people (Lehman *et al*, 1982; Lehman, 1983*a*; Sullivan *et al*, 1991). An additional, and fundamental, issue concerning the evaluation of quality of life is the fact that the primary dimension of this construct differs markedly depending on whether objective or subjective criteria are used. Thus, for example Corten (Corten *et al*, 1994) emphasised subjective satisfaction as a major determinant of quality of life in psychiatric patients. We could therefore conclude that the quality of life of a patient depends not only on his/her personal characteristics and objective life conditions, but also on his/her subjective perception of life circumstances in a variety of domains, often referred to as 'well-being' or 'life satisfaction'.

Taking these issues into consideration, the Lancashire Quality of Life Profile (LQoLP) (Oliver *et al*, 1996) was developed from Lehman's Quality of Life Interview (Lehman *et al*, 1982; Lehman, 1983*a*,*b*), combining objective and subjective measures in several life 'domains'. Oliver has assessed the initial psychometric properties of the LQoLP in chronic psychiatric patients. Construct, content and criterion validity were found acceptable and the evaluation of the internal consistency of the sub-scales was considered good (Oliver *et al*, 1996*a*, 1997). However, test–retest reliability assessment was not performed. A subsequent reliability study conducted by Hansson *et al* in 1998 reported satisfactory results regarding the instruments' reliability and internal consistency. Nevertheless, the significance of their findings might be questioned, given the limited number of cases (29) included in the study. Thus a thorough and comprehensive verification of the cross-cultural applicability and psychometric properties of the instruments was needed. This verification process has been carried out as a component of the European Psychiatric Services: Inputs Linked to Outcome Domains and Needs (EPSILON) Study, a multi-centre study conducted in five European countries, whose aims are described below.

EPSILON STUDY

Aims

The aims of the EPSILON Study are:

(a) To produce standardised versions of five assessment instruments in key areas of mental health service research in five European languages (Danish, Dutch, English, Italian and Spanish), following a rigorous conversion process from the original version into the other four languages by: (i) accurate and independent translation and back-translation from the original into the other four languages; (ii) checks of cross-cultural applicability using focus groups; and (iii) assessment of instrument reliability. Full details of these procedures are given by Becker *et al* (1999) and elsewhere in this supplement (Becker *et al*, 2000; Knudsen *et al*, 2000; McCrone *et al*, 2000; Ruggeri *et al*, 2000; Schene *et al*, 2000).

(b) To obtain and compare data from five regions in different European countries, each with their particular system of health care, about social and clinical variables, characteristics of mental health care and its costs. The results of this are now being prepared for publication.

(c) To test both instrument-specific and cross-instrument hypotheses; full details of this stage of the study will be published in due course.

The specific aim of the present paper is to describe the development of a European Version of the LQoLP, the LQoLP–EU, at the same time verifying its reliability and

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internal consistency in representative samples of people with schizophrenia in the five European centres participating in the EPSILON Study. The paper should be read in close conjunction with other related papers in this series, which give more detailed accounts of key related aspects of the study (Becker *et al*, 1999, 2000; Knudsen *et al*, 2000; Schene *et al*, 2000).

Outcome scales included in the reliability study

The reliability study included the conversion of five scales from their original language into the other four study languages. The scales are: Camberwell Assessment of Need – European Version (CAN–EU), Client Socio-Demographic Service Receipt Inventory – European Version (CSSRI–EU), Involvement Evaluation Questionnaire – European Version (IEQ–EU), Lancashire Quality of Life Profile – European Version (LQoLP–EU), and the Verona Service Satisfaction Scale – European Version (VSSS–EU).

