

# HEALTH-RELATED QUALITY OF LIFE OF THAI CHRONIC LIVER DISEASE PATIENTS

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**ABSTRACT:** Chronic liver disease (CLD) is increasingly recognized as affecting patients' well-being. Health-related quality of life (HRQOL) measurements have gained attention as important functional outcomes in CLD. The objective of this study was to assess HRQOL of Thai CLD patients. Data were collected from a convenient sample of 85 CLD patients who visited the gastrointestinal clinic at Naresuan University Hospital between November 2008 and December 2009 by means of face-to-face interviews. SF-36 (Thai) and CLDQ (Thai) were employed to assess patients' HRQOL. Questions soliciting patients' demographic information were also included. Data were analyzed by descriptive statistics. An independent samples t-test was utilized to compare HRQOL between CLD patients and the normal population. The level of significance was set at 0.05. The results indicated that, according to SF-36, CLD patients expressed a statistically lower level of HRQOL compared to normal population in Role-Physical, Bodily Pain, General Health, Social Functioning, and Role-Emotional domains. The Mental Health domain, on the contrary, was significantly higher among CLD patients compared to the normal population. Patients' mean overall CLD score was 5.5 with a standard deviation of 0.9. The score on Fatigue was the lowest, whereas Activity was the highest among CLDQ subscales. In conclusion, CLD patients reported a significantly lower HRQOL, especially in social-related aspects, compared with a healthy Thai population. Their mental health status, however, was reported to be better than their healthy population counterpart. Patients were still able to carry on their daily activities with no problem. Fatigue was the most impaired facet of their HRQOL.

**Keywords:** Health-related quality of life, Short Form-36 (Thai), Chronic Liver Disease Questionnaire (Thai)

## INTRODUCTION

Chronic liver disease (CLD) including a number of hepatocellular and cholestatic conditions, is increasingly recognized as an important cause of chronic disease worldwide because of its epidemiological burdens, its potential impact on patients' health and their health-related quality of life (HRQOL) [1]. Patients with CLD suffer from debilitating fatigue, pruritus, loss of self-esteem, depression, sexual dysfunction, and complications of cirrhosis. Although some of these conditions have obvious manifestations that are easily measured by the clinical outcomes, others have little or no associated physical measures and are poorly evaluated by the traditional clinical measures. For this reason, HRQOL measures are increasingly being used for understanding the impact of CLD and its treatments from a patient perspective [2]. HRQOL measures are divided into two types: generic and disease specific. Generic HRQOL measurements enable direct comparisons among different patient populations and health status, thereby enhance the generalizability of a study to help interpret results in a wider context.

However, they are limited in their ability to address important aspects of outcome that are affected by a particular disease, and may not be sensitive enough to detect subtle changes in outcome in response to treatment over time. The other type is disease-specific HRQOL measurements. These instruments ensure comprehensive assessment of important outcome domains, and are generally more sensitive in detecting the effects of treatment on outcome and changes in outcome over time. The main drawback of disease-specific instruments is their inability to compare between different patient groups or health status. Therefore, it is argued that comprehensive assessment of outcome should include a combination of generic and specific measures [3-5]. The Short Form-36 (SF-36) is a generic HRQOL assessment survey [6] that is validated, widely used, and has shown good psychometric properties in diverse disease states including patients with advanced liver diseases [7-11]. The SF-36 consists of 36 questions that make up eight subscales (Physical Functioning—PF, Role-Physical—RP, Bodily Pain—BP, General Health—GH, Vitality—VT, Social Functioning—SF, Role-Emotional—RE, and Mental Health—MH). Within each subscale, 0 is the worst and 100 is the best possible score [12].

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**Table 1** Patients' demographic information

Characteristic	Number (%)
<b>Gender</b>	
Male	65 (76.5)
female	20 (23.5)
<b>Marital status: (n=80)</b>	
Single	7 (8.7)
Married or living with someone	66 (82.5)
Separated, widowed, or divorced	7 (8.7)
<b>Main occupation</b>	
Government employee	38 (44.7)
Merchant	14 (16.5)
Agriculture	11 (12.9)
Housewife	10 (11.8)
Private employee	5 (5.9)
Others (monk, student, unemployed)	7 (8.2)
<b>Health insurance:</b>	
Civil Servants' Medical Benefit Scheme (CSMBS)	47 (55.3)
Universal Coverage (UC)	26 (30.6)
Social Security (SS)	5 (5.9)
Others (self-insured, monkhood health benefit scheme)	7 (8.2)
<b>Education level: (n=83)</b>	
No formal education	2 (2.4)
Primary school	25 (30.1)
Secondary school	21 (25.3)
Vocational school	5 (6.0)
Bachelor degree	22 (26.5)
Higher than bachelor degree	8 (9.6)

The instrument has been translated and successfully validated in Thai population [13].

