

# Changes in health-related quality of life scores in patients with depression in the Thai health care delivery system

Patients with  
depression in  
the Thai

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## Abstract

**Purpose** – Although health-related quality of life (HRQOL) has become an important outcome, specifically in regard to the impact of illness and treatment in patients with depression, few studies have explored the HRQOL of patients from different types of hospitals. This study aimed at examining a change in HRQOL of patients from various types of hospitals

**Design/methodology/approach** – A repeated measure was used in this study. Thirty participants in psychiatric outpatient units per center from the different types of hospitals, including a psychiatric hospital, regional hospital, general hospital and community hospital, were assessed with the Thai version of the World Health Organization Quality of Life Brief (WHOQOL-BREF-THAI) questionnaire at the first visit, and after the 6th and 12th weeks of the treatment course.

**Findings** – The HRQOL scores for the participants were increased in each type of hospital from their first visit to the 6th week and 12th week ( $p < 0.001$ ; except for the 6th week in the regional hospital,  $p < 0.01$ ).

**Originality/value** – The findings reflected HRQOL in patients with depression in terms of the resources available in different types of hospitals that could be used as baseline data for the development of Thai mental health service systems.

**Keywords** Health-related quality of life, Depression, Health care delivery, Thailand

**Paper type** Research paper

## Introduction

Health-related quality of life (HRQOL) is now a significant target outcome for patients with depression. HRQOL generally focuses on the definition of quality of life and primarily emphasizes the effects of both the health complaint and its treatment on the life of the patients [1, 2]. Therefore, HRQOL has been applied to evaluate the totality of the effects of medical treatment on the patient from the point of view of the recipients. Improvements in quality of life and a return to “normal” levels of functioning are important depression treatment goals [3–6]. A previous study on HRQOL has shown that depression is generally associated with at least three specific domains of health including physical, psychological and social domains [5]. Moreover, the World Mental Health Day organized by the World Health Organization



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[WHO] focuses on depression, since this is a condition that can strike any individual and is increasingly common [7]. It can arise along with other medical complaints and can occur in mild, moderate or severe forms, all of which can have a significant influence that lowers the quality of life that patients experience.

Full recovery from depression can be achieved with an adequate and continual treatment program. There are reports suggesting that one out of three patients respond to antidepressant drugs within four weeks ( $p < 0.000$ ) and continue to be in remission for at least another eight weeks [8, 9]. Taking antidepressant drugs at the beginning of the treatment course promotes recovery. Approximately 58% of the patients gained full recovery when continuously taking antidepressant drugs for six months. However, 46% of those who gained full recovery would experience a relapse within the following year [10]. The relapses could, in some measure, be explained, because, following recovery, patients often lose contact with their mental health service providers, leading to inadequate treatment to control the depressive conditions [11]. However, several studies have found that the HRQOL of patients with depression is better during follow-up visits after the first three months compared to the first visit [12, 13]. Nevertheless, to improve the effectiveness of antidepressant drugs, other treatment methods should be included. A study by Vitriol and colleagues [14] reported that remission ranged between 36.7% at 3 months and 53.9% at 12 months.

There are an increasing number of patients who access mental health services every year. Mental health services are concerned with the assessment, diagnosis, monitoring system and treatment of people who have a mental illness or disorder characterized by a clinically significant disturbance of thought, mood, perception, memory and/or behavior. Health capability integrates health outcomes and health agencies [15]. In one study, it was reported that among those patients who had already gained access to a health service system, their quality of life scores increased significantly ( $p < 0.05$ ). Specifically, in the third month of the treatment program, 66% of those patients fully recovered from depression [12]. Similar to studies undertaken in developed countries, such as the USA [16, 17], there is an improvement in the quality of life of patients with depressive disorders in the health service system. However, The Ministry of Public Health in Thailand classifies health care based on the complexity of services provided [18], according to types and levels of health care as follows: primary, secondary, tertiary and quaternary hospitals. It should be noted that the preparedness of the mental health services operating systems may still have some limitations.

