# Preliminary Report

# Evaluation of the Thai, Low Vision Quality-of-Life Questionnaire (LVQOL)

Penpimol Yingyong MD*

* Department of Ophthalmology, Mettapracharak Eye Center, Nakhonpathom

***Background:*** *Quality of life is an important measurement of medical outcome. The assessment questionnaire for low vision patients allows the services to be analysed, developed and improved.*
***Objective:*** *To evaluate the reliability and validity of the Thai version of the Low Vision Quality-of-Life Questionnaire (LVQOL).*
***Material and Method:*** *A cross sectional study was performed, and the content validity was examined by factor analysis and reliability assessed by the Cronbach's alpha coefficient. 47 respondents participants were interviewed at the Department of Ophthalmology, Mettapracharak Eye Center.*
***Results:*** *The Thai version of the LVQOL achieved good levels of validity and reliability which the Cronbach's alpha coefficient equaled to 0.7224-0.9099 among 22 items.*
***Conclusion:*** *The Thai version of the LVQOL can be used as an instrument to evaluate the low vision quality of life.It is useful in determining the effects of the low vision rehabilitation.*

***Keywords:*** *Quality of life, Reliability, Validity, Low vision*

***J Med Assoc Thai 2007; 90 (12): 2658-61***
***Full text. e-Journal:*** *http://www.medassocthai.org/journal*

The Constitutional of the World Health Organization (WHO) defines health as "A state of complete physical, mental and social well-being not merely the absence of disease or infirmity". WHO also defines Quality of Life as individuals perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns[1,2]. It is a broad range concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.

Quality of life (QOL) assessment is one way to assess the medical outcome[3-6] and evaluate global effects[7]. Functional assessment and quality of life analysis is a field of growing importance in medicine because it offers a method of incorporating patients' perceptions into the clinical setting to assist in providing optimum patient care. Choosing an appropriate measure and using it in clinical practice can be problematic[8]. It is measured indirectly using questionnaires such as the SF-36 (Short Form#36)[9-11] the WHO-QOL instrument[12], ASA[13], Activities of Daily Vision Scale (ADL)[14] and VF-14[15]. ADL and VF-14 principally emphasize difficulties with tasks and symptoms rather than assess the effect of reduced vision on other aspects of health-related QOL such as emotional well-being and social function. Certain subscales of health- related quality of life instruments are also focused on mental health and social function domains. Measures of the Quality of Life have always raised questions about what indicates and valuation methods best represent human well-being. Quantity of life and quality of life have to go together and cannot be divided[16]. These have to be developed culturally and are exactly important to study quality of life low vision group in Thailand[17].

*Correspondence to : Yingyong P, Department of Ophthalmology, Mettapracharak Eye Center, Raikhing, Samphran, Nakhonpathom 73210, Thailand. Phone: 089-615-8905, E-mail: penpimol1960 @gmail.com*

## Material and Method

### *Study population*

Demographic data and clinical information

were collected from 47 low vision patients who attended the low vision clinic of Mettapracharak Eye Center, Nakhonpathom from October 2005 to March 2007. The diagnosis of low vision was performed and based on WHO criteria, the best corrected visual acuity in the better eye is less than or equal to 20/70 or the visual field in the better eye is less than 30 degrees in the widest diameter. The evaluation of QOL was assessed by questionnaire and in-depth interview and comprised of 27 subjective LVQOL which were submitted and granted by the hospital ethical committee. All items are rated on a 5 point scale (1-5) from the worst to the best possible quality of life. Visual acuity was measured by Snellen chart.

### *Statistical analysis*

Mean (± Standard deviation, SD), range was used to describe the patients' characteristics. Construction validity was performed by factor analysis (Principal component analysis, after varimax orthogonal rotation; iteration, 25; eigenvalue equal or greater than 1). Item with factor loading less than 0.70 was excluded. Reliability is related to accuracy or consistency of measurement. In the presented paper, the author assessed reliability through internal consistency that measures the extent to which similar questions produce consistent responses. Cronbach's alpha coefficient measures the overall correlation between items within a scale. An internal consistency coefficient of greater than 0. 70 was considered acceptable in justifying discriminative use.

## Results

Descriptive statistics of 47 low vision patients were used where it was appropriate (Table 1).

