Original Article

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Quality of Life and Associated Factors of Depressive Symptom Outcomes at Baseline and During Treatment Follow-Up: A Prospective Observational Study in a University Hospital Setting

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Abstract:

Objective: This study investigated the influence of quality of life (QoL) and its associated factors on depression, using a prospective design.

Material and Methods: Longitudinal data were collected at baseline and three months post-treatment between March 2023 and March 2024 at a university hospital outpatient clinic. Depressive symptoms and QoL were assessed using the Patient Health Questionnaire-9 (PHQ-9) and the WHOQOL-BREF Thai Version, respectively. Relationships between depression and QoL were analyzed using Spearman's correlation, while multivariable regression analyses identified predictors of depression at both time points.

Results: A total of 80 participants with Major Depressive Disorder (MDD) were enrolled, with 53 completing the three-month follow-up. Significant improvements in depressive symptoms and QoL were observed following treatment. At three months, depressive symptoms were negatively correlated with QoL (ρ=-0.60, p-value<0.001). Key predictors of depression symptoms severity included stressors within the past month at baseline (adjusted coefficient=8.63, p-value=0.005), younger age, as well as the psychological and physical health domains of QoL at three months post-treatment (adjusted coefficients=-0.79, p-value<0.001; -0.49, p-value=0.012; -0.09, p-value=0.030, respectively).

Conclusion: These findings highlight the importance of addressing stressors and QoL domains during treatment. Future research should incorporate larger cohorts, longer follow-up periods, and more comprehensive assessments of stressors to validate these results and improve clinical practice.

Keywords: depression, longitudinal study, quality of life, stressor

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Introduction

Major depressive disorder (MDD) is the leading global cause of disability, affecting an estimated 280 million people worldwide[1] and 1.1 million in Thailand[2]. It is projected to be one of the top three causes of disability-adjusted life years (DALYs) by 2030[3], placing a significant burden on society through increased healthcare costs and reduced productivity[4]. Furthermore, MDD is strongly associated with impairments in quality of life (QoL), even among individuals in remission[4,5].

Research shows that individuals with MDD who achieve remission experience significant improvements in QoL compared to those who do not[6,7]. However, despite regular treatment, some individuals continue to experience residual symptoms, such as mood and sleep disturbances[8], which may contribute to long-term QoL impairments[9]. Examining the relationship between depression and QoL over the course of treatment could enhance our understanding of their dynamic interplay throughout the illness trajectory.

The relationship between depression and QoL is bidirectional, meaning that QoL can also influence the severity of depression[5]. The most significant improvements in health-related QoL typically occur during the acute treatment phase, followed by gradual stabilization or improvement during the maintenance phase[6,7]. Notably, focusing solely on symptom reduction may not fully capture the effectiveness of interventions for depression[5].

This study was designed to investigate QoL in relation to depression outcomes among individuals with MDD. Given that QoL encompasses multiple life domains, including social relationships, physical functioning, mental health, role performance, and engagement in daily activities[4], this study also examined specific QoL domains in conjunction with depressive symptoms. Additionally, data on daily life stressors, physical illnesses, and suicidal history were collected to account for factors that may influence depressive symptoms during the course of illness.

Accordingly, this study aimed to: (1) assess the levels of depressive symptoms and QoL, and (2) examine the association of QoL (including its domains) and potential factors (e.g., gender, age, and recent stressors) with depression at baseline and three months post-treatment. We hypothesized, first, that depressive symptoms would decrease and QoL would improve following three months of treatment, and second, that specific QoL domains would be associated with depression both at baseline and after treatment.

Material and Methods

This prospective observational study was conducted at the psychiatric outpatient clinic of a university hospital in Thailand between March 2023 and March 2024. The study design and methodology were approved by the ethics committee of the faculty of medicine of a university hospital and adhered to the principles outlined in the Declaration of Helsinki.

