



## Depression, anxiety and stress among patients with dialysis and the association with quality of life



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### ABSTRACT

Studies addressing the nature of relationship between psychological symptoms and quality of life among dialysis patients in Malaysia are scarce. Hence, this study is intended to investigate the association between psychological symptoms such as depression, anxiety and stress on the quality of life in dialysis patients. A cross sectional multicentre study was conducted from May to October 2012 at 15 centres that provide haemodialysis and/or peritoneal dialysis. Apart from socio-demographic profile data collection, WHOQOL-BREF and DASS21 questionnaires were administered to study subjects. All three psychological symptoms had significant impact on quality of life domains of physical health, psychological health, social impact, perceived environment and overall quality of life. These findings suggest that subjects with symptoms of depression, anxiety and stress had poorer quality of life than those without, highlighting the negative impact of psychological symptoms.

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## 1. Background

Dialysis significantly and sometimes adversely affects patients' both physically and mentally. The silent sufferings of dialysis patients contribute to psychological disorders and consequently affect their overall quality of life (QoL). Previously, studies have been carried out either on the psychological symptoms (Finkelstein and Finkelstein, 2000; Wright et al., 1966) or on the QoL (Carmichael et al., 2000; Diaz-Buxo et al., 2000; Fujisawa et al., 2000; Merkus et al., 1997) in patients initiating dialysis treatment. However, there were limited studies with regards to the literature on psychological symptoms in relation to QoL in dialysis patients (Dogan et al., 2005; Ginieri-Coccosis et al., 2008).

Nevertheless, the lack of literature amongst Asian countries continues to pose concerns; yet studies related to this remain lacking in Malaysia. Although psychological symptoms among dialysis

patients have been proven to decrease their QoL, but this study is vital to be conducted locally to develop more evidences from the same subject matter for the purpose of systematic review in future. The findings from systematic review are important to come out with more fair comparison and to minimize bias (McGowan and Sampson, 2005). From sufficient evidences, this will facilitate the integration of real life experiences of dialysis patients in Asian countries such as Malaysia into local evidence-based policy making which are further able to advise clinicians and practitioners on the treatments intended for psychological symptoms.

Thus, in this study, we set out to investigate the association between psychological symptoms such as depression, anxiety and stress and the QoL in dialysis patients. In addition, we sought to identify to what extent these psychological symptoms could affect the QoL among patients with ongoing treatment of dialysis. The findings presently will highlight the psychological issues awareness among dialysis patients as well as suggest fruitful directions towards improving QoL for individuals living with the illness. Besides, it is useful to identify the need for the treatment with regards to psychological diseases among dialysis patient.

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## 2. Methods

This is a cross sectional multicentre study conducted from May to October 2012 at 15 centres that provide haemodialysis (HD) and/or peritoneal dialysis (PD). The samples were recruited consecutively within these two dates. These centres comprises of Ministry of Health hospitals, Government University hospitals, Non-government Organizations and Private Hospitals. Inclusion criteria are: subjects of 18 years old and above on dialysis for at least three months; ability to communicate in Malay, Chinese or English and ability to give informed consent. Those who are suffering from dementia/delirium or have emergency hospitalization for more than seven days within the past month are excluded.

Those eligible subjects have completed QoL brief assessment and Depression Anxiety and Stress Scale (DASS) questionnaires in Malay (Hasanah et al., 2003; Ramli et al., 2007), English (Lovibond and Lovibond, n.d.; WHOQOL Group, 1998) or Chinese (Taouk et al., n.d.) language. Demographic data (mode of dialysis, age, gender, religion, education, marital status, occupation, income in ringgit Malaysia (RM)) and medical information (body mass index, duration on dialysis, haemoglobin, diabetes mellitus (DM), hypertension, coronary heart disease (CHD), cerebral vascular accident (CVA), leg amputation, cancer, visual impairment, history of psychiatric illness) were collected from medical records. This study was registered with the National Medical Research Register (NMRR registration no. 11-827-10135) and approved by the Medical Research Ethics Committee of Malaysia.