The Chronic Liver Disease Questionnaire (CLDQ) is a disease-specific HRQOL instrument consisting of 29 items incorporated in six subscales (Abdominal Symptoms, Fatigue, Systemic Symptoms, Activity, Emotional Function, and Worry). A score is calculated for each subscale, ranging from 1 to 7. A global CLDQ score is also calculated with a score ranging from 1 to 7. A higher score indicates better HRQOL compared to lower ones (10). The instrument has been translated, validated and used in many countries [14-18], including Thailand [19], in estimating HRQOL of patients with CLD. The objective of this study was to assess HRQOL of Thai CLD patients using SF-36 and CLDQ.

## MATERIALS AND METHODS

### *Ethical considerations*

The protocol of this study was approved by Naresuan University Ethics Committee (Project Code 51 01 04 0022).

### *Participants*

Data were collected from a convenient sample of 85 CLD patients who visited the gastrointestinal clinic at Naresuan University Hospital between November 2008 and December 2009. All participants gave written informed consents prior to participation, and received THB300 (approximately US\$10) upon

completion to compensate for their cost of transportation.

### *Instruments and data collection*

The data were collected by means of face-to-face interviews. The instruments were the Thai SF-36 Health Survey (SF-36 Thai) (13) and the Thai Chronic Liver Disease Questionnaire (Thai CLDQ) [19]. In addition, questions soliciting patients' demographic information (age, gender, marital status, education level, occupation, health insurance, income and social history) were included in the questionnaire. The instrument was pilot tested on ten CLD patients who were then excluded from the final sample.

### *Data analysis*

Data were analyzed by descriptive statistics. An independent samples t-test was utilized to compare the difference of SF-36 score between CLD patients and the normal population from a study by Lim et al. [20]. The level of significance was set at 0.05.

## RESULTS

### *Patients' demographic information*

A total of 85 CLD patients consented to participate in this study. Table 1 shows their demographic information. The majority of the participants were male (65, 76.5%), with a median age of 54 years. Most of them were married (66, 82.5%). About half of the patients (38, 44.7%) were government

**Table 2** ICD-10 diagnosis (N=68)

Diagnosis	Number (%)
<b>Viral hepatitis</b>	
B18.1 Chronic viral hepatitis B without delta-agent	13 (19.1)
B18.2 Chronic viral hepatitis C	15 (22.1)
<b>Diseases of the digestive system</b>	
K70.1 Alcoholic hepatitis	3 (4.4)
K70.3 Alcoholic cirrhosis of liver	12 (17.6)
K71.3 Toxic liver disease with chronic persistent hepatitis	1 (1.5)
K71.7 Toxic liver disease with fibrosis and cirrhosis of liver	14 (20.6)
K73 Chronic hepatitis, not elsewhere classified	3 (4.4)
K74 Fibrosis and cirrhosis of liver	7 (10.3)

**Table 3** Patients' clinical status

Clinical marker	Normal values	Median	Mean	Standard Deviation
Total bilirubin (mg/dl)	0.3-1.9	0.95	1.60	1.73
Serum albumin (g/dl)	3.4-5.4	3.90	3.86	0.54
INR	0.9-1.2	1.12	1.11	0.35
ALT (U/L)	3-36	71.00	95.15	122.64
AST (U/L)	0-35	68.00	79.59	74.03

