Validation of the brief Quality of Life Interview (QoLI). II. Trait and construct validity

*C. Lançon[1], M. Toumi[2], R. Launois[3], P. Auquier[3],
P-M. Llorca[1], A Lehman[4] & P. Bebbington[5]*

[1]Department of Psychiatry, CHU Sainte Marguerite, Marseille, France
[2]Laboratories Lundbeck France, Ave Pierre 1er de Serbie, 75005 Paris, France
[3]Department of Public Health, La Timone Hospital, Marseille, France
[4]Center for Mental Health Services Research, 685 West Baltimore Street MSTF 300, Baltimore, Maryland 21201, USA.
[5]Royal Free and University College Medical School, University College London, Department of Psychiatry and Behavioural Sciences, ARCHWAY CAMPUS, Whittington Hospital, Highgate Hill, London N19 5NF

Address for correspondence:-

C. Lançon, Service Hospitalo-Universitaire de Psychiatrie d'adultes (Prof. H Dufour). CHU Sainte Marguerite, 270 Bd de Sainte Marguerite, 13274 Marseille Cedex 09, France.
Phone: 04 91 74 40 51 / E-mail: clancon@ap-hm-fr.

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Abstract

Baclground. Quality of life is now regarded as of great significance in psychiatry as a measure of outcome, with the aim of providing data for establishing the cost-utility of treatment. This paper is the second of two reporting on the psychometric properties of the short version of the Lehman Scale (QoLI), and focuses on validity.

Methods. Our sample comprised 128 subjects with schizophrenia recruited within two French psychiatric sectors. Scores on the QoLI were compared with other measures of quality of life, in particular, the EuroQol, and examined in relation to sociodemographic variables and the clinical attributes of the illness. We made specific hypotheses that quality of life would be positively correlated with integrated living arrangements, a better clinical state, and freedom from the side-effects of medication.

Results. Correlations between the scores on individual sections of the QoLI and our other measures of quality of life were positive but not always statistically significant. This was partly a problem of the comparison measures. Quality of life was, as predicted, better in people living in their own homes, and in those living with spouses or other family members. It was also better in relation to indications of better clinical state. Although these findings offer some validation of the QoLI, some of the correlations were non-significant.

Conclusions. The short version of the Lehman Scale is easy to administer and acceptable, and we have demonstrated appreciable validity, particularly construct validity. The scale is a useful addition to our ability to measure relevant outcomes in psychiatry.

Background

This paper is the second of a pair evaluating the psychometric properties of the short version of the structured Quality of Life Interview (QoLI) of Lehman (1983a, 1988). In the first paper (LanHon et al., 2000) we reported on its internal structure, while in the current paper we report on the trait and construct validity and the acceptability of this version of the scale.

The process of obtaining evidence of validity for a new instrument is inevitably ambiguous. It involves comparisons with other variables hypothesised to have a relationship with the concept underlying the instrument. We require the degree of correlation between the index instrument and its comparators to be reasonable, but not perfect, since if the relationship were perfect it would indicate no use for the instrument under evaluation.

In fact there is no generally acknowledged gold standard against which to establish the trait validity of quality of life assessments. Nevertheless, we made comparisons with other measures of quality of life; these comprised the EuroQol visual analogue scale, and the items from the QoLI itself that were not used in constructing the overall score of the instrument. These were item C2 ("Overall, how do you feel about the way you have fulfilled your family, occupational and social obligations?") and item I1 ("In general, how would you described your state of health?").

Construct validity was tested in terms of hypotheses about the distribution of Lehman scores in relation to sociodemographic and clinical measures. Thus we predicted that quality of life would be greater in patients living in their own homes, in patients with intact marriages, and in those living with other people rather than alone.

We had no specific hypotheses about the effects of age and sex, but examined their association with quality of life because others have found relationships.

Finally, we predicted that quality of life would be higher in those whose clinical state was better: those rated better on overall clinical state, on overall functioning, and on the various symptom measures. We expected that the experience of current or recent relapse and exposure to side-effects of medication would reduce quality of life.