Participants

The study included patients diagnosed with MDD by psychiatrists who either (1) had not previously received antidepressant medication, or (2) were experiencing a new depressive episode after at least one year of remission without antidepressants. Additional inclusion criteria required participants to be 20 years or older and proficient in the Thai language. Exclusion criteria included patients with psychotic symptoms or organic mental disorders, those requiring hospitalization, or individuals lacking the mental capacity to complete the study questionnaires.

Ethics approval and consent to participate and consent for publication

This study was approved by the Ethics Committee of the Faculty of Medicine, Prince of Songkla University

(REC: 65-421-3-4). The patient provided informed consent and agreed to the publication. All stages of the research were conducted in full compliance with the Declaration of Helsinki and Ethical Statements of the Ethics Committee of the Faculty of Medicine, Prince of Songkla University.

Data collection

Participants completed the questionnaires twice: at baseline and again three months after initiating treatment. Sociodemographic and clinical data were collected at baseline, including gender, age, marital status, highest level of education, occupation, physical illnesses, prior suicidal history[10], and history of previously diagnosed MDD without medication for one year. Stressors within the past month and pharmacotherapy details, such as types of medication, were also recorded at both baseline and the three-month follow-up. Two validated Thai-language instruments were used to assess depressive symptoms and QoL at both time points.

All participants received standard care at the hospital and attended routine follow-up appointments with their psychiatrists. Those lost to follow-up were excluded from the study. The research team attempted to contact absent participants at least three times via the phone numbers they provided. Participants were excluded if they failed to attend follow-ups or declined further participation.

Measurement tools

Depression

The Patient Health Questionnaire-9 (PHQ-9) Thai version, a self-assessment tool for measuring depression, consists of 9 questions, with a 4-point rating scale (0=never, 1=rarely, 2=sometimes, 3=always). Scores range from 0 to 27, with corresponding severity levels: 0-4 (no/minimal depression), 5-9 (mild depression), 10-14 (moderate depression), 15-19 (moderately severe), and 20-27 (severe depression). The higher score refers to the higher depression severity. The questionnaire demonstrated high sensitivity (0.84), good specificity (0.77), and good internal consistency with a Cronbach's alpha coefficient of 0.79[11]. Cronbach's alpha coefficient in this study was 0.87.

Quality of life

The World Health Organization Quality of Life Brief Thai Version (WHOQOL-BREF Thai version)[12] is a self-rating questionnaire that contains 26 items distributed across four domains: physical health, psychological, social relationships, and environment. In addition, the questionnaire was devised with two facets. The questions in the positive facet (all items except 2, 9, 1) employ a 5-point rating scale, from 1 (not at all/ very poor/ very dissatisfied) to 5 (an extreme amount/ very good/ very satisfied). The questions in the negative facet (items 2, 9, 11) employ a 5-point rating scale, from 5 (not at all/ very poor/ very dissatisfied) to 1 (a moderate amount/ neither poor nor good/ neither satisfied nor dissatisfied). The total score ranges from 26 to 130: 26-60 (poor quality of life), 61-95 (moderate quality of life), and 96-130 (good quality of life)[12]. Higher scores reflect a better QoL. The questionnaire indicates excellent internal consistency with a Cronbach's alpha coefficient of 0.84 and moderate validity of 0.65[12]. The Cronbach's alpha coefficient for this study was 0.82.

Statistical analyses

Sociodemographic and clinical data were summarized using appropriate descriptive statistics. Continuous variables were presented as mean±standard deviation (S.D.) or median with interquartile range (IQR), while categorical variables were expressed as frequencies (%). Changes in responses between baseline and post-treatment were evaluated using McNemar's Chi-squared test for categorical data and paired t-tests for continuous data. The relationship between depressive symptom severity and QoL was analyzed using Spearman's correlation coefficient. Multivariable regression analysis was performed

to investigate QoL and its associated factors in relation to depression. Statistical analyses were conducted using R software (version 3.4.1, R Foundation for Statistical Computing). Confidence intervals (CIs) were calculated at the 95% level, and statistical significance was set at a p-value<0.05.

