PSYCHOMETRIC PROPERTIES OF QUALITY OF LIFE (QLS) SCALE: A BRIEF REPORT

NITIN GUPTA, SURENDRA K. MATTOO, DEBASISH BASU & APRAJITA LOBANA

ABSTRACT

Quality of life research in chronic schizophrenia has not adequately focussed upon psychometric properties of the disease specific scales (including Quality of Life Scale), especially in the cross-cultural perspective. The authors attempted to assess certain psychometric properties of the Quality of Life Scale (QLS); modified as per the Indian cultural background. Fifteen patients of ICD-10 chronic schizophrenia and their key relatives were administered QLS and rated by two investigators. Patients were also administered Lehman's Quality of Life Interview-Brief Version. Correlation coefficients were high for inter-rater reliability and divergent validity, and inconsistent for convergent validity. Results support the original construct of QLS and demonstrate its easy cross-cultural applicability to key relatives by clinicians.

Key words: Quality of life, disease specific scales, validity, reliability, quality of life scale

Health interventions are meant not to merely extend the duration of life, but also to enhance the quality of life (QOL). QOL has been conceptualized as a multifaceted construct that encompasses the individual’s behavioural and cognitive capacities, emotional well-being and abilities requiring the performance of various domestic, vocational and social roles (Tartar et al., 1988). The current interest in QOL measurement stems from the need to establish standards to monitor the outcome of health interventions (Leplege and Hunt, 1997).

It is generally agreed that QOL measures should reflect perceptions of the patient (Pearlman & Jonsen, 1985). The available QOL instruments include generic and disease-specific instruments. The generic instruments, being too broad based, are time consuming (Schumacher et al., 1991). The disease specific instruments, focussing more on the areas routinely explored by the clinicians, reduce the patient burden and, thus, improve response pattern (Lehman, 1996).

The past two decades have seen the development of disease specific instruments for severe and persistent mental illness, and also specifically for schizophrenia (Lehman, 1996; Barry and Zissi, 1997). The instruments for schizophrenia, even when using 'objective or clinician rated items', rely heavily on patient self-report and have led to a debate regarding their psychometric properties (Lehman et al., 1993).

The QLS (Heinrichs et al., 1984), developed for schizophrenia, has been used widely in different cultures e.g. USA (Lehman et al., 1993; Heinrichs et al., 1984), Ireland (Browne et al. 1996), India (Chaturvedi et al. 1997). The cross-cultural applicability of QLS can be questioned on the basis that the concept of QOL is still not clear and universally applicable (Leplege and Hunt, 1997) and that the cultural and linguistic factors influence many variables pertinent to the study of health and illness (Hunt and Wiklund, 1987). For example, QLS places a lot of emphasis on the type of activities engaged in and the relative value placed on them, by the person. In addition, despite its wide
usage, the validity of QLS has not been commented upon (Lehman, 1996; Barry & Zissi, 1997) while the inter-rater reliability has been reported in only one study (Browne et al., 1996). Thus the lack of measurement of the psychometric properties on one hand and the confidence placed on the results of the cross-cultural usage of QLS on the other, poses serious conceptual problems regarding the generalizability and comparability of the results.

All these considerations prompted the present research, which was aimed at evaluating the psychometric properties of QLS in a non-western setting. The objectives were of assessing (a) inter-rater reliability (b) convergent validity (comparison of QLS with another disease-specific scale) and (c) divergent validity (comparison of patient's QOL from the perspective of both patient and the key relative).

**MATERIAL AND METHOD**

**Sample**: The sample consisted of 15 patients with an ICD-10 (WHO, 1992) diagnosis of schizophrenia and their key relatives (n=15). The subjects were attending the outpatient clinic of the department of psychiatry of the Postgraduate Institute of Medical Education and Research, Chandigarh; a tertiary care referral centre located in Northern India. The patients, aged between 18 and 50 years, were ill for 2 years or more. They had been clinically stable for at least 3 months, the clinical stability was defined as the drug dosage not having been increased by more than 50% during the 3 months immediately prior to the study. The patients having associated major chronic physical illness, organic brain disease or substance (except tobacco) abuse were excluded. The key relatives were healthy subjects of either sex, aged between 18 and 50 years and staying with the patient for at least the recent two years. The relatives with any psychiatric disorder, major chronic physical illness, organic brain disease or substance (except tobacco) abuse were excluded.

