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Health Related Quality of Life of Patient with Depression in Thai Health Service Delivery: A Multilevel Analysis

Jiratchayaporn K.[1], Sindhu S.[2], Seeherunwong A.[3], Panirat R.[3], Viwatwongkasem C.[4]

[1]D.N.S candidate, Faculty of nursing, Mahidol university, [2]Division of Surgical Nursing, Faculty of Nursing, Mahidol University, Bangkok, Thailand, [3]Division of Mental Health and Psychiatric Nursing, Faculty of Nursing, Mahidol University, Bangkok, Thailand, [4]Division of Biostat, Faculty of Public Health, Mahidol University, Bangkok, Thailand

Abstract

Introduction: Although health related quality of life (HRQOL) has become an important to focus specifically on the impact of illness and treatments for patients with depression, few studies have conducted to explore HRQOL of patients from different types of hospitals. Therefore, in the first phase of this study aimed at examining a change in HRQOL of patients from various types of hospitals and explored health service system factors and personal factors of patients that could reflect their HRQOL in the second phase.

Method: This was a quantitative study. The general questionnaire was used for organization-level data. Moreover, 495 participants' data from 15 settings located in Bangkok metropolis and central regions of Thailand were collected by Hamilton rating scale for Depression Thai version, the multidimensional Scale of Perceived Social Support Thai and WHOQOL-BREF Thai version for patient-level data.

Results: The patient-level factors significantly were age, living arrangement ($p<.05$), severity of depressive symptoms, social support ($p<.001$), but health service delivery of the organization-level factor was not significant ($p>.05$). However, the random part of Generalized linear mixed model (GLMM) could not be identified because intra-class correlation (ICC) was the quite low.

Conclusion: Apart from patient-level factors, these findings reflected HRQOL in patient with depression in terms of resources available in different types of hospital that could be used as baseline data for development of Thai mental health service systems.

Keyword: *Quality of life, depression, health service delivery.*

Introduction

Several major epidemiological studies have been carried out to determine the prevalence of depressive disorder in the general population as an increase in the number of patients with depressive disorders could lead to a health and financial burden in both developed and developing countries[1,2]. It has been suggested recently that although an increased number of people with depressive disorders are gaining access to treatments, these patients receive inadequate care that prevents them from making a full recovery[3]. Therefore, the improvement of quality of life to enable patients with depressive disorders to return to 'normal' levels of functioning is an important treatment goal in depression[4,5].

When considering some developing countries in Asia or Africa, limitations of resources in the existing mental health service system can be observed. Although

Corresponding Author:
Mrs. Kenika Jirachayaporn
D.N.S candidate, Faculty of Nursing, Mahidol University
e-mail: kenika.j@psu.ac.th
Phone No.: 66894712440

the number of patients who gain access to mental health services is increasing on a yearly basis, the ratio of psychiatrists and nurses in the mental health sector to the population is lower than the minimum standard set by the World Health Organization. In Thailand, despite the increasing rate of patients gaining access to mental health services, different types of hospitals have different structures and processes for service provision. In addition, some depressive patients may be referred from other health service providers, e.g., a general clinic or psychiatric clinic in a general hospital[6]. These patients sometimes lack the opportunity to receive specialized mental health services from psychiatric hospitals. It is noteworthy that the context in Thailand is dissimilar to contexts in developed countries, which generally have primary care units (PCUs) specifically for depressive patients.

Due to the limitations of resources in the existing mental health service system, few studies have been proposed in an attempt to improve service delivery systems for patients with depressive disorders. As cited above, few studies have explored the HRQOL of patients with depressive disorders who enter a mental health service system. Further more, few studies have been conducted to explore the HRQOL of patients receiving treatment or factors related to health service provision systems that affect HRQOL. The purpose of this study was to explore factors related to health service delivery and the personal factors of patients that could reflect their HRQOL. It was anticipated that the findings of this study could be used as baseline data for the subsequent development of mental health service systems for people with depressive disorders.

Materials and Method

Study design and Sample: This study had a cross-sectional design for the multilevel analysis. Anderson's Behavioral Model of health[7] was used to identify individual factors. Predisposing factors that may related to health-related quality of life included sex, age, educational level and marital status. Enabling factors were selected included occupation and living arrangement. The number of co-morbid chronic illness, depression episode. Severity of symptoms and perceived social support were selected as need factors. Organizational factors were classified those variables under resources and practices. This study presented health care system in the different type of clinic and professional workforce for patient with depression in Thailand.