Results

Study cohort

Eighty individuals diagnosed with MDD were recruited, all of whom provided written consent and completed the baseline assessment. At the three-month follow-up, 53 participants (66.0%) completed the study. Twenty-six participants were excluded due to loss to follow-up (n=19), diagnosis changes (n=6), or withdrawal of consent (n=1). The revised diagnoses included: persistent depressive disorder (n=2), generalized anxiety disorder (n=2), depression due to a medical condition (hypothyroidism) (n=1), and posttraumatic stress disorder (PTSD) (n=1).

Although 26 participants were lost to follow-up or excluded, a comparison of completers and non-completers showed no significant differences in their sociodemographic or clinical characteristics (Supplementary Table 1).

Sociodemographic and clinical data

At baseline, the majority of participants were female (63, 78.8%) and held a bachelor's degree or higher (54, 67.5%). These proportions remained similar at three months (84.9% and 71.7%, respectively). The median age (IQR) was consistent: 29.5 (22–46) years at baseline and 29 (22–46) years at follow-up. Most participants reported stress within the previous month (75, 93.8% at baseline; 41, 77.4% at three months). Five participants were diagnosed with additional psychiatric conditions during follow-up: Attention deficit hyperactivity disorder (n=2), PTSD (n=1), social anxiety disorder (n=1), and premenstrual dysphoric disorder (n=1).

There were no significant differences in sociodemographics or clinical characteristics between baseline and follow-up. Analyses in subsequent sections are based on the 53 participants who completed the study.

Table 1 Sociodemographic and medical data of the participants at baseline and three months (n=80 and 53, respectively)

Sociodemographic and medical data	N (%)	
	Baseline (N=80)	Three months (n=53)
Age (years); median (IQR)	29.5 (22, 46)	29 (22, 46)
Gender		
Male	17 (21.2)	8 (15.1)
Female	63 (78.8)	45 (84.9)
Marital status		
Single/widowed/divorces	57 (71.3)	39 (73.6)
Married	23 (28.7)	14 (26.4)
Education		
No education/primary school	7 (8.8)	5 (9.4)
High school/certificate	19 (23.8)	10 (18.9)
Bachelor degree or more	54 (67.5)	38 (71.7)
Occupation		
Government officer/state enterprise	20 (25.0)	14 (26.4)
Merchant/business	12 (15.0)	6 (11.3)
Student	24 (30.0)	18 (34.0)
Unemployed	11 (13.8)	6 (11.3)
Employee/agriculture/others	13 (16.2)	9 (17.0)
Underlying disease		
No	48 (60.0)	30 (56.6)
Yes	32 (40.0)	23 (43.4)
Previous suicidal history		
No	63 (78.8)	41 (77.4)
Yes	17 (21.2)	12 (22.6)
Stress within one month		
No	5 (6.2)	12 (22.6)
Yes	75 (93.8)	41 (77.4)
Number of antidepressants type		
No	0 (0.0)	1 (1.9)
One type	58 (72.5)	33 (62.3)
Two types	22 (27.5)	19 (35.8)
History of diagnosed MDD without medication for one year		
No	50 (62.5)	33 (62.3)
Yes	30 (37.5)	20 (37.7)
Other psychiatric disorders		
No	80 (100.0)	48 (90.6)
Yes	0 (0.0)	5 (9.4)

IQR=interquartile range, MDD=major depressive disorder

Depressive symptom severity

Baseline assessments using the PHQ-9 revealed that 17 participants (32.1%) had moderately severe depression, with 17 (32.1%) having severe depression. At three months, these numbers significantly decreased to 12 (22.6%) and 4 (7.5%), respectively. Additionally, the proportion of participants with less than moderate depression increased from 35.9% at baseline to 69.9% at three months (Figure 1).

Quality of life (QoL)

At baseline, no participants reported good QoL. Most participants reported moderate (41, 77.4%) or poor QoL (12, 22.6%). After three months of treatment, moderate QoL increased to 47 (88.7%), and good QoL was reported by 3 participants (5.7%). McNemar's Chi-squared test confirmed a significant improvement in poor to moderate/good QoL (p-value=0.016).