Methods

The 128 subjects taking part in this study were recruited from in- and outpatient samples from two psychiatric sectors, located respectively in Marseille and Clermont-Ferrand. All the patients met the diagnostic criteria for schizophrenia in DSM-IV (APA, 1994). They were excluded if French was not their first language, and if schizophrenia was not their primary diagnosis. A more detailed description of procedures is given by LanHon et al. (2000).

When the patients had given their informed consent to participation in the study, they were interviewed using the QoLI. 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 either to functioning or to resources. The abridged version described here is designed to reduce the duration of interview, and contains only 74 items. It can be obtained from the first author.

In addition, three clinical evaluation scales were completed in the course of a single session: the Global Assessment of Functioning (GAF- APA, 1994), the Clinical

Global Impression (CGI - NIMH, 1985) and the Positive and Negative Syndrome Scale (PANSS, Kay, 1991).

The PANSS evaluation was made by psychiatrists with a long experience of using this scale, but who did not previously know the patient. The French language translation of the PANSS scale was that by Lépine *et al*. (1989), and the instrument was scored following the recommendations of its author (Kay, 1991). The information collected related to the week preceding the evaluation. The instrument was scored following the standard semi-structured interview with the patient lasting 30 to 40 minutes (Kay, 1991), complemented by information collected from the nursing staff for inpatients, and the family and entourage for outpatients. The psychiatrist conducting the DSM-IV diagnostic interviews was blind to the results of the PANSS evaluation.

The assessment of extra-pyramidal symptoms was carried out during the same session as that for the PANSS evaluation, using the Extra-pyramidal Symptom Rating Scale (ESRS) of Chouinard *et al*. (1982).

In addition to the QoLI, a further quality of life instrument, the EuroQol, was rated (Brazier *et al*., 1993; van Agt *et al*., 1994). This instrument is designed to measure the impact of patients' state of health on their quality of life. It consists of five items relating to quality of life, one item on variations in the state of health over the last year, and a visual analogue scale. Each of the six items is scored from 1 ("I have no problem in ...") to 3 ("I am incapable of ...).

Analysis

Trait validity was investigated by correlating the various life domains rated in the QoLI with the results for the visual analogue scale of EuroQoL and the two general

items from the QoLI not used to construct domain scores. In order to refine the results further, the means were compared.

Our various predictions in relation to construct validity were tested by comparing sociodemographic categories in terms of the means on the Lehman sub-scale scores and by correlating Lehman scores with the scores on the various clinical scales. Comparisons of the means were also made in order to clarify the results of the correlations. Finally, a measure of the acceptability of the QoLI was determined from the extent to which data were missing for the overall score and for individual items.

Results

Clinical characteristics of the sample

The mean score for the Clinical Global Impression (CGI) was 4.4 (SD: 1.2), and that for the Global Assessment of Functioning (GAF) was 54.9 (SD: 13.2). These results indicate a patient group covering the whole range of disability commonly seen in schizophrenia.

The mean score for PANSS was 18.2 (SD: 7.0) for the positive sub-scale, 24.5 (SD: 6.9) for the negative sub-scale, 41.7 (SD: 10.2) for the general psychopathological sub-scale, and 84.6 (SD: 20.8) for the total score. These values are very similar, though marginally higher, then those quoted by Kay *et al.* (1987) for inpatients with chronic schizophrenia. The total ESRS score was 17.9 (SD: 11.8). The mean score for the visual analogue scale in EuroQol was 61.8 (SD: 22.6.

External validity

The correlations relative to trait validity are given in Table 1. While the correlations with the visual analogue scale were positive, the only significant correlations were with certain subjective scores of the QoLI: 'satisfaction with life in general' and 'state of health' (0.58), 'satisfaction with leisure activities' (0.40) and 'satisfaction with social relationships' (0.20). The correlations between the QoLI subscores and items C2 and I1 were almost all negative, as predicted. However, the only significant correlations were with the QoLI *subjective* subscores, with the exception of that between item I1 and the objective 'contacts with friends' dimension (-0.30).

