

## Quality of life in dialysis patients from the United Arab Emirates

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ABSTRACT

**Background:** The quality of life (QOL) has emerged as an important parameter for evaluating the quality of health-care for patients with renal failure. The literature suggests that many factors impact QOL. The QOL of dialysis patients in the United Arab Emirates (UAE) has not been studied before. This research examined the QOL of patients in the UAE on dialysis using two QOL tools. **Materials and Methods:** A descriptive comparative survey design was used to study 161 dialysis patients. The participants completed the 36-Item Short Form Health Survey (SF-36) and the QOL index dialysis version tool. Comparative analyses of the results for both tools were done using descriptive statistics. Multiple linear regression analysis determines the effect of the variables on the QOL scores. **Results:** The questionnaires return rate was 93%. The overall QOL for dialysis patients was rated low when self-assessed using the SF-36 (58.9) compared to QOL index (77.2). The multiple regression analysis revealed that having a chronic illness had the strongest impact on the total scores of both tools. The comparison between the statistically significant variables for both samples revealed contradictory results from the two tools used. This meant that the two tools measured QOL differently. **Conclusion:** The two QOL tools scores impacted very differently on most socio-demographic variables on the two samples. More studies are required to explore the concept of QOL in the Arab dialysis population.

**Key words:** Dialysis, Islamic religion, quality of life, United Arab Emirates

### INTRODUCTION

Interest in measuring quality of life (QOL) in both clinical trials and everyday clinical practice is on the increase. In addition, to mortality and morbidity as key indicators for performance, QOL is an important factor for evaluating the quality and outcome of healthcare for patients with chronic illnesses. The acknowledgment that the burden of chronic kidney failure extends beyond its impact on the biological structure of the body is reflected in the initiatives of the National Kidney Foundation in the United States of America (USA) to support efforts aimed at improving QOL in patients with kidney failure.<sup>[1]</sup>

Patients who have dialysis for survival live with a great deal of uncertainty about the future. They do not deal only with treatment-related complications such as left ventricular hypertrophy, atherosclerosis and hyperparathyroidism,<sup>[2,3]</sup> but also with the changes in their perception of their own self-worth. The major psychological and physiological stresses experienced by patients on dialysis are pain, restriction of fluids, itching, discomfort, limitations in physical activity, fatigue, weaknesses, high cost of care, feelings of inadequacy, and negative moods.<sup>[4-6]</sup> Therefore, a dialysis schedule can significantly interfere with both professional and personal lifestyles.<sup>[7,8]</sup> These factors may contribute to the diminished QOL reported by patients on regular dialysis.<sup>[7-9]</sup>

The survey design was the most common approach used to study QOL in dialysis patients.<sup>[10-13]</sup> This study is one of the few that has compared two QOL tools on the same population and is also the first known study on QOL in the United Arab Emirates (UAE). Given what is known about the culture, religion and other social characteristics of this population, it was important not to assume the

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appropriateness of a particular tool. So, this study used the 36-Item Short Form Health Survey (SF-36) and QOL Index tools. The aims were to establish the QOL of patients on dialysis in the UAE, explore the impact of the physical, psycho-social, religious, cultural, and other demographic variables.

## MATERIALS AND METHODS

### Design and sample

This research used a descriptive survey design. All eligible hemodialysis (HEMO) patients (161) at Sheikh Khalifa Medical City (SKMC) in the UAE were recruited to participate in the study. Three inclusion criteria were used to ensure accurate data collection. The first criterion restricted participation to patients who had been on HEMO therapy for more than 3 months, to exclude the influence of metabolic factors such as uremic encephalopathy on the level of consciousness. The second criterion required that patients should have no apparent cerebro-vascular disease or serious intellectual impairment, to avoid miss-interpretation of the questions. The third criterion required participants to be over 18 years old, the legal age for informed consent.

### Instruments

This research used the SF-36 and the dialysis version of the QOL Index tools. The SF-36 is a general tool, developed for use on all populations irrespective of health or illness. In contrast, the QOL Index is a disease-specific tool. It measures satisfaction and importance of determinants of QOL. Both tools have well established reliability and validity studies.<sup>[14-16]</sup>

### Ethical consideration

Prior to the commencement of the study, approvals were obtained from the Human Ethics Committee at Victoria University of Wellington and SKMC Ethics Committee in 2007. Also, the authors were granted approval to use the QOL tools. Participants were given full privacy when answering the survey questions and were reassured of the maintenance of confidentiality.