The total WHOQOL-BREF mean±S.D. score significantly improved from 68.4±10.5 at baseline to 76.8±12.2 at three months (p-value<0.001). Improvements were observed across all QoL domains (psychological, physical, social, and environmental), with p-values<0.001 (Table 2).

Correlation between depressive symptoms and QoL

At baseline, no significant correlation was observed between depressive symptom severity and total QoL scores (ρ=-0.26, p-value>0.05), except for a significant negative correlation in the psychological domain (ρ=-0.34, p-value<0.05).

At three months, depressive symptoms showed a significant negative correlation with total QoL scores (ρ=-0.60, p-value<0.001) and three QoL domains: psychological health (ρ=-0.75), physical health (ρ=-0.52), and environment (ρ=-0.46), all with p-values<0.001 (Table 3).

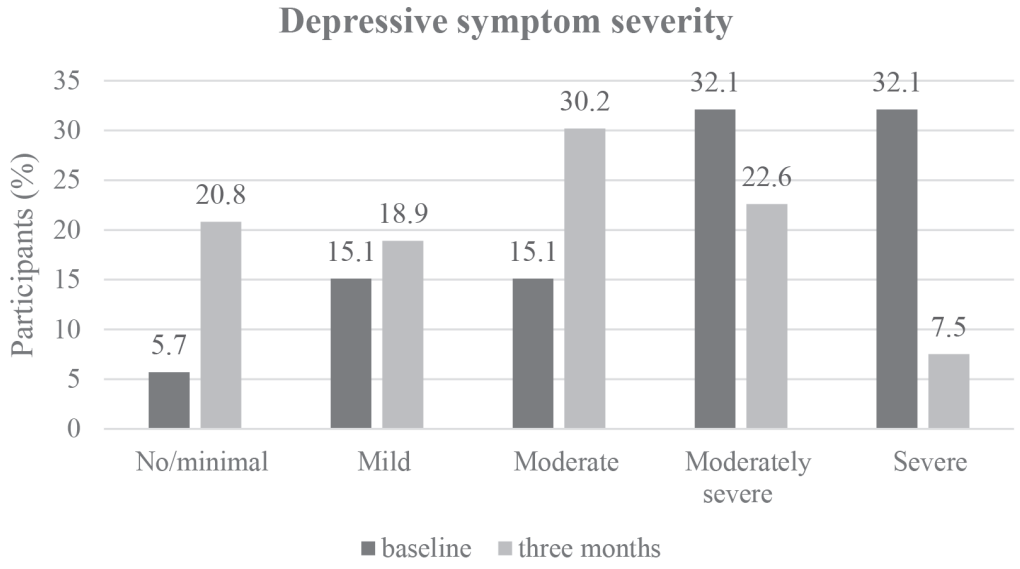

Figure 1 Proportion of depressive symptom levels at baseline and three months after treatment (n=53)

Table 2 Total quality of life score and each domain of quality of life scores at baseline and three months (n=53)

WHO-QoL	Baseline (Mean±S.D.)	Three months (Mean±S.D.)	Paired t-test (p-value)
Total score	68.4±10.5	76.8±12.2	<0.001
Physical domain	20.2±3.9	22.8±3.9	<0.001
Psychological domain	15.3±3.7	18.6±3.7	<0.001
Social relationships domain	8.7±2.3	9.7±2.3	<0.001
Environment domain	24.2±4.6	25.8±5.4	<0.001

WHO-QoL=The World Health Organization Quality of Life, S.D.=standard deviation

Table 3 Spearman's rank correlation (n=53)

Quality of Life	PHQ-9 score	
	Baseline	Three months
Total	-0.26	-0.60**
Physical health domain	-0.21	-0.52**
Psychological health domain	-0.34*	-0.75**
Social relationships domain	0.16	-0.04
Environment domain	-0.22	-0.46**

*p-value<0.05, **p-value<0.001, PHQ-9=patient health questionnaire-9

Factors predicting depressive symptoms

Multivariate regression analysis identified significant predictors of depressive symptoms. At baseline, stressors within the past month were positively associated with depression severity (adjusted coefficient=8.63, p-value=0.005) (Table 4). At three months, the psychological health domain, physical health domain, and age were significantly associated with depressive symptoms (adjusted coefficients=-0.79, -0.49, and -0.09, respectively, with p-values<0.001, 0.012, and 0.030).

