

The Correlates of Quality Of Life among Jordanian Patients with Major Depressive Disorder

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Abstract Background: Despite the increasing rates of patients diagnosed with major depression in Jordan, there is little knowledge available about the factors associated with quality of life (QOL) among this population in particular. This knowledge is needed to implement relevant supporting programs to improve their quality of life. **Purpose:** This study aims to assess the level of quality of life among Jordanian patients with major depressive disorder, and to examine the possible relationship between quality of life and other factors (demographic variables, stigma of mental illness, and severity of depressive symptoms) in this population. **Methodology of the Study:** A descriptive correlational design was used. A convenience sample of 161 Jordanian outpatients suffering from Major Depression Disorder (MDD) completed the study. Participants completed the demographic questionnaire, the Center for Epidemiologic Studies Depression Scale (CES-D), Perceived Devaluation-Discrimination Scale, and Medical Outcomes Study 36-item Short Form (SF-36). **Results:** Participants reported poor QOL in all domains. Age, income, stigma toward mental illness, and severity of depressive symptoms were significantly correlated with QOL among the study sample. Multiple hierarchical regression analysis revealed that the severity of depressive symptoms is the strongest correlate of QOL, which accounted for 24% additional variance above and beyond the 18% variance accounted for by all other variables. **Conclusion:** This is the first study to assess QOL in an Arab population with major depression. Replication of the current study in other Arab samples is emphasized. Psychotherapy and other interventions are still needed even after the acute symptoms of the clinical depression are remitted.

Keywords: quality of life, major depression, Jordan, stigma

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1. Introduction

Quality of life (QOL) is a measure of personal satisfaction with adaptation to the conditions of life and it is affected by an individual's responses to the physical, psychological, and social effects of disease [6]. In this regard, QOL is a broad concept and not specific to any disease. In addition, it is a multi-dimensional concept reflecting an individual's subjective perceptions and experiences; therefore, it is equally applicable to the examination of patients with physical or mental diseases. However, impaired QOL indicates functional limitations and perceived difficulties in everyday life caused by a disease or illness [36]. Over the past decades, the concept of QOL has been of dominant importance for evaluating the quality and outcome of health care [23]. In mentally ill patients, QOL has been a topic of concern for centuries [2,16,26]. According to the DSM-V criteria, to diagnose a patient with Major Depressive Disorder (MDD), the patient should report significant impairment in functioning. This impairment in overall functioning is usually correlated with quality of life in patients [2,28]. Moreover, the perception of QOL by the patients helps health care

providers to evaluate the effectiveness of nursing care and innovations in care [22]. On the other hand, measuring QOL could help health care providers to better assess the benefit of health care interventions [14].

Major Depressive Disorder (MDD) is predictable to become the second leading cause of global disability by 2020 (World Health Organization (WHO), 2004). Patients with MDD were found to score lower than those with a multiple chronic medical conditions on physical functioning, role functioning and emotional functioning [2,16,37], they were also found to have long-lasting effects on psychosocial functioning that were the same to or greater than those of patients with chronic medical illnesses, such as diabetes and osteoarthritis [15]. Furthermore, patients suffering from MDD were reported to have poorer QOL than both the general population and persons with chronic diseases [2,4,16,40].

The impairment in QOL may persist even after the remission of MDD [27,40]. When all of these evidences are put together, QOL of patients with MDD should not be neglected since patients perceive their health negatively in the QOL domains. Also the impairment in perceived health in every aspect of their life due to their depression explains how these patients are withdrawn from their daily life and how they lose their occupational functioning [36].

Depression might be highly prevalent in Jordan; one study suggested a prevalence of depression of greater than 30% in 493 randomly selected female patients presenting to primary health care clinics [9]. To our knowledge, no literature in any international journal has investigated quality of life in Jordanian or any Arab MDD patients. Therefore, there is a need to identify the factors that are associated with quality of life among this population in particular. This might help in implementing relevant supporting programs to improve their quality of life based on their actual needs in the future.

Literature review revealed that QOL in MDD is negatively correlated with the severity of the depression [11,19,40]. However, no study conducted in Jordan to assess QOL in these patients. Other factors such as stigma toward mental illness may also have poor consequences on QOL of patients with depression [18], but its relationship with QOL in patients with MDD in Jordan has yet to be established. This could help in developing specific intervention programs to support these patients.

