

## Health-Related Quality of Life and Its Correlates and Determinants among Patients Undergoing Hemodialysis in Gulf Countries: A Review

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**Abstract:** Patients suffering from chronic kidney diseases on dialysis are reported to have poor quality of life (QoL), and assessment of QoL is gaining importance in health/medical field in recent years. A literature review was conducted through sources of data base available in the Medline/Pub Med, Google Scholar, Science Direct, and EBSCO Academic Search Complete for studies published in Gulf countries. Thirteen studies were found to be related to the health-related QoL domains and reviewed. Almost 62 percent of the published studies (eight studies) were from Saudi Arabia, two each from Bahrain and United Arab Emirates, and one from Yemen. Although QoL was greatly affected among patients on hemodialysis, and necessitates the need for identifying the problems in routine assessment by physicians, nurses and health professionals, studies exploring this topic were very sparse. Future studies should be conducted to identify factors relating to Health-related QoL, its predictors and modalities of intervention to help out such patients in various levels of functioning.

**Keywords:** Determinants of QoL, Dialysis, Hemodialysis, Quality of Life, Predictors

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### I. Introduction

Chronic renal disease is a growing world-wide problem with a rise in aging population and an increase in the global epidemic of patients with diabetes and hypertension [1, 2]. During the recent years, the number of patients who need dialysis until they undergo kidney transplant or receive the dialysis forever, is rising. Since evidence shows that dialysis deteriorates Quality of life (QoL) in patients [3], QoL is important for evaluating the outcomes of health care of patients with chronic diseases [4]. Patients on hemodialysis have various psychosocial stressors arising from fears, family problems and physical discomforts related to their illness which could increase the risk of depression [5].

Many studies have shown that dialysis patients, in particular, hemodialysis patients are reported to have poor quality of life, mental and physical health than those of general population [1, 6, 7]. Moreover, those patients often experience lack of control over daily life, social and recreational activities, loss of independence, role alterations, employment problems, altered self-image and low self-esteem which leads to variety of psychological and emotional problems and subsequently affect the compliance with therapy and treatment outcome. Better quality of life scores are associated with better compliance and a reduction in morbidity and mortality rate among hemodialysis patients [8]. Health-related quality of life (HR-QoL) is used as a prognostic indicator of health status of patients including those with end-stage renal disease (ESRD) and as independent predictor for death in these patients [7]. Cultural differences may influence the patients from different ethnicities assessing QoL differently [9].

The Gulf Cooperation Council countries (GCC) such as Saudi Arabia, UAE, Kuwait, Qatar, Bahrain and Oman share similar culture and ethnic backgrounds as well as have similar socio-demographic and socio-economic development. The increased burden on these countries with the non-communicable diseases, due to the rapid economic growth and associated changes in the life style significantly elevated the risk factors and resulted in the number of people undergoing hemodialysis [10, 11].

The aim of the present study is to review the published literature on the correlates and determinants of HR-QoL reported among hemodialysis patients in Gulf Countries.

### II. Methods

A literature review was conducted through online sources of data base available in the Medline/PubMed, Google Scholar, Science Direct, and EBSCO Academic Search Complete for published studies in Gulf Countries. Search terms used singly or in combination included: quality of life, hemodialysis, depression, Middle East/ Gulf countries. Criteria for inclusion were 1) the study is done among any of the Gulf countries such as Kuwait, Bahrain, Oman, Qatar, Saudi Arabia, United Arab Emirates and Yemen 2) related to any of the HR-QoL components or domains. No specific range for year of publication was specified, so as to retrieve maximum number of studies.

### **III. Results**

Fourteen studies were found to be related to the topic were able to be retrieved from the web search. Out of this, one study was found to be repeating the information in regard to the QoL components and used the same sample reported in the previous study. Thus, there were thirteen studies finally considered for the literature review and are summarized under the following subheadings.