Discussion

This study examined the association between depressive symptoms and QoL in individuals with MDD over a three-month treatment period. The findings support the first hypothesis, showing significant improvement in depressive symptoms alongside enhanced QoL post-treatment. A negative correlation between depression severity and overall QoL was observed during treatment, which is consistent with prior studies[5-7]. Regarding the QoL domains, the psychological, physical health, and environmental domains were significantly correlated with depressive symptoms three months after treatment, confirming the second hypothesis.

Depressive symptoms and QoL

The reduction in depressive symptom severity and simultaneous improvement in QoL can largely be attributed to the effectiveness of regular treatment, typically involving a single antidepressant in this study. However, the persistence of stressors over the study period may have hindered further improvement, despite the participants' relatively high

Table 4 Multi-variable regression analysis of depressive symptoms severity associated with quality of life and potential variables at baseline and three months after treatment (n=53)

Variables	Adjusted coefficient (95% CI)	p-value (F-test)
Baseline		
Age	-0.07 (-0.17,0.02)	0.125
Stress: Yes (Reference)	8.63 (2.81,14.46)	0.005
Physical health domain	-0.15 (-0.56,0.26)	0.468
Psychological health domain	-0.37 (-0.8,0.07)	0.098
Social relationships domain	0.53 (-0.14,1.2)	0.118
Environment domain	-0.11 (-0.44,0.23)	0.519
Three months		
Age	-0.09 (-0.17,-0.01)	0.030
Stress: Yes (Reference)	2.66 (-0.1,5.41)	0.059
Physical health domain	-0.49 (-0.87,-0.11)	0.012
Psychological health domain	-0.79 (-1.2,-0.38)	<0.001
Social relationships domain	0.02 (-0.5,0.54)	0.937
Environment domain	0.15 (-0.13,0.42)	0.299

CI=confidence interval

levels of health literacy, as evidenced by their educational attainment. Although this study did not explore stressors in detail, future research should examine specific stressors to better understand their impact on treatment outcomes.

At baseline, QoL total scores were not significantly associated with depressive symptom severity; however, significant associations emerged at three months. The initial lack of correlation may reflect a limited insight at the beginning of treatment, where participants might not have fully recognized how their depression was impacting broader QoL domains like physical, social, and environmental well-being. As treatment progressed, their perception of QoL likely evolved, a phenomenon known as "response shift,"[13] resulting in a stronger correlation observed at the three-month follow-up. Conversely, the psychological domain of QoL showed a significant correlation with depressive symptoms at baseline. This finding could be explained by the overlap between the psychological domain items, such as emotions, self-esteem, cognitive functions, life meaning, and PHQ-9 items that assess depressive symptoms[14,15].

By the three-month follow-up, stronger associations were observed between depressive symptoms and QoL domains, particularly the psychological health domain, followed by physical health and environmental domains. The psychological domain's prominence may reflect both the therapeutic effects of treatment and participants' increasing mental health awareness due to repeated questionnaire administration. Physical health improvements, encompassing sleep, energy, and daily activities, also contributed significantly. This was likely due to their overlap with PHQ-9 measures[15]. The environmental domain's relevance aligns with studies highlighting the negative impact of subjective social and economic status on depressive symptoms[16]. These effects might vary due to subjective feelings regarding environmental issues, which are mediated by individuals' self-perception and worldview. Further investigation is needed to explore patients' perspectives on environmental contexts and identify specific factors influencing depression outcomes.