### *Validity*

The factor analysis using principal component analysis, after varimax orthogonal rotation[17] resulted in factor loadings. Twenty-seven questions in the presented study were divided into 6 dimensions, with the eigenvalue exceeding 1, which explained 76. 937 percent of the variation. Factor loadings are given in Table 2. The main applications of factor analytic techniques are: (1) to reduce the number of variables and (2) to detect structure in the relationships between variables. Therefore, factor analysis is applied as a data reduction. The range of the factor score is 0.9-marvelous, 0.8-meritorious, 0.7-middling, 0.6-mediocre, or 0.5-miserable (perfectly uncorrelated).

**Table 1.** Patient characteristics (n = 47)

| Characteristics | Number | % |
|---|---|---|
| Mean age (years) (SD) | 53.17 | (19.47) |
| Range (years) | 15-82 | |
| Sex | | |
| Male | 23 | 48.9 |
| Female | 24 | 51.1 |
| Occupation | | |
| Student | 4 | 8.51 |
| Employee | 20 | 42.55 |
| Farmer | 5 | 10.64 |
| Employer | 3 | 6.38 |
| Unemployed | 6 | 12.77 |
| Housewife | 5 | 10.64 |
| Retirement | 4 | 8.51 |
| Total | 47 | 100 |

**Table 2.** Factor loading analysis

| Question | Factor loadings |
|---|---|
| 1. Overall health | 0.712 |
| 2. Eye pain | 0.730 |
| 3. Worry about vision | 0.714 |
| 4. General vision | 0.494 |
| 5. Seeing steps or curbs | 0.702 |
| 6. Finding things | 0.787 |
| 7. Sport event | 0.670 |
| 8. Near reading | 0.775 |
| 9. Distant viewing | 0.837 |
| 10. Doing work | 0.722 |
| 11. Self-health care | 0.655 |
| 12. Driving | 0.631 |
| 13. House-hold chores | 0.736 |
| 14. See moving targets | 0.827 |
| 15. Social activities | 0.789 |
| 16. Visiting people you don't know well | 0.662 |
| 17. Vulnerability to injuries | 0.762 |
| 18. Entertainment with others | 0.745 |
| 19. Doing embarrassing things | 0.809 |
| 20. Occupational suitability | 0.919 |
| 21. Unhappy | 0.918 |
| 22. Oneself meaningful | 0.852 |
| 23. Mainly stay home | 0.927 |
| 24. Eye discomfort | 0.911 |
| 25. Frustated | 0.876 |
| 26. Information availability | 0.830 |
| 27. Need a lot of help | 0.779 |

**Table 3.** Internal consistency after the questions were deleted by factor analysis

| Areas of assessment | Cronbach's alpha coefficient |
|---|---|
| General health (Q1-3) | 0.7798 |
| Difficulty with activities (Q5, 6, 8, 9, 10, 13, 14) | 0.7280 |
| Social function (Q15, 17, 18) | 0.7224 |
| Expectation (Q19-20) | 0.9099 |
| Overall satisfaction (Q21-22) | 0.7824 |
| Vision problems and responses (Q23-27) | 0.8986 |

***Reliability***

The Cronbach's alpha coefficient was used and demonstrated in Table 3.

**Discussion**

Due to Thai cultural context, elderly people in Thailand are less active than younger people because most Thai elderly especially in rural areas, live as part of the extended family and are supported and helped in their daily activities by relatives; hence, the need for questions 4, 7, 11, 12, 16 to be deleted as factor loading was less than 0.70, these questions were not important for the patients' lives (Table 2).

The limitations of the present study are, firstly, the number of patients is small. Secondly, the author used face-to-face interviews instead of self-administered questionnaires. This may be why to most patients had difficulty in reading by themselves and it took more time to finish all the questionnaires. Fatigue in reading or some person's help in reading may be the result of this mistake. The Cronbach's alpha coefficient equaled to 0.7224-0.9099 among 22 items which were significantly high (Table 3).

In conclusion, the author demonstrates that the present Thai version questionnaire has good evaluative and discriminative properties for assessing quality of life in patients with low vision.

**Acknowledgement**

The author wishes to thank the Director of the Mettapracharak Eye Center, Nakhonpathom (Dr. Pannet Pangputhipong) who has commented on the beginning of the present research.