As cited above, there is not a lot of evidence available regarding the resources used for the delivery of depression care between the different types of care units. Therefore, the factors that can explain the effectiveness of these services need to be evaluated. The results of the present study are expected to be useful in improving the quality of depression care. Additionally, the information gained would be introduced to promote collaboration between nurses and other health care providers in the health system to ensure a more efficient and effective mental health service provision.

## Methodology

### *Study design and sample*

A quasi-experimental design was adopted for this study that investigated score changes in HRQOL of patients with depression using a repeated measures analysis in different hospitals of the Ministry of Public Health of Thailand by a simple sampling procedure that included a psychiatric hospital, a regional hospital, a general hospital and a community hospital. The sample size determination for the repeated measures design in this study was developed by Frison and Pocock [19]. A power calculation was calculated defining  $\alpha = 0.05$  and power = 80%. The total sample size of the patients needed when  $\rho$  is 0.6, was 27 for each center. The patient dropout rate was assumed to be approximately 10%. Therefore, the total

sample number of 30 patients per center was deemed sufficient to compensate for dropouts. The patients in the four settings were recruited based on the following inclusion criteria: (1) they were between 18 and 60 years old, (2) they had been diagnosed with a depressive disorder according to the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) or International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD 10), namely, major depressive disorder, single episode (F32), major depressive disorder, recurrent depressive disorder (F33) dysthymic disorder (F34) or other depression disorder (F38, 39), (3) they first used psychiatric services within the first week of their current treatment and 4) they were able to read, write and understand the Thai language and were able to evaluate the numeric scale.

#### *Ethical consideration*

The data were collected after approval for research ethics was granted by the Institutional Review Board, Faculty of Nursing, Mahidol University (ID: IRB-NS2015/299.2108), as well as the ethics committees of all the selected hospitals and within the standards of the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

#### *Data collection*

After the patients agreed and gave written informed consent to participate in the study, the patients' demographic data were collected, and the abbreviated Thai version of the World Health Organization Quality of Life (WHOQOL-BREF-THAI) questionnaire was administered, which consists the 26 original items, including 24 items for four domains (physical, psychological, social and environmental), one item for general quality of life and one item for HRQOL. Patients were invited to give an assessment of their own HRQOL. Each item was given a score on a scale of 1 to 5, with 5 allocated to the highest HRQOL. Each domain included a different number of items, so average scores were collected and then multiplied by 4 so that each domain was given an equivalent score within the range of 4–20. The Cronbach's alpha in this study for the total scale was 0.932. The researcher or the research assistant contacted the participants by telephone after the 6th and 12th weeks of the treatment course. The researcher or the research assistant asked the participants to submit the questionnaire before being contacted.

#### *Data analysis*

This study used SPSS/FW version 18.0 and STATA statistical software version 10 for data analysis. Descriptive analysis was used to describe the participants' backgrounds and HRQOL scores. Generalized estimating equation (GEE) was used to analyze data for two-factor experiments with repeated measures. One within-subject factor measure or a number of visits and one between-subject factor refer to the type of hospitals. GEE for repeated measures on all treatments was performed for HRQOL in patients with depression that was measured at different points of time, such as on the first visit, the 6th-week visit and the 12th week after the first visit, within the same subject at the significance level of 0.5.

## **Results**

The descriptions of the number of professionals and the number of patients who received care at outpatient psychiatric clinics in the last year stratified by the type of hospital are presented in [Table 1](#). The total number of participants from the four types of hospitals was 120, with 30 patients per hospital, and the results are presented in [Table 2](#). The mean age of the participants was  $43.7 \pm 12.9$  years old, with more than half of the participants (53.3%) being older than 45 years old. Regarding the male-female balance, almost two-thirds (65%) were female. In addition, 54.2% were married, 40% completed elementary education and 68.3% were unemployed.