Lancashire Quality of Life Profile – European Version (LQoLP–EU)

The LQoLP was originally developed by Oliver *et al* (1996) from Lehman's Quality of Life Interview (Lehman, 1983*a*,*b*; Lehman *et al*, 1982). It is a structured self-report interview (to be administered by trained interviewers) comprising 105 items. It includes the following nine domains: work and education (7 items); leisure and participation (8 items); religion (4 items); finances (7 items); living situation (12 items); legal status and safety (5 items); family relations (7 items); social relations (6 items); and health (10 items). The subjective components of these 'domains' are evaluated on a seven-point Life Satisfaction Scale (LSS). In addition, the interview allows the assessment of the following additional areas: (a) positive and negative affect (10 items) with the Bradburn (1969) Affect-Balance Scale; (b) Self-Esteem Scale (10 items) (Rosenberg, 1965); (c) measures of Global Well-Being, including two items: Cantril's Ladder (Cantril, 1965) and a Happiness Scale (Gurin *et al*, 1960); (d) the Quality of Life Uniscale, which gives an opportunity of evaluating the quality of life of the patient (Spitzer & Dobson, 1981) independently of the patient's own opinion; (e) the perceived Quality of Life Score, an average of the sum of the subjective items of the first nine domains.

MATERIAL AND METHOD

Study sites

The criteria used to identify study centres, and full details of the general population characteristics of the study sites, are given in Becker *et al* (1999). In brief, the criteria were similar to those used by Dowrick *et al* (1998). Six partners in five centres joined forces for this collaborative study, and the research teams were located in Amsterdam, Copenhagen, London (Centre for the Economics of Mental Health, and Section of Community Psychiatry, Institute of Psychiatry), Santander and Verona.

Translation and cultural adaptation of the LQoLP–EU

Before the reliability analyses were undertaken, the original English version of the LQoLP was converted into its European versions (Dutch, Danish, Spanish and Italian). The procedure followed was translation, back-translation, focus groups and target checking. Focus groups took place in Amsterdam, Copenhagen, Santander and Verona. The aim of the focus groups was to identify conflicting areas in the wording and cultural applicability of the instrument. As a consequence, a number of changes were made to the local translations of the instruments (for additional details see Knudsen *et al*, 2000, this supplement). Specifically, as regards the LQoLP–EU, as a result of the experience obtained in the focus group and pilot testing of the instrument, a detailed manual was produced to clarify aspects related to its administration and scoring.

Case identification

Cases included in the study were adults aged 18–65, selected as representative of all people suffering from schizophrenia who were in contact with services in each of the five study sites. Study samples were identified either from psychiatric case registers (in Copenhagen and Verona) or case-loads of local specialist mental health services (in-patient, out-patient and community). Patients included had been in contact with mental health services during the 3-month period before the start of the study (September 1997). Patients with an ICD–10 clinical diagnosis of F20–F25 were considered as candidates for the study. The diagnosis was confirmed using the item group checklist (IGC), which is part of the Schedule for Clinical Assessment in Neuropsychiatry (SCAN) (World Health Organization, 1992; Vázquez-Barquero, 1993). Finally, only patients with an ICD–10 F20 research diagnosis were included in the study. In addition, the following exclusion criteria were applied: current residence in prison, secure residential services or hostels for long-term patients; co-existing mental retardation, primary dementia or other severe organic disorder; and periods of in-patient treatment lasting longer than one year.

Study procedure

The numbers of patients finally included in the study varied from 52 to 107 in the five different sites, with a total of 404 participants in the study as a whole. From those patients, a sub-sample of 294 was selected to participate in the test–retest study, and these patients were interviewed twice with the LQoLP–EU. The time interval between the two interviews ranged from 1 to 2 weeks, and the same interviewer performed both interviews with each patient. Patients were given oral information about the purpose and procedures of the study by the interviewer and asked for their consent to participate. Interviewers were previously trained in the use of the LQoLP–EU; in addition, all interviewers received training in the use of the SCAN and all other EPSILON Study instruments. SCAN training was carried out at the Institute of Psychiatry, London, and at the Clinical and Social Psychiatry Research Unit, Santander. There were regular follow-up meetings to ensure the standardised use of instruments, and a series of study coordinating meetings. The coordinating centre (in London) prepared the SPSS templates used at all the participating sites to store the information gathered during the interviews, thus ensuring data consistency and homogeneity.