**Table 4** SF-36 and CLDQ scale reliability and descriptive information

Subscale	# of items	% missing	Cronbach alpha	Mean score (standard deviation)	Transformed Scale/Overall CLD score (standard deviation)
<b>SF-36</b>					
Physical Functioning (PF)	10	0.01	0.87	25.4 (4.1)	77.0 (20.5)
Role Physical (RP)	4	0	0.82	6.3 (1.6)	57.9 (40.1)
Bodily Pain (BP)	2	0	0.93	8.6 (2.9)	66.1 (28.6)
General Health (GH)	5	0	0.75	15.1 (4.7)	50.5 (23.6)
Vitality (VT)	4	0.005	0.70	16.4 (3.8)	62.1 (19.0)
Social Functioning (SF)	2	0	0.65	8.1 (1.9)	75.9 (23.6)
Role Emotional (RE)	3	0	0.87	4.7 (1.3)	58.4 (43.9)
Mental Health (MH)	5	0	0.81	23.3 (4.8)	73.4 (19.2)
<b>CLDQ</b>					
Abdominal symptoms	3	0	0.76	17.2 (3.8)	5.7 (1.3)
Fatigue	5	0.002	0.75	24.0 (5.7)	4.8 (1.2)
Systemic symptoms	5	0.005	0.54	26.7 (5.1)	5.3 (1.0)
Activity	3	0	0.46	17.3 (3.6)	5.8 (1.2)
Emotional function	8	0.003	0.89	43.19 (9.9)	5.4 (1.2)
Worry	5	0.002	0.86	28.5 (6.8)	5.7 (1.4)
Overall	29	n/a*	n/a*	n/a*	5.5 (0.9)

Note: n/a = computation not applicable

employees, and used Civil Servants' Medical Benefit Scheme (CSMBS) as their health insurance schemes (47, 55.3%). More than half (53, 63.8%) had less than a college education. Fifteen patients (17.6%) reported smoking. The median number of cigarettes smoked per day was 10. Nineteen patients (22.3%) consumed alcoholic beverages on a regular basis, with the median of 2 units of drink per day.

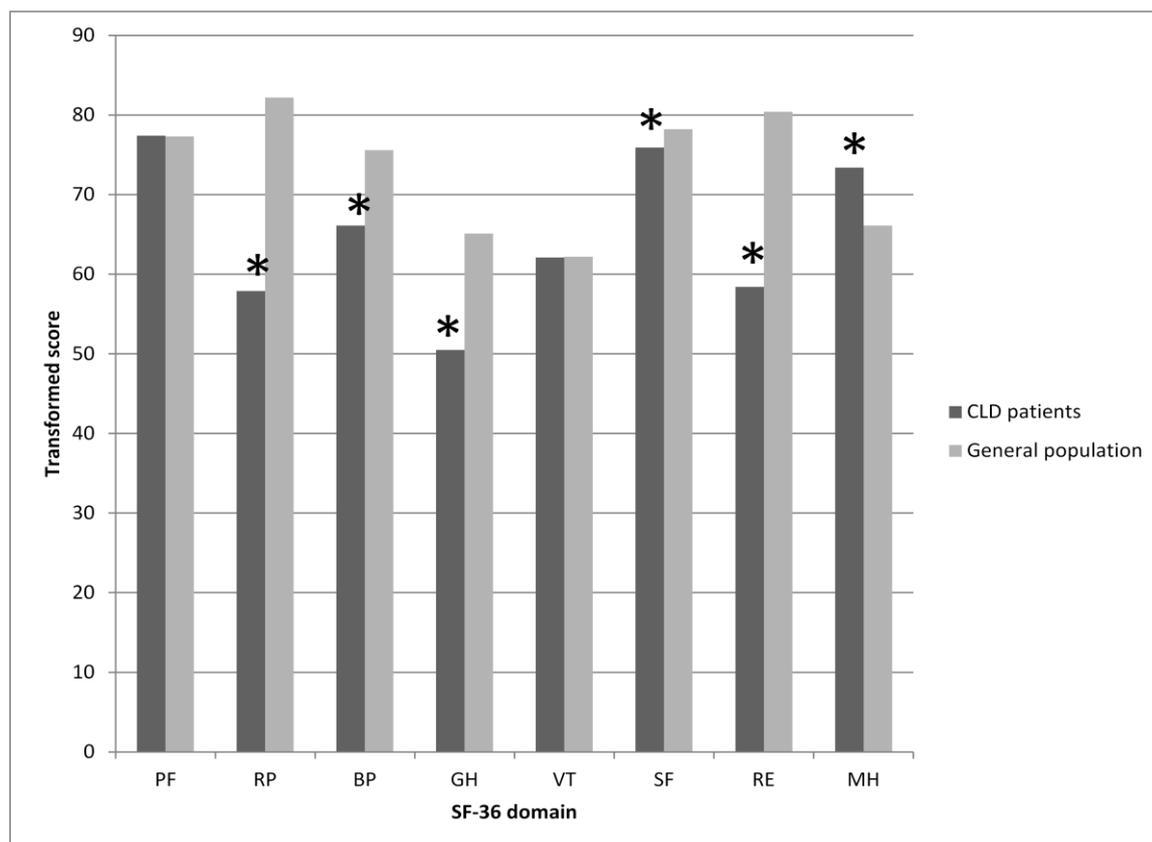
#### **Patients' clinical status**

Diagnoses according to the International Statistical Classification of Diseases and Related Health Problems, 10th Version (ICD-10) [21] were available for 68 patients (Table 2). More than half (40, 58.8%) were diagnosed with diseases of the