This study aims to assess the level of quality of life among Jordanian patients with major depressive disorder, and to examine the possible relationship between quality of life and other selected factors (demographic variables, stigma of mental illness, and severity of depressive symptoms) in this population. The outcomes of this study can provide valuable data that is helpful to develop nursing care plans for these patients.

2. Methodology

2.1. Research Design

A descriptive correlational design was used employing a survey method. The correlates of QOL to be examined for this study were determined according to literature review and included the sample's characteristics, stigma to mental illness, and severity of depressive symptoms.

2.2. Subjects

A convenience sample of 161 Jordanian outpatients suffering from MDD was recruited from a large psychiatric outpatient clinic in northern Jordan.

The inclusion criteria were: Being Jordanian, being at the age between 18-65 years, having a diagnosis of MDD according to DSM-V criteria, having cognitive competency sufficient to comply with study protocol and complete the study measures, having no chronic medical condition such as DM, hypertension, or cancer.

The exclusion criteria were: having any other psychiatric disorder other than major depressive disorder, having any co-morbid physical or neurological disease requiring treatment and having long-term treatment, and being illiterate. According to general rule of calculating sample size for multiple regression analysis (20-30 subjects per variable) sample size of this study will be 80-120 subjects (Thorndike's rule). However, the sample was increased to 161 subjects to assure higher power in detecting the relationships. All participants included in the current study receive anti-depressants. Most of them were newly diagnosed with major depression. Patients who have previously diagnosed with major depression were also included. Additionally, small numbers who visited

the clinic after relapse were allowed to participate in the study.

2.3. Data Collection and Ethical Considerations

The researcher obtained approval for the study protocol from the institutional review board of Zarqa University. Prior to data collection, the researchers obtained the approval of the IRB committees in the psychiatric outpatient clinic from which data was collected. After the approval obtained, the researchers scheduled a meeting with the patients and explained the purposes of the study and the data collection process. The researchers were responsible for identifying the participants who met the eligibility criteria to participate in the study.

The researchers first contacted the outpatients suffering from MDD and explained to them that their participation is just used for scientific research. Participants were informed that there was no direct benefit or harm to them because of their involvement in the study. The patients were informed that participation is voluntary and they can withdraw at any time. Patients who agreed to participate received anonymous questionnaire, which contains cover letter explaining the purpose of the study and instructions for completing the questionnaire. All responses were separated and coded numerically without identifying information about the subjects. Written consent form was obtained from all participants.

2.4. Instruments

Instruments used in this study were the Demographic Data Questionnaire, the Center for Epidemiologic Studies Depression Scale [30], the Devaluation-Discrimination Scale (Lake, 1987), and Medical Outcomes Study 36-item Short Form (SF-36) [38].

2.4.1. Socio-Demographic Data

The first scale will be Demographic Data Questionnaire which was developed by the researchers to identify the characteristics of the participants including: gender, marital status, level of education, income, current age, age at diagnosis with depression, and the purpose of the current visit to the clinic.

2.4.2. Scale for Intensity of Depressive Symptoms

The second scale was the 20-item 'depression scale' of the Center for Epidemiological Studies [30], to measure the intensity of the depressive symptoms. Four of the items are worded in a positive direction to control for response bias. Subjects are asked to rate each item on a scale from 0 to 3 on the basis of "how often you have felt this way during the past week": 0 = rarely or none of the time (less than 1 day), 1 = some or a little of the time (1-2 days), 2 = occasionally or a moderate amount of time (3-4 days), and 3 = most or all of the time (5-7 days). CES-D scores range from 0 to 60; higher scores indicate more severe depressive symptoms. A total score lower than 30 indicates a normal condition or the absence of depression; 30-37 score represents a mild depression; 38-45 score represents a moderate depression; 46-60 score represents a severe depression. Total severity is calculated by reversing scores for items 4, 8, 12, and 16 and summing all of the scores. A score of 16 or higher was identified in early studies for identifying subjects with depressive illness.

Internal consistency as measured by Cronbach's alpha is high across a variety of populations (generally around 0.85 in community samples and 0.90 in psychiatric samples). Split-half reliability is also high, ranging from 0.77 to 0.92. Test-retest reliability studies ranging over 2–8 weeks show moderate correlations ($r = 0.51-0.67$), which is desirable for a test of symptoms that are expected to show change over time. Studies of African American versus Anglo-American versus Mexican American respondents showed no differences in measures of internal consistency reliability [35].

In samples of outpatients with depression, alcoholism, drug addiction, or schizophrenia, correlation coefficients (r) between CES-D scores and Symptom Checklist –90 (SCL-90).

