Quality of life in patients with end stage renal disease undergoing hemodialysis in Ibn-sina hospital, Khartoum state, 2019

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Abstract

Background: Given the high morbidity and mortality of the ESRD population receiving dialysis, quality improvement has long been a priority. Measuring the quality of life in end stage renal disease (ESRD) today is considered as a favorite standard in the medical world and has become an essential tool to develop better plans of care. So the aim of this study is to assess quality of life in patients with ESRD on heamodialysis by using Kidney Disease QOL-36 surveys (KDQOL), and it is association with socio-demographic characteristics and comrbidities that can affect it.

Methods: The study was a hospital based cross-sectional research conducted on 100 ESRD patients under heamodialysis treatment in Ibn-Sina hospital in Khartoum state, in the year 2019. Data were collected using a questionnaire including 2 parts: demographic variables and SF36. The components of QOL and the health related SF-12 PCS and MCS were the primary concern (dependent variables). Chi-square and bivariate correlation are used for association between dependent and independent variables. Descriptive and analytical statistics (Mean and Standard Deviation, independent t-test, One-Way ANOVA) were used to analyze the data in SPSS-15. Probability values less than 0.05 were considered as significant.

Result: The participants mean age was (50.4±13.83) years, there were more males than females (62% VS 38%), with 50% start dialysis befor 3-10 years. The mean score of the quality of life (QOL) of the study patients was (59.38±12.42), the lowest scores were recorded for physical composite PCS (33.50±10.25), and the mental composite MCS score (47.72±9.38). The results showed a significant difference between the mean of both QOL and PCS and independent variables of age, occupation and duration of dialysis, QOL (P=.05, P=.01, P=.07), and for PCS (P=.008, P=.04 P=.004) respectively, with marital status show significant relationship with QOL only. There was no significant difference to other independent variables. MCS not affected by any of the independent variables.

Conclusion: The results showed large variations in the dimensions of life in end stage renal disease as the result of hemodialysis. , Family and health care team members can use factors influencing the patients' quality of life in order to provide care and support programs for patients to help them cope with the illness and improve their quality of life.

Summary of the research

background: Measuring quality of life in chronic diseases such as kidney disease is today a preferred standard in the medical world and has become an essential tool for developing better care plans. The aim of this study is to assess the quality of life in patients with complete renal insufficiency who are undergoing dialysis, and its association with socio-demographic characteristics, using surveys by the standard questionnaire for quality of life in nephrology.research method:

The study was a hospital-based cross-sectional research conducted on 100 renal failure patients under hemodialysis treatment at Ibn Sina Hospital, Khartoum State, in the year 2019. Data were collected using a two-part questionnaire: demographic variables and main components of quality of life. Descriptive statistics were used. Analytical and data analysis by means of a statistical analysis program. The probability value was taken to assess the extent of the correlation between the independent and dependent variables, provided that it is less than 0.05.

Search result: The average age of patients is 50.4, and the number of males is more than the number of females, with most starting dialysis 3-10 years ago. The mean score for quality of life was 59.32, the lowest score was recorded for the physical aspect, and the score for the mental aspect was 47.72. The results showed a significant difference between the average quality of life and the physical aspect with age, marital status and duration of dialysis for patients. While the mental aspect was not affected by any of the independent variables.

Conclusion: The results showed significant differences in the dimensions of life in renal failure patients under dialysis. The family and health care team members can use factors that affect patients' quality of life in order to provide care and support programs for patients to help them cope with the disease and improve their quality of life

Introduction

Background

Chronic kidney disease is kidney damage for three or more months, as defined by structural or functional abnormalities of the kidney, with or without decreased GFR, manifested by pathologic abnormalities or markers of kidney damage, including abnormalities in the composition of the blood or urine or abnormalities in imaging tests, GFR< 60 ml per minute per 1.73 m2 for three months or more, with or without kidney damage. (1)

End stage renal disease (ESRD) is a well-known outcome of CKD is usually due to the result of slowly progressive kidney damage and loss of function over time, defined as a GFR below 15 ml per minute per 1.73 m2, usually accompanied by signs and symptoms of uremia, but because of the asymptomatic nature of renal disease, kidney damage frequently remains undetected until late in the course, at which stage therapeutic interventions are often ineffective. However, not all patients with kidney disease progress to kidney failure and, in some patients, kidney disease progresses to kidney failure even with proper treatment. (2)

Chronic kidney disease is a major public health problem throughout the world. Over 1.1 million patients are estimated to have ESRD worldwide, with an addition of 7% annually. In USA, the incidence and prevalence counts are expected to increase by 44 and 85%, respectively, from 2000 to 2015, and the incidence and prevalence rates per million populations by 32 and 70%, reflecting an increasing burden of kidney failure. In the developing countries, growth of the ESRD population has similar trends. An average incidence of ESRD in the Middle East countries with similar renal care systems is 93 per million populations. The estimated incidence for new cases in Sudan is about 70–140/million inhabitants/year. Overall mortality rates among ESRD (dialysis and transplant) patients continue to decline, with steeper declines in more recent years. Over the last two decades, the adjusted death rate fell by 7% from 1996 to 2003, and by 23% from 2004 to 2013. (3)

