Health-Related Quality of Life and Disease Severity of SLE Patients in Phramongkutklao Hospital

Sumapa Chaiamnuay MD*, Viyanuch Lomaratana MD*,
Sangduen Sumransurp MD*, Suphawan Phukongchai MD*,
Pongthorn Narongroeknawin MD*, Paijit Asavatanabodee MD*

** Rheumatic Disease Unit, Department of Internal Medicine, Phramongkutklao Hospital, Bangkok, Thailand*

Background: *The studies of association of disease activity and damage with health-related quality of life (HRQOL) in lupus have shown equivocal results and has not been studied in Thailand.*
Objective: *To examine the HRQOL and to examine the association between HRQOL and SLE disease severity (disease activity and damage) in Thai SLE patients.*
Material and Method: *The Short Form-36 (SF-36) was applied in 95 consecutive SLE patients. At the time of HRQOL assessment, all patients were evaluated for disease severity [disease activity as measured by Mexican Systemic Lupus Erythematosus Disease Activity Index (Mex-SLEDAI) and damage as measured by the Systemic Lupus International Collaborating Clinic/American College of Rheumatology (SLICC/ACR) damage index (SDI)]. The association between physical (PCS) and mental component summary (MCS) of the SF-36 and disease severity were examined by Pearson's correlation.*
Results: *Ninety-five SLE patients (93 females and 2 males) were included (mean age 39.84 $\pm$ 10.91). The mean disease duration was 115 $\pm$ 83 months. The mean scores of MCS and PCS were 45.5 $\pm$ 9.5 and 41.1 $\pm$ 9.3, respectively. The higher SDI scores were correlated with lower PCS but not the MCS (PCS, $r = -0.411$, $p < 0.001$). There was no correlation between HRQOL (both MCS and PCS) and disease activity.*
Conclusion: *PCS of the SF-36 was inversely correlated with damage index in Thai SLE patients.*

Keywords: *Systemic lupus erythematosus, Health related quality of life, Disease activity, Damage, SF-36*

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Systemic lupus erythematosus (SLE) is a chronic inflammatory disease, characterized by alternate phases of remission and exacerbation of the clinical symptoms. During the disease course all the organs and tissues can be potentially involved, sometimes irreversibly. The life expectancy of patients with systemic lupus erythematosus, although lower than the general population, has improved as a result of diagnostic and therapeutic advancements[1,2]. Recent study found that life expectancy of women with lupus nephritis now approached that of the general population[3].

With improved survival the impact of disease and treatment on quality of life, rather than quantity of life, emerged as an important consideration in the evaluation and management of SLE. International convened groups dealing primarily with lupus (Systemic Lupus International Collaborating Clinics [SLICC]) or with outcome (Outcome Measures for Arthritis Clinical Trials), have recommended that a measure of quality of life/self-reported functioning should be included in SLE outcome studies[4-7].

The short form 36 (SF-36) questionnaire is a generic instrument used to assess the quality of life. The scores are based on responses to individual questions, which are summarized into eight scales, each of which measures a health concept. These scales include function domains and aspects of well-being, as follows: physical function (PF), limitations in physical activities because of health problems; role-physical (RP), limitations in usual role activities because of physical health problems; bodily pain (BP), influence of pain on daily activities; vitality (VT), energy level and fatigue; role-emotional (RE), limitations in usual role activities because of emotional problems; mental health (MH), psychological distress and well-being;

Correspondence to:
Chaiamnuay S, Rheumatic Disease Unit, Department of Internal Medicine, Phramongkutklao Hospital, 315 Rajvithi road Rajthevi, Bangkok 10400, Thailand.
Phone: 0-2354-7711 ext. 93330, Fax: 0-2354-7980
E-mail: sumapac@yahoo.com

social function (SF), limitations in social activities because of physical or emotional problems; general health (GH), subjective perception of health status. This questionnaire is widely accepted because of the convenience and reliability. Prior to the development of SLE-specific HRQOL instrument, the SF-36 was recommended as the instrument of choice for measuring HRQOL in SLE[8]. The SF-36 has been used successfully to assess HRQOL in SLE patients in Canada, Norway, Singapore, Spain and the United States[9]. An Update of the SF-36 (Thai version) has been validated and used to assess HRQOL[10].

