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Measuring the quality of life of severely mentally ill people using the Lancashire Quality of Life Profile

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Abstract Quality of life (QOL) has become an important outcome measure for many disorders, including mental illness. The Lancashire Quality of Life Profile (LQOLP) was developed for use in operational contexts, and has been translated into several languages. It is in use in several European and North American community psychiatric services. The present paper addresses the questions: how easy is it to use?; how reliable is it?; do the results of the LQOLP vary by setting in a meaningful way?; how do the results co-vary with measures of clinical symptoms and social functioning?; how well does it measure change?; is it clinically useful? While most of the answers to these questions are favourable, there is a need for further research and development of the profile, in particular with reference to the consequences of the use of the profile as a routine monitoring instrument and the most appropriate form of statistical analysis in longitudinal data-sets.

Introduction

Quality of the (QOL) has become an important outcome measure in many disorders, including mental illness (Bowling 1991). The Lancashire Quality of Life Profile (LQOLP) has been developed for use in operational contexts, and its development and use is described in detail by Oliver et al. (1996). Since 1989 we have established a large data-base (n = c. 1500) of

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W. Kaiser Nervenklinik Spandau. Berlin, Germany LQOLP applications relating almost exclusively to people with severe mental illness in community settings. Two other large data-bases exist. One is based on the German version of the LQOLP (Priebe et al. 1995; Kaiser et al. 1996; Hoffman et al. 1996); the other is based on Lehman's original QOL instrument in the United States (Lehman 1983).

There are many different ways of conceptualising QOL; the LQOLP combines objective and subjective measures in several areas of life (called 'domains'). This approach has been adopted because the variance in global well-being is mediated by objective well-being, as well as subjective well-being. Lehman's model (1983) of the interaction of personal characteristics, and subjective and objective well-being accounts for up to 70% of global well-being in our data. Other research suggests that subjective well-being is more closely related to objective circumstances than had been thought in the past. The present paper addresses the questions: how easy is it to use?; how reliable is it?; do the results of the LQOLP vary by setting in a meaningful way?; how do the results co-vary with measures of clinical symptoms and social functioning?; how well does it measure change?; is it clinically useful? This paper addresses these questions using data from previously published studies of case management (Huxley and Warner 1992), individual cases (Bridges et al. 1993) and medical students (Priebe et al. 1995), and studies that are in press or in preparation on psychosocial rehabilitation, a community mental health team, psychiatric in-patients (Priebe et al. 1996), community mental health support teams (Oliver et al. 1996) and alcoholic women.

The development of the LQOLP

The LQOLP is derived from Lehman's original interview (1983), and includes four similar types of information, an additional life domain and additional measures

of global well-being, affect and self-esteem. The four areas retained from Lehman's interview are: personal characteristics, objective OOL indicators, subjective QOL indicators and a global well-being measure. The objective and subjective indicators cover the eight original life domains, plus religion; these are: living situation, family, social relationships, leisure activities, work/education, finances, personal safety and health. The life domains were derived originally from use of the critical incident technique, in which several thousand subjects report several thousand specific incidents that have had an impact on their well-being, and these are subsequently classified into similar categories, or life domains (see Flanagan 1982). The subjective aspects of these domains are assessed using a modified version of the Lehman 7-point scale, which is rated by the respondent [this scale is identified in the interview as the "life satisfaction scale" (LSS); a rating of 1 means life "could not be worse" and a rating of 7 means life "could not be better" (used in Figs. 4-6 below)]. The global wellbeing measure includes Cantril's Ladder (Cantril 1965), which we altered from a 9-point categorical scale to a 100-point continuous or analogue-type scale. Objective well-being is composed largely of social and economic indicators. The content of these questions has remained largely unchanged from Lehman's originals, but the form of some has been altered so that they are comparable to census data codes, in the United Kingdom to facilitate comparison with national and local

Baker and Intagliata (1982) have adopted a wider view of QOL than Lehman, and we followed their example in including a measure of psychological wellbeing [the Affect Balance Scale (Bradburn 1969)]. In this own research, Bradburn included the Happiness Scale (Gurin et al. 1960), which is related to satisfaction and mental health but not identical, and we have also included this as an alternative measure of overall wellbeing. Franklin et al. (1986) have extended the range of measures to include a Self-Esteem Scale (Rosenberg 1965). We also included this measure, but amended the scoring to simple yes/no choices after some patients found the original response scales too confusing.