End-stage renal disease can be caused by many chronic diseases. In the United States, diabetes is the leading cause. But in Sudan as study conducted by Elhafiz Elsherif M. found the hypertensive nephropathy is a leading cause of ESRD, followed by obstructive nephropathy. Other causes include: Polycystic kidney disease, vesico-ureteral reflux, recurrent pyelonephritis, certain medications such as NSAIDs, calcineurin inhibitors, and anti retro-viral. Most of the cases are of unknown etiology due to the late presentation of ESRD. (2)

Regarding to people with CKD may not feel ill or notice any symptoms. The only way to find out for sure if you have CKD is through specific blood and urine tests. The major outcomes of chronic kidney disease, regardless of the specific diagnosis (i.e., type of kidney disease), include progression to kidney failure and development of cardiovascular disease. (4)

Other Health Consequences of CKD; Anemia or low number of red blood cells can cause fatigue and weakness. Infections can occur because of a weakened immune system. Low calcium levels and high phosphorus levels in the blood can cause bone problems. High potassium levels in the blood (hyperkalemia) can cause an irregular or abnormal heartbeat. Loss of appetite or eating less. Excess fluids in the body were causing high blood pressure, swelling in the legs, or shortness of breath because of fluid in the lungs (a condition known as pulmonary edema), depression or lower of the quality of life. (2)

Patients with chronic kidney disease should be evaluated to determine the following; Specific diagnosis (type of kidney disease), co-morbid conditions, disease severity (assessed by the level of kidney function), complications (related to the level of kidney function), risk for loss of kidney function, risk for development of cardiovascular disease. Kidney damage usually is ascertained by the presence or absence of certain markers, rather than by kidney biopsy; Proteinuria; a ratio of greater than 30 mg of albumin to 1 g of creatinine in an untimed (spot) urine sample, Abnormalities in urine, sediment Blood, and urine chemistries, abnormal findings on imaging studies. Adults with diabetes, high blood pressure, or both have a higher risk of developing CKD than those without these diseases. Other risk factors for CKD include heart disease, obesity, and a family history of CKD.(1)

So prevention can occur by defining the risk group of people and evaluate the patients of CKD once detected which can be addressed through lifestyle modification including making healthier choices about what you eat and drink, and can often be treated with medications. These approaches and treatments may keep CKD from getting worse and may prevent additional health problems such as heart disease. (1) In general, Patients with chronic kidney disease should be evaluated to determine the following: specific diagnosis (type of kidney disease), co-morbid conditions, disease severity (assessed by the level of kidney function), complications (related to the level of kidney function), risk for loss of kidney function, and risk for development of cardiovascular disease.(4)

The main stay of management of patient with CKD is depends on; therapy based on specific diagnosis, evaluation and management of co-morbidities and to prevent and treat complication develop from decreased kidney function. If the patient develops ESRD we start renal replacement therapy in form of hemodialysis, peritoneal dialysis and kidney transplant. Globally and in Sudan, hemodialysis is most common modality used, in later it represent 69% of RRT while kidney transplant and peritoneal dialysis represent 28% and 3% respectively.(5)

In terms of quality of life, patients who underwent kidney transplant achieved better quality of life compared to dialysis patients. Despite the substantial resources committed to the treatment of ESRD and significant improvement in dialysis therapy, patients continue to experience significant mortality and morbidity, and a reduced quality of life.(6)

But it is believed that the health related quality of life (HRQOL) of dialysis patient is usually worse than that of the age matched subjects from general population, because of typically high burden of co-morbidities and complications of ESRD, this is confirmed by study of Drennan and Cleary conducted in 2005,

conclude reduce quality of life in ESRD patient than general healthy population due to intrusiveness of treatment that is required. The QOL is used to evaluate the general wellbeing of individuals and societies. It may vary according to the patient as well as the disease condition. The WHO has defined QOL as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns".(7)

It is a broad ranging concept affected by the person's complex physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment. The assessment of QOL is an essential element of health-care evaluation, mortality indicator, comparing health of groups and helps in taking suitable measures to increase the of ESRD patients, various tools have been developed to measure different aspects of life. There is an ever expanding body of literature related to various factors that affect QOL, like genetic, environmental, psychosocial, stress, emotional, and co-morbidities. Findings have shown that lower scores on QOL were strongly associated with higher risk of death and hospitalization. It is also noticed that QOL in ESRD is most affected in the physical domains, and nutritional biomarkers are most closely associated with these domains compared to Kt/V (marker of dialysis adequacy), mineral metabolism in-dices, and inflammatory markers which are poor health related quality of life (HRQOL) correlates. These findings demand more attention towards patients' essential QOL measures and indicators. While assessing QOL, both subjective and objective information is necessary since they derive distinct types of information. Objective measures may be more suitable in detecting treatment effects, such as the number of days on dialysis. Subjective information (such as happiness, satisfaction, spiritual and religious beliefs) is also necessary to complete the QOL picture and enhance the interpretation of objective data. Both the illness and the treatment of ESRD influence subjective QOL factors. (8)

Based on this, Morsch CM in 2006 conducted a study on health related quality of life among hemodialysis patients and its relation with clinical indicators, it showed that mental and physical dimensions are more strongly associated with morbidity and mortality. Other factors such as dialysis duration, age, ethnicity and co-morbidities, and their association with QOL are reported based on observational study.(9)

Based on this background, I conduct this study to assess the QOL in its different dimensions, and to determine which demographic characteristic is correlating with the QOL score in patients with ESRD on HD in Ibn-sina hospital, using kidney disease QOL-36 survey (KDQOL-36).