### 2.1. Statistical analysis

Descriptive analysis was done for demographic profile of respondents. General Linear Model analysis was used to determine at what extent psychological disease could affect QoL among patients with ongoing treatment of dialysis after selected variables were controlled from the analysis. The controlled variables were gender, BMI status, religion, marital status, education level, family income, mode of dialysis and co-morbidities, such as diabetes mellitus, hypertension, coronary artery disease, cerebrovascular, leg amputation, cancer and vision impairment.

The psychological profile was divided into three categories (according to DASS), such as depression, anxiety and stress. Each of the category has five levels (1 = No, 2 = Mild, 3 = Moderate, 4 = Severe and 5 = Extremely severe). Then, each category was divided into two levels, "Yes" or "No". "Yes" defined as with depression/anxiety/stress (with DASS category at least two), whereas "No" defined as without depression/anxiety/stress (with DASS category noted as one).

The QoL was divided into physical health, psychological health, social impact, perceived environment and overall QoL. The status of the psychological diseases was reported in number and percentage. The five endpoints for quality of life with respect to depression, anxiety and stress were reported in marginal means with 95% confidence interval. All analyses were carried out using SPSS (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.).

## 3. Results

Screening was done among 1569 subjects and 1332 eligible subjects were enrolled in the study after obtaining consent. Two hundred and thirty seven cases were not included in this study with the following reasons: recent emergency hospitalization ( $n = 52$ ), organic brain syndrome ( $n = 18$ ), no permanent vascular access ( $n = 4$ ), refusal ( $n = 84$ ), change modality of dialysis or death ( $n = 79$ ). There were 1332 patients participated in this study with 51.0% male (679/1332). Mean (SD) for age is 54.4 (15.4). Malay

**Table 1**  
Demographic profile of patients.

	Mean (SD)	<i>n</i>	%
<b>Age</b>	54.4 (15.4)		
<b>Male</b>		679	51.0
<b>Race</b>			
1. Malay		675	50.7
2. Chinese		491	36.9
3. Indian		149	11.2
4. Others		17	1.3
<b>Religion</b>			
1. Muslim		683	51.5
2. Buddhist		425	32.1
3. Hindu		129	9.7
4. Christian		67	5.1
5. Others		22	1.7
<b>Education level</b>			
1. Nil		103	7.9
2. Primary		347	26.5
3. Secondary		625	47.8
4. Tertiary		232	17.8
<b>Marital status</b>			
1. Single		234	17.6
2. Married		971	73.1
3. Widow/widower		107	8.1
4. Divorced		16	1.2
<b>Monthly family income (RM)</b>			
1. RM0–RM999		387	29.9
2. RM1000–RM1999		380	29.3
3. RM2000–RM2999		191	14.7
4. >RM3000		337	26.0
<b>Duration of disease in years</b>		6.1	5.5
<b>Type of dialysis</b>			
Haemodialysis		793	59.5
Peritoneal dialysis		539	40.5

(50.7%) contributes to a higher proportion followed by Chinese (36.9%), Indian (11.2%) and others (1.3%). The demographic profile of dialysis patients are summarized in Table 1.

The distributions of the psychological diseases based on DASS were as follow: depression (36.3%), anxiety (46.6%) and stress (19.9%) (Table 2). All psychological disease such as depression, anxiety and stress had significant impact towards quality of life which includes physical health, psychological health, social impact, perceived environment and overall QoL. All associations have reached  $p$ -value less than 0.001 (Tables 3 and 4).

## 4. Discussion

Study regarding the assessment of QoL among dialysis patients in Malaysia was previously conducted (Liu et al., 2006; Liu et al., 2014). However, there is a lack of publication related to psychological symptoms, especially in Malaysia. Previous studies have found that the psychological symptoms do affect QoL (Vazquez et al., 2005; Berlim et al., 2006; Chan et al., 2009). This study adds to the discussion of the association between psychological symptoms and with QoL of dialysis patients, particularly in Malaysia. Concerning the samples were collected

**Table 2**  
Status of depression, anxiety and stress among dialysis patients.

	Depression ( <i>n</i> ) (%)	Anxiety ( <i>n</i> ) (%)	Stress ( <i>n</i> ) (%)
<b>Status</b>			
No	840 (63.7)	705 (53.4)	1058 (80.1)
Yes	478 (36.3)	616 (46.6)	26.3 (19.9)

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