Table 1 about here

Turning to construct validity, the sociodemographic correlates of quality of life are given in Table 2. Patients living in their own homes were compared to those residing in supported accommodation or in hospital. The patients living at home had higher scores for the majority of the subjective and objective scores, with the interesting exceptions of the subjective dimensions relating to 'life in general' and 'state of health'. Significant differences were observed for three subjective dimensions (satisfaction with place of residence, family relationships and amount of money available), and three objective dimensions (family contacts, contacts with friends and monthly quantity of money).

Comparison of married/cohabiting and post-marital subjects indicated that, as expected, the best quality of life was experienced by the former. However, significant differences emerged only for the subjective dimensions of 'satisfaction with life in general', 'friendships' and 'amount of money available', and the objective score 'contacts with friends'.

Similar results were obtained when patients living with their families, or as a couple with compared with those living alone. The highest scores were obtained for the subjects living as a couple or with their family compared to those living alone, with the exception of the subjective scores for 'satisfaction with life in general' and 'safety', and the objective scores for 'everyday activities' and 'monthly amount of money'.

Thus in general, the association of quality of life items with sociodemographic attributes is in line with our predictions, and provides support for the construct validity of the QoLI.

With regard to the sociodemographic variables about which we had no specific predictions, male patients had higher scores for all QoLI scores except the subjective score on aggressions, indicating a generally better quality of life. However, significant differences were only found for three dimensions: the subjective dimension of 'leisure activities' and the objective scores for 'family contacts' and for 'everyday activities'. Patients aged less than 45 years were compared with those who were older than that. The latter had a significantly lower mean score for 'family contacts' than their younger counterparts. The older patients had higher subjective scores. Although the difference was not statistically significant, this accords with a clinical consensus that the impact of schizophrenia attenuates with age.

Table 2 about here

The next set of analyses test our predictions linking quality of life with clinical variables (Table 3). Scores on the Clinical Global Impression (CGI) correlated

significantly only with the scores for 'satisfaction with leisure activities', 'everyday activities' and 'contact with friends', and then only modestly.

In contrast, seven scores significantly correlated with the Global Assessment of Functioning (GAF). These were the subjective scores for 'leisure activities', 'friendships', 'personal safety' and 'state of health', and the objective scores for 'everyday activities, 'contacts with friends' and 'monthly amount of money'.

The relationship between the QoLI scores and the various PANSS outputs (positive, negative, and general psychopathological) were studied next. Of the subjective scores, only 'satisfaction with leisure activities', 'friendships' and 'state of health' were significantly correlated with the total PANSS score, and with the negative and general psychopathological sub-scales. In addition, 'satisfaction with life in general' was significantly correlated with the negative sub-scale. With regard to the Lehman objective scales, significant correlations were only obtained with two dimensions: 'everyday activities' and 'contacts with friends'. The 'everyday activities' dimension was correlated with all the PANSS scores, while the 'contact with friends' dimension was only correlated with the negative and general psychopathological sub-scales and the overall score.

With regard to the ESRS of Chouinard *et al*. (1982), only three Lehman subjective scales were significantly correlated with the ESRS sub-scores: 'satisfaction with life in general', leisure activities' and 'state of health'. Of the objective scales, only the 'everyday activities' sub-scale was significantly correlated with certain ESRS sub-scales**. [Mondher, I did not have a table about this - there is none in the French report].**

Finally, patients in a state of relapse at the time of the evaluation were compared with those who were not. The highest scores were obtained by the people

not experiencing a relapse, except for the subjective scores for 'amount of money available' and the 'aggression' score. However, these differences were only significant for one of the subjective and two of the objective scores: 'satisfaction with leisure activities', 'everyday activities' and 'contact with friends'. The poorer quality of life associated with relapse was confirmed by comparing patients who had experienced relapse within the last six months with those who had not.