Reliability testing

Reliability testing in the EPSILON Study is conducted on several levels, depending on the nature of the instruments involved and the way they are administered (interviews v. questionnaires). Two kinds of reliability tests were used: the Cronbach's α statistic to check the internal consistency of scales and sub-scales consisting of more than one item, and intraclass correlation coefficient (ICC), to check the test–retest

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Table 1 Lancashire Quality of Life Profile – European Version (LQoLP–EU) quality of life scores and sub-scores in the pooled sample and by site

Sub-scales		Pooled *n*=404		Amsterdam *n*=61		Copenhagen *n*=52		London *n*=84		Santander *n*=100		Verona *n*=107		Test equality of means (*P*-value)	Test equality of s.d. (*P*-value)
	Items	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.		
LSS average score	27	4.67	0.76	4.61	0.72	4.98	0.70	4.24	0.60	4.83	0.69	4.67	0.84	<0.01	0.01
Work situation	3	4.22	1.40	4.04	1.24	5.23	1.20	3.98	1.07	4.06	1.37	4.22	1.57	<0.01	<0.01
Leisure activities	3	4.67	1.00	4.71	1.11	4.88	0.80	4.35	0.92	4.71	0.95	4.67	1.08	<0.01	0.01
Religion	2	5.13	1.17	4.56	1.40	5.29	1.24	5.17	0.92	5.12	1.20	5.13	1.07	<0.01	<0.01
Finances	2	4.26	1.52	4.21	1.35	4.94	1.65	3.72	1.27	4.24	1.62	4.26	1.49	<0.01	0.04
Living situation	7	4.74	1.06	4.74	0.92	5.02	0.96	4.21	1.17	4.99	0.91	4.74	1.07	<0.01	0.22
Safety	2	4.94	1.31	4.74	1.35	5.34	1.12	4.32	1.22	5.21	1.15	4.94	1.40	<0.01	0.22
Family relations	3	4.96	1.35	5.01	1.11	4.81	1.50	4.35	1.33	5.55	1.22	4.96	1.32	<0.01	0.02
Social relations	2	4.70	1.24	4.72	1.32	4.78	1.28	4.40	0.80	4.93	1.20	4.70	1.46	0.07	<0.01
Health	3	4.61	1.15	4.82	1.10	4.64	1.07	3.98	0.98	4.67	1.13	4.61	1.17	<0.01	0.27
Global well-being	2	4.37	1.34	4.64	1.25	4.59	1.23	3.94	1.23	4.23	1.38	4.37	1.42	<0.01	0.10
Positive affect	5	0.52	0.34	0.34	0.34	0.53	0.32	0.47	0.31	0.37	0.30	0.52	0.36	<0.01	0.25
Negative affect	5	0.45	0.33	0.42	0.29	0.38	0.32	0.60	0.33	0.38	0.31	0.45	0.33	<0.01	0.34
Positive self-esteem	5	0.71	0.32	0.73	0.23	0.65	0.34	0.65	0.35	0.79	0.27	0.71	0.34	<0.01	<0.01
Negative self-esteem	5	0.38	0.32	0.40	0.31	0.39	0.33	0.40	0.26	0.39	0.34	0.38	0.33	0.54	0.04
Cantril's Ladder	1	58.94	39.47	66.22	25.57	60.66	24.00	61.31	72.67	50.81	24.59	59.90	21.83	<0.01	0.30
QoL Uniscale	1	54.28	19.74	57.46	16.41	55.27	18.67	51.08	18.42	54.60	22.65	53.20	20.43	<0.01	0.01

LSS, Life Satisfaction Scale; QoL, Quality of Life.

reliability of scales and sub-scales. These statistics are discussed in Streiner & Norman (1995). Each step in the analysis was described in an analysis protocol, which was followed by all sites.

First, differences in sample variances were explored using the Levene test. Cronbach's α was computed for each site and for the pooled sample, and a test for differences in α values between sites was performed as well (Feldt *et al*, 1987). Intra-class correlation coefficients were computed by maximum likelihood estimation of a variance components model with patients entered as random effects, and (in the case of pooled estimates) site entered as a fixed effect.