### Data collection

An independent nurse went to the potential participants and gave them the invitation letter which explained the purpose of the research. Those willing to participate were asked to sign a consent form. They were then given the survey package containing the demographic survey, QOL Index dialysis version, SF-36 tools and an addressed envelope for the return of the surveys.

### Data analysis

Data were analyzed using the SPSS software for Windows version 13.0 (SPSS Inc., Chicago, IL, U.S.A.). Descriptive statistics such as frequencies presented as percentages,

mean, range and standard deviation were used. Following this descriptive analysis, several variables were regrouped to enable the planned regression analyses to be completed.

## RESULTS

### Return rates

A total of 161 patients signed the consent form and received the survey package during their regular dialysis schedule. Two patients declined to participate after they had looked at the survey, and five did not return the survey packages. Of the 154 packages returned, four were blank. The sample, therefore, consisted of 150 respondents, which is equivalent to a 93% return rate.

### Demographic of the samples

The sample covered a wide range of ages from 19 years to 86 years. Over half (53.4%) of the respondents were over 50 years. The demographic data of the sample is summarized in Table 1.

**Table 1: Demographics of the sample**

Variable	Dialysis n=150 (100%)
Gender	
Female	44 (29.3)
Male	106 (70.7)
Ethnicity	
UAE National	42 (28.0)
Arab National	57 (38.0)
South Asian	34 (22.7)
Other	17 (11.3)
Marital status	
Single	15 (10.0)
Married	113 (75.3)
Divorced or widowed	22 (14.7)
Religion	
Muslim	123 (82.0)
Christian	16 (10.7)
Others	11 (7.3)
Employment	
Full-time employment	56 (37.3)
Housekeeper, student, part time employed	44 (29.3)
Retired and disabled	24 (16.0)
Unemployed	26 (17.3)
Level of education	
Did not attend school	32 (21.3)
Primary school education only	42 (28.0)
Secondary school education	41 (27.3)
Tertiary education	35 (23.3)
Life events	
Yes	45 (30.0)
No	105 (70.0)
Chronic illness	
Yes	80 (53.3)
No	70 (47.7)

UAE: United Arab Emirates

The above table shows that males predominated. The distribution of the ethnicities within the sample varied: UAE nationals accounted for approximately a quarter of the respondents. Over a third of the respondents (38%) were Arab. The majority of the respondents (82%) were Muslims. More than half of the sample suffered from chronic illnesses other than kidney failure. However, no data were collected on the types of chronic illnesses the patients had. Approximately, one-third did not know the cause of their kidney failure. Further results are summarized in the above table.

### Findings from QOL tools and their subscales analyses

Descriptive statistics was used to calculate the mean and the standard deviation of the total scores and the subscales of the SF-36 tool. Table 2 presents the findings.

The Physical Health Component (PHC) of the SF-36 includes physical function, role-physical, body pain and general health subscales. The Mental Health Component (MHC) includes vitality, social functioning, emotional role and mental health subscales. The mean total score of the PHC was 45.1, and the MHC was 53.6. The highest mean scores with regard to the SF-36 were in the mental health subscale (58.8) and the lowest scores were in body pain subscale (26.1). Table 3 presents the findings from the QOL Index tool.

The QOL Index scores ranged from 0 to 30, with 0 as the lowest score and 30 as the highest score. For an accurate and easy comparison of the two tools, the QOL Index scores

were transformed to 0-100. On this scale, 0 is the lowest score while 100 is the highest score. Findings on the QOL Index were all well above the midpoint of the scale and subscales. The highest score was in the family subscale followed by the psychological/spiritual subscale, and the lowest in the health and functioning subscale.

Given that none of the subscale components of the two tools are directly comparable, a comparison of scores of the two instruments can only be made on the total scores. This comparison indicates that dialysis respondent's overall mean QOL is rated higher when self-assessed using the QOL Index (77.2 vs. 58.92) than the SF-36.

### The relationship between the SF-36 total scores and the independent variables

This phase of the analysis involved a series of statistical tests to establish what socio-demographics and life factors correlated with or had an impact on the SF-36 scores. Pearson's correlations were used for continuous variables, Spearman's correlation for ordinal data and *t* test or one way ANOVA for nominal variables. Table 4 summarizes the findings from the comparison between the demographic variables and SF-36.