#### **3.1 Physical, Emotional and Functional correlates affecting Quality of life**

A study was conducted using descriptive comparative study design to compare QoL of patients undergoing hemodialysis treatment and community residents. The participants were 150 hemodialysis patients and 267 community samples in United Arab Emirates. The QoL was compared using SF-36 tool and the hemodialysis patients in addition completed the dialysis version of the QoL index tool. It was found that there was a significantly higher mean score of QoL in the community sample than the SF-36 scores of hemodialysis sample. There was a statistically significant lower score on the community sample on body pain, general health, vitality subscales compared with the hemodialysis sample. The hemodialysis sample had average lower scores on physical function, role-physical and role-emotional components compared with the community sample, with no difference in the total scores between the two groups on the QoL index. Moreover, the gender did not show any statistical significant relationship with the total scores of SF-36 in the hemodialysis sample. Similarly, ethnicity, marital status, religion, and education did not show any significant relationship in the hemodialysis group, whereas living arrangements and employment yielded significantly higher average QoL scores in the hemodialysis group as well as in the community sample. The study concludes that the QoL of the community participants was higher than that of patients receiving hemodialysis [12].

Another study was done among the hemodialysis patients in Saudi Arabia to assess QoL and the impact of various demographic and clinical factors in the QoL on these patients. The QoL was assessed using an Arabic version of KDQOL-SF-36 instrument and grouped under the three domains of physical health components summary (PCS), mental health components summary (MCS) and kidney disease component summary (KDCS). There was a significantly higher score among these three components in males compared to females. The PCS was significantly higher among patients aged <40 years. While a significant higher KDCS was observed among married people, the MCS and PCS were significantly higher among higher income group. There were no significant differences observed in regard to education, duration of dialysis or cause of renal failure. In addition, a strong positive correlation between KDCS and MCS as well as KDCS and PCS was observed. The study concluded that Saudis have significantly higher vitality scores, but have a significantly lower level of physical, social functioning and general health perception scores [8].

#### **3.2 The Impact of the Disease on Family and Social Life in Dialysis Patients**

The overall impact of dialysis therapy among hemodialysis patients in Saudi Arabia was studied on 322 patients undergoing dialysis therapy. The mean age of the patients was  $51.7 \pm 15.5$  years and was selected from three dialysis centers. It was found that the worse effect of dialysis was on family life and the least effect was seen on the practice of daily prayers, and social life. Male patients had a comparatively worse effect of dialysis on family life, social life, energy, and appetite than female patients. Also a significant positive effect of education level was seen among the seven out of 15 QoL domains such as stress, mood, overall health, sexual life, energy, hobbies and exercise. Likewise, duration of dialysis more than three years was associated with more stress, worse financial burden and living arrangements. This necessitates the emphasis of family, social, spiritual, emotional and financial support for the patients in dialysis [13]. Females having lower health-related quality of life than males among adult hemodialysis patients are reported in another study conducted in Saudi Arabia [14].

A study using a descriptive design was carried out among 134 patients (68 males and 66 females) from the age group of 18 to 65 years in Eastern Region of Saudi Arabia to assess the health-related quality of life among adult patients undergoing hemodialysis. The health-related QoL assessed three components such as health, psychological and social status. About half of the sample in the study (50.7%) reported to have a low health-related QoL compared to 51.5% with high health status scores, and 50.7% had low psychological status, whereas the social status scores were found to be minimally impaired, with 65.7% showing high social status scores. Nearly half of the sample had problems like fatigue, skin itching and thirst. The age and level of education did not show any difference in the health-related QoL. Also a gender difference was observed with females having a lower health-related QoL score than males. Further, it was found that comorbidity did not have any effect on health-related QoL among hemodialysis patients. The physiological status of the patients was also closely related to their QoL as the patients with worsening health condition were found to have the poorest QoL. Thus, the study had shown that the health-related QoL of the patients undergoing hemodialysis is impaired especially in their psychological and health domains [14].

A research study using the grounded-theory approach was conducted to find out the impact of end-stage renal disease on Saudi women. A total of 50 samples were included in the study. The participants noticed an improvement in their health with adequate spiritual support and reported feelings of comfort and well-being. The three main areas which had an impact on QoL were the income, accommodation and transport. Dialysis caused a considerable amount of constraint for the women in regard to transportation for the dialysis, with changes in the living arrangement due to changes in their marital status such as divorce, widowhood or separation. Moreover, the financial burden of the chronic illness caused a considerable amount of dependency on their relatives for the income. They also had a difficulty in managing their family care giving roles and relationships, as well as struggled to manage their daily tasks despite spending hours in the dialysis centers. In addition, the disease caused the patients to make an adjustment into their new life, regardless of their age and marital status. Women became overly dependent on their relatives due to the cognitive changes caused by the disease, which caused a strain on their interpersonal relationship and contributed to anxiety [15].