The association between HRQOL and SLE disease severity, as represented by disease activity and damage, has not been studied in Thailand. Thus the aim of our study was to evaluate the relationship between HRQOL and the SLE disease activity and damage in Thai SLE patients.

Research objective

The objectives of this study are to determine the HRQOL in Thai SLE by SF-36 (Thai version), the association between HRQOL and disease activity by Mexico -Systemic lupus erythematosus disease activity index (MEX-SLEDAI) and the association between HRQOL and damage by the Systemic Lupus International Collaborating Clinic/American College of Rheumatology (SLICC/ACR) damage index (SDI).

Material and Method

Patient selection

SLE patients fulfilling the American College of Rheumatology (ACR) 1997 revised criteria for lupus were included in this cross-sectional study[11]. This study was approved by the institutional review committee. Patients were informed of the objectives of the study and the written informed consent was obtained.

Data collection

Patients were administered the SF-36 for the HRQOL assessment. The demographic, clinical and laboratory data of the patients were evaluated and recorded. The disease activity was measured by Mex-SLEDAI[12] and the damage was measured by SDI[5].

Data analysis

Statistical analysis was carried out using SPSS 14.0. This comprises descriptive analysis of the domain scores of HRQOL, Pearson's correlation coefficients to examine the association between the MEX-SLEDAI and the SDI and the MCS and PCS scores. P-values < 0.05 were considered to indicate statistical significance.

Results

Ninety five patients were included in the study; 93 females and 2 males (mean age 39.8 $\pm$ 10.9 year). The age of SLE onset was 28 $\pm$ 11.96 years old. The mean disease duration and the follow-up time were 115 $\pm$ 83 months and 100.1 $\pm$ 77.3 months, respectively. Non erosive arthritis and proteinuria were the most common SLE clinical manifestation from the ACR criteria. Other common characteristics were malar rash, discoid rash, photosensitivity, hemolytic disorder and leucopenia (Table 1).

The mean and standard deviation of the scores of MCS and PCS were 45.5 $\pm$ 9.5 and 41.1 $\pm$ 9.3, respectively. The mean and standard deviation of the SDI score was 1.1 $\pm$ 1.4. Avascular necrosis (1 site) was the most common organ damage. The others were in dermatologic domains including extensive scarring, panniculitis and scarring chronic alopecia. The disease activity score was low with the mean and standard deviation of 1.3 $\pm$ 2.2. The most common active clinical manifestations were lymphopenia and proteinuria. These results are shown in Table 2.

Pearson's correlation coefficient was used to correlate the MEX-SLEDAI scores with the MCS, PCS and eight domains of the SF-36. The SDI score showed a significant negative correlation with overall HRQOL as a summary of MCS and PCS ($r = -0.288$, $p < 0.005$), PCS ($r = -0.411$, $p < 0.001$), physical function ($r = -0.455$, $p < 0.001$), bodily pain ($r = -0.329$, $p < 0.001$), general health ($r = -0.276$, $p < 0.007$) and vitality ($r = -0.266$, $p < 0.010$). However, there was no significant correlation between the SDI score and the MCS, Role (both physical and emotion), social function and the mental health. There was no correlation between MEX-SLEDAI score and the MCS, PCS or other domains of the SF-36 (Table 3). Age, disease duration, body mass index and corticosteroid and other immunosuppressive use did not affect the HRQOL in any of the domains (Table 4). There was no difference in HRQOL among different levels of education.