Table 3 shows the change in HRQOL scores for patients with depression at different hospitals. The HRQOL score was utilized to evaluate the HRQOL of patients with depression at the first visit and at the 6th and 12th weeks after their first visit. In summary, the HRQOL of patients at each type of hospital increased over time when comparing the scores obtained at the first visit, the visit after the 6th week and the visit after the 12th week, as shown in Figure 1.

This section describes the data analysis procedures. The changes in the HRQOL score in the patients with depression at the four different hospitals were analyzed through a repeated measures approach, as demonstrated in Table 3.

Table 4 presents the best appropriate model with the smallest scale parameter (144.2075). The two factors with repeated measures of the generalized estimating equations (GEE) model can be rewritten as follows:

Characteristics	Psychiatric hospital	Regional hospital	General hospital	Community hospital
<i>Number of professionals</i>				
Psychiatrists	5	4	2	0
Registered nurses	9	4	3	2
Psychologists	2	1	1	1

**Table 1.**  
Characteristics of  
psychiatric outpatient  
clinics

Variables	Number (%)			
	Psychiatric hospital (n = 30)	Regional hospital (n = 30)	General hospital (n = 30)	Community hospital (n = 30)
Age (Mean ± SD.)	(44.2 ± 11.3)	(43.3 ± 13.2)	(42.6 ± 13.5)	(44.8 ± 13.9)
Less than 25 yrs	2 (6.7)	4 (13.3)	6 (20)	2 (6.7)
25–45 yrs	13 (43.3)	10 (33.3)	7 (23.3)	12 (40)
More than 45 yrs	15 (50)	16 (53.3)	17 (56.7)	16 (53.3)
<i>Gender</i>				
Male	11 (36.7)	10 (33.3)	8 (26.7)	13 (43.3)
Female	19 (63.3)	20 (66.7)	22 (73.3)	17 (56.7)
<i>Marital status</i>				
Single	8 (26.7)	9 (30)	9 (30)	7 (23.3)
Married	21 (70)	13 (43.3)	13 (43.3)	18 (60)
Separated/ Divorced/ Widow	1 (3.3)	8 (26.7)	8 (26.7)	5 (16.6)
<i>Educational background</i>				
No formal education	1 (3.3)	2 (6.7)	15 (50)	16 (53.3)
Elementary school	7 (23.3)	10 (33.3)	10 (33.3)	9 (30)
Secondary school	6 (20)	10 (33.3)	5 (16.7)	5 (16.7)
Diploma or higher	16 (53.3)	8 (26.7)	–	–
<i>Occupation</i>				
Unemployed	8 (26.7)	14 (46.6)	9 (30)	7 (23.3)
Employed	22 (73.3)	16 (53.3)	21 (70)	23 (76.7)
<i>Major depression</i>				
First episode	25 (83.3)	21 (70)	30 (100)	27 (90)
Recurrent episodes	5 (16.7)	9 (30)	–	3 (10)

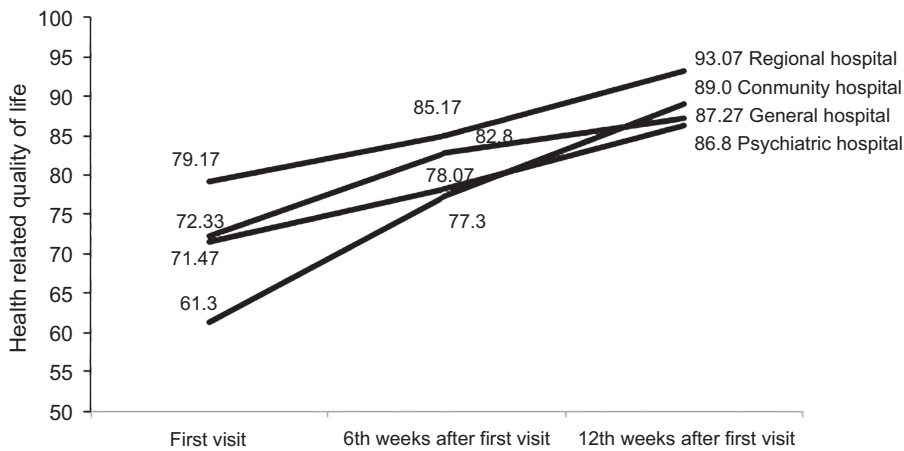
**Table 2.**  
Baseline  
characteristics of  
respondents (n = 120)