The ratio of the between-patient to total variance was used for the ICC, and the variance–covariance matrix for the components was used to obtain standard errors based on the delta technique (Dunn, 1989). Fisher's Z transformation was applied to all ICCs to enable approximate comparisons to be made between sites (Donner & Bull, 1983), and differences between sites were tested for significance by the method of weighting (Armitage & Berry, 1994) before transforming back to the ICC scale. The standard error of measurement was obtained from the 'error' component of variance. Finally, a paired *t*-test on test–retest data was carried out in order to assess any systematic changes from time 1 to time 2.

Because there were missing items, mean substitution (means over all valid cases) was used before estimating α. This procedure is likely to provide conservative estimates of the true α values (i.e. underestimates), but may magnify the apparent significance of inter-site differences, because it underestimates the standard errors of α. In most cases the number of missing values was small, and they can reasonably be assumed to be random. One exception is the Work sub-scale, where there were many items 'not applicable' (such as work satisfaction, for those unemployed). The items from the Work sub-scale were omitted from the estimation of α for the total (ISS) scale.

For reasons of comparability, all sites used the same procedure and the same software for all instruments: SPSS for Windows 7.5 or higher (Norusis, 1993), the Amsterdam α-testing program ALPHA.EXE (based on Feldt *et al*, 1987), and Microsoft™ Excel for tests of the homogeneity of ICCs.

RESULTS

The mean time taken for the interview in the first series was 27±12 min (10–90 min). Table 1 shows summary statistics for the first interview, including the results of tests of homogeneity of the means and s.d., for the whole sample of 404 patients (i.e. the main study sample, of which the reliability sample is a sub-sample). The table shows lack of homogeneity in variance for the global quality of life assessment (LSS average score) and mixed values for the subjective sub-scales (significant values for Work, Leisure Activities, Religion, Finances, Family Relations, Social Relations, QoL Uniscale and Positive Self-Esteem were found). A discussion of differences in the mean levels (which in almost all cases differed significantly between sites) will follow in a subsequent paper.

Internal consistency

Internal consistency evaluates the interrelatedness of the items in the LQoLP–EU. It was assessed by the Cronbach's α coefficient with a single administration of the instrument. Three items were excluded from this analysis, since they are

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Table 2 Internal consistency of the Lancashire Quality of Life Profile – European Version (LQoLP–EU): α coefficients (95% CI) in the pooled sample and by site