Interestingly, the social relationships domain showed no significant correlation with depressive symptoms at either time point. This may be due to the limited scope of the WHOQOL-BREF's social domain, which includes only three items (personal relationships, social support, and sexual activity). Underreported issues, such as sexual dysfunction, could also have influenced these results. Future clinical practice should include more in-depth exploration of both sexual, social, and personal relationships to enhance understanding and interventions in this domain.

Predictors of depression

At baseline, stressors experienced within the past month were significant predictors of depressive symptoms.

This finding aligns with prior research emphasizing the role of acute stress in triggering anhedonic behaviors and depressive episodes[17-19]. While acute stress appears to have a more immediate impact, both acute and chronic stressors should be addressed during treatment to improve outcomes.

Three months post-treatment, age and QoL domains, specifically psychological and physical health, emerged as significant predictors of depressive symptoms. The psychological and physical health domains underscore the importance of addressing both the mental and physical aspects of health in managing depression. However, increased mental health awareness among some individuals may lead to an overinterpretation of experiences, potentially contributing to higher reported rates of mental health problems[20]. Additionally, the five participants diagnosed with additional psychiatric conditions may have influenced the psychological domain results, amplifying the reported issues. Moreover, higher personal stigma may hinder QoL improvements, despite appropriate treatment, as noted in prior research[21].

Younger participants exhibited less improvement in depressive symptoms, which is consistent with evidence linking early-onset depression to slower treatment response, higher psychiatric comorbidity, and greater disease burden[22]. Younger individuals often face substantial life stressors, such as academic or work-related challenges, which were common in this study. Early-onset depression is also associated with heightened personal vulnerabilities, including a family history of depression, childhood trauma, and higher neuroticism levels, all of which may contribute to poorer initial treatment outcomes.

Strengths and limitations

This study addresses a gap in the literature by investigating the relationship between depressive symptom severity and QoL in individuals with MDD over a three-month treatment period. It highlights the importance of incorporating QoL assessments, particularly in the physical and psychological health domains, into MDD treatment plans. Additionally, the identification of stressors within the acute phase as key predictors of depressive symptom severity provides valuable insights into early treatment strategies.

However, several limitations must be acknowledged. First, the small sample size limited the statistical power of the study, emphasizing the need for future research with larger populations. Second, the prospective observational design resulted in a substantial dropout rate over the three-month follow-up period, even though no significant differences in participant characteristics were observed between completers and non-completers. To validate our findings and explore long-term outcomes, longer follow-up periods are recommended for future research. Third, we used self-report questionnaires, which may introduce a potential for reporting bias. This is particularly relevant in the psychological health domain, as participants with greater mental health awareness might influence their responses. Fourth, while the study identified stressors within the past month as significant predictors of depression, it did not collect detailed data or use specific questionnaires to characterize their nature or impact. Additionally, other factors that could influence QoL and depressive symptoms, such as psychiatric comorbidities and substance use disorders, were not assessed. Future research should include more detailed assessments of these factors to better understand their influence on depression outcomes. Fifth, the study's focus on the acute phase of treatment, without data from the maintenance phase, may limit the generalizability of its findings to long-term outcomes. Additionally, because the study was conducted at a single university hospital, the results may not be generalizable to broader populations, such as those in private or community-based settings. Lastly, the adverse effects of treatment were not assessed,

which may have influenced QoL outcomes, particularly in the social relationships domain, as factors such as sexual dysfunction may play an underappreciated role.

Clinical implications

This study underscores the importance of assessing QoL alongside the clinical symptoms of depression in individuals with MDD. Integrating QoL assessments, particularly at the domain level, into routine clinical evaluations provides a more comprehensive understanding of patient needs, enabling tailored interventions to address the specific areas of impairment[21].

Given the significant impact of recent stressors on depressive symptoms, early implementation of stress management programs is essential. These interventions should address the psychological, social, spiritual, and neurobiological dimensions to build resilience[23,24]. Moreover, targeted approaches for adolescents and young adults, who often encounter stressors related to school or work, are crucial. Community-wide initiatives, school-based mental health programs, and youth-focused campaigns promoting help-seeking skills, resilience, and mental health literacy can help prevent mental health crises in these populations[24].