Flanagan (1982) and his colleagues have suggested that in order to compose QOL measures for disabled individuals, respondents should be asked questions that focus on problems created by the disability. We included the additional types of questions that they have suggested, one of which was "what changes, whether possible or not, would produce the greatest improvement in their quality of life". We were also aware of the fact that the professionals interviewing the clients wished to be able to make their own assessment of the client's QOL, and we therefore included a single QOL measure, the Quality of Life Uniscale (Spitzer and Dobson 1981).

The extensive testing of the LQOLP in operation is reported in detail in Oliver et al. (1996). The LQOLP

produces a profile of scores and separate global well-being assessments; it does not attempt to generate a single overall score to reflect the complexities of people's circumstances. The subjective well-being questions follow on immediately after the objective questions in the same life domain; this helps the respondent to be clear that the subjective response is demanded in respect of a specific life area, and avoids a halo effect that might result if all the subjective well-being ratings were made in succession.

Results

Ease of use

Before presenting the more scientific evidence, we can say that individual anecdotal responses to the LQOLP are almost universally positive. Both respondents and their interviewers (a mixture of professionals) give positive feedback along the lines of: "that is the longest anyone has spent asking me how I feel about things"; "no-one has ever asked me what I think about my circumstances"; "when are you coming back to do this again?". When given individual graphic feedback of their own results, patients said: "so, I've done well haven't I?"; "can I show this to my therapist?". Professional interviewers have said that the LOOLP is the easiest assessment to use with people with severe mental illness, it is liked by the respondents and that if a patient loses interest when a battery of research instruments are applied, one can regain their attention by switching to the LQOLP.

The interview can be conducted with severely ill patients in a number of settings. Only those patients who are very floridly unwell, who are mute or who have serious brain damage are unable to complete it, and it can be applied in a variety of residential and community contexts. We do not have adequate data on the refusal rate since many studies use the LQOLP as one of a battery of tests and for a number of different purposes (outcome of drug trials; evaluation of a day centre, etc.). Refusal to complete the LOOLP under these circumstances might simply be a reflection of refusal to comply with the study as a whole. We are also aware that refusal rates can be affected by unmotivated and unsympathetic staff seeking the patient's consent. However, in our studies, when motivated staff seeking the patient's consent and the patient receives an adequate explanation, the refusal rate is always extremely low (rarely more than a few percent). We have a better indication of the respondent's feelings about the LQOLP from our data about agreement to be reinterviewed. In 1498 LQOLP applications, 91% agreed to be reinterviewed, 3.5% of cases were unsure whether they would be reinterviewed and 5.6% refused. When an evaluation relies upon a repeated assessment in operational settings, then this is the level of acceptance that will be required. An instrument that is so unpopular with respondents that half refuse to do it again is useless for routine service evaluation purposes. In 1582 applications, 39% of respondents were rated as very reliable by the interviewer, 51% were generally reliable and only 10% were generally or very (1%) unreliable.

Table 1 shows the mean time taken for the interview in a dozen studies. One of the authors interviewed in the two United States samples and his experience of research interviewing may have reduced the time taken. On the other hand, one can say that in the hands of an experienced clinician (of whatever discipline), the time taken can be reduced below the mean of 33 min. The only larger standard deviation than mean occurred in the sample with many interviewers where the conditions of the survey were less well controlled than in other studies. When the patients are already known to the interviewer, as in the case of the resettled long-stay patients and the follow-up of the intensive case management cases, then the time taken is reduced to about 20 min.

Because the interview is usually conducted with severely ill patients, some of whom might be acutely unwell or deteriorating, we suggest that it is completed by adequately trained professionals. Another reason for making this suggestion is that, unlike in externally conducted research, the routine operational use of the profile raises the matter of the feedback of the results to clinical staff, case managers, other team members and to the patients themselves. The results can potentially affect the nature of the relationship with the patient, and there may also be an effect upon compliance and

Table 1 Mean time taken to complete the Lancashire Quality of Life Profile (LQOLP) in different studies

Sample (country)	Mean time taken	SD	Number of cases
Community mental			
health team (Wales)	42.3	17.4	100
Out-patients (UK)	42.3	11.0	50
Social services (UK)	39.0	53.4	713
Intensive case			
management (UK)	36.2	10.4	17
Community support			
team (UK)	33.5	14.2	174
Residential homes (UK)	28.7	14.7	88
Community drug			
team (UK)	24.3	5.1	16
Intensive case			
management (USA)	19.5	8.2	86
Resettled long-stay			
hospital patients (UK)	19.0	7.0	241
Follow-up of intensive			
cases management (USA)	17.9	7.5	41
Total	33.1	11.3ª	1526

^a Standard deviation with highest and lowest outliers removed

response. Because the LQOLP has only recently been applied routinely in some services it is not possible to provide examples of the effects of data collection and feedback. We can only say that this important area must be the subject of further consideration and detailed research projects.