HRQOL scores	First visit	6th week	12th week
<i>Psychiatric hospital</i>			
Mean (SD)	71.47 (13.09)	78.70 (11.82)	86.80 (16.04)
Max	102	112	116
Min	50	62	49
<i>Regional hospital</i>			
Mean (SD)	79.17 (16.04)	85.17 (14.01)	93.07 (13.59)
Max	116	108	118
Min	49	64	68
<i>General hospital</i>			
Mean (SD)	72.33 (12.85)	82.80 (11.76)	87.27 (10.88)
Max	103	112	106
Min	45	56	68
<i>Community hospital</i>			
Mean (SD)	61.30 (10.88)	77.30 (7.57)	89.00 (9.27)
Max	90	92	103
Min	35	60	69

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**Table 3.** Health-related quality of life in patients with depression



**Figure 1.** Mean HRQOL scores for patients at each type of hospital over the course of treatment

$$\begin{aligned} \hat{Y} = & 71.467 + 7.7(\text{regional hospital}) + 867(\text{general hospital}) \\ & - 10.167(\text{community hospital}) + 7.233(\text{6th week after first visit}) \\ & + 15.333(\text{12th week after first visit}) - 1.233(\text{regional hospital} \times \text{6th week}) \\ & - 1.433(\text{regional hospital} \times \text{12th week}) + 3.233(\text{general hospital} \times \text{6th week}) \\ & - 4(\text{general hospital} \times \text{12th week}) + 8.767(\text{community hospital} \times \text{6th week}) \\ & + 12.367(\text{community hospital} \times \text{12th week}) + \text{corr}(\text{exchangeable}). \end{aligned}$$

The interpretation of the GEE model with this result is as follows:

HRQOL	Coefficient	SE	[95% conf. Interval]
<i>Type of hospital</i>			
Base 1 (psychiatric hospital)	—	—	—
Regional hospital	7.7**	3.101	1.6229–13.7771
General hospital	0.867	3.101	–5.2104–6.9437
Community hospital	–10.167***	3.101	–16.2437––4.0895
<i>Time</i>			
Base 1 (first visit)	—	—	—
6th week after the first visit	7.233***	1.839	3.6271–10.8395
12th week after the first visit	15.333***	1.839	11.7271–18.9395
<i>Type of hospital × Time</i>			
Regional hospital × 6th week	–1.233	2.602	–6.3332–3.8665
Regional hospital × 12th week	–1.433	2.602	–6.5332–3.6665
General hospital × 6th week	3.233	2.602	–1.8665–8.3332
General hospital × 12th week	–0.4	2.602	–5.4999–4.6999
Community hospital × 6th week	8.767***	2.602	3.6667–13.8665
Community hospital × 12th week	12.367***	2.602	7.2667–17.4665
Constant ( $\beta$ )	71.467***	2.192	67.1695–75.7638
<b>Note(s):</b> The Wald test indicates Wald = 438.94***, Scale parameter = 144.2075, Within-cluster correlation: exchangeable, **Significant at $p < 0.01$ , ***Significant at $p < 0.001$			

**Table 4.**  
Two factors with  
repeated  
measures ( $n = 120$ )

For the psychiatric hospital, the mean HRQOL score for the patients with depression increased by 7.233 and 15.333 points in the 6th and 12th weeks after the first visit, respectively, after controlling for other predictors ( $p < 0.001$ ). The GEE model for the psychiatric hospitals can be rewritten as follows:

$$\hat{Y} = 71.467 + 7.233(\text{6th week after the first visit}) + 15.333(\text{12th week after the first visit}) + \text{corr}(\text{exchangeable}).$$