The *t*-test comparison of the total SF-36 scores with the nominal demographic variables found that respondents with another chronic illness had a statistically significant lower QOL scores ( $P = 0.0001$ ). The respondents who had full-time employment had significantly higher mean total scores. The one-way ANOVA test comparison on the SF-36 total scores with the categorical demographic variables found that the employment variable had a statistically significant impact on the total scores ( $P = 0.009$ ). Moreover, respondents who had full-time employment had on average 6.6 points higher than housekeepers, students, and those with part time employment. Further results are summarized in the above table.

### The relationship between the QOL Index total scores and the independent variables

Table 5 presents the findings from the comparison of the demographic variables and the QOL Index total scores.

The *t*-test comparison of average QOL Index total scores with the nominal demographic variables found that the chronic illness variable was statistically significant ( $P = 0.058$ ). The one-way ANOVA test found that the ethnicity variable had a statistically significant impact on the total scores ( $P = 0.023$ ). The above table shows that on the average patients on dialysis who were UAE nationals had 3.0 points higher than other Arab nationals, 2.6 point higher than South East Asians and 2.7 points higher than respondents of other nationalities. Further results are summarized in the above table.

**Table 2: Total scores of SF-36 subscales**

SF-36 scores (0-100)	Dialysis (n=150) mean±SD
SF-36 physical function	54.67±27.8
SF-36 role-physical	47.00±44.7
SF-36 body pain	26.07±23.1
SF-36 general health	52.53±15.5
SF-36 vitality	55.91±13.7
SF-36 social functioning	44.58±18.2
SF-36 role emotional	55.33±46.3
SF-36 mental health	58.75±12.6
SF-36 total score	58.92±19.2

SF-36: 36-Item Short Form Health Survey; SD: Standard deviation

**Table 3: Total scores of QOL index subscales**

Quality of life index subscales scores (0-30)	Dialysis (n=150) mean±SD	% or out of 100
Health and functioning	21.59±5.9	71.9
Social and economic	23.13±5.4	77.0
Psychological/spiritual	24.26±6.2	80.8
Family	26.33±4.5	87.7
Quality of life index total score	23.18±5.1	77.2

QOL: Quality of life; SD: Standard deviation

**Table 4: The relationship between the demographic variables and SF-36 total scores**

Variable	Values	Dialysis mean (SD) max=100	P value
Gender*	Male	60.7±19.6	0.084
	Female	54.7±18.0	
Ethnicity**	UAE National	55.6±18.7	0.168
	Arab National	57.2±19.4	
	South Asian	64.6±19.6	
	Other	61.4±17.3	
Marital status**	Single	61.3±14.2	0.413
	Married	59.6±19.6	
	Divorced or widowed	54.0±20.3	
Religion**	Muslim	58.3±19.5	0.457
	Christian	64.6±17.5	
	Others	57.2±19.1	
Employment**	Full-time employment	63.7±20.2	0.009
	Housekeeper, student, part time employed	57.1±18.5	
	Retired and disabled	48.7±17.7	
	Unemployed	60.4±16.2	
Level of education**	Did not attend school	50.8±19.7	0.057
	Primary school	61.6±21.3	
	Secondary school	61.6±17.7	
	Tertiary school	60.0±16.5	
Chronic illness*	Yes	51.5±17.9	0.0001
	No	67.5±17.1	
Life event*	Yes	54.8±18.0	0.083
	No	60.7±19.6	

\*t test; \*\*One-way ANOVA test; SF-36; 36-Item Short Form Health Survey; SD: Standard deviation

To identify factors with possible significant influence on QOL tools, standard multiple regression analyses were undertaken. They were done separately using both QOL tools to examine the effect of the predictor variables on the outcome variables. The multiple regression results on the demographic variables using SF-36 showed that the chronic health problems variables were statistically significant determinants of QOL. On the other hand, the multiple regression results on the demographic variables using QOL Index showed that variables on years on dialysis, chronic health problems and living in the UAE were statistically significant determinants of QOL.