Reliability and consistency

The LQOLP is made up of a number of different sections, and each has been tested for aspects of reliability and consistency. The profile was designed for use in operational contexts, and the formal testing of psychometric properties has taken place in service evaluations rather than in specific experiments. With this limitation in mind, we can give a summary of the main findings. The alpha coefficients for self-esteem (all greater than 0.6), affect balance (all greater than 0.6) and subjective well-being domains (all greater than 0.8) are all acceptable. Only one test of inter-rater reliability (using the QOL Uniscale) has been conducted, and there was a significant (if modest; r = 0.4) correlation between the two raters.

Internal consistency reliabilities have been calculated following Horst's (1954) formula. The ratings in Table 2 show that some items achieve a high internal consistency (never less than 0.75); these are global well-being, finance, health and mental health. The reliability of social relations is usually high (0.71–0.83), but a number of other items, while achieving a high of 0.8 or more, can fall to nearer 0.50 in some samples; these include leisure and work. In the case of leisure, a score of 0.8 is only achieved in one sample (in Lancashire). The least internally consistent items according to this method of analysis are safety, religion and living situation (shown as "home" in the table).

One possible explanation is that the individual items/questions making up these domain scores are discrete and differentiated from one another, so that an individual may reasonably achieve a high score on some and a low one on others. For example, one could argue that leisure activity outside the home requires quite different material and personal resources than leisure activities in the home [however, in at least one of the samples these two items are congruent (UK CMHT = 0.8)].

Another explanation is that the samples in which the QOL was assessed are particularly heterogeneous within these domains. In Table 2, for instance, this would apply to safety in the United States clubhouse samples (0.33 and 0.49) and living situation in the clubhouse controls and the Welsh sample (0.53 in both cases). In the case of safety, there could easily be a marked contrast between personal general safety and the safety of the neighbourhood. While the city in the United States where the study took place was not notoriously dangerous, there were areas in which some

Table 2 Internal consistency reliability in the LQOLP subjective well-being life domain scores in different studies

	Study					
	Case management (USA)	Psychosocial rehab. (USA)	Rehab. control group (USA)	Community team (Wales)	Commnunity mental health team (England)	
Domain					The state of the s	
Globala	0.83	0.77	0.81	0.75	0.82	
Mental health ^b	0.82	0.78	0.77	0.81	0.81	
Health	0.80	0.83	0.78	0.79	0.87	
Finances	0.76	0.91	0.85	0.83	0.89	
Living situation	0.76	0.62	0.53	0.53	0.72	
Family	0.74	0.62	0.60	0.66	0.82	
Leisure	0.65	0.59	0.65	0.62	0.80	
Religion	0.65	0.85	0.73	0.45	0.76	
Legal and safety	0.61	0.33	0.49	0.70	0.80	
Work	0.53	0.80	0.77	0.72	0.72	
Number of cases	84	38	38	100	298	

^a Global subjective well-being rating

of the patients lived that could be so described. The type of residence in the United States control town and the Welsh town covered a wide range that included a significant number of ordinary family (owned) homes in residential areas, as well as rented homes and apartments.

Do the results of the LQOLP vary by setting?

The answer to this question is largely determined by the sample and the population from which it is taken. The objective sections of the LQOLP will reflect the nature of the population from which the researchers draw the sample or from which the service draws its clientele. When several studies are compared (a number of examples are given below), it is evident that the results have a degree of face validity.

Figure 1 shows the rate at which people have been accused of a crime in different samples in different countries. There are two or three aspects of these results that are worthy of comment. The sample that one would expect to have the highest rate, the clients of a community drug team in central Manchester, does so. The next highest rate is in the long-term clients of a case management team referred in part because of their previous record of offending behaviour. The rates in the three community samples in the United Kingdom are at approximately the level one would expect in their respective populations. Finally, there is a very low rate in the independent sector residential home sample.