Sub-scales	Items	Pooled *n*=404[1]	Amsterdam *n*=61	Copenhagen *n*=52	London *n*=84	Santander *n*=100	Verona *n*=107	Test of equality of α (*P*-value)
LSS score	24[2]	0.87 (0.85–0.88)	0.84 (0.77–0.89)	0.83 (0.75–0.89)	0.86 (0.81–0.89)	0.83 (0.77–0.87)	0.90 (0.87–0.92)	0.11
Work	2	0.30 (0.14–0.42)	0.12 (−0.50 to 0.45)	0.64 (0.35–0.78)	0.76 (0.62–0.84)	0.18 (−0.23 to 0.44)	0.47 (0.20–0.63)	<0.01
Leisure activities	3	0.56 (0.48–0.62)	0.67 (0.47–0.78)	0.29 (0.15–0.55)	0.66 (0.51–0.76)	0.42 (0.17–0.58)	0.62 (0.47–0.72)	0.07
Religion	2	0.62 (0.53–0.68)	0.33 (−0.15 to 0.58)	0.48 (0.05–0.69)	0.92 (0.87–0.94)	0.71 (0.56–0.80)	0.62 (0.42–0.74)	<0.01
Finances	2	0.88 (0.85–0.90)	0.72 (0.53–0.83)	0.93 (0.87–0.95)	0.98 (0.96–0.98)	0.88 (0.82–0.91)	0.85 (0.78–0.89)	<0.01
Living situation	6	0.85 (0.82–0.87)	0.78 (0.68–0.85)	0.75 (0.62–0.84)	0.94 (0.91–0.95)	0.74 (0.65–0.81)	0.86 (0.81–0.89)	<0.01
Safety	2	0.82 (0.78–0.85)	0.79 (0.64–0.87)	0.79 (0.63–0.87)	0.96 (0.93–0.97)	0.68 (0.52–0.78)	0.81 (0.72–0.87)	<0.01
Family relations	2	0.80 (0.75–0.83)	0.69 (0.46–0.80)	0.72 (0.49–0.83)	0.91 (0.86–0.94)	0.92 (0.88–0.94)	0.65 (0.48–0.76)	<0.01
Social relations	2	0.66 (0.58–0.72)	0.65 (0.39–0.78)	0.58 (0.25–0.75)	0.56 (0.30–0.70)	0.49 (0.22–0.65)	0.83 (0.75–0.88)	0.02
Health	3	0.74 (0.69–0.78)	0.72 (0.57–0.82)	0.66 (0.44–0.78)	0.79 (0.69–0.85)	0.66 (0.52–0.76)	0.75 (0.65–0.82)	0.49
Global well-being	2	0.83 (0.79–0.86)	0.75 (0.56–0.85)	0.83 (0.69–0.90)	0.94 (0.91–0.96)	0.82 (0.72–0.87)	0.79 (0.69–0.86)	<0.01
Positive affect	5	0.74 (0.70–0.78)	0.71 (0.56–0.81)	0.71 (0.55–0.81)	0.64 (0.49–0.74)	0.70 (0.59–0.78)	0.83 (0.77–0.88)	<0.01
Negative affect	5	0.68 (0.62–0.72)	0.58 (0.36–0.72)	0.66 (0.46–0.78)	0.72 (0.60–0.80)	0.66 (0.54–0.75)	0.68 (0.56–0.76)	<0.01
Positive self-esteem	5	0.77 (0.73–0.80)	0.71 (0.56–0.80)	0.78 (0.66–0.86)	0.81 (0.73–0.86)	0.70 (0.59–0.78)	0.81 (0.74–0.86)	0.35
Negative self-esteem	5	0.67 (0.62–0.72)	0.64 (0.46–0.76)	0.74 (0.59–0.83)	0.45 (0.23–0.61)	0.75 (0.66–0.82)	0.74 (0.65–0.81)	0.04

1. Maximum sample size. Mean substitution used for missing items. Minimum sample size after substitution: 401 (global well-being).
2. Three items were excluded from this analysis since they are utilised exclusively in specific situations ('if applicable'): for people married, retired or with previous hospitalisations.
LSS, Life Satisfaction Scale.

administered to certain patients only: those married, retired, or previously admitted to psychiatric hospitals.

The α coefficients were high for LSS average score, as shown in Table 2, with a pooled estimate of 0.87 (95% CI 0.85–0.88). In the remaining nine subjective sub-scales, Cronbach's α ranged from 0.30 (Work) to 0.88 (Finances). The domains with the lowest values were Work (0.30, 0.14–0.42), Leisure Activities (0.56, 0.48–0.52), Religion (0.62, 0.53–0.58) and Social Relations (0.66, 0.58–0.72), and for these four sub-scales the reliabilities were very low for some individual sites (see Table 2).

In the Self-Esteem scale the results showed the following coefficients: 0.77 (0.73–0.80) for positive self-esteem and 0.67 (0.62–0.72) for negative self-esteem. For the Affect Balance scale, the results were 0.74 (0.70–0.78) for positive affects and 0.68 (0.62–0.72) for negative affects.

Test–retest reliability

Table 3 shows the intraclass correlation between the test and retest interviews for the patients in the reliability sub-sample (only 294 patients took part in the retesting). The pooled ICC score for global satisfaction (LSS) was 0.82. The nine life domain sub-scale ICCs ranged between 0.61 (Safety) to 0.75 (Living Situation). ICC estimations for the Affect balance scale were 0.72 for positive affect and 0.71 for negative affect. In the Self-Esteem scale the results were 0.71 for positive self-esteem and 0.63 for negative self-esteem. Test–retest reliabilities were 0.65 for Cantril's Ladder, 0.78 for Global Well-Being and 0.81 for QoL Uniscale.