Research implications

As highlighted earlier, a detailed exploration of stressors is necessary to better understand their impact on depression outcomes. Regarding QoL, the environmental and social relationships domains, which showed moderate correlations, require further validation to address gaps in knowledge and enhance strategies for improving depression outcomes.

Conclusion

This study demonstrates a significant negative correlation between QoL (particularly in the psychological health, physical health, and environmental domains) and depressive symptom severity in individuals with MDD over a three-month follow-up period. Key predictors of depressive symptoms included: recent stressors at baseline, while younger age and the psychological and physical health domains of QoL were significant factors at three months post-treatment. Future research should incorporate larger sample sizes and extended follow-up periods to explore the long-term relationship between depression and QoL. Detailed assessments of stressors and their effects throughout the course of MDD are warranted to enhance clinical understanding and improve treatment strategies. These efforts will help validate the current findings and support the development of comprehensive, patient-centered approaches to managing depression.

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Conflict of interest

The authors declare that they have no conflict of interest.

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Supplementary Table 1 Sociodemographic and medical data of the participants at baseline between completers and non-completers

Sociodemographic and medical data	N (%)		Chi-square p-value
	Completers (N=53)	Non-completers (N=26)	
Age (years); median (IQR)	29 (22, 46)	31 (23.2, 41.5)	0.938[a]
Gender			0.091
Male	8 (15.1)	9 (34.6)	
Female	45 (84.9)	17 (65.4)	
Marital status			0.624
Single/widowed/divorces	39 (73.6)	17 (65.4)	
Married	14 (26.4)	9 (34.6)	
Education			0.302[b]
No education/primary school	5 (9.4)	2 (7.7)	
High school/certificate	10 (18.9)	9 (34.6)	
Bachelor degree or more	38 (71.7)	15 (57.7)	
Occupation			0.441[b]
Government officer/state enterprise	14 (26.4)	6 (23.1)	
Merchant/business	6 (11.3)	6 (23.1)	
Student	18 (34.0)	5 (19.2)	
Unemployed	6 (11.3)	5 (19.2)	
Employee/agriculture/others	9 (17.0)	4 (15.4)	
Underlying disease			0.404
No	30 (56.6)	18 (69.2)	
Yes	23 (43.4)	8 (30.8)	
Previous suicidal history			0.648
No	41 (77.4)	22 (84.6)	
Yes	12 (22.6)	4 (15.4)	
Stress within one month			1[b]
No	4 (7.5)	1 (3.8)	
Yes	49 (92.5)	25 (96.2)	
History of diagnosed MDD without medication for one year			1
No	33 (62.3)	16 (61.5)	
Yes	20 (37.7)	10 (38.5)	
Other psychiatric disorders			0.107[b]
No	50 (94.3)	21 (80.8)	
Yes	3 (5.7)	5 (19.2)	
PHQ-9			1[b]
Score <9	8 (15.1)	4 (15.4)	
Score ≥9	45 (84.9)	22 (84.6)	
Median (IQR)	17 (12.0, 20.0)	13 (10.2, 18.8)	0.403[a]
WHO-QoL: Mean±S.D.			
Physical	20.2±3.9	20.4±3.8	0.833[c]
Psychological	15.3±3.7	14.9±4.3	0.655[c]
Social	8.7±2.3	8.5±2.2	0.743[c]
Environment	24.2±4.6	23.3±3.8	0.436[c]
Total score (24 items)	68.4±10.5	67.2±10.5	0.628[c]
WHO-QoL			0.890
Poor	12 (22.6)	7 (26.9)	
Not poor *(moderate to good)*	41 (77.4)	19 (73.1)	

[a]Ranksum test, [b]Fisher's exact test, [c]t-test, IQR=interquartile range, MDD=major depressive disorder, WHO-QoL=The World Health Organization Quality of Life, S.D.=standard deviation