Figure 2 (victim of crime) also shows that the three samples from large city services (the German samples are from Berlin and the community drug team sample, from Manchester) have the highest rates. The social services sample (from Lancashire) is closest to the

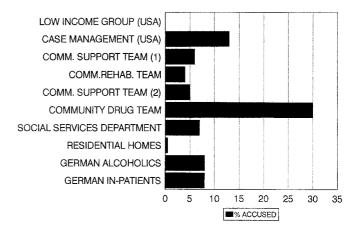


Fig. 1 Proportion of people accused of a crime in the last year: a comparison of different study samples (comm. community, rehab. rehabilitation)

United Kingdom national rate. The non-patient low income group from the United states experienced fewer crimes and the residential sample, none at all. There appears to be a differential effectiveness in protection from crime between the two community support teams; this could be due to inherently different base rates in the local populations.

Figure 3 (employment) shows the variation in unemployment levels in different samples. All the drug team clients were unemployed, and most of the severely ill samples have rates above 60%. The case management team in the United States achieves a lower rate of unemployment through the use of sheltered work, clubhouse schemes and transitional employment. All of the British samples have much higher unemployment rates than the local or national populations.

^b Subjective well-being rating for mental health

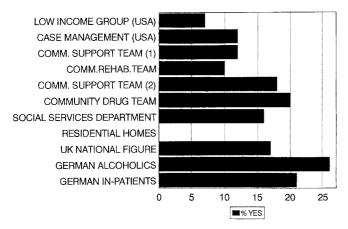


Fig. 2 Percentage of people who were a victim of crime in the last year: a comparison of different study samples

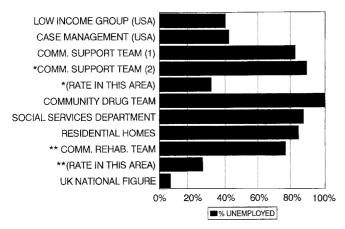


Fig. 3 Percentage of people who were unemployed: a comparison of different study samples and national and local rates

The LQOLP was designed to provide a psychosocial profile following a structured psychosocial interview. To understand the differences in psychosocial profiles between services one needs a representative sample of service users, and not one dictated by diagnostic classification, except in instances where this may have been used as an eligibility determinant. If the service has determined its eligibility criteria, and if these criteria or similar items are included in the LQOLP, one can assess whether the profiles of the service users reflect targeting criteria, and therefore, whether and to what extent the service is off target. (If a service only includes cases that meet the target criteria it has a high "vertical target efficiency" – see Challis and Davies 1986).

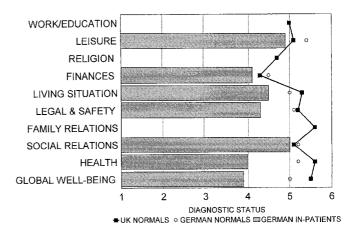
Subjective well-being results

Comparing services according to subjective well-being ratings made by the respondents may reflect, logically, the impact of the service upon the users. However, there is an assumption that these mental health services are using potent interventions that are capable of producing change (we return to this point again). In fact, for most of the services that are offered to psychiatric patients in the community by social care agencies, the interventions are of unknown efficacy (because they are usually untested) and rarely conform to the dimensions of model programmes. This makes generalisation and comparison problematic, especially when, even if a model intervention is supposed to be followed, there may be drift from the model (a lack of "programme fidelity").

In spite of these limitations, it is important to know whether the assessment of subjective well-being can reflect change over time (see below) and whether subjective well-being ratings distinguish mental health samples from "normal" samples, so that in the event, QOL could be used to evaluate services under the most rigorous designs possible when studying community-based services. Figure 4 shows that an in-patient sample has a different profile from two normal populations. Figure 5 is one example selected to illustrate that LQOLP results can discriminate between index and control conditions.

Construct validity

A number of opportunities have arisen to compare the assessment made on the LQOLP with that made on other standardised instruments measuring different constructs. Corrigan et al. (1995) have shown, in a small sample of 49 patients with severe mental illness, that depression, social adjustment, social network and verbal intelligence are independently associated with QOL. The present paper examines this from the point of view of the relationships with psychopathology and social functioning. The results show that QOL is not



 $\label{Fig.4} \textbf{Fig. 4} \ \ A \ comparison of the subjective well-being scores of German in-patients (staying longer than 6 months) and two normal samples, one German and one English$

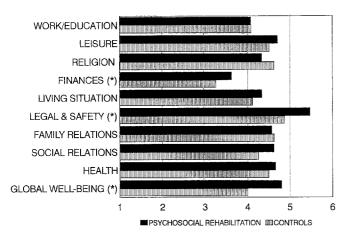


Fig. 5 A comparison of clients of a psychosocial rehabilitation service and a matched comparison group. (*) Indicates that the subjective well-being differences are significant

dominated by these other constructs and that QOL results can be distinguished from findings on other measures.