Problem statement

ESRD is a serious illness and treatment is challenging and prolonged, the increasing global epidemic of chronic kidney disease and resultant ESRD continue to be a serious challenge to many developing countries. The disease is a component of a new epidemic of chronic conditions that replace malnutrition and infection as a leading cause of mortality during the 20th century. It has shifted from 36th cause of death in 1990 to 19th

cause of death in 2013. ESRD is a recognized public health problem worldwide, the global prevalence of CKD was reported to be 13.4% and the average prevalence in the entire African continent was 10.1%.(9)

The prevalence in Sudan, North east was reported as 6.40% in study done by Abdelsatir in 2013. Patients with ESRD consume a vastly disproportionate amount of financial and human resources, of more than 1.8 million patients worldwide on dialysis, less than 5% are on Africa, were access to RRT is dependent on very limited governmental support.

ESRD negatively impacts the quality of life (QOL) of patients by acting negatively on their social, financial and psychological wellness. It is considered as a medical and social problem that constitutes a heavy burden of communities worldwide. Despite the substantial resources committed to the treatment of ESRD and significant improvements in the quality of dialysis therapy, patients continue to experience significant mortality and morbidity and a reduced quality of life. (5)

In medicine most assessments are conducted by laboratory tests or examinations from healthcare workers. Quality of Life (QOL), though equally important to assess the quality and outcomes of medical care, is not routinely measured. (ESRD) is among the chronic diseases with great complications in which paying attention to welfare feeling and mental aspects of the affected patients is of great significance. (10)

Justification

Given the high morbidity and mortality of the ESRD population receiving dialysis, quality improvement has long been a priority. The assessment of QOL is an essential element of health-care evaluation and helps in taking suitable measures to increase the QOL of ESRD patients.

A better HRQOL usually reflects to a better overall control of the disease (lesser symptoms and fewer handicaps due to the disease and its treatment). Improving patients' QOL has evolved as one of the primary goals of renal replacement therapy. Beyond dialysis prescriptions, there are several domains of poor performance that offer the opportunities to improve HRQOL in ESRD. Improving physical functioning and promoting independency could be an important perspective to change the disease perception and lessen its incapacitations.

Therefore, paying special attention to the patient's need; can lead to useful outcomes and will promote the patients' life quality and lifespan. And health planners can also have useful and effective use of educational programs. And so, by studying the factors that influencing patients QOL, we can provide care and support programs for patients to help them cope with the illness and improve their quality of life.

Objectives

General Objective

To assess the quality of life in patients with end stage renal disease undergoing hemodialysis in Khartoum state, 2019.

Specific objectives

- To assess the socio-demographic characteristic of ESRD patients.
- To measure the general quality of life and it is components; mainly symptoms, effects and burden of kidney disease
- To estimate health related SF-12 physical and mental component summary, PCS and MCS.
- To determine the effect of socio-demographic characteristic and co-morbidities on general QOL and PCS & MCS components.

Literature review

The number of patients with chronic renal failure (CRF) is increasing steadily globally with its associated poor quality of life (QOL) and high economic burden. CRF has become one of the most expensive diseases to treat in present times. This is particularly true in the developing world where the resources are limited. The prevalence of ESRD is increased in the last two decades. It has become a global threat with significant morbidity and mortality. ESRD also decreases the overall QOL among the affected patients. It has been proven that the QOL is very poor among ESRD patients. The QOL is used to evaluate the general wellbeing of individuals and societies. It may vary according to the patient as well as the disease condition.(7)

Nowadays, chronic kidney disease (CKD) has been increasing due to various factors. Due to lifetime increase, the number of these patients is increasing; but this disease influences their life and in its progressive stages, it can affect their performance and change their quality of life. Furthermore, the incidence of chronic kidney failure can lead to individual's dependence on others, low self-esteem, and the feeling of loneliness, and it can affect the socio-mental aspect of an individual's quality of life. One of the issues presenting in hemodialysis patients is the well Being. Well-being is something greater than not being ill. That's to say, having logic, independence, and self-confidence can be defined as well-being. Well-being is a multidimensional procedure which includes mental, social, physical, and emotional health. This concept takes into account the positive attitude toward body. Kidney failure or end-stage renal disease (ESRD) is among the chronic diseases with great complications in which paying attention to welfare feeling and mental aspects of the affected patients is of great significance.(10)

Quality of life

Recently there has been growing recognition of health related quality of life (QOL) as an important indicator of the quality of care for patients of various illnesses. For patients with end stage renal disease (ESRD), chronic maintenance haemodialysis successfully prolongs life span. A broader goal, however, is to optimized the patient's self perceived sense of wellbeing and quality of life. (11)

Many studies are conducted to measure the quality of life on hemodialysis patients with hypothesized that QOL is lowered in ESRD compared to general population. Comparing to the different domains in QOL, a cross-sectional descriptive study by Namdar A 2010, in Jahrom, Iran, 52 patients under hemodialysis,