Depression subscale scores were high, ranging from 0.73 to 0.89. Correlations with the Hamilton Rating Scale for Depression (Ham-D) scores was variable and ranged from 0.49 for patients with acute depression to 0.85 for patients with schizophrenia. Correlations with the Raskin Scale were also variable, ranging from 0.28 for patients with acute depression to 0.79 for patients with schizophrenia [39].

In Jordan, Al-Modallal [1] tested validity and reliability of the psychometric qualities of the Center for Epidemiologic Studies-Depression scale (CES-D) among Jordanian women. In this study Cronbach's alpha for the 20-item CES-D was .90. Attributes of the CES-D items indicated that depression status can be easily identified by clinicians, and co morbidity of depressive symptoms with physical and mental problems necessitates routine screening for depressed mood.

2.4.3. Quality of life scale (The Medical Outcomes Study 36-item Short Form (SF-36))

The third scale in this study was The Medical Outcomes Study 36-item Short Form (SF-36) [38]. Medical Outcomes Study 36-item Short Form (SF-36) described as one of the most widely used and psychometrically sound instruments to measure health-related quality of life in patients with major depression [2,16]; and it is recommended for use in health policy evaluations, general population surveys, clinical research, and clinical practice [13].

SF-36 includes eight dimensions are Physical functioning (containing 10 items), Social functioning (2 items), Role limitations due to physical problems (4 items), Role limitations due to emotional problems (3 items), Mental health (5 items), Energy/vitality (4 items), Pain (2 items), and General health perception (5 items) [38].

The response ranges include: "Excellent"=1 to "Poor"=5; "Yes, limited a lot"=1 to "No, not limited at all"=3; "Yes"=1 and "No"=2; and "All of the time"=1 to "None of the time"=6. Ten of the items require re-coding so that all raw scores indicate that the higher the score, the better the level of functioning. Scoring consists of adding up the numerical values for the items in each of the eight subscales. Poor QOL is defined as getting score of less than 50 on the same scale (Jenkinson et al., 2002). According to Lambert et al. [17], the reliability of 'SF-36 Health Survey' is equal to (0.84), also reliability coefficients have been reported as 0.734 – 0.813 (36 items) and validity was established according to Ware and

Sherbourne [38]. The Arabic version of this tool is available and was previously used in Arab population.

2.4.4. Devaluation-Discrimination Scale (DDS)

This-12 item scale from Link [20] asks people to rate on a 6-point scale how much they agree with statements regarding individuals suffering from a mental illness, which reflects their reactions toward mental illness disclosure. This measure is used to operationalize negative expectations towards mental illness and mental illness disclosure. Participants are asked to rank how much they agree or disagree on a scale from 1-6 with the statements related to how most people would treat someone with mental illness. The minimum score on this measure is 12 and the maximum score is 72, with higher scores showing higher amounts of perceived devaluation and discrimination towards mental illness. Link [20] found an adequate reliability using this scale (Cronbach's $\alpha = .78$). The reliability of this instrument was similar for individuals who had contact with mental health professionals and those who did not. Link stated that research has shown that this scale has high construct validity. This tool was previously used in Jordanian population [32].

2.5. Data Analysis

The data was analyzed using statistical package for social sciences (SPSS 21) at significance level of 0.05. Means, standard deviations and frequencies will be used to organize, summarize and present the study variables. Data cleaning was first conducted. Pairwise deletion was used to handle missing data. Descriptive statistics were used to assess the level of QOL in patients, One-Way ANOVA, Pearson product-moment correlation, and multiple regression analysis were used to assess the correlates of QOL in the participants.

3. Results

3.1. Sample Characteristics

A total of 161 patients diagnosed with MDD according to the DSM-V criteria completed the study, including 102 women (63.4%) and 59 men (36.6%). The mean age was 36.2 years, $SD = (9.95)$ (ranging from 18 to 62 years). The mean monthly family income was 534 JD (757 US Dollar). The mean number of relapse was 3.6 times, ranged between 0 and 15. The duration of illness ranged from 6 months to 30 year, with an average of 5.3 years. Additional descriptive statistics are provided in Table 1.