In his original work, Lehman (1983) addressed the question of the confounding effects of psychopathology on the assessment of QOL. He found that there was 27% shared variance between his QOL and psychopathology measures. German and Welsh results (Kaiser et al. 1996) using the BPRS show that the shared variance between BPRS and SWB domain scores is low. In six samples (three in-patient and three out-patient samples; n = 440), the BPRS total score was compared to subjective well-being scores in the nine domains and to global well-being (60 possible associations). Three-quarters of the associations had no substantial shared variance. In the three in-patient samples (total n = 243), the BPRS total score was associated with 10% or more (maximum 19%) of the variance of subjective well-being ratings five times (twice with family; once each with leisure, safety and social relationships), and the average amount of shared variance was 16%. In the three out-patient samples (total n = 197) there were ten associations greater than 10% of shared variance (maximum 22%); three times with global well-being; twice with leisure; once with finances, social relationships, work, living situation and family), and the average amount of shared variance was 15%.

On the basis of results from our data-set of over 1500 cases, and from the German results, we arrive at the same conclusion as Lehman, that "mental health does not significantly alter the results derived from quality of life surveys" (p 149). We also agree with Lehman's major caveat that one should control for the effects of some mental health problems, especially depression. In patients suffering clinical depression, subjective well-being scores are lowered in every domain, but, nevertheless, patients remain able to discriminate between

different life domains in terms of their satisfaction ratings.

In a study involving repeat measures of the Social Functioning Scale (SFS; Birchwood et al. 1990) and the LOOLP, 100 patients in the community completed both measures (Barr, personal communication). The results showed that there were substantial and significant correlations between comparable items and, in other respects, there was no association. Whether the respondent went out shopping (LQOLP) was associated with higher prosocial activity scores and higher independence scores (in both competence and performance, on the SFS). Similarly, going for a ride in a bus or car (other than to work) was also associated with the same three subscores, as well as with better functioning in recreation. Having another family member in the home was associated with less social withdrawal and better functioning in recreation, and with both independence subscales.

For self-concept/self-esteem, there were 14 possible associations between the LQOLP and the SFS, and none reached significance; this finding is consistent with the literature. For example, Arns and Linney (1995) have demonstrated that better social functioning is associated with residential and vocational status, but not with self-esteem or life satisfaction. Of the 14 relationships between the SFS subsections and the affect balance scale of the LOOLP, 4 (29%) were significant (three of them at the 0.01 level). A higher positive affect score was associated with better functioning in interpersonal relationships, prosocial activity, recreation, and independence-performance. In summary, meaningful associations emerged where the questionnaires covered similar items, but the total amount of overlap was very low. The concept of QOL embodied in the LQOLP encompasses affect and self-concept, and the former is certainly important in social functioning, where a reciprocal relationship probably exists. It is probably reasonable to conclude, from the results of the single study cited here, that social functioning and QOL can be related (if similar items are included in the questionnaires), but as presently constituted in the SFS and LQOLP, they are conceptually distinct.

Change over time

The discussion of changes in QOL over time needs to be addressed from both a clinical and a statistical perspective. This is because the LQOLP is an operational tool, and the significance of change can be small statistically speaking, but have important clinical consequences. In clinical terms, one can produce meaningful results that show QOL change over time in individual cases (see Bridges et al. 1993), and that reflect a real change in circumstances. One can also produce useful evidence that an individual (or group) has been successfully maintained at an optimal or maximum

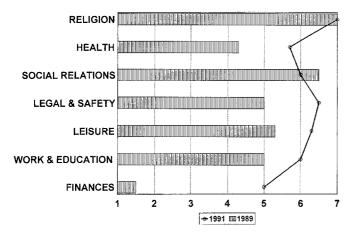


Fig. 6 A comparison of one individual's quality of life changes between 1989 and 1991

QOL over time and that relatively little adverse change has taken place (Fig. 6).