**Assessment of psychopathology**: Manifest psychopathology in patients was assessed by means of Brief Psychiatric Rating Scale (BPRS) (Overall & Gorham, 1962).

**Assessment of QOL**: For the assessment of QOL, two disease-specific scales were used.

Quality of Life Scale (QLS) (Heinrichs et al., 1984), a semi-structured interview to assess the deficit syndrome in patients with schizophrenia, is used for objective measurement of the patient's QOL. It provides a framework of questions, which are rated by trained clinicians and can be altered or added as per the requirement. The 21 items assess four domains viz. interpersonal relations, instrumental role functioning, intrapsychic foundations, and common objects and activities during the preceding four weeks. The ratings range from 0-6 and the score is inversely proportional to the degree of impairment. The scale requires about 45 minutes for administration, and has been shown to have good inter-rater reliability (Heinrichs et al., 1984).

For use in the Indian setting, after a preliminary trial on 3 patients, certain items were modified in keeping with the socio-cultural background of our patient population. Questions were added to items nos. 8 (If single- Did you have sexual activity?), 9 (How many hours a day did you work?; If studying - Have you been studying?) and, 15 (Have you heard the local gossip/conversation?); statements were modified in items nos. 18, 19 (Appendix). Also, for assessing objective (c) of the study, item number 21 was not rated from the relative's perspective and was excluded from analysis (because the item required the interviewer to rate the patient's interaction with the relative).

Lehman's Quality of Life Interview-Brief Version (QOLI) (Lehman et al., 1994) is a structured questionnaire to assess the life circumstances of persons with severe and persistent mental illness, including schizophrenia. It covers eight life domains: living situation, daily activities and functioning, family relations, social relations, finances, work and school, legal and safety issues, and health. It also has two items on global well being. This scale has 74 items, takes about 16 minutes to
QUALITY OF LIFE SCALE - PSYCHOMETRIC PROPERTIES

The clinical profile of the patient group (n=15) was: duration of illness ranged from 24 to 288 months (mean±s.d.=114.8±95.6 months); the period of stability ranged from 3-72 months (mean±s.d.=21.5±18.5 months); the patients were receiving daily dose of chlorpromazine equivalents ranging from 75-1000 mg (mean±s.d.=543±376 mg); paranoid (40%) and undifferentiated (40%) sub-types were the commonest.

The BPRS scores at first assessment (mean±s.d.=24.37±5.81) and second assessment (mean±s.d.=24.11±5.45) were comparable (t=1.081; p>0.05).

As shown in table 1, the Spearman's rank order correlation for inter-rater scores on the QLS was 0.893 (p<0.01) for total scale and for various domains ranged from 0.646 (p<0.05) to 0.894 (p<0.01).

As shown in table 2, the correlations of scores between different QLS and QOLI domains ranged from a low of 0.168 and 0.383 (p=NS) to a high of 0.722 and 0.806 (p<0.01).

### TABLE 1
TOTAL AND DOMAIN-WISE CORRELATIONS FOR INTER-RATER SCORES ON QUALITY OF LIFE SCALE (QLS)

| Variables                              | R' value | P<  
|----------------------------------------|----------|------
| Interpersonal relations                | 0.885    | 0.01 |
| Instrumental role functioning          | 0.894    | 0.01 |
| Intrapsychic foundations               | 0.855    | 0.01 |
| Common objects and activities          | 0.646    | 0.05 |
| Total score                            | 0.893    | 0.01 |

### TABLE 2
CORRELATION BETWEEN SCORES FOR DIFFERENT DOMAINS OF QOLI AND QLS

| Variables                              | R' value | P<  
|----------------------------------------|----------|------
| Common activities (QLS) v/s daily activities and functioning (QOLI) | 0.383 | NS    |
| Interpersonal relations (QLS) v/s frequency of social contact (QOLI) | 0.806 | 0.01 |
| Intrapsychic foundations (QLS) v/s general life satisfaction (QOLI)* | 0.168 | NS    |
| Instrumental role functioning (QLS) v/s work in the past 1 year (QOLI) | 0.722 | 0.01 |

* Subjective domain of QOLI
NS = Not significant
As shown in table 3, the correlation between total and domain-wise scores of QLS in the patient and relative groups ranged from 0.755 to 0.976 (p<0.01).