For the regional hospital, the mean HRQOL score for the patients with depression increased by 6 and 13.9 points in the 6th and 12th weeks after the first visit, after controlling for other predictors. The GEE model for the regional hospitals can be rewritten as follows:

$$\hat{Y} = 79.167 + 6(\text{6th week after first visit}) + 13.9(\text{12th week after first visit}) + \text{corr}(\text{exchangeable}).$$

For the general hospital, the mean HRQOL score for the patients with depression increased by 10.467 and 14.933 points in the 6th and 12th weeks after the first visit, respectively, after controlling for other predictors. The GEE models for the general hospital can be rewritten as follows:

$$\hat{Y} = 72.333 + 10.467(\text{6th week after first visit}) + 14.933(\text{12th week after first visit}) + \text{corr}(\text{exchangeable}).$$

For the community hospital, the mean HRQOL score for the patients with depression increased by 16 and 27.7 points in the 6th and 12th weeks after the first visit, respectively, after controlling for other predictors ( $p < 0.001$ ). The GEE model for the community hospitals can be rewritten as follows:

$$\hat{Y} = 61.3 + 16(\text{6th week after first visit}) + 27.7(\text{12th week after first visit}) \\ + \text{corr}(\text{exchangeable}).$$

## Discussion

The HRQOL of patients with depression at all four types of hospitals significantly increased at both the 6th and 12th weeks after the first visit. These findings reflect the notion that once patients started the treatment for depression and were treated for some period of time, their quality of life improved. This finding corresponded with another study that reported that the quality of life scores of patients who had already accessed the health service system significantly increased ( $p < 0.05$ ) [12, 20, 21]. Such findings also provided support to studies carried out in developed countries such as the USA [16, 17]. In addition, the evaluation of the quality of life in patients who had been receiving the treatment for at least six weeks showed a significant increase in quality of life scores. Such findings were also consistent with the study of Thase [9], which suggested that one out of three patients would respond to antidepressant drugs within four weeks ( $p < 0.000$ ) and remain in remission for eight weeks.

However, it is worth noting that the findings of this study reflected differences in terms of the available resources in the different types of hospitals. The data showed that the lower-level hospitals had a smaller workforce and capacity compared to the tertiary hospitals. Moreover, the numbers of patients across settings were vastly different. The majority of the patients who received treatment for depression could be found in specialized hospitals and tertiary settings. In fact, most of the depression patients received treatments from high-level capacity hospitals. Many studies in the USA, Canada and other developed countries have confirmed that it is very important for societies to manage depression via primary health care services [22, 23]. In addition, HRQOL score changes in the first six weeks observed at the general hospital reflected a greater change than those observed at tertiary hospitals. This difference could have been due to related factors, including the number of hospital patients, the size of the full-time equivalent (FTE) professional workforce and demographic and clinical characteristics of the patients, all of which could have affected their responses to the treatment of depression.

## Conclusion

The HRQOL scores were found to increase in all types of hospitals in the 6th week and 12th week after the first visit when they were compared to the scores obtained at the first visit. Although the hospitals with high capability have a larger number of personnel than lower-level hospitals, the number of patients to whom they provide services is larger as well. Therefore, there should be a clear evaluation process to effectively refer patients to primary care settings in the community to ensure patients' ease of access to care and convenience to maximize treatment outcomes.

## Recommendations

The results of the study showed that all patients should be well informed about the continuing depressive treatment. Also, health providers should be trained to practice in accordance with the standard clinical practice guidelines for depression care. Moreover, screening systems and continuing care systems at the hospital or local care center are important parts of the system that helps patients with depression to access necessary services which can positively affect their quality of life.

*Limitation*

The limitations of this study were determining the relationship between patient-level factors and health service-level factors. Therefore, a multilevel approach should investigate in more detail the influencing factors between the organization-level factors and the patient-level factors that affect the quality of life of patients with depression in future studies.

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