3.2. Levels of QOL, Depression Severity, and Stigma toward Mental Illness

As shown in Table 2, the mean scores for all domains of the SF-36 indicate poor satisfaction with all aspects of QOL among the study participants. The maximum mean score was reported to physical functioning ($M = 53.17$), while the minimum mean score was reported to role-emotional domain. The mean score for depression level indicates mild depression ($M = 36.40$). Additionally, participants reported moderate level of perceived stigma

toward mental illness (Mean DDS= 44.05), and the depression intensity was mild (Mean = 36.4).

Table 1. The socio-demographic characteristics

Variable	Frequency	Percent
Marital Status	Married	31.1
	Divorced	29.2
	Widowed	12.4
	Single	27.3
	less than Tawjihi	26
Education Level	Tawjihi	17.4
	Diploma	26.1
	BCS	18.6
	Master	6.8
Employment Status	Doctorate	5.0
	No	39.1
	yes	60.2
Religion	Muslim	89.4
	Christian	9.9
Insurance	No	19.9
	Yes	80.1
Type of Visit	First time	44.1
	Routine visit	37.3
	Relapse	18.6

Table 2. Levels of QOL, Depression, and Stigma in Patients

	Min	Max	Mean	SD
Physical functioning	0	100	53.17	22.20
Role-physical	0	100	24.41	30.09
Role-emotional	0	100	18.48	28.36
Energy fatigue	0	80	44.58	15.98
Emotional	4	76	40.37	14.00
Social	0	87	45.72	16.06
Pain	0	100	48.87	20.72
General health	5	85	44.06	13.83
Total QOL	32	60	44.05	4.66
Depression	8	57	36.40	8.56
Stigma	32	60	44.05	4.66

3.3. The Correlates of QOL

One-Way ANOVA was conducted to assess if there was a difference in QOL among the study participants based on marital status, level of education, and type of the current visit to the clinic. As shown in Table 3, none of these variables demonstrated significant difference. Although patients who admitted with a relapse demonstrated lower QOL than patients with a routine visit and patients with admitted for the first time, this difference was not significant.

Table 3. One Way ANOVA for the Difference in the Mean QOL based on Sample Characteristics with More than two Categories

Variable	Category	N	Mean	SD	Min	Max	F	P-value
Marital Status	Married	50	38.2	13.7	11.7	83.6	1.196	.313
	Divorced	47	42.4	13.3	17.4	83.3		
	Widowed	20	36.6	14.3	11.7	61.6		
	Single	44	40.6	13.7	17.1	89.0		
Level of education	Illiterate	16	39.1	20.5	11.7	83.3	.403	.876
	Primary	26	38.4	11.4	18.2	61.5		
	Secondary	28	42.6	12.7	11.7	77.9		
	Diploma	42	39.0	13.4	13.5	89.0		
	BCS	30	41.6	15.3	17.1	83.6		
	Master	11	38.4	5.5	28.0	50.3		
Type of visit	Doctorate	8	37.5	13.1	17.4	61.2	2.815	.063
	First time	71	41.4	12.1	13.0	83.6		
	Routine	60	40.8	15.6	11.7	89.0		
	Relapse	30	34.6	12.3	11.7	58.5		

Pearson's product-moment correlation coefficient was used to determine the strength of the relationship between the other variables and QOL among the participants. Among these variables (i.e. gender, age, employment, income, religion, insurance, stigma toward mental illness, and depression), the age, income, stigma toward mental

illness, and depression were significantly correlated with QOL in patients. These correlations are presented in Table 4. None of these correlations was very high (above 0.70). Examination of the variance inflation factor and tolerance statistic indicated no problems in multi-collinearity.

Table 4. Correlation Coefficients between the Study Variables

	QOL	gender	Age	Employment	income	religion	insurance	stigma	depression
QOL	1.00								
Gender	-.01-	1.00							
Age	-.16-*	-.01-	1.00						
Employment	.08	.30***	-.03-	1.00					
Income	.19**	.13	-.08-	.20**	1.00				
Religion	-.08-	.05	.08	.02	.02	1.00			
Insurance	-.02-	-.08-	-.03-	.02	.30***	-.10-	1.00		
Stigma	-.35-***	-.08-	.10	-.07-	.04	.04	.07	1.00	
Depression	-.62-***	.01	.27***	-.06-	-.16-*	.19**	.03	.38**	1.00

The gender, employment, income and religion were not significantly correlated with QOL, and such they were excluded from the subsequent regression analysis. Hierarchical multiple regressions analyses were conducted to assess the correlation between the predictor variables

and QOL in patients. Table 5 displays the unstandardised regression coefficients (b) with their standard errors, and the standardized regression coefficients (β) for the regression analyses. The age and income of the patient were considered demographic characteristics and entered

in the first step of the regression analyses. These variables were significantly correlated with QOL in patients, $F(2, 153) = 4.56, p = 0.01$. Together, these variables accounted for 6% of the variance in QOL. However, only the income was significantly correlated with QOL in patients.