For scientific work, one needs to be able to show that the instrument is sensitive to change. Gater (personal communication) used data from a study of traditional hospital services compared to an innovative community team in order to estimate the sample sizes required to demonstrate change in several life domains (using Lehman's original scale). Only three of the nine life domains (employment; living situation and family relations) required a sample size of less than 100 to achieve a power of 80%. Global well-being required a sample size of 354. Warner (personal communication) in contrast, on the basis of data from a clubhouse comparison study (Huxley et al. 1995) found that only 46 caseratings of global well-being were needed to produce a power of 75%, and that 66 cases would produce a power calculation of 87%. When one uses results from a study with essentially ineffective interventions, the outcome can be a sample size requirement of immense proportions. However, when one is comparing potent interventions that can produce change over time then the means change scores will produce a reasonable requirement for sample size.

One can argue that QOL is not like symptoms, some of which go away on their own or are alleviated by powerful medication; QOL only improves with some specific event or intervention, and for some of the life domains a fairly massive social intervention may be needed to produce an improvement. Finally, in the analysis of change, power is lowered when mean scores, especially with heavy-tailed distributions, are used (this tends to be the case with most subjective well-being scales). There are now a number of methods of solving this problem (Wilcox 1995; including M-estimators), and these are being applied to our data-sets where change has been assessed, and will be reported elsewhere.

Clinical usefulness

We have reported that LQOLP has been used in service evaluations to demonstrate change, and that, in addition, it has a number of clinically important uses. Graphic feedback of the profile scores has been attempted, and this proved to be popular. Another clinical use is the scrutiny of routine LQOLP reassessments as part of the process of professional supervision. This is said to facilitate a focus on those areas of greatest concern to the client.

Of perhaps greater significance in the present contract culture is the use of the profile as an outcome measure in service evaluations. Service commissioners (purchasers) have been impressed by the results produced by the LQOLP, which tend to be readily understandable and meaningful in individual or aggregated format. In individual studies where the outcome has been assessed using the LQOLP, there has been a renewal of findings or additional funding for the programme concerned. This has happened in respect of community support teams (renewed funding and extension to the whole local authority), family support workers, day centre and residential services (renewed funding), and clubhouse services (investment in new premises). In all instances, the services concerned improved or maintained the QOL of the recipients, and then LQOLP played a major part in demonstrating this success. These undoubted successes need to be tempered by the reservations expressed above about the consequences of using the profile routinely in community services. when, it has to be said, we have a less than adequate understanding of the process and its consequences.

Discussion

Although there can be little doubt that the measurement of QOL is an important consideration in the assessment of the outcome of community-based mental health programmes, there are several outstanding issues that should be addressed by further research. The first of these is to undertake more investigations into the psychometric properties of the LQOLP and similar instruments. Since these investigations need to be experimental or quasi-experimental, they are only likely to be conducted with dedicated research funds. Further work could usefully be conducted outside service settings on inter-rater and test-retest reliabilities.

The second issue concerns the assessment of self-esteem, which a number of investigators regard as a problem. The wording of the negative self-esteem questions is so negatively loaded that investigators fear that they might have an adverse effect on people's affect. According to these investigators another way of assessing self-concept would be preferable, although at the time of the construction of the LQOLP, no other short, operationally viable, well-validated instrument could be found.

A third issue concerns the placing of these negatively loaded questions immediately prior to the final global well-being scales. An experiment replacing the negative self-concept questions with the positive affect questions could assess whether there is any impact on the final global well-being rating.

The investigators who have raised concerns about adverse effects of the interview are right to do so, since there is evidence in Lehman's work and our own (Oliver et al. 1996) that people who are depressed or who have a diagnosis of chronic depressive disorder can be adversely affected in the sense that their well-being (overall and in each subjective domain rating) is reduced compared to others who are not depressed. We are clear that the interview should not be conducted with patients at the height of an episode of illness, and this applies to clinical depression, as well as to florid psychosis under treatment in a hospital ward.

Further aspects of work on the measurement of QOL that require investigation are the effects of different statistical approaches to the analysis of change over time. Among the approaches we are investigating are the analysis of profiles (ref here) and the use of M-estimators (Wilcox 1995). We are also keen to see the use of logit methods in the modelling of overall QOL.