## DISCUSSION

### The findings from the SF-36

Gender is a significant predictor of pain perceptions because women are more likely to report pain than men.<sup>[17]</sup> The reported mean scores of the body pain subscale in males were less than the females (24.34 vs. 30.23 respectively). These findings contradict several studies that have documented that women had a higher prevalence of most pain related conditions.<sup>[18,19]</sup> Women cope more actively with pain by speaking about it, and seeking help.<sup>[17]</sup>

The respondents had on average lower scores on the physical role and the physical function subscales than expected because the dialysis respondents have at least one chronic illness (kidney failure). Living with a chronic disease impacts negatively on education, employment, caregivers and everyday life.<sup>[20,21]</sup>

A comparison of this research finding with a study done on dialysis patients in Taiwan,<sup>[22]</sup> showed that the respondents on dialysis who come from the UAE scored higher in all subscales except the body pain, social functioning and mental health subscales. These findings also support the argument that people from different cultures and ethnicities perceive and respond to pain differently. The mean total score of the PHC was 45.1, and the MHC was 53.6. These findings were lower than what was reported from the Brazilian study on 140 dialysis patients that found the PHC scale at 57.5 and MHC at 73.6.<sup>[23]</sup> In contrast, the findings from the UAE study are considered relatively higher than the Iranian study on 250 Iranian patients on dialysis which reported the lower scores of 41.2 on the PHC and 47.5 on the MHC.<sup>[24]</sup>

### The findings from the QOL index

The health and functioning subscale scores were relatively low, but the family subscale scores were relatively high.



**Table 5: Comparison of the findings between the demographic variables and QOL index total scores**

Variable	Values	Dialysis mean (SD) max=30	P value
Gender*	Female	22.9±5.2	0.671
	Male	23.3±4.7	
Ethnicity**	UAE National	25.2±4.1	0.023
	Arab National	22.2±5.4	
	South Asian	22.6±5.2	
	Other	22.5±5.1	
Marital status**	Single	23.2±4.0	0.690
	Married	23.4±5.1	
	Divorced or widowed	22.3±5.6	
Religion**	Muslim	23.4±5.0	0.472
	Christians	22.6±5.4	
	Others	21.6±5.4	
Employment**	Full-time employment	23.1±5.3	0.705
	Housekeeper, student, part time employed	23.2±4.9	
	Retired and disabled	24.1±5.6	
	Unemployed	22.5±4.6	
Level of education**	Did not attend school	23.0±4.0	0.936
	Primary school	23.3±5.6	
	Secondary school	23.5±5.3	
	Tertiary school	22.8±5.2	
Chronic illness*	Yes	22.5±5.3	0.058
	No	24.0±4.6	
Life event*	Yes	22.4±5.1	0.184
	No	23.5±5.0	

\*t test; \*\*One-way ANOVA test; QOL: Quality of life; SD: Standard deviation

The total scores of the QOL index (23.18) were high in contrast to another study,<sup>[25]</sup> that used the QOL index to study 16 HEMO patients and eight pre-dialysis patients and reported lower scores except on the family subscale (22.5, 18.4 respectively).

### The relationship between the socio-demographic variables and the total scores of both tools

#### Gender

The finding that the gender variable did not show any statistically significant relationship with the total scores of SF-36 and the QOL Index tools was similar to a study in the USA on 339 HEMO outpatients, 181 of whom men aged  $54.7 \pm 14.5$  years, selected from seven dialysis units in Los Angeles South/East Bay area.<sup>[26]</sup> Other studies<sup>[27-29]</sup> found that male patients on dialysis had higher SF-36 scores. The reason for this gender difference in different studies remains speculative. Possible explanations could include biological factors and biases in the provision of care according to gender.<sup>[30]</sup> Other explanations could be differences in the clinician's attitudes towards female patients.<sup>[31]</sup>

#### Ethnicity

Ethnicity made a statistically significant difference in the total scores of the QOL index favoring people with a UAE nationality ( $P = 0.023$ ), thus contradicting the finding in the SF-36 tool. No studies were found in the literature that

compared the QOL of UAE Nationals, Arab Nationals, South East Asia Nationals and other nationalities. Several studies involving patients who receive HEMO in the USA found that African Americans reported higher SF-36 total scores than white Americans.<sup>[28,32-34]</sup> Variation across cultures may illustrate disparities in the management of disease in different countries.<sup>[24]</sup> The differences in the findings with regard to the ethnicity variable could stem from possible inadequate sensitivity of SF-36 to the effect of differences on QOL.