Patients were recruited 15 settings from 37 centers located in the central regions of Thailand. The setting was randomly selected as the study site, and a sample proportional to the number of settings and patients in each type of hospital was selected by means of the two-stage random sampling method. A total of 30 patients from each center were selected to participate in this study. The patient dropout rate was assumed to be approximately 10%.Therefore, the sample number of 495 would be sufficient to compensate for drop-outs.

The participants were recruited based on the following inclusion criteria: a) age between 18 and 60 years old; b) diagnosis of 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; WHO, 1992), namely, major depressive disorder, single episode (F32), major depressive disorder, recurrent depressive disorder (F33), dysthymic disorder (F34), or other depressive disorders (F38, 39); c) they first used psychiatric services within the first week of current treatment (for patients in the first phase of the study); and d) ability to read, write, and verbally communicate in the Thai language and use the numerical scale.

Data Collection: Data were collected after approval was granted by Institutional Review Board Faculty of Nursing, Mahidol University (ID: IRB-NS2015/299.2108), as well as the ethics committees of all of selected hospitals. After the patients agreed and gave written informed consent to participate in the study,research instruments were used to collect patient data, which included a) a patient demographic data assessment developed by the researcher,CVI was 1.00; b) the Multidimensional Scale of Perceived Social Support Thai Version (MSPSS Thai Version) (2) comprising 12 items, with a Cronbach's alpha of 0.878 for the total scale; c) the Hamilton Rating Scale for Depression Thai Version, comprising 17 items (Thai HRSD17) with a total score ranging from 0 to 57 and a Cronbach's α coefficient of 0.784 for all items; d) the abbreviated Thai version of the World Health Organization Quality of Life (WHOQOL-BREF-THAI), comprising the 26 original items, including 24 items in four domains (physical, psychological, social, and environmental), one item for general quality of life, and one item for health-related quality of life. In this study, the Cronbach's alpha for the total scale was 0.912.

Statistical analysis: This study used SPSS/FW version 18.0 and STATA statistical software version 10. Descriptive statistics, univariate regression analysis, and multilevel regression analysis were used in the data analysis. Mixed model or random intercept model was performed for patient and organization variables selection.

Findings:

Demographic characteristics of the patients with depression: The study participants ranged in age from 18 to 60 years, with a mean age of 46.42 ± 10.97 years. The majority of the participants had been diagnosed with F32 (73.6%).In addition, more than half of the participants were female (77.2%), were single (59.8%), had their first episode (59.8%), and were employed in non-agricultural work (56%).

Characteristics of health service delivery: Of the fifteen hospitals included in the present study, four types of healthcare settings were found: psychiatric hospitals (N=2), regional hospitals (N=5), general hospitals (N=7) and community hospitals (N=1). The descriptions of the professional workforce and the number of professionals in each setting are shown in Table 1.

Table 1: Characteristics of clinics (N = 15)

Characteristics	Professional workforce Mean ±SD.	Mean of		
		Psychiatrist	Register nurse	Psychologist
Psychiatric hospitals (N=2)	2758.44±117.822	12	12.5	5.5
Regional hospitals (N=5)	1137.32±815.123	2.80	3.80	1.20
General hospitals (N=7)	376.34±158.723	1.14	3.43	.57
Community hospital (N=1)	101.66±0	0.00	2.00	1.00

Hypothesis testing: The null hypothesis model was the first model examined in the multilevel regression analysis. The model was used to test the fit of a random intercept when there were no variables, and intra-class correlations (ICCs) were calculated. The estimated intercept was 0.032, indicating a 3.2% variation in HRQOL scores among the 15 settings. The ICCs ranged from 0 for complete independence of observations to 1 for complete dependence. In this study, there was a minimal difference in standard errors between the conventional and multilevel models, consistent with the low ICC. However, as a typical guideline, an ICC greater than 0.01 can suggest the presence of clustering in a data set[8]. The ICC can be represented as follows:

$$ICC = \sigma_B^2 / (\sigma_w^2 + \sigma_B^2)$$

$$= 6.280 / (188.439 + 6.280) = 0.032$$

The results of the random intercept model with additive effects at the patient level showed that four of the patient-level factors could significantly predict HRQOL. The patient-level factors that could significantly predict HRQOL were age ($p < 0.05$), living arrangement ($p < 0.05$), severity of depressive symptoms ($p < 0.001$), and social support ($p < 0.001$). In the fixed-effect estimates, predictors from the patient-level factors and organization-level factors were added. When these models were analyzed, the researcher added the type of multidisciplinary approach, as shown in Table 2, to determine which variables could be included in the equation.