Data were collected using a questionnaire including 2 parts: demographic variables and SF36, showed that the mean age of the study group was 56.48± 15.38, 46.2% were female and 53.8% male, The mean score of the quality of life (QOL) of the study patients was 50.38±15.80. The lowest scores were recorded for physical functioning (37.49±27.90) and the highest scores belonged to mental health (61.51±19.52). So this result showed a significant difference between the mean of QOL and independent variables of age, marriage, and sex. (P=.026, P=.012, P=.001). There was no significant difference between the mean of QOL and family income, educational level, background diseases, number of children, and duration of dialysis treatment. (12)

But on the other hand, to determine which demographic and biochemical parameters correlate with the QOL scores in patients with ESRD on hemodialysis (HD) using Kidney Disease QOL-36 surveys (KDQOL); another retrospective cross-sectional analytic study done by Marc M saad 2013,out patient centre in USA, 111 patients, Mean age was 61.8, there were more males than females (64.9% VS 35.1%),the mean time-on-dialysis at the time of the study was 4.3 years; showed that Approximately two-thirds of the responses on all five domains of the questionnaire (burden of kidney disease, symptoms and problems, effects of kidney disease on daily life, mental component survey, and physical component survey) ranked average, the remainders were split between above average (20.6%) and below average (13.4%), and there is no relationships were statistically significant between the five dependent variables of interest and the independent variables (demographics ;age, sex, and race, weight gain, number of years on dialysis, urea, calcium, phosphorus, parathyroid hormone, albumin, and hemoglobin in the serum) by chi-square- and t-test analyses. Of note, sex carried the strongest statistical significance (with a P-value of 0.16) as a predictor of "the burden of kidney disease on daily life" in ordinal regression. (9)

Another cross-sectional study aimed to determine the relationship between medical history, hemodialysis treatment and nutritional status with the mental and physical components of quality of life in hemodialysis patients. Respondents (n=90) were recruited from Hospital Kuala Lumpur and dialysis centres of the National Kidney Foundation of Malaysia. Data obtained included socio-demography, medical history, hemodialysis treatment and nutritional status. Mental and physical quality of life, were measured using the Mental Composite Summary (MCS) and Physical Composite Summary (PCS) of the Short-Form Health Survey 36-items, a generic core of the Kidney Disease Quality of Life Short Form. Two summary measures and total SF-36 was scored as 0–100, with a higher score indicating better quality of life. Approximately 26 (30%) of respondents achieved the body mass index (24 kg/m2) and more than 80% (n=77) achieved serum albumin level (>35.0 mg/dl) recommended for hemodialysis patients. The majority of respondents did not meet the energy (n=72, 80%) and protein (n=68, 75%) recommendations. The total score of SF-36 was 54.1±19.2, while the score for the mental and physical components were 45.0±8.6 and 39.6±8.6, respectively. Factors associated with a higher MCS score were absence of diabetes mellitus (p=0.000) and lower serum calcium (p=0.004), while higher blood flow

(p=0.000), higher serum creatinine (p=0.000) and lower protein intake (p=0.006) were associated with a higher PCS score. To improve the overall quality of life of hemodialysis patients, a multidisciplinary intervention that includes medical, dietetic and psychosocial strategies that address factors associated with mental and physical quality of life are warranted to reduce further health complications and to improve quality of life.(6)

In Iran 2016, a study was designed and implemented to consider the well-being of hemodialysis patients referring to Zahedan University of medical sciences' hospi-tals, showed that the mean score of well-being was more than average. Furthermore, the factors such as gender, educational level, and income level are known as the factors affecting emotional well-being in patients affected by hemodialysis.(10)

on addressing the effect of sexual dysfunction in QOL in ESRD patients, Another cross-sectional controlled study that applied a general and the World Health Organization Quality of Life-BREF questionnaires to assess demographic, marital, and sexual conditions, and QOL in 86 healthy women aged 18 or more years (Group 1), and 38 female ESRD patients on dialysis for at least 2 months (Group 2). The effect of several explanatory variables upon QOL components was estimated. Quality of life was lower in Group 2 –overall, and on physical and environment domains. To undergo dialysis and to be poorly educated negatively affected the QOL. Yet age, a stable marital relationship or being sexually active had no effect. Female patients undergoing chronic dialysis had lower QOL and were significantly more sexually dysfunctional than comparable healthy women. Decline in sexual function had no effect on the QOL.(13)

Studies have revealed that patient education can play a significant role in improving the QOL in these patients; a hospital-oriented prospective, longitudinal, observational comparative study was conducted for six months in the nephrology department of a tertiary care hospital, Of 50 patients, 25 were selected randomly as the control group and the other 25 were considered as the test group. Patient counseling was provided to the test group patients using verbal and written materials regarding diet, exercise, life style modification and the importance of regular dialysis and follow-up. And data collected each visit through these six months by using WHO BREF assessment questionnaire, the study revealed a remarkable difference in the QOL of HD patients in the test group during their first and second visits, while the control group showed only a slight or no change. There was an increase in the overall QOL of the test group patients when compared with the control group, although the baseline values are similar. By using the independent t test, It showed that all the domain scores of the test group was significantly higher than the control group (P<0.001). Thus, patient counseling seemed to play an important role in improving the QOL by changing their psychological thinking and initiating them toward spirituality.(7)