digestive system (K00-K93). The rest (28, 41.2%) were diagnosed with viral hepatitis (B15-B19). Among these, 33 patients (48.5%) suffered from cirrhosis. The lab tests for liver function aspartate aminotransferase (AST) and alanine aminotransferase (ALT) showed that mean ALT and AST levels were elevated in this patient group, indicating abnormal liver function (Table 3).

#### **Instrument reliability**

Table 4 indicates the reliability of SF-36 (Thai) and CLDQ (Thai). For SF-36, Cronbach's alpha ranged from 0.65 to 0.92 across eight domains, with the lowest value for the 2-item SF and the highest value for the 2-item BP. For CLDQ, Cronbach's alpha ranged from 0.46 to 0.89 across six domains, with



Note: \* Independent samples t-test, statistically significant at  $p < 0.05$

**Figure 1** SF-36 health profile: CLD patients and the general Thai population (20)

the lowest value for the 3-item Activity and the highest value for the 8-item Emotional Function.

### Patients' HRQOL

#### 1. SF-36 Thai

Patients' mean (standard deviation) of their self-reported HRQOL was as follows: Physical Functioning, PF, 77.0 (20.5); Role-Physical, RP, 57.9 (40.1); Bodily Pain, BP, 66.1 (28.6); General Health, GH, 50.5 (23.6); Vitality, VT, 62.1 (19.0); Social Functioning, SF, 75.9 (23.6); Role-Emotional, RE, 58.4 (43.9); and Mental Health, MH, 73.4 (19.2) (Table 4). Compared with the healthy population (20), CLD patients expressed significantly lower HRQOL in RP [57.9 (40.1) vs 82.2 (28.6)], BP [66.1 (28.6) vs 75.6 (18.4)], GH [50.5 (23.6) vs 65.1 (18.1)], SF [75.9 (23.6) vs 78.2 (18.2)] and RE [58.4 (43.9) vs 80.4 (31.9)] subscales at  $p < .001$ . On the contrary, patients' MH [73.4 (19.2) vs 66.1 (12.9)] was significantly higher than that of the health population at  $p < .001$  (Figure 1).

#### 2. CLDQ

Patients' HRQOL for each subscale was as followed: Abdominal Symptoms 5.7 (1.3); Fatigue 4.8 (1.2); Systemic Symptoms 5.3 (1.0); Activity 5.8 (1.2); Emotional Function 5.4 (1.2); Worry 5.7 (1.4). The overall CLDQ score was 5.5 (0.9). Table

5 shows that CLD patients in this sample had approximately the same HRQOL level as measured by CLDQ as CLD patients in other countries.

### DISCUSSIONS

CLD patients expressed significantly lower HRQOL compared to the normal Thai population in most subscales, especially those concerning the fulfillment of expected social roles and responsibility such as RP, RE, and SF, regardless of their relatively good PF. This finding might due to fact that patients in this sample were out-patients who had mild to moderate levels of disease severity that did not interfere with their ability to perform all daily activities such as bathing or dressing. However, they evaluated their personal health as poor and believed it was likely to get worse. This belief might impede their involvement in social activities and lead them to perceive problems with work or other activities due to physical and emotional health.

Despite perceived poor general health, CLD patients in this sample interestingly reported significantly higher MH compared to the normal population. One possible explanation for this finding was that the normal population used in this study was university students (median age 31 years). They were generally under stress and might report higher levels of nervousness and depression

**Table 5** CLDQ score comparison between the present and previous studies [Data were presented in mean (standard deviation), except for (23) where data were presented in median (range).]