#### Marital status

Marital status did not have any statistically significant influence on the total scores of two tools. This result was similar to other studies that measured the QOL of dialysis patients using SF-36.<sup>[9,22,23]</sup> In contrast, the finding differs from another study which argued that the quality of the marital relationship is a stronger predictor of health outcomes than just being married, especially when people face great life challenges resulting from complications of disease and associated physical and psychological stresses.<sup>[35]</sup>

#### Employment

This study showed that having full-time employment had a statistically significant positive influence on the SF-36 total scores ( $P = 0.009$ ) but did not have any statistically significant influence on the QOL index total

scores ( $P = 0.705$ ). The possible explanation may be that the tools measure QOL differently and that one of them may be more sensitive than the other in measuring the impact of employment on QOL. Another study reported that status of work was associated with higher QOL scores.<sup>[22]</sup> In contrast, other studies have reported lower scores on the SF-36 on dialysis patients who were employed.<sup>[23]</sup> In the Middle East, employers are usually reluctant to hire workers on dialysis because of frequent absence from work to go for a medical follow-up.

### Education

The variable on educational level had no effect on the total scores of both tools. This finding differs from findings from other studies that have linked a higher educational level with better QOL.<sup>[22,34,36,37]</sup> Acaray and Pinar,<sup>[10]</sup> reported that most of QOL dimensions in the SF-36 increased as the educational status rose. Another study that examined the differences in QOL on 680 HEMO patients at seven medical centers in USA using QOL Index tool linked a higher level of educational and acquired skills with the ability to adjust to physical incapability.<sup>[38]</sup>

### Religion

The variable on religion did not have any impact on the total scores of both tools. No studies were found in the literature that had similar religious groupings as the UAE study. However, spirituality has been examined in a few studies that explored the QOL of dialysis patients. These studies suggest that there was a positive relationship between the score on a spiritual beliefs scale and global QOL measures, satisfaction with life and perception of depression.<sup>[7,39]</sup>

### Age

The study found that age did not have any statistically significant correlation with the total scores of the SF-36, which is contradictory to the finding by another study that found an association between higher SF-36 scores and younger age.<sup>[23]</sup> Advanced age has been linked with the deterioration of physical activity, thus giving lower SF-36 total scores in dialysis patients. In contrast, another study reported that older patients were more satisfied with their life on dialysis and accepted their limitations better than younger patients.<sup>[40]</sup> The absence of any statistically significant correlation of age with the total scores of the QOL index for the sample differs from the finding by another study that used the same tool and found that some of the QOL index scores increased with age. They suggested that older chronically ill patients tended to exhibit a greater level of contentment with their health and social status.<sup>[41]</sup>

### Chronic health problems

Chronic illnesses are considered important contributing factors to clinical outcomes and QOL.<sup>[26]</sup> This study found that those who had another chronic illness had lower scores

in both tools. This is expected because kidney failure impacts negatively on patients' physical, psycho-social and economic well-being.<sup>[6]</sup> Associated diseases, especially diabetes mellitus, are strongly related to the worst QOL scores in ESRD patients on dialysis.<sup>[42]</sup>

### Regression analysis

The variable on having another chronic health problem was a statistically significant determinant of the QOL scores for dialysis respondents on both tools. These findings are supported by an Iranian study that performed a logistic regression analysis on the SF-36 Persian version on a sample of 250 Iranian hemodialysis patients.<sup>[24]</sup> Another study found that the presence of other co-morbid medical conditions were common in patients on dialysis, and were the main contributing factors to clinical outcomes and the QOL.<sup>[26]</sup> The HEMO Study, which is a 15-centre randomized clinical trial on the effects of HEMO dose and membrane flux on mortality and morbidity in HEMO patients, showed that the strongest predictor of QOL was coexisting medical conditions by a 37% increase in risk per 1-unit increment in the score on the index of a coexisting disease.<sup>[43]</sup>

## CONCLUSION

This study reported slightly lower scores in all subscales of the SF-36 compared with several studies done in other countries. There are differences in the results from the two tools, indicating that the tools measured QOL differently. Respondents who had ongoing chronic health problems had lower QOL scores. This finding was supported by other international studies. Ethnicity had statistically significant differences in the total scores of the QOL Index in favor of UAE nationals. The chronic health problems variable had a statistically significant influence on the total scores of both tools.

The multiple regression analyses showed that the variable on chronic health problems is a statistically significant determinant of the total scores of SF-36. Furthermore, variables such as chronic health problems, living in the UAE, and ethnicity variables were statistically significant determinants of the QOL Index.

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