Table 5. Hierarchical Multiple Regression of Age and Income, Stigma toward Mental Illness, and Severity of Depression as Predictors of QOL

	B	SE b	Beta	ΔR Square
Step 1				0.06*
Constant	42.918	4.380		
Age	-.190-	.105	-.142-	
Income	.007	.003	.179*	
Step 2				0.12**
Constant	84.232	9.884		
Age	-.142-	.100	-.106-	
Income	.007	.003	.194*	
Stigma	-.986-	.214	-.342-**	
Step 3				0.24***
Constant	85.887	8.348		
Age	.023	.087	.017	
Income	.004	.002	.108	
Stigma	-.399-	.196	-.138-*	
Depression	-.868-	.110	-.558-***	

The regression examining whether stigma toward mental illness was significantly correlated with QOL in patients, after controlling for age and income of patients was found to be significant, $F(3, 152) = 10.48, p < 0.01$. Stigma toward mental illness accounted for 12% additional variance above and beyond the 6% accounted for by age and income of the patients. In this step, both family income and stigma toward mental illness had a unique contribution to the model. Further, the regression examining whether severity of depression was significantly correlated with QOL in patients, after controlling for income, age, and stigma toward mental illness was found to be significant, $F(4, 151) = 26.58, p < 0.001$. In this model, the stigma toward mental illness and severity of depression contributed unique variance to the model. The severity of depression accounted for 24% additional variance above and beyond the 18% accounted for by all other variables (Table 5).

4. Discussion

The purpose of this study was to assess the level of quality of life among Jordanian patients with major depressive disorder, and to examine the correlates of quality of life in this population. Overall, participants reported poor QOL in all domains. The lowest QOL scores were reported to role-emotional domain, while the highest QOL score was reported for the physical functioning domain. These results are to a great extent comparable with the previous literature, which also used the SF-36 in MDD and reported high scores for the physical functioning domain of QOL, and low scores for Role-Emotional domain of QOL [2,11,16].

Our analysis emphasizes the importance of socio-demographic characteristics, specifically age and income on health-related quality of life among patient with major depression. Older age and the poor income were associated with lower scores on QOL. Older age and poor

income are linked to psychosocial stressors which might worsen QOL in patients [24]. Therefore, health care policies might consider the special needs of older patients and patients with poor income who have major depression.

Surprisingly, stigma toward mental illness was accounted for 12% unique variance in QOL. It is noteworthy to mention that stigma toward mental illness is common in the Arab world and associated with poor attitudes toward seeking psychological help [32]. Stigmatization of mental illness among Jordanians appears as a barrier to seeking treatment which leads to increase symptom severity of the psychiatric illness. Development of health policies that focus on anti-stigma programs in Arab population may enhance acceptance of mental illness and decrease stigma in the society [34]. Recent approaches such as mindfulness-based interventions could help patients to accept their illness [31].

We found that intensity of depression was the strongest correlate of health-related quality of life among patients. This finding can assist psychiatrists in identifying patients with the highest risk of poor QOL based on the intensity of their depressive symptomatology. The more severe intensity of the depressive symptom is, the worse the QOL will be. The same outcome was extensively reported in literature [3,11,16]. Unsurprisingly, severity of depression influences patients' physical, psychological, and social health. Furthermore, another complaint of patients with depressive disorders is the bodily pain which negatively influence QOL and worse treatment response [5,25]. The strong relationship between the depressive symptoms and QOL suggests that psychotherapy and other interventions are still needed even after the acute symptoms of the clinical depression are remitted. These findings regarding QOL in Jordanian population with major depression may reflect the Jordanian people's perception of their position in life within their culture. Jordanian people are a part of the Arab culture which represents millions of people worldwide [31]. Replication of these findings in other Arab countries is warranted before generalization of the current findings. Furthermore, one important limitation in the current study should be considered for the future research. The current study assessed QOL using a single self-report measure. Future research may want to use multiple measures of quality of life, which might help to better understand the relationship between the QOL and severity of depressive symptoms. Furthermore, researchers may want to examine the effectiveness of psychotherapy to improve QOL and manage the depressive symptoms in this population.

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