**References**

1. Study protocol for the World Health Organisation Project to develop a Quality of Life assessment instrument (WHOQOL). Qual Life Res 1993; 2: 153-9.
2. Parrish RK. Visual impairment, visual functioning, and quality of life assessments in patients with glaucoma. Trans Am Ophthalmol Soc1996; 94: 919-1028.
3. Elwood PM. Shattuck lecture-outcomes management: a technology of patient experience. N Engl J Med 1998; 318: 1549-56.
4. Fayers PM, Machin D. Quality of life assessment, analysis and interpretation. Chichester, UK: John Wiley & Son; 2000.
5. Raasch TW, Leat SJ, Kleinstein RN, Bullimore MA, Cuttor GR. Evaluating the value of low vision services. J Am Optom Assoc1997; 68: 287-95.
6. Wolffsohn JS, Cochrane AL. Design of the low vision quality-of-life questionnaire (LVQOL) and measuring the outcome of low-vision rehabilitation. Am J Ophthalmol 2000; 130: 793-802.
7. Anderson GF, Alonso J, Kohn LT, Black C. Analysing health outcomes through international comparisons. Med Care1994; 32: 526-34.
8. Higginson IJ, Carr AJ. Measuring quality of life: Using quality of life measures in the clinical setting. BMJ2001; 322: 1297-300.
9. Ware JE Jr, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. Med Care 1992; 30: 473-83.
10. McHorney CA, Ware JE Jr, Raczek AE. The MOS 36-Item Short-form Health survey (SF36): II. Psychometric and clinical tests of validity in measuring physical and mental health constructs. Med Care 1993; 31: 247-63.
11. McHorney CA, Ware JE Jr, Lu JFR, Sherbourne CD. The MOS 36-item Short-Form health survey (SF36): III. Tests of data quality, scaling assumptions, and reliabilities across diverse patient groups. Med Care 1994; 32: 40-66.
12. Bonomi AE, Patrick DL, Bushnell PM, Martin M. Validation of the United States' version of the

World Health Organization Quality of Life (WHO-QOL) instrument. J Clin Epidemiol 2000; 53: 1-12.
13. Weissman MM, Bothwell S. Assessment of social adjustment by patient self-report. Arch Gen Psychiatry 1976; 33: 1111-5.
14. Pesudovs K, Garamendi E, Keeves JP, Elliott DB. The activities of daily vision scale for cataract surgery outcomes: re-evaluating validity with Rasch analysis. Invest Ophthalmol Vis Sci 2003; 44: 2892-9.
15. Cassard D, Patrick DL, Damino AM, Legro MW, Tielsch JM, Diener-West M, et al. Reproducibility and responsiveness of the VF-14. An index of functional impairment in patients with cataracts. Arch Ophthalmol 1995; 113: 1508-13.
16. Wolffsohn JS, Cochrane AL. Design of the low vision quality-of-life questionnaire (LVQOL) and measuring the outcome of low-vision rehabilitation. Am J Ophthalmol 2000; 130: 793-802.
17. Zou H, Zhang X, Xu X, Bai L, Wolffsohn JS. Development and psychometric tests of the Chinese-version Low Vision Quality of Life Questionnaire. Qual Life Res 2005; 14: 1633-9.

## *การประเมินแบบสอบถามคุณภาพชีวิตฉบับภาษาไทยในผู้ป่วยโรคสายตาเลือนราง*

***เพ็ญพิมล ยิ่งยง***

***ภูมิหลัง**: คุณภาพชีวิตมีความสำคัญในการวัดผลลัพธ์ทางคลินิก แบบสอบถามคุณภาพชีวิตในผู้ป่วยโรคสายตาเลือนรางจะนำไปสู่การวิเคราะห์ การพัฒนา และการบริการที่ดีขึ้น*

***วัตถุประสงค์**: เพื่อประเมินความความเชื่อถือ และเที่ยงตรงของแบบสอบถามคุณภาพชีวิตในโรคสายตาเลือนราง*

***วัสดุและวิธีการ**: เป็นการศึกษาแบบตัดขวางในผู้ป่วยโรคสายตาเลือนรางจำนวน 47 คนในโรงพยาบาลเมตตาประชารักษ์ โดยการสัมภาษณ์ ตรวจสอบความเที่ยงตรงโดย factor analysis และทดสอบความเชื่อถือโดย Cronbach's alpha coefficient*

***ผลการศึกษา**: แบบสอบถามคุณภาพชีวิตฉบับภาษาไทยในโรคสายตาเลือนราง จำนวน 22 ข้อ มีความเที่ยงตรงและความเชื่อถือในระดับที่ดีโดยมีค่า Cronbach's alpha coefficient เท่ากับ 0.7224-0.9099*

***สรุป**: แบบสอบถามคุณภาพชีวิตฉบับภาษาไทยในโรคสายตาเลือนรางสามารถใช้เป็นเครื่องมือในการประเมินคุณภาพชีวิตในโรคสายตาเลือนรางในประเทศไทย และมีประโยชน์ในการแสดงผลการฟื้นฟูสมรรถภาพสายตาเลือนราง*