SF-12 physical and mental composite

On focusing into physical (PCS) and mental (MCS) aspects as an important components in (SF-36) health survey questionnaire and it is predictors, A study done by Sanjeev K. Mittal, a cohort of 134 haemodialysis patients (mean age 60.9, male 63%) was

followed from January 1996 to December 1998, in Winthrop-university hospital, New York, USA, to evaluate PCS and MCS in haemodialysis patients as compared to the general population and other chronic diseases, found that mean PCS was 36.9 and mean MCS was 47. Compared to the general US population (mean 50), PCS and MCS in ESRD were lower than in most other chronic disease studied. On the same study, the correlators to physical and mental component, variables which significantly predicted a better PCS were male sex, high haematocrit and a higher level of serum albumin. In contrast older age, diabetes as a cause of ESRD and sever cardiac and pulmonary diseases were inversely correlated to PCS. Individuals living alone had a higher MCS than those live with others.(11)

In comparison to the previous result, a multicenter cross-sectional study done by Chih-Kang Chiang in 2002, a total of 497 dialysis patients at five hospital-based outpatient dialysis units, in Taiwan, shows lower score in PCS and MCS than in general and US population. And as the impact of demographic and clinical characteristics on HRQOL, it concluded that, male gender, age <50 years old, higher education level (HEL), marriage status, employment status (EPS), less co-morbid medical condition (CMC), and non-diabetic patients (NDP) were all predicted on a better Physical Component Scale (PCS). Age <50 years old, body mass index >18.5, HEL, EPS and NDP were all predicted on a higher Mental Component Scale (MCS).(14)

Chronic kidney disease (CKD) compromises the health and routine of the patient and imposes heavy restrictions that affect QOL in a multidimensional way. On the fifth stage of CKD (ESRD), the patient becomes eligible to start renal replacement therapy. First is kidney transplantation, which is a permanent treatment and patient does not need to be treated again in most of cases. Second is hemodialysis, which is the most widespread method using globally and it is provided in most of hospitals. Third is the peritoneal dialysis (PD), in which the patient does not need to go to hospitals for treatment and it is famous for its ease of use. Each of these methods has their own benefits and cost, and is essential to improving quality of life of the patient. (15) Many studies have been conducted to measure the differences in QOL between patients on different RRT. In many systematic reviews, it is confirmed that kidney transplant patients' HRQOL is better than those on dialysis.(16)

Treatments modality:

In comparing patients RRT to the general population, a cross sectional study in Spain of 81patients aged 10 years to 21 years with ESRD (68 with kidney transplants and 13 on dialysis), show that No differences were found between patients with kidney transplants and their healthy peers in any domain of QOL, the group on dialysis scored lower than healthy controls and patients with transplants for satisfaction with health. Discomfort was higher in patients with transplants who had suffered one rejection episode. Physical discomfort was increased in aneamic patients with transplants. Short patients scored less in the satisfaction domain, with lower self-esteem and lower satisfaction with health. Adolescents with kidney transplants had better satisfaction with health than the group on dialysis, which matched the level of a healthy population.(17) But kidney transplantations are limited and depend on the number of

kidney donations. Patients must wait for find donors who accept to donate their kidney.

To determine whether hemodialysis or peritoneal dialysis provide a better QOL, a systematic meta-analysis was performed, 7 articles have been included; it showed that only some of the seven articles found significant differences between the two treatments. One of the studies showed a better QOL for peritoneal dialysis patients, while, on the contrary, two other studies support that the best QOL is in patients receiving hemodialysis. Another article displayed significant difference only for satisfaction in relation to care, better in patients on peritoneal dialysis, and for physical health, better in hemodialysis. (18)

The article by Wakeel et al. compared, through the KDQOL-SF 1.3, the quality of life between two groups of patients undergoing hemodialysis and peritoneal dialysis in Saudi Arabia, involving a total of 200 patients. The scores of quality of life were higher and statistically significant (P <.001) in almost all domains analyzed by the KDQOL-SF 1.3 in peritoneal dialysis patients. The only exception was found in physical functioning which, although with no statistically significant difference (P <. 27), was better in hemodialysis patients. This study therefore concludes that, in Saudi Arabia, the peritoneal dialysis patients have a better quality of life than those on hemodialysis. (19)

On the contrary, others claim that hemodialysis is the best treatment. The first article concludes that the only significant difference between the two methods is the symptoms/problems list which results improved in hemodialysis patients (20) the second article shows that, despite having obtained the best results in patients undergoing peritoneal dialysis in three domains of QOL (employment status, encouragement from dialysis staff and patient satisfaction), against the two in which hemodialysis yielded stronger results (physical and emotional function), concluding that hemodialysis is the treatment which leads to a better QOL, as these last two functions are those which have a major influence on well-being and everyday life. (21)

The study by Griva et al. compares the QOL and emotional adjustment in 433 patients undergoing hemodialysis and peritoneal dialysis (at least for 3 and 6 months, respectively).