Finally, turning to the continued clinical use of the LQOLP, we can see the possibility of not only using the instrument as an outcome measure, but also to help to create criteria for the determination of eligibility for service. As policy focuses attention on the priority of service provision to people with a severe mental illness, there is scope for the assessment of current life quality as part of the determination of eligibility for priority services. Services should be targeted at those with the most severe problems and lowest QOL.

References

Arns PG, Linney JA (1995) Relating functional skills of severely mentally ill clients to subjective and societal benefits. Psychiatr Serv 46: 260–265

Copies of the LQOLP can be obtained from the Department of Psychiatric Social Work, School of Psychiatry and Behavioural Sciences, Manchester University, Mathematics Building Oxford Road, Manchester, M13 9PL, England. The German version is available from Dr. Stefan Priebe, at the Freie University of Berlin, Universitatsklinikum Benjamin Franklin, Standard Charlottenburg, Platanenallee, 19, 14050, Germany. The LQOLP is available in translation in Italian, Dutch, the Scandinavian languages, Polish, Japanese, Chinese and Spanish

Baker F, Intagliata J (1982) Quality of life in the evaluation of community support systems. Eval Program Plann 5: 69-79

Birchwood M, Smith J, Cochrane R et al. (1990) The Social Functioning Scale: the development and validation of a scale of social adjustment for use in family intervention programmes with schizophrenic patients. Br J Psychiatry 157: 853–859

Bowling A (1991) Measuring health: a review of quality of life measurement scales. Open University Press, Milton Keynes

Bradburn N (1969) The structure of psychological well-being. Aldine, Chicago

Bridges K, Gage A, Oliver J et al (1993) Changes in social support and quality of life: a case study of a man with an enduring psychotic illness. Int J Soc Psychiatry 39: 142–151

Challis D, Davies B (1986) Case management in community care. Gower, Aldershot

Flanagan JC (1982) Measurement of quality of life: current state of the art. Arch Phys Med Rehabil 63: 56-59

Franklin JL, Simmons J, Solovitz B, Clemons JR, Miller GE (1986) Assessing quality of life of the mentally ill: three dimensional model. Eval Health Professions 9: 376–388

Gurin G, Veroff J, Feld S (1960) Americans view their mental health. Basic Books, New York

Hoffman K, Priebe S, Isermann M, Kaiser W (1996) Quality of life, needs and assessment of treatment in long-term hospitalized patients – part II of the Berlin De-Institutionalisation Study (in German). Psychiatr Praxis (in press)

Horst AP (1954) The estimation of immediate retest reliability. Educ Psychol Meas 14: 702–706

Huxley PJ (1995) Quality of Life. In: Muessen K, Tarrier N (eds) The handbook of social functioning in schizophrenia. Addison-Wesley, Reading, Mass.

Huxley PJ, Warner R, Berg T (1995) A controlled evaluation of the impact of clubhouse membership on quality of life and treatment utilization. J Psychosoc Rehab (submitted)

Kaiser W, Priebe S, Barr W, Hoffman K, Isermann M, Roder-Wanner U, Huxley PJ (1995) Subjective quality of life in schizophrenic in- and out-patient samples. Psychiatr Res (submitted)

Kaiser W, Priebe S, Hoffman K, Isermann (1996) Subjective quality of life in patients with chronic schizophrenia (in German). Nervenarzt (in press)

Lehman AF (1983) The effects of psychiatric symptoms on quality of life assessments among the chronic mentally ill. Eval Program Plann 6: 143-151

Marshall M (1994) How should we measure need? Concept and practice in the development of a standard schedule. Philosophy Psychol Psychiatry 1: 27–36

Marshall M, Lockwood A, Gath D (1995) Social services casemanagement for long-term mental disorders: a randomised controlled trial. Lancet 345: 409–412

Oliver JPJ, Huxley PJ, Bridges K, Mohamad H (1996) Quality of life and mental health services. Routledge, London

Priebe S, Gruyters T, Heinze M, Hoffman C, Jaekel A (1995) Subjective criteria for evaluation of psychiatric care – methods for assessment in research and routine care (in German). Psychiatr Praxis 22: 140-144

Rosenberg M (1965) Society and the adolescent self-image. Princeton University Press, Princeton

Spitzer WO, Dobson AJ (1981) Measuring the quality of life of cancer patients. J Chronic Dis 34: 585-597

Wilcox RR (1995) ANOVA: a paradigm for low power and misleading measures of effect size? Rev Educ Res 65: 51–77