| Variables                      | R' value | P<  |
|-------------------------------|----------|-----|
| Interpersonal relations       | 0.829    | 0.01|
| Instrumental role functioning | 0.976    | 0.01|
| Intrapsychic foundations      | 0.755    | 0.01|
| Common objects and activities | 0.867    | 0.01|
| Total score                   | 0.818    | 0.01|

DISCUSSION

Sample: Our patient group is comparable to that of Browne et al. (1996) in terms of the illness being chronic (>2 years duration) and stable (in terms of antipsychotic dose). This increases the comparability of our results with that by Browne et al. (1996). The excess of unmarried subjects among our patient group can be attributed to their mental illness (Thara & Srinivasan, 1997).

Reliability: Heinrichs et al. (1984), the original developers of QLS in USA, had obtained reliability correlations for various domains ranging from 0.91 to 0.97. Browne et al. (1996) from Ireland, reporting on only 7 patients, also obtained high correlations for various domains ranging from 0.92 to 0.98. We obtained comparatively lower correlations i.e. 0.89 for the total score and 0.65-0.89 for the various domains. This high reliability in three different cultures suggests that the QLS can be applied by clinicians easily, with modest expertise or experience. Thus, QLS can be said to have reliable cross-cultural applicability.

Convergent validity: The use of QOLI for testing convergent validity of QLS suffered from some limitations. While QOLI is a structured instrument, uses a time frame of 1 year, and makes both subjective and objective assessments; QLS is a semi-structured instrument, uses a time frame of 4 weeks, and makes only objective assessment. Also, some of the items in both scales are not exactly comparable.

As reported by Lehman et al. (1993) earlier, we compared three objective domains from each scale and also the objective intrapsychic foundations (IPF) domain of QLS with the subjective general life satisfaction (GLS) domain of QOLI. Of the four domains compared across the two scales, the correlations were high for two domains and non significant for the other two. These findings do not show a consistent pattern when compared to the findings of Lehman et al. (1993). This difference may be attributed to variables like differing sample size, diagnostic and evaluation procedures, and cultural differences. The IPF domain is the key domain of QLS which is based entirely on the schizophrenic patient's intrapsychic subjective elements (Heinrichs et al., 1984). Our finding of the lowest correlation value for the IPF domain (of QLS) and the GLS domain (of QOLI) could be attributed to the comparison of an objective domain with a subjective domain. This finding is consistent with some of the previous research (Carpinello et al., 1997; Atkinson et al., 1997), but not with others (Rodder-Wanner et al., 1997; Trauer et al., 1998).

Had convergent validity been demonstrated, this data on convergence of patients' and clinicians' assessment would have strengthened the case for QLS and QOLI substituting for each other. The lack of convergent validity between QLS and QOLI may be attributed to the differences in the basic construct of the two scales. QOLI having been developed for use in severe and persistent illnesses, it focusses more on the general state of the severe and persistent mentally ill, including schizophrenia. In contrast, QLS, having been developed for chronic schizophrenics, focusses more on the deficit/negative syndrome of schizophrenia. Thus, while QOLI is applicable to the severe and persistent mentally ill, including patients of schizophrenia, QLS is a more schizophrenia-specific scale (Heinrichs et al., 1984).

Divergent validity: The QLS was developed with the assumption that the psychopathology in schizophrenia has an intrapsychic foundation and therefore can be best accessed through the patient's self-report (Heinrichs et al., 1984). However, the authors had discussed the need
QUALITY OF LIFE SCALE - PSYCHOMETRIC PROPERTIES

for evaluating the applicability of QLS using other sources of information, including the patient’s relatives. But, this aspect has not been reported in the previous research on QOL using QLS. Our study demonstrates a high degree of correlation between the clinician’s assessment of the patients’ self-report versus the key relatives’ report. This finding, strongly arguing against the presence of divergent validity of QLS, emphasizes the easy applicability of QLS from the patient’s relative in case the patient is unable or unwilling to make a self-report.

In conclusion, these results for convergent and divergent validity of QLS may have been influenced by the culture-based modifications carried out by the authors. Further research from India and other cultures to confirm or refute these findings will ensure comparability of QOL research in schizophrenia. This would additionally lead to a better understanding of the areas of intervention and resource allocation for the same.