Acceptability

The acceptability of the QoLI was assessed by calculating the proportion of data missing for each dimension. Apart from the scores previously excluded after the item analysis, the completion rate was in all cases greater than 94%.

Finally, the mean time spent completing the scale is acceptable, given the number of items (21✂ 11 minutes, range 10-80).

Discussion

The establishment of trait validity was not entirely successful - although relationships with the EuroQoL and with the two items in the QoLI were in the expected direction, most were small. On reflection this is as likely to indicate deficiencies in the reference measures as poor performance on the part of the QoLI.

Our study of construct validity was based partly on predictions associating quality of life with sociodemographic variables. Married patients generally reported a better quality of life than their divorced and single counterparts, mainly with regard to the subjective evaluation of 'life in general', 'friendships' and 'number of contacts with friends'. This ability of quality of life to distinguish patients along marital lines is in line with our prediction.

Others have found that quality of life clearly varies in a predictable way with residential settings (Oliver *et al*., 1997). Thus, as also stressed by Lehman *et al*.

(1986; 1991), patients living outside of hospital have a superior quality of life. Leff and colleagues (1996) demonstrated objective benefits for quality of life as a result of community placement during closure of a large mental hospital. Barry and Crosby (1996) also found that community resettlement was more effective in improving objective than subjective quality of life. However, homelessness is measurably associated with poorer quality of life, both subjective and objective (Lehman *et al.*, 1995). Our findings also showed that residential setting is important for quality of life. Thus, the best quality of life was experienced by those in private residences and those who did not live alone.

The association of quality of life with sex and age did not form part of our *a priori* predictions, but it accords with other findings in the literature. It may also reflect the association between other sociodemographic variables and quality of life. Thus, Lehman *et al.* (1992) found that males with schizophrenia had higher subjective scores for 'satisfaction with life in general', 'everyday activities', 'family relationships' and 'safety', and higher objective scores for 'level of everyday activities', 'financial status', 'employment', and 'amount of spending money'. In the current study, we only found significant differences for 'satisfaction with everyday activities' and for the objective evaluation of 'contacts with friends'. However, men consistently presented with higher scores than women for all the QoLI data.

Our results are therefore in line with those of Lehman *et al.* (1992). They indicate that, at least in our sample (which may have included women specially selected for disablement), women reported less subjective satisfaction with life, and may have been objectively worse off as well. This contrasts with the generally established finding that outcome in schizophrenia is better in women (Angermeyer *et al.*, 1990; Andia and Zisook, 1991). This discrepancy between subjective and

objective well-being is particularly clear in the work of Roder-Wanner *et al.* (1997), who found that women with schizophrenia were more socially integrated than men, but did not have greater life satisfaction.

The age of patients has an impact on these sex differences. Lehman *et al.* (1992) found that the subjective dimensions of the QoLI showed an age/sex interaction, such that elderly women had a greater satisfaction with social relationships than men in the same age group. However, for objective dimensions, there was no interaction, and the quality of life of all people with schizophrenia improved with age (Lehman *et al.* 1992).

In the present sample assessed with the abridged QoLI, only the life domains of 'contacts with the family' and 'contacts with friends' were significantly related to age. Patients aged over 45 years only differed in terms of the number of contacts with the family, even though, for the majority of subjective and objective evaluations, the older patients scored higher, indicating superior quality of life. This could be a cohort or period effect, but a true age effect seems more likely, suggesting that quality of life eventually improves in schizophrenia.

As expected, relapse also appears to influence quality of life, shown in our study in terms of both subjective and objective evaluations. The influence of relapse on 'quality of life' would appear to carry over after the resolution of the episode, as suggested by the difference observed in our sample between patients with a history of recent hospitalisation and those with no such history. Kaiser *et al.* (1997) found, as we did, that hospitalisation has an enduring effect of quality of life, and Lehman et al. ( ), using the extensive version of his scale, also found that quality of life was inversely related to the number of hospital admissions in the previous year.