Discussion

Our SLE patients in this study are similar in terms of clinical and immunological features to other cohorts of SLE patients with mean disease duration of approximately 10 years[13,14]. Overall SLE disease severity of our patients is low in both disease activity and damage. The disease activity in our study is low

Table 1. Clinical manifestations of the patients (n = 95)

ACR criteria	n	%
- Malar rash	42	44.2
- Discoid rash	45	47.4
- Photosensitivity	40	42.1
- Oral ulcer	36	37.9
- Non erosive arthritis	59	62.1
- Serositis		
1. Pleuritis	12	12.6
2. Pericarditis	4	4.2
- Renal disorders		
1. Proteinuria > 0.5 gm/day	59	62.1
2. Cellular cast	10	10.6
- Neurological disorder		
1. Seizure	3	3.2
2. Psychosis	4	4.2
- Haematologic disorder		
1. Hemolytic	46	48.4
2. Leucopenia	42	44.2
3. Lymphopenia	23	24.2
4. Thrombocytopenia	19	20
- Immunologic disorder		
1. Anti-DNA	45	47.4
2. Anti-Sm	17	17.9
3. Positive antiphospholipid antibodies (APL)	16	16.8
- ANA	93	97.9

Table 2. The summary of the Systemic Lupus International Collaborating Clinic/American College of Rheumatology (SLICC/ACR) damage index (SDI), the Mexican Systemic Lupus Erythematosus Disease Activity Index (MEX-SLEDAI) and the Short-Form 36 (SF-36) scores

Instruments	Mean (SD)
SDI score	1.1 (1.4)
MEX-SLIDAI score	1.3 (2.2)
SF-36 score	
- Mental component summary	45.5 (9.5)
- Physical component summary	41.1 (9.3)
- Physical function	66.3 (23.8)
- Role-physical	56.0 (43.9)
- Bodily pain	58.0 (21.0)
- General health	44.6 (20.4)
- Vitality	58.3 (17.9)
- Social function	72.2 (21.8)
- Role-emotion	47.8 (41.6)
- Mental health	65.5 (17.3)

mostly because we included only patients from the out-patient clinic, thus excluding hospitalized patients with high disease activity and/or severity. However, this is the population we want to study for the HRQOL since the lifestyle of those patients who were hospitalized is certainly modified. The vast majority of studies on HRQOL in SLE have emerged from the developed countries of Europe and North America[15-17] with few data from Asian countries[18,19]. There is no data on HRQOL in SLE patients from Thailand.

Despite the low disease severity in our SLE patients, we found a decrease of HRQOL. Although it cannot be directly compared, SLE patients have lower HRQOL in all domains of the SF-36 as compared with normal population from a survey of the subjects in Bangkok metropolitan area[20]. Our data concurs with those reported by other studies that also have low disease severity[16,18]. In a study of patients with higher disease activity and damage reported an even lower HRQOL[17]. When compared to other chronic diseases such as hypertension, congestive heart failure (CHF), adult onset diabetes mellitus, myocardial infarction, and depression, HRQOL of patients with SLE seems to be significantly worse and affects all health domains at an earlier age[21].

Factors that have been reported to be associated with a decreased of HRQOL can be categorized into SLE or disease associated factors and patient factors. For SLE associated factors; disease duration, the use of corticosteroids and cytotoxic agents were reportedly associated with decreased HRQOL in SLE patients[9,22]. We did not find any relationship between disease duration or the use of corticosteroids and the HRQOL. The studies of association of disease activity and damage with HRQOL in lupus have shown equivocal results, some studies found no association[18,23] while others have shown a decreased of HRQOL with increasing disease activity[17,24]. There was no correlation between disease activity and HRQOL in our study; this could be due to relatively overall low disease activity as mentioned above. However, damage has a significant negative correlation with HRQOL by the total score, the PCS, physical function, bodily pain, general health and vitality but not the MCS, social function, emotional role and mental health. This result was partially in accordance with the study from India by Khanna et al which found that disease activity was correlated with poor HRQOL in physical domains but not environmental or mental domains[19]. This seems to be a reflection of