Population	Present study (n=85)	Ray et al. [14] (n=100)	Lam et al. [15] (n=150)	Häuser et al. [17] (n=203)	Mahmood et al. [18] (n=120)	Lam et al. [22] (n=520)	Nokhodian et al. [23] (n=61)
	Thai CLD patients	Indian (Bengali) CLD patients	Chinese chronic hepatitis B patients	German CLD patients	Japanese CLD patients (male/female)	Chinese chronic hepatitis B patients	Iranian chronic hepatitis B patients
CLDQ subscale							
Abdominal Symptoms	5.7 (1.3)	3.9 (2.1)	5.9 (1.3)	5.0 (1.6)	5.8 (1.3)/6.0 (1.2)	6.0 (1.2)	5.7 (4.4)
Fatigue	4.8 (1.2)	3.8 (1.9)	4.9 (1.4)	4.0 (1.7)	4.4 (1.5)/4.6 (1.4)	5.0 (1.2)	5.2 (5.6)
Systemic Symptoms	5.3 (1.0)	5.1 (1.6)	5.5 (1.2)	5.0 (1.4)	5.3 (1.2)/5.5 (0.9)	5.6 (1.0)	6.0 (6.0)
Activity	5.8 (1.2)	3.9 (2.2)	5.8 (1.4)	4.9 (1.6)	5.4 (1.3)/5.8 (1.1)	5.9 (1.3)	5.1 (5.4)
Emotional Function	5.4 (1.2)	3.8 (1.9)	5.2 (1.3)	4.7 (1.4)	5.0 (1.5)/5.2 (1.3)	5.3 (1.2)	5.8 (5.6)
Worry	5.7 (1.4)	5.6 (1.6)	5.4 (1.6)	4.6 (1.5)	5.1 (1.6)/5.2 (1.4)	5.5 (1.0)	7.0 (5.0)
Overall	5.5 (0.9)	4.3 (1.6)	5.4 (1.1)	4.7 (1.3)	5.1 (1.2)/5.3 (1.0)	5.6 (1.0)	5.2 (6.0)

compared to CLD patients in this study who were generally older (median age 54 years) [24]. Another study assessing HRQOL in a younger Thai population [mean age (standard deviation) = 30.2 (5.7)] using SF-36 also found lower MH scores compared to this study [13].

Results from CLDQ measurement revealed that CLD patients reported the lowest score on Fatigue and the highest score on Activity subscales. This finding was in accordance with previous studies [14-18, 22, 23] that fatigue was among the lowest reported subscales. Fatigue is a subjective sensation with physical, cognitive, and affective modes of expression. The etiology is often unclear, and multiple potential etiologic factors of fatigue may coexist. Fatigue is common and can be profound in patients with CLD [25], but oftentimes is overlooked by healthcare professionals for its nonspecific nature [26], its weak correlation with disease severity [25], and the scarcity of specific therapies. To date, the only effective symptomatic treatment of fatigue in CLD patients was the 5-HT<sub>3</sub> serotonin receptor subtype antagonist [27, 28]. However, further rigorous studies are warranted to investigate its clinical significance, as well as to find other alternatives with fewer side effects [29].

Some limitations of this study must be acknowledged. First, this study was conducted on a small number of CLD patients, despite a thirteen-month enrollment period. This prevented between group comparisons and multivariate analyses. Second, patients in this study were recruited from the out-patient department, implying their mild and moderate disease severity. The generalizability of results to more severe patients, therefore, is limited.

In conclusion, CLD patients reported a significantly lower HRQOL, especially in social-related aspects, compared with a healthy Thai population. Fortunately, their mental health status was reported to be better than their healthy population counterpart. Patients were still able to carry on their daily activities such as bathing and dressing with no

problem. However, they reported that fatigue was the most impaired facet of HRQOL. Health care practitioners, therefore, are urged to pay close attention to CLD patients' concerns regarding their social functioning. Family members and/or caregivers should be encouraged to take part in the consultation session. In addition, since fatigue can cause serious consequences such as car accidents, patients should be informed and appropriate care should be in place to minimize patients' exhaustion.

#### ACKNOWLEDGEMENTS

The authors would like to thank the Faculty of Pharmaceutical Sciences, Naresuan University, for financial support. Deep gratitude goes to Professor Zobair M Younossi, George Mason University, Fairfax, Virginia, for his kind permission to use CLDQ; Professor Abhasnee Sobhonslidsuk, Ramathibodi Hospital, Mahidol University, for the Thai version of CLDQ; and Professor Watcharee Leurmarnkul, Faculty of Pharmacy, Silpakorn University, for the Thai version of SF-36. Sincere appreciation goes to Professor Gregory Miller, Department of Agricultural Education & Studies, College of Agriculture, Iowa State University, for his kind editorial assistance.

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