The levels of quality of life investigated through the KDQOL-SF 36 were significantly lower than standard average for both hemodialysis patients than for those on peritoneal dialysis (P <. 001). The comparison between the QOL scores of the two dialysis modalities reports that patients on peritoneal dialysis have better satisfaction in relation to treatment (P = .02), but a smaller physical health than recipients of hemodialysis. The levels of quality of life between the two different dialysis modalities are equivalent in all the other domains. About the Hospital Anxiety and Depression Scale (HADS), patients under peritoneal dialysis have significantly higher levels of depression symptoms than those on hemodialysis (P = .024). No differences were found in relation to anxiety symptoms. It concludes that the two modalities are equivalent in almost all domains.(22) Some studies suggest possible benefits for patients receiving peritoneal dialysis, because they have high scores in the

domains of QOL, but without reaching a statistically significant difference.(23), (24), (25), (15)

Compared to study done by Wakeel, another descriptive cross sectional study conducted by Marta Dąbrowska-Bender between 2013 and 2014, in Poland, using KDQOL – SF 1.2 and author own questionnaire, 100 patients were selected from Clinic of Nephrology and Dialysis in Warsaw, 60 received hemodialysis and 40 peritoneal dialysis showed that patients receiving peritoneal dialysis assessed their QOL in its different dimensions as much higher than patients receiving hemodialysis, The parameter having the biggest negative impact on the QOL of hemodialysis patients was an impeded possibility to continue work or studies and a change of life plans. The will to live was more highly assessed by patients receiving peritoneal dialysis as compared to patients receiving hemodialysis. (26)

In South Africa, a study conducted on comparing patients on dialysis and domains affected it concluded there was no difference between PD and HD patients in the overall KDQOL-SF scores. PD patients scored lower with regard to symptoms (P= 0.005), energy/fatigue (P= 0.025) and sleep (P=0.023) but scored higher for work status (P= 0.005) and dialysis staff encouragement (P= 0.019) than those on HD. Symptoms and complications were verbalized more in the PD patients, with fear of peritonitis keeping some housebound. PD patients were more limited by their treatment modality which impacted on body image, sexual function and social interaction but there were less dietary and occupational limitations. Patients on each modality acknowledged the support received from family and dialysis staff but highlighted the lack of support from government. (27)

Therefore, which dialysis modality use? This is decided by the doctor and according to the patient current status; because the differences found by comparing the quality of life between the two groups (HD &PD) were not statistically significant, some domains were better for PD patients whereas others were better for HD patients. In advising patients about modality choices, trade-offs should be discussed and individual preferences for specific aspects of HRQOL should be elicited.(28), (29)

Regional study:

In Sudan, June 2009, there were 2858 patients on hemodialysis (HD) in Sudan, 122 patients on continuous ambulatory peritoneal dialysis (CAPD), and 1168 kidney transplant recipients. The overall prevalence of treated ESRD was 106 patients per million populations. All forms of RRT were funded by the government. The mean age of HD, CAPD and kidney transplant patients was 46±17, 42±22 and 39±13 years respectively. Males constituted 66%, 67.7% and 79.5% and children constituted 3.9%, 25.3% and 6.6% of HD, CAPD and kidney transplant patients respectively. The majority of HD patients (83.8%) are offered twice-weekly HD, 83.6% had a functioning arterio-venous (AV) fistula, 6.4% were positive for hepatitis B virus (HBV) infection, 6.5% were positive for hepatitis C virus (HCV) infection, and 0.7% were positive for both HBV and HCV. Target blood pressure, hemoglobin and phosphorus levels were achieved by 26.5%, 23.1% and 28.5% of HD patients compared to 41.8%, 20.6% and 63.5% of CAPD patients respectively. Kidney transplant recipients had their transplant

operation performed in Sudan (33.1%), Egypt (20.7%), KSA (18.2%), Jordan (14.8%), Pakistan (8.4%) and other countries.(5)

Symptoms:

Patients on maintenance haemodialysis experiencing variety of symptoms, which may affect directly on their QOL, as study done by Steven D. Weisbord in 2003, 162 patients from three dialysis units in washigton were enrolled. Mean age was 62 y, 48% were black, 62% were men, and 48% had diabetes, by using Dialysis Symptom Index (DSI) to assess prevalence and severity of symptoms in patients on haemodialysis and its relation to QOL, it showed that among 30 symptoms, The median number of symptoms was 9.0 (IQR 6 to 13), four symptoms were reported by at least 50% of patients, including dry skin (72%), feeling tired or lack of energy (69%), itching (54%), and bone/ joint pain (50%). Mean severity scores for individual symptoms that were reported as being present were highest for bone or joint pain (3.6), chest pain (3.6), vomiting (3.5), difficulty becoming sexually aroused (3.4), and muscle cramps (3.3). The median overall symptom severity score for all 162 participants was 25.0 (IQR 14 to 42). Using IEQ to analyze the study indicate the overall symptom burden and severity each were correlated directly with impaired quality of life. (30)

Causes:

Very limited data are available about the causes of renal diseases leading to chronic renal diseases in all states of Sudan, including Gezira state. Awareness of the cause of end-stage renal disease (ESRD) helps the nephrologists to anticipate problems during renal replacement therapy and plan preventive measures for the community. A cross-sectional study designed to determine the etiology of ESRD among patients with ESRD on regular hemodialysis (HD) at Gezira Hospital for renal disease. This study was conducted in May 2009. The population examined here consisted of 224 patients on regular HD in Gezira Hospital for renal disease. We found that the etiologies were dominated by unknown causes (53.57%). The leading cause of ESRD for those who were younger than 40years was glomerular disease, hypertension for those between 40 and 60 years and obstruction for those who were older than 60 years. In conclusion, our data show that hypertension and obstructive nephropathy are the leading causes of ESRD in Gazira state (Sudan).(5)