The psychopathological characteristics of the disease seem to influence the quality of life of patients with schizophrenia in a complex manner. According to the study of Lehman (1983b), only depression and anxiety negatively correlated with satisfaction with life in general, and there was no relationship with thought disorder. Similarly, in the current study, negative and depressive symptoms appeared to impair the quality of life, while cognitive symptoms did not. While the objective dimensions of quality of life showed relatively small associations with the psychopathological dimensions, subjective evaluations were markedly more impaired. Carpiniello *et al.* (1997) have recently noted that, in both schizophrenic and chronic depressive conditions, it is subjectively depressed mood that is related to the subjective evaluation of quality of life. Packer *et al.* (1997) found relationships between elements of the BPRS, particularly negative symptoms and subjective quality of life. Interestingly, they too found no relationship with objective quality of life measures. Browne *et al.* (1996) found that quality of life was particularly associated with negative symptoms and tardive dyskinesia. The relationship between depressed mood and subjective quality of life might suggest that mood significantly affects the appraisal process, although because there was some association with objective measures as well, it is possible that part of the association arises because the external correlates of poor quality of life are inherently depressing.

In our study, there were relationships between the global clinical measures and quality of life. These were much more marked with the GAF than with the Clinical Global Impression, quality of life generally being better in those with better function.

Finally, we have demonstrated that the abridged version of the QoLI described here is quick to administer and has good patient acceptability.

Our study has offered some useful evidence particularly of construct validity. It is clear that quality of life, as encapsulated in the short version of the QoLI, is a consistent variable that adds to our ability to measure outcomes of relevance to psychiatric management and treatment.

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Table 1: *The trait validity of QoLI*

Life Domains	EuroQoL visual analogue scale	Item C2 (QoLI)	Item I1 QoLI
Satisfaction with life in general	0.58***	-0.34***	-0.41***
Satisfaction with living situation	0.11	-0.33***	0.11
Satisfaction with leisure time	040***	-0.23*	-0.31***
Satisfaction with family relationships	0.08	-0.31**	-0.10
Satisfaction with social relations	0.20*	-0.29**	-0.29**
Satisfaction with disposable income	0.17	-0.22*	-0.13
Work satisfaction	0.06	-0.07	-0.06
Satisfaction with personal safety	0.58***	-0.39***	-0.66***
Everyday activity	0.16	-0.11	-0.13
Family contact	0.01	0.01	-0.08
Social contacts	0.13	-0.12	-0.30**
Monthly money	0.04	-0.14	-0.03
Victim of aggression	0.09	-0.11	-0.09