### **3.3 The Impact of the Disease and Psychological Consequences affecting QoL in Dialysis Patients**

Patients, who have chronic kidney disease and on hemodialysis suffer from psychological stress, may have an increased risk of the depressive disorders. A research study was conducted among 310 dialysis patients in Jeddah, Saudi Arabia to examine the prevalence of depressive disorder (DD) and depressive symptoms. The mean age of the patients was  $46.4 \pm 15.2$  years. It was found that DD was present in 3.2% of samples and minor depression in 3.6% of samples. Depressive symptoms were present very commonly: mild (21.0%), moderate (1.6%) and severe (1.6%) by using the clinician rated Hamilton Depression Rating Scale (HDRS), and a relatively higher percentage of patients reported to have a past episode of one or more incidences of DD. None of the patients received any antidepressant medication and only two out of 21 patients with DD were on psychotherapy or counseling. In regard to risk factors for a depressive disorder, Saudi nationals were reported to have a depressive disorder compared to emigrants and also among those who were recently married. In regard to correlates of depressive symptoms, recent stressful events predicted greater depressive symptoms in addition to the status of being married and being a Saudi national. Whereas the severity of kidney disease or the duration of dialysis were not found to be significantly associated with depressive symptoms [16]. In another prospective study of depression among dialysis patients in Saudi Arabia, the findings showed that milder forms of depressive disorders are more likely to remit, as well as those with less severe overall medical illness and who have better overall psychological functioning [5].

A study using the cross-sectional survey design was done in Makkah among 286 Saudi dialysis patients to find the prevalence and predictors of anxiety and depression which has a significant impact on QoL. The Hospital Anxiety and Depression Scale was used (HADS) to screen for anxiety and depression. About 21.1% (57 patients) were found to have probable causes of anxiety and 63 (23.3%) were found to have probable causes of depression. Only 11.3% (32 patients) were diagnosed with depression or anxiety before ESRD onset. Having major family problem was found to be a significant predictor of anxiety, whereas age was found to be a significant predictor for both anxiety and depression. The authors thus suggest that early identification, management and family support among hemodialysis patients are essential and could improve clinical outcomes [17].

### **3.4 The Role of Religious Involvement in Dialysis Patients**

Religious involvement is found to have a positive relationship with mental and physical health. A study was conducted among 310 dialysis patients with chronic kidney disease in and around Jeddah, Saudi Arabia. Participants were aged between 18-85 years, with majority being males (61%), Saudi nationals (75%) and married (58%). The average length of time was 4.5 years in dialysis with weekly three sessions. The patients who were engaged more in religious practices were older, better educated and had higher incomes, married and Saudi nationals. Intrinsic religious beliefs also were common among those with higher education, males and married individuals. Religious beliefs and practices were related to better mental and physical health. The interviewer-rated global assessments of psychological functioning were higher among those frequently engaged in religious practices. Religiosity was found to be associated with greater social support and a lower rate of depressive disorder. Religious beliefs and practices were related to better mental and physical health. In spite of having severe medical illness those with more religiosity found to have better physical and cognitive function. Also a positive relationship between religiosity and length of time on dialysis were found to be independent of overall psychological functioning and social support, which supported the fact that religion gave and maintain hope and endurance to these patients [18].

### **3.5 The Spiritual and Social Support and Coping Methods for the Dialysis Patients**

Another study was conducted in Bahrain by Suweilah (1996) [19], which explored the relationships between social support and coping methods and their contribution to the prediction of QoL among patients

undergoing maintenance hemodialysis. Subjects were 60 adult Bahraini patients. It was shown that the availability of social support resources were associated with greater use of supportant coping instead of self-reliant coping methods. Perceived social support was positively associated with the use of palliative supportant and optimistic coping and negatively associated with the use of evasive, fatalistic, and emotive coping methods. Social support variables, along with problem-oriented coping and emotion oriented coping predicted 27% of the variance in QoL of the patients and perceived social support and emotive coping methods and marital status predicted 36% of the variance in QoL in such patients.