Table 3. Pearson's correlation between the disease damage, disease activity and the health related quality of life (HRQOL)

HRQOL (SF-36)	Correlation with disease damage, SDI (r)	p	Correlation with disease activity, MEX-SLEDAI (r)	p
Total score	- 0.288	0.005*	- 0.086	0.424
MCS**	- 0.047	0.661	- 0.102	0.343
PCS***	- 0.411	< 0.001*	- 0.032	0.767
Physical function	- 0.455	< 0.001*	0.009	0.933
Role-Physical	- 0.158	0.129	- 0.069	0.512
Bodily Pain	- 0.329	0.001*	- 0.041	0.694
General Health	- 0.276	0.007*	- 0.117	0.265
Vitality	- 0.266	0.010*	- 0.022	0.834
Social Function	- 0.105	0.313	- 0.095	0.364
Role-Emotion	- 0.175	0.094	- 0.080	0.447
Mental Health	- 0.085	0.420	- 0.055	0.603

*Statistically significant ($p < 0.05$), **Mental component summary, ***Physical component summary

Table 4. The correlation between health related quality of life by the short form-36 and age, body mass index, disease duration and the use of steroid

	MCS*	p	PCS**	p	Total score	p
Age	- 0.038	0.723	- 0.018	0.866	- 0.036	0.736
BMI	0.121	0.260	0.050	0.639	0.109	0.310
disease duration	- 0.055	0.606	- 0.073	0.493	- 0.080	0.458
cumulative dose	- 0.028	0.800	- 0.007	0.949	- 0.023	0.840

*Mental component summary, **Physical component summary

the strong family support system in Thailand and other Asian countries.

For patients factors; age, educational status, self-efficacy, social support, knowledge of lupus, depression, fatigue, anxiety and concomitant disease such as fibromyalgia were reported to be associated with HRQOL in SLE patients[9, 13]. However, we did not find the association between age or educational status and HRQOL and we did not record those psychological factors which have been reported to be associated with low HRQOL[13].

Our study has some limitations. First, other psychological factors such as depression, fatigue and anxiety, the presence of fibromyalgia and social support which have been reported to be associated with low HRQOL were not recorded in our study since the objective of our study was to examine mainly the association between disease severity and HRQOL. Second, our patients were from one tertiary care hospital in Bangkok which might not reflect other patient populations.

However, our study has an important implication. The reason for measuring HRQOL in SLE patients is therefore to improve it. Damage is somewhat a modifiable factor in treating SLE patients, thus minimizing damage during the treatment of SLE might improve their HRQOL.

In conclusion, our study demonstrated that the HRQOL in Thai SLE patients is decreased and the HRQOL especially physical component was negatively correlated with damage in SLE.

References

1. Urowitz MB, Gladman DD, Abu-Shakra M, Farewell VT. Mortality studies in systemic lupus erythematosus. Results from a single center. III. Improved survival over 24 years. J Rheumatol 1997; 24: 1061-5.