While Osman et al(31) and Abboud et al (32); reported in 1987 and 1989, respectively, that the causes of most of the CKD in Sudan are chronic glomerulonephritis and renal calculi. Both studies were performed in Khartoum. Osman et al reported that only one-fifth of the patients in Sudan have controlled blood pressure. A study from Netherlands found renal vascular disease (20.4%) followed by diabetic nephropathy (16.7%) as the leading causes of ESRD (33)whereas in Switzerland, hypertensive nephropathy was the leading cause of ESRD.(34)

Improvement in the QOL has become the major treatment goal in ESRD patients. Because ESRD patients have several other co-morbidities such as hypertension, diabetes, dyslipidemia, etc., they have to take different medications. These may have significant adverse effects and may be associated with drug interactions. Moreover, the patients are prone to non-compliance and all these will affect the QOL of the patients.(7)

Materials and methods

Methodology

Study design

Descriptive cross sectional study, hospital based conducted from October to December 2019.

Study area

Ibn-sina hospital, the dialysis section contains two parts; one for positive cases (44 patients) and this has 8 beds and 8 machines. The other part for negative cases (153 patients); which has 18 beds and 18 machines. And there is an extra machine in ICU.

Study population

The study conducted in the adult Sudanese patients with end stage renal disease undergoing regular hemodialysis in Ibn Sina hospital.

Inclusion criteria

- Patients of age more than 18 years.
- Patients must have ESRD of sufficient severity to require RRT.
- Patients must be on chronic dialysis for minimum of two month.

Exclusion criteria

- Patients who refuse or having a known psychiatric disorder.
- Severely ill patients.
- Patients with learning difficulties or who are not cooperative.

Sampling

Sample size

Known population= 194

n=n/1+n e2

Sample selection

Total coverage of the patients on hemodialysis registered at the hospital in this year.

Variables

Dependent variables

Quality of life and it's component.

Independent variables

Socio-demographic data such as; age, gender, marital status, educational level, occupation and income. Co-morbidities, family history and duration of dialysis.

Data collection

The data collected from patients through interviewed based standardized questionnaire, containing two parts; socio-

demographic characteristics and standard quality of life of kidney disease module (KDQOL-36). Both contained open and close ended questions.

Socio-demographic characteristics are modified according to the researcher's participants acceptance and according to our needs in objectives.

Quality of life was measured using:

Short Form Health Survey with 36-items (SF-36), a generic core of Kidney Disease Quality of Life Short Form (KDQOL-SF TM). The SF-36 instrument consists of 36 items. However, only 35 items, representing eight scales and two summary measures, were utilized in this study. The two summary measures are the physical component summary (PCS) and mental component summary (MCS). The physical component summary comprises scales of pain (2 items), physical functioning (10 items), general health perception (5 items) and role limitations caused by physical health problems (4 items). The four scales of MCS were role limitations caused by emotional health problems (3 items), social functioning (2 items), emotional well-being (5 items) and energy/ fatigue (4 items)

KDQOL-36 is taken as whole with deletion of Q-16 (sexual activity) and Q-24 (satisfaction of care).

General principles of scoring

The scoring for SF-36 was based on the KDQOL-SF™ Version 1.3 Scoring Program (v 3.0), which yields a score for each scale. Two summary measures and total SF-36. Each scale is scored as 0-100, with a higher score indicating better QOL. The scores of the two summary measures and the total SF-36 are based on the average of the respective scale components. The Cronbach's alpha coefficient for the 35 items was 0.923. (See annexes)

Data analysis

The data were analyzed by using SPSS version 23. First we measure the mean of general QOL by summing up the mean scores for each scale divided by the number of scales (18) and do so to found physical component and mental component measures PCS & MCS.

Then manually we rank the score into (below average, average, above average).

The age described as by mean and standard deviation and the other socio demographic as frequency.

Descriptive statistics including mean and standard deviation are done for all scales of quality of life in general and to find out the general QOL and PCS&MCS.

Cross tabulation and correlation were performed to measure the association between socio-demographic characteristics and the general QOL, and also between it and PCS &MCS measure,

The significance of this association was measured by independent sample t-test, one way ANOVA and linear regression. (P<0.05 significant)

Ethical consideration

- The community medicine department approval was taken, and the hospital permission.
- The information collected will be confidential and used only for purpose of this research.
- The researcher obtained consent before conducting the study. But the findings will be published in local or international journals and presentations at scientific conferences.

Dissemination of the result

The result of this study will be submitted to Khartoum University _Faculty of Medicine, And of course to dialysis unit in Ibn-Sina hospital. And also the finding will be attempted to be published in local and international journals and to be presented at scientific conferences.

Result

The results of the research were based on 100 participants of the study who successfully completed the interview.