### **3.6 Challenges in Patient Management determining QoL**

The two challenges which hinder the better achievement of quality of life in patients undergoing dialysis are achieving effective pain relief and the burden of Hepatitis C virus infection [3, 20]. Pain may result from underlying systemic disease such as diabetic neuropathy or due to dialysis procedures itself or by the muscle cramps during the procedure. Ineffective pain management occurs due to inadequate recognition and assessment as well as due to the increased adverse effects in elderly people. Proper assessment of patients symptoms using disease modifications or adjustment of drugs in on renal failure, using adjuvants for specific indication, addition of tricyclic antidepressants to manage pain of neuropathic origin and use of anesthetic blocks are recommended for effective pain control according to patients' condition [20]. The preexisting renal disease, complex pharmacokinetics of opioid analgesics and the physician's unfamiliarity with the usage of the drugs adds to the burden of effective pain management of the disease [20].

Hepatitis C virus (HCV) infection poses a significant challenge in the treatment and the achievement of better quality of life in dialysis patients. Three studies conducted in United Arab Emirates, Saudi Arabia and from Yemen had mentioned the burden of the prevalence and risk factors for the HCV infection in patients undergoing maintenance dialysis. Blood transfusion significantly increased the risk of HCV infection in dialysis patients than patients who did not receive blood transfusion [21]. Similar trends were reported in the study in Yemen. The patients had a higher risk of both HCV infection as well as Hepatitis B virus infection. It was also found that older age, blood transfusion, male gender and increased duration on dialysis seemed to be the risk factor in the population. Eighty percent of the Anti HCV positive patients received blood transfusion, which was significantly higher than the 20% rate among anti HCV antibody negative patients [22]. The use of peginterferon as monotherapy and use of peginterferon alfa with a low dose of ribavirin 200 mg/day as a combination therapy is found to be effective and had a high response rates in these patients [23].

## **IV. Discussion**

Assessing patients quality of life (QoL) is gaining importance in the medical literature, as better QoL scores is associated with better compliance and reduced morbidity and mortality [8] and better outcomes [9]. The current body of literature regarding correlates of QoL in hemodialysis in Gulf countries is sparse, and with available studies using different scales of assessing patients and different parameters specified for assessment, makes the interpretation difficult.

Duration of dialysis more than three years was found to have a negative effect on emotional health and worse financial burden [13], whereas in another study, no significant effect of duration of dialysis on QoL was found [8]. The duration of hemodialysis therapy is significantly correlated with family relationships and found to be associated with lower sleep scores [6]. Family relationships are strong in Middle East which provides a sense of social security and general well-being, but the effects of this chronic condition drains the patients, thereby causing a lot of life disruptions and compromising their marital and role relationships [9]. It was found that family life is the most compromised and affected one in HD patients [13]. Whereas, impaired general QoL scores in elderly HD patients is reported in Japan, compared to healthy elderly participants [6]. In a comparative study between hemodialysis and peritoneal dialysis patients, it was found that the period of dialysis was found to have no significant difference in physical functioning between the two groups [3]. In addition, gender difference was found to be significant in one study and better QoL scores were found in male patients compared to female patients [8].

Association of depression and anxiety was common among dialysis patients which could be due to consequences of the disease as well as change in lifestyle of such patients [3]. Depressive symptoms were present in 21% of the hemodialysis sample in Saudi Arabia [16]. In a study done in Oakland, 28% of the patients were experiencing depression of varying degrees of severity [24]. Patients in HD reported more problems from anxiety and depression compared to peritoneal dialysis patients [3] and moreover, depression is a common, but under-diagnosed and understudied in ESRD patients [25]. Availability of coping social support resources was associated with optimistic coping and less use of fatalistic and emotive coping methods [19].

Despite these limitations, this review provides a better comprehensive understanding of the importance of significance of the problems associated with HD patients and highlights the necessity of identifying these problems, especially low physical profile and depression. It might also help physicians, nurses and other health