2. Ginzler E, Berg A. Mortality in systemic lupus erythematosus. J Rheumatol Suppl 1987; 14(Suppl 13): 218-22.
3. Stratta P, Mesiano P, Campo A, Grill A, Ferrero S, Santi S, et al. Life expectancy of women with lupus nephritis now approaches that of the general population. Int J Immunopathol Pharmacol 2009; 22: 1135-41.
4. Brooks P, Hochberg M. Outcome measures and classification criteria for the rheumatic diseases. A compilation of data from OMERACT (Outcome Measures for Arthritis Clinical Trials), ILAR (International League of Associations for Rheumatology), regional leagues and other groups. Rheumatology (Oxford) 2001; 40: 896-906.
5. Gladman D, Urowitz M, Fortin P, Isenberg D, Goldsmith C, Gordon C, et al. Systemic Lupus International Collaborating Clinics conference on assessment of lupus flare and quality of life measures in SLE. Systemic Lupus International Collaborating Clinics Group. J Rheumatol 1996; 23: 1953-5.
6. Smolen JS, Strand V, Cardiel M, Edworthy S, Furst D, Gladman D, et al. Randomized clinical trials and longitudinal observational studies in systemic lupus erythematosus: consensus on a preliminary core set of outcome domains. J Rheumatol 1999; 26: 504-7.
7. Strand V, Gladman D, Isenberg D, Petri M, Smolen J, Tugwell P. Outcome measures to be used in clinical trials in systemic lupus erythematosus. J Rheumatol 1999; 26: 490-7.
8. Panopalis P, Petri M, Manzi S, Isenberg DA, Gordon C, Senecal JL, et al. The systemic lupus erythematosus tri-nation study: longitudinal changes in physical and mental well-being. Rheumatology (Oxford) 2005; 44: 751-5.
9. Thumboo J, Strand V. Health-related quality of life in patients with systemic lupus erythematosus: an update. Ann Acad Med Singapore 2007; 36: 115-22.
10. Lim LL, Seubsman SA, Sleigh A. Thai SF-36 health survey: tests of data quality, scaling assumptions, reliability and validity in healthy men and women. Health Qual Life Outcomes 2008; 6: 52.
11. Hochberg MC. Updating the American College of Rheumatology revised criteria for the classification of systemic lupus erythematosus. Arthritis Rheum 1997; 40: 1725.
12. Guzman J, Cardiel MH, Arce-Salinas A, Sanchez-Guerrero J, Alarcon-Segovia D. Measurement of disease activity in systemic lupus erythematosus. Prospective validation of 3 clinical indices. J Rheumatol 1992; 19: 1551-8.
13. Doria A, Rinaldi S, Ermani M, Salaffi F, Iaccarino L, Ghirardello A, et al. Health-related quality of life in Italian patients with systemic lupus erythematosus. II. Role of clinical, immunological and psychological determinants. Rheumatology (Oxford) 2004; 43: 1580-6.
14. Cervera R, Khamashta MA, Font J, Sebastiani GD, Gil A, Lavilla P, et al. Morbidity and mortality in systemic lupus erythematosus during a 10-year period: a comparison of early and late manifestations in a cohort of 1,000 patients. Medicine (Baltimore) 2003; 82: 299-308.
15. Gladman DD, Urowitz MB, Ong A, Gough J, MacKinnon A. Lack of correlation among the 3 outcomes describing SLE: disease activity, damage and quality of life. Clin Exp Rheumatol 1996; 14: 305-8.
16. Rinaldi S, Doria A, Salaffi F, Ermani M, Iaccarino L, Ghirardello A, et al. Health-related quality of life in Italian patients with systemic lupus erythematosus. I. Relationship between physical and mental dimension and impact of age. Rheumatology (Oxford) 2004; 43: 1574-9.
17. Wang C, Mayo NE, Fortin PR. The relationship between health related quality of life and disease activity and damage in systemic lupus erythematosus. J Rheumatol 2001; 28: 525-32.
18. Thumboo J, Fong KY, Chan SP, Leong KH, Feng PH, Thio ST, et al. A prospective study of factors affecting quality of life in systemic lupus erythematosus. J Rheumatol 2000; 27: 1414-20.
19. Khanna S, Pal H, Pandey RM, Handa R. The relationship between disease activity and quality of life in systemic lupus erythematosus. Rheumatology (Oxford) 2004; 43: 1536-40.
20. Kongsakon R, Silpakit C, Udomsubpayakul U. Thailand normative data for the SF-36 health survey: Bangkok metropolitan. The ASEAN J Psychiatr 2007; 8: 85-103.
21. Jolly M. How does quality of life of patients with systemic lupus erythematosus compare with that of other common chronic illnesses? J Rheumatol 2005; 32: 1706-8.
22. McElhone K, Abbott J, Teh LS. A review of health related quality of life in systemic lupus erythematosus. Lupus 2006; 15: 633-43.
23. Gladman DD, Urowitz MB, Gough J, MacKinnon A. Fibromyalgia is a major contributor to quality of life in lupus. J Rheumatol 1997; 24: 2145-8.