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

Table 2: *Quality of life and the social context*

	Life in General	Residence	Leisure activities	Family relations	Social relations	Disposable income	Security	Health	Everyday activities	Family contacts	Social contacts	Disposable income	Victim of aggression
Married or cohabiting (n=17)	**5.18±1.41**	5.14±1.65	4.81±1.00	4.69±1.83	**5.22±1.37**	**5.12±1.54**	5.22±1.15	4.73±1.37	0.54±0.25	3.21±1.40	**2.80±0.87**	0.89±0.16	0.09±0.20
Single or post-marital (n=111)	**4.35±1.54***	4.62±1.25	4.58±1.01	4.25±1.48	**4.45±1.14***	**4.10±1.39***	4.98±1.33	4.63±1.06	0.54±0.23	3.26±1.50	**2.27±1.09***	0.75±0.32	0.07±0.20
Sheltered accommodation	4.47±1.60	**4.13±1.24**	4.52±1.27	**3.64±1.51**	4.48±1.02	3.78±1.50	4.92±1.36	4.81±1.23	0.47±0.26	**2.69±1.66**	1.73±0.96	**0.58±0.39**	0.13±0.25
Private residence	4.45±1.53	**4.88±1.28****	4.64±0.92	**4.52±1.49****	4.57±1.26	4.38±1.40	5.04±1.30	4.59±1.06	0.56±0.22	**3.44±1.37***	**2.55±1.04****	**0.83±0.25****	0.06±0.18
Living alone (n=64)	4.55±1.48	4.71±1.18	4.61±0.93	3.95±1.43	4.49±1.17	4.27±1.45	5.08±1.38	4.63±1.05	0.55±0.25	**2.80±1.55**	2.21±1.12	0.79±0.31	0.07±0.18
Living as a couple or in family (n=61)	4.43±1.63	4.47±1.43	4.62±1.08	4.69±1.55**	4.68±1.23	4.27±1.42	4.91±1.26	4.68±1.18	0.52±0.22	**3.70±1.30****	2.51±1.03	0.77±0.28	0.08±0.23
Hospitalized in last 6 months (n=49)	4.37±1.72	4.39±1.38	4.38±0.95	4.21±1.52	4.47±1.06	4.04±1.49	**4.67±1.31**	4.45±1.12	**0.44±0.27**	3.24±1.49	**1.89±1.06**	**0.63±0.36**	0.11±0.26
Not hospitalized (n=75)	4.53±1.45	4.90±1.26	4.76±1.05	4.39±1.55	4.68±1.27	4.41±1.42	**5.29±1.21****	4.73±1.10	**0.60±0.18*****	3.27±1.51	**2.68±0.99*****	**0.85±0.23*****	0.05±0.15
Male (n=85)	4.51±1.44	4.75±1.28	**4.74±0.94**	4.37±1.57	4.55±.24	4.25±1.41	5.11±1.20	4.73±1.05	0.57±0.23	3.20±1.47	2.49±1.11	0.77±0.30	0.06±0.19
Female (n=43)	4.36±1.75	4.57±1.38	**4.34±1.11***	4.20±1.49	4.55±1.13	4.19±1.54	4.81±1.49	4.47±1.19	0.48±0.23	3.21±1.53	2.06±0.97*	0.77±0.31	0.09±0.23
Age <45 (n=83)	4.39±1.63	4.55±.34	4.54±1.04	4.25±1.63	4.51±1.23	4.17±1.38	4.96±1.15	4.61±1.14	0.55±0.25	**3.52±1.31**	2.42±1.08	0.74±0.30	0.07±0.19
Age > 45 (n=43)	4.67±1.35	4.96±1.22	4.78±0.95	4.54±1.26	4.68±1.16	4.35±1.60	5.25±1.49	4.72±1.01	0.53±0.21	**2.67±1.65****	2.22±1.07	0.81±0.31	0.06±0.16

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

(Mondher, what units are disposable income in?)

Table 3: *Quality of life and clinical status*

	Life in General	Residence	Leisure activities	Family relations	Social relations	Disposable income	Security	Health	Everyday activities	Family contacts	Social contacts	Disposable income	Victim of aggression
Clinical global impression	-0.11	-0.08	**-0.20***	-0.02	-0.10	-0.05	-0.16	-0.09	**-0.35***	-0.03	**-0.26**	-0.10	0.06
Global assessment of functioning	0.17	0.08	**0.24***	0.11	**0.19***	0.01	0.18*	0.19*	**0.43***	0.13	**0.42***	**0.20***	-0.10
PANSS													
Positive subscale	0.04	-0.17	-0.08	-0.16	-0.13	0.01	-0.16	-0.07	**-0.25***	-0.08	-0.17	-0.03	0.09
Negative subscale	**-0.19***	0.00	**-0.23**	-0.13	**-0.33***	-0.11	-0.09	**-0.20***	**-0.18***	0.06	**-0.26***	-0.05	-0.09
General psychopathology subscale	-0.16	-0.17	**-0.23**	-0.17	**-0.23**	-0.03	-0.14	**-0.20***	**-0.28**	0.04	**-0.24**	-0.09	0.06
Total PANSS score	-0.13	-0.14	**-0.22**	-0.18	**-0.27**	-0.04	-0.15	**-0.20***	**-0.28**	0.02	**-0.26**	-0.06	0.03

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