Despite its limitations of small sample, possible bias in ratings for both scales, and lack of standardized translation, this study supports QLS as reliable and specific construct for the ‘negative state’ that can be applied to the key relatives for assessing QOL in schizophrenia.

REFERENCES

Atkinson, M., Zibin, S. & Chuang, H. (1997) Characterizing quality of life among patients with chronic mental illness: a critical examination of the self-report methodology. *American Journal of Psychiatry*, 154, 99-105.

Barry, M.M. & Zissi, A. (1997) Quality of life as an outcome measure in evaluating mental health services: a review of the empirical evidence. *Social Psychiatry and Psychiatric Epidemiology*, 32, 38-47.

Browne, S., Roe, M. & Lane, A. (1996) Quality of life in schizophrenia: relationship to sociodemographic factors, symptomatology and tardive dyskinesia. *Acta Psychiatrica Scandinavica*, 94, 118-124.

Carpinjello, B., Lai, G., Pariente, C.M., Carta, M.G. & Rudas, N. (1997) Symptoms, standards of living and subjective quality of life: a comparative study of schizophrenic and depressed out-patients. *Acta Psychiatrica Scandinavica*, 96, 235-241.

Chaturvedi, S.K., Murali, T. & Gopinath, P.S. (1997) Family distress and quality of life: a study on chronic schizophrenic patients and their relatives (abstract). *Quality of Life Research*, 6, 418.

Heinrichs, D.W., Hanlon, T.E. & Carpenter, W.T. (1984) The quality of life scale: an instrument for rating the schizophrenic deficit syndrome. *Schizophrenia Bulletin*, 10, 388-398.

Hunt, S.M. & Wilklund, I. (1987) Cross cultural variation in the weighting of health statements: a comparison of English and Swedish valuation. *Health Policy*, 8, 227.

Lehman, A.F., Postrado, L.T. & Rachuba, L.T. (1993) Convergent validation of quality of life assessments for persons with severe mental illnesses. *Quality of Life Research*, 2, 327-333.

Lehman, A.F., Postrado, L.T., Roth, D., McNary, S. & Goldman, H.H. (1994) An evaluation of continuity of care, case management, and client outcomes in the Robert Wood Johnson Program on chronic mental illness. *Milbank Quarterly*, 72, 105-122.

Lehman, A.F. (1996) Measures of quality of life among persons with severe and persistent mental disorders. *Social Psychiatry and Psychiatric Epidemiology*, 31, 78-88.

Leplege, A. & Hunt, S. (1997) The problem of quality of life in medicine. *Journal of American Medical Association*, 278, 47-50.
NITIN GUPTA et al.

Overall, J.E. & Gorham, D.R. (1962) The Brief Psychiatric Rating Scale. Psychological Reports, 10, 799-812.

Pearlman, R.A. & Jonsen, A. (1985) The use of quality of life considerations in medical decision making. Annals of Internal Medicine, 97, 420-425.

Roder-Wanner, U., Oliver, J.P.J. & Priebe, S. (1997) Does quality of life differ in schizophrenic women and men? An empirical study. International Journal of Social Psychiatry, 43, 129-143.

Schumacher, M., Olschewski, M. & Schulgen, G. (1991) Assessment of quality of life in clinical trials. Statistics in Medicine, 10, 1915-1930.

Tartar, R.E., Erb, S., Biller, P.A., Switala, J. & van Theil, D.H. (1988) The quality of life following liver transplantation: a preliminary report. Gastroenterology Clinics of North America, 17, 207-217.

Thara, R. & Srinivasan, T.N. (1997) Marriage and gender in schizophrenia. Indian Journal of Psychiatry, 39, 64-69.

Trauer, T., Duckmanton, R.A. & Chiu, E. (1998) A study of the quality of life of the severely mentally ill. International Journal of Social Psychiatry, 44, 79-91.

World Health Organization (1992) The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines. Geneva: World Health Organization.

NITIN GUPTA, MD, Assistant Professor, SURENDRA K. MATTOO*, MD, Additional Professor, DEBASHIS BASU, MD, DNB, Associate Professor & APRAJITA LOBANA, MD, Senior Resident, Department of Psychiatry, Postgraduate Institute of Medical Education and Research, Chandigarh-160 012.

*Correspondence