Socio-demographic Characteristics / Co-morbidities and duration of dialysis

A total of 100 patients on HD were included, with mean age 50.4(SD=13.834) years, with age group 35-54 represent 52% (figure1). 62 were males and 38 females (figure 2),74% were married (figure 3) Most of the participants were below the university level (5% illiterate, 14% primary school, 9% intermediate school, 38% secondary school, 30% university level) 4% post graduates. Majority of them were unemployed 71% (figure 5) Most were from north 51%, central Sudan 31% and west 18% (figure 4), 47% of the patients were having a family history of kidney disease, and 74% their income affected by renal dialysis (figure6).

74 of patients having co-morbidities with hypertension represent 61.2%, diabetes 24.1%, gout 7.8% and cardiovascular disease 6%. (Table1) Most of the patients start dialysis before 5-10 years(27%), with 23% were before 3-5 years, 21% befor 1-3 years. 16% were befor 1 year and 13% more than 10 years. (figure7)

Comparing the mean score of components of QOL (table 2) & SF-12 composite (table 3) and their frequency distributions (table 4)

The scores for each domain were classified in categories of below average, average, and above average, compared to the most recent national data used in KDQOL website.

Table 2 and table 4, show the mean score of QOL components and their distributions frequency: In general the mean score for general quality of life was 59.389(SD= 12.42) with 69% of the participants were ranked average, and other diverge as 3% below average and 28% above average. The lowest score were recorded to physical composite 33.5, and the highest score belonged to the cognitive function 89.66. Comparing between domains of concern; the mean score of effect of kidney disease was 82.9 with 87% of patients ranked above average,

symptoms/problems are 80.4 (81% above average), and 41.75 for burden of kidney disease (49% average).

In 8 subscales of health related SF-12 physical and mental composite PCS&MCS, which score (33.5± 10.25) & (47.72±9.38) respectively, the lowest score is for role limitations due to physical problem 7.25, and the highest score for role limitation due to mental problems 63.0. (table3), Physical composite patients equally distributed between below average and average, and 90% average in mental composite. (table4)

Differences in mean between different groups of socio-demographic characteristics and components general QOL & SF-12 components (table 5& table 6, 7)

The mean score of all components of QOL and physical composite PCS show no differences between most of socio-demographic characteristics, except for age and duration of dialysis; with age group 18-34 show best score and those of >75 score lowest. The duration of dialysis reflect a negative correlation with scores decrease whenever duration is increase. For occupation the employed particepants score higher in most of the components of QOL& PCS. The scores of mental composite not affected by any of the independent variable.

The association between socio-demographic characteristics and QOL (table 5)

There is a significant difference between the mean of QOL and independent variables of age, marital status, and duration of dialysis. There was no significant difference between the other independent variable except for employment status which showed a significant relation by ANOVA and t- test. (p=.01) By using chi-square and Pearson correlation, the p- value didn't reach any statistical significance for all of independent variable (p<0.05), except for age (p=0.05, correlation= -.253/ .011 (2-tailed)), duration of dialysis (p=0.07, correlation= -.298 /.003 (2-tailed)), and marital status (p=0.01, correlation= -.233 /.02 (2-tailed)), which is further confirmed by ANOVA and t-test. Employment status (p=.01)

The association between socio-demographic characteristics and SF-12 components (PCS&MCS) (table 6, 7)

Regarding PCS: by using chi-square and Bivariate correlation there is a statistical significant association between age (p=0.008, correlation= -.273) and duration of dialysis (p=0.004, correlation= -375) and physical composite of SF-12, which is further confirmed by ANOVA and t-test. Employment status shows a significant relationship by ANOVA and t-test. (p=.04)

Regarding MCS: The P-value did not reach any statistical significance for all independent variables (P>0.05)

Socio demographic data

Figure 1: frequency of age distribuation in patients of end stage renal disease in ibn-sina hospital, 2019 (n= 100).
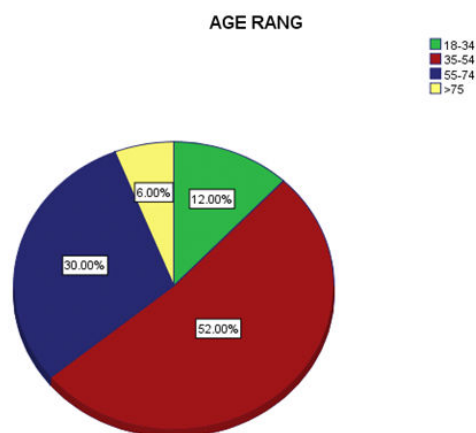

Figure 2: frequency of gender distribution in patients of end stage renal disease in ibn-sina hospital in 2019 (n= 100).
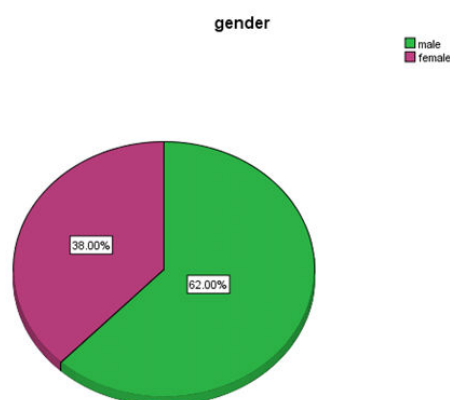

Figure 3: frequency of marital status in patients of end stage renal disease in ibn-sina hospital in 2019 (n= 100).