24. Da Costa D, Dobkin PL, Fitzcharles MA, Fortin PR, Beaulieu A, Zummer M, et al. Determinants of health status in fibromyalgia: a comparative study with systemic lupus erythematosus. J Rheumatol 2000; 27: 365-72.

คุณภาพชีวิตทางสุขภาพ และความรุนแรงของโรคลูปัสในโรงพยาบาลพระมงกุฎเกล้า

***ภูมิหลัง**: คุณภาพชีวิตทางสุขภาพของผู้ป่วยโรคลูปัสยังไม่มีการศึกษาในประเทศไทย*

***วัตถุประสงค์**: เพื่อศึกษาถึงคุณภาพชีวิตทางสุขภาพของผู้ป่วยโรคลูปัส และศึกษาถึงความสัมพันธ์ระหว่างคุณภาพชีวิตทางสุขภาพ และความรุนแรงของโรคในผู้ป่วยโรคลูปัส*

***วัสดุและวิธีการ**: ผู้ป่วยโรคลูปัสจำนวน 95 ราย เข้าร่วมรับการประเมินคุณภาพชีวิตทางสุขภาพโดยการตอบแบบสอบถามเอสเอฟ-36 ฉบับภาษาไทย ในขณะที่ตอบแบบสอบถามผู้ป่วยทุกราย ได้รับการประเมินการกำเริบของโรคโดยใช้ตัวชี้วัดการวัดการ กำเริบของโรคที่ปรับปรุงไว้ใช้ในประเทศกำลังพัฒนา โดยผู้วิจัยจากประเทศเม็กซิโก และตัวชี้วัดการทำลายของโรคจากการร่วมมือผู้วิจัยนานาชาติ และสมาคมแพทย์โรครูมาติสซั่มแห่งประเทศสหรัฐอเมริกา การวิเคราะห์ความสัมพันธ์ระหว่างตัวชี้วัดทางสุขภาพกาย และสุขภาพจิตของแบบสอบถามเอสเอฟ-36 และความรุนแรงของโรคใช้วิธีการหาค่าสัมประสิทธ์สหสัมพันธ์ของเพียร์สัน*

***ผลการศึกษา**: ผู้ป่วยโรคลูปัสทั้งสิ้น 95 ราย (เพศหญิง 93 ราย และเพศชาย 2 ราย) ได้เข้าร่วมการวิจัย มีค่าเฉลี่ยและค่าเบี่ยงเบนมาตรฐานของระยะเวลาของการป่วยเป็นโรค 115 และ 83 เดือน ค่าเฉลี่ย และค่าเบี่ยงเบนมาตรฐานของตัวชี้วัดทางสุขภาพกาย และสุขภาพจิตของแบบสอบถาม เอสเอฟ-36 มีค่าเท่ากับ 45.5 $\pm$ 9.5 และ 41.1 $\pm$ 9.3 ตามลำดับ ตัวชี้วัดการทำลายของโรคมีความสัมพันธ์แบบผกผันกับตัวชี้วัดทางสุขภาพกายอย่างมีนัยสำคัญทางสถิติ (ค่าสัมประสิทธ์สหสัมพันธ์ 0.411, $p < 0.001$) ไม่พบความสัมพันธ์ระหว่างตัวชี้วัดการทำลายของโรคกับตัวชี้วัดทางสุขภาพจิต และตัวชี้วัดการกำเริบของโรคกับตัวชี้วัดทางสุขภาพกาย และสุขภาพจิต*

***สรุป**: ตัวชี้วัดทางสุขภาพกายมีความสัมพันธ์แบบผกผันกับตัวชี้วัดการทำลายของโรคในผู้ป่วยโรคลูปัส*