Test–retest ICCs were good for the LSS (pooled estimate 0.82, 95% CI 0.78–0.85) and also for the individual sub-scales, which ranged from 0.61 to 0.75. The coefficients appear to be higher for the LSS than for the individual sub-scales, perhaps due to the greater stability of the LSS, being the total of many items. There is evidence for differences between sites for the individual sub-scales but not for the LSS. The only centre with relatively low ICCs for sub-scales is Verona, but paired *t*-tests on the time 2 and time 1 results show this is not due to an overall tendency to higher or lower values at retest in Verona, but can be explained by random variation. There are relatively high values of the standard error of measurement $(s.e.)_m$ associated with the low ICCs at Verona, and the higher $(s.e.)_m$ in Verona is the explanation for the overall higher standard deviation (0.84 in Table 1).

DISCUSSION

This paper presents the results of the reliability of the LQoLP–EU in relation to its internal consistency and test–retest stability. The internal consistency was assessed in

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Table 3 Test–retest reliability of the Lancashire Quality of Life Profile – European Version (LQoLP–EU) summary scores in the pooled sample and by site

Sub-scale	Pooled $n=264$		Amsterdam $n=51$		Copenhagen $n=46$		London $n=51$		Santander $n=50$		Verona $n=66$		Test of equality of ICCs (*P*-value)
	ICC	$(s.e.)_m$	ICC	$(s.e.)_m$	ICC	$(s.e.)_m$	ICC	$(s.e.)_m$	ICC	$(s.e.)_m$	ICC	$(s.e.)_m$	
LSS score	0.82	0.29	0.86	0.24	0.83	0.28	0.82	0.24	0.85	0.24	0.77	0.41	0.65
Work situation	0.66	0.76	0.73	0.63	0.38	0.92	0.65	0.62	0.82	0.61	0.61	0.94	0.01
Leisure activities	0.68	0.56	0.79	0.51	0.62	0.54	0.61	0.53	0.68	0.55	0.67	0.67	0.34
Religion	0.62	0.67	0.51	0.88	0.71	0.64	0.58	0.66	0.74	0.51	0.54	0.69	0.24
Finances	0.72	0.73	0.72	0.69	0.73	0.74	0.87	0.42	0.81	0.69	0.56	1.04	<0.01
Living situation	0.75	0.51	0.67	0.51	0.67	0.55	0.87	0.42	0.79	0.39	0.65	0.63	<0.01
Safety	0.61	0.74	0.64	0.75	0.76	0.51	0.72	0.63	0.71	0.62	0.32	1.06	<0.01
Family relations	0.66	0.73	0.15	0.64	0.71	0.75	0.73	0.64	0.59	0.86	0.61	0.86	0.15
Social relations	0.65	0.67	0.75	0.61	0.72	0.66	0.52	0.57	0.81	0.48	0.51	0.93	<0.01
Health	0.71	0.56	0.81	0.42	0.71	0.59	0.65	0.54	0.75	0.49	0.65	0.68	0.27
Global well-being	0.78	0.58	0.73	0.64	0.83	0.45	0.72	0.59	0.81	0.56	0.81	0.62	0.36
Positive affect	0.72	0.16	0.82	0.14	0.61	0.19	0.79	0.13	0.81	0.12	0.61	0.21	0.05
Negative affect	0.71	0.16	0.66	0.15	0.79	0.13	0.61	0.20	0.81	0.14	0.75	0.17	0.07
Positive self-esteem	0.71	0.16	0.68	0.14	0.83	0.13	0.73	0.17	0.41	0.19	0.77	0.14	<0.01
Negative self-esteem	0.63	0.18	0.57	0.21	0.73	0.15	0.49	0.19	0.72	0.18	0.66	0.18	0.10
Cantril's Ladder	0.65	13.49	0.59	15.09	0.85	9.36	0.81	9.64	0.64	15.03	0.38	17.54	<0.01
QoL Uniscale	0.81	7.61	0.72	7.81	0.75	9.05	0.85	6.85	0.91	5.83	0.49	13.92	<0.05