Table 2: Random intercept model between organization-level factors and patient-level factors (N = 492)

	Model of patient factors only			Final model		
	Coefficient	**SE**	**95% CI**	**Coefficient**	**SE**	**95% CI**
Fixed effect						
Intercept (β)	74.08***	3.15	67.89 - 80.26	52.24***	8.08	36.4 – 68.08
Patient-level						
Age						
<25 yrs. (ref)						
25 - 45 yrs.	2.86	1.97	-1.01 - 6.74	3.21	1.97	-0.65 - 7.07
> 45 yrs.	4.05*	1.90	0.32 – 7.77	4.09*	1.89	0.38 - 7.79
Living arrangement						
alone (ref)						
with family	1.87	1.62	-1.32 – 5.06	1.96	1.62	-1.20 - 5.13
friend or non-family	8.22*	3.68	1.00 -15.44	7.98*	3.66	0.81 -15.16
Severity of symptoms	-1.28***	0.91	-1.46 - -1.11	1.31***	0.09	-1.49 - 1.13
Social support	0.32***	0.30	0.26 – 0.38	0.32***	0.03	0.26 - 0.38
Organization-level						
Type of hospital						
Psychiatric hosp.(ref)						
regional hosp.				1.66	2.14	-2.53 – 5.85
general hosp.				0.89	2.79	-4.59 – 6.38
community hosp.				-2.55	3.64	-9.70 – 4.97
Professional workforce				0.00	0.001	-.001- .002
Random effect						
Residual (σ_w^2)	99.43	6.45	87.56-112.91	99.43	6.45	87.56-112.91
Variance cons. (σ_B^2)	0.90	1.48	0.36 – 22.73	0.75	1.43	0.02 - 30.94
Log likelihood	-1827.81			-1822.74		
AIC (BIC)	3673.619 (3711.387)			3673.485 (3732.235)		

*p < 0.05 ***p < 0.001

Discussion

The findings of this study show that differences between types of multidisciplinary approaches were not significantly related to the mean HRQOL score of patients with depression. Additionally, available resources were found to differ across hospitals. There were psychiatrists at specialized hospitals and high-level hospitals, while some medium-level hospitals employed no psychiatrists or psychologists. However, health service delivery factors at the organization level did not significantly predict HRQOL in patients with depression (P >0.05).This finding was consistent with the results of another study, which indicated that the involvement of a collaborative, multidisciplinary team in the delivery of comprehensive patient-centered care resulted in improved health outcomes[9].

Furthermore the mean health-related quality of life of patients with depression increased by 0.306 (p < 0.001) when their social support scores increased by 1 point. Additionally, living arrangements could significantly predict health-related quality of life: patients with depression who lived with a friend or nonfamily member had higher health-related quality of life scores than those who lived alone (p < 0.5).Previous research has noted that social support mediates the relationship between disability and depressive symptoms over time[10,11]. Similarly, the results of a previous study revealed that social support had a significantly positive association with QOL in terms of both direct and indirect effects[12]. Previous studies[13,14] have indicated that people with less access to informal social support make greater use of health and social care services. The impact of social support on patterns of service use among people with

mental health problems has rarely been studied, and published findings are ambiguous or contradictory at best.

However, it is worth noting that the findings of this study reflect differences in the resources available at different types of health service delivery settings. The data showed that primary care settings, such as community hospitals, had lower a workforce and capacity than higher-level hospitals.In fact, although the structures of depression care varied across settings, the majority of patients with depression (more than 75%) were prescribed only antidepressant drugs. The findings show that depression care management for patients with depression was rather similar across settings, and this may be an underlying reason for the lower intraclass correlation coefficient (ICC) and the absence of a significant difference in HRQOL among patients with depression who sought care at different types of hospitals.

Conclusion

These findings reflect the HRQOL of patients with depression in terms of the resources available at different types of hospitals. The results of this study could be used as baseline data for the development of Thai mental health service systems. The development and support of a system that refers patients with depression to a local primary service unit that is convenient and easily accessible are necessary for the appropriate distribution of patients with depression.

Conflict of Interest: Nil

Ethical Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of Institutional Review Board Faculty of Nursing Mahidol University (ID: IRB-NS2015/299.2108), as well as the ethics committees of all of selected hospitals and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards

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