ICC, intraclass correlation coefficient; $(s.e.)_m$, standard error of measurement (square root of error component of variance); LSS; Life Satisfaction Scale; QoL, Quality of Life.

the original instrument by Oliver *et al* (1997). In several studies they obtained a Cronbach's α value ranging between 0.75 and 0.86 for the LSS scale; and other authors (Kaiser *et al*, 1997) reported results ranging from 0.53 to 0.79. Our own results corroborate the adequate internal consistency of the total scale (LSS) of the LQoLP–EU, since Cronbach's α value was 0.87.

Additionally, the internal consistency of nine subjective life domains was adequate for most sub-scales, although there were a few that were less satisfactory. The most conflicting domains were: Work (0.30), Leisure Activities (0.56) and Religion (0.62). In the case of Work, values differed widely between centres, the highest being in London (0.76), and the lowest in Amsterdam (0.12) and Santander (0.18). The Pearson correlation between items in this domain was not significantly different from zero in the two latter centres (Amsterdam 0.107, Santander 0.135). It has to be recognised that assessment of the internal consistency of this sub-domain is very difficult, because of items which are missing or 'not applicable'. It may be that a much larger sample is needed, specifically directed at this particular item, or possibly even reconstruction of the sub-scale from other items. In the domain of Religion, the centre showing the most conflicting results was Amsterdam (0.33), and this may be because religion is a very sensitive topic for people with schizophrenia, as indeed for the general population.

Other authors (Oliver *et al*, 1997) had originally found variations between centres in certain domains. In particular, they found most conflict in the results in the areas of Safety, Religion, Living Situation, Leisure and Work. In the five studies quoted, coefficients for the Work domain ranged from 0.53 to 0.80; for Leisure they ranged from 0.59 to 0.8, and for Religion from 0.45 to 0.85. A possible explanation for this (in previous studies as well as in the current study) is that items included in these domains represent discrete concepts that do not compose a single dimension. Thus an individual may achieve a high score on some and a low one on others. For example, a patient could be very satisfied with his/her job, but not with the amount of money he/she earns; or outdoor leisure activities do not require the same abilities as indoor leisure activities.

In our study, the Cronbach's α values for the Affect Balance and Self-Esteem scales were all satisfactory, although α was lower for negative self-esteem (0.67) than for positive self-esteem for (0.77). The values are similar to those detected by previous authors (Hansson *et al*, 1998).

The test–retest ICCs for the total subjective satisfaction score were good, and they were adequate for each of the nine life domains. Although there was some evidence for differences between the sites in the reliabilities of the sub-domains, they were all above 0.61. The total score showed no evidence of differences, and a pooled estimate is 0.82 (95% CI 0.79–0.86). Unfortunately, in previous studies with this instrument a similar analysis was not carried out, and thus comparison with other data is not possible.

Finally, the paired *t*-tests analysis between interviews at time 1 and time 2 show that there is no overall tendency to higher or lower values at the retest, thus indicating that the values between test and retest are reasonably stable. Therefore it seems that the time between the test and the retest is not long enough to influence the results. Furthermore, there seems to be no tendency for patients to modify their appraisal of quality of life in the second interview (i.e. because answering the questions make them reassess their quality of life).

CONCLUSIONS

The present study shows that the Lancashire Quality of Life Profile – European Version is a useful instrument, which satisfies the requirements of a good quality-of-life measure in different European settings. The total score has good

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internal consistency and reliability, and is similar across sites, although some subscales, especially Work, appear to be less satisfactory from the point of view of consistency, as also found in other studies. Furthermore it is user-friendly, takes about half an hour to administer (on average) and is available in different languages. As a consequence of this study, there are versions available in English, Dutch, Danish, Italian and Spanish, each accompanied by a manual clarifying the use of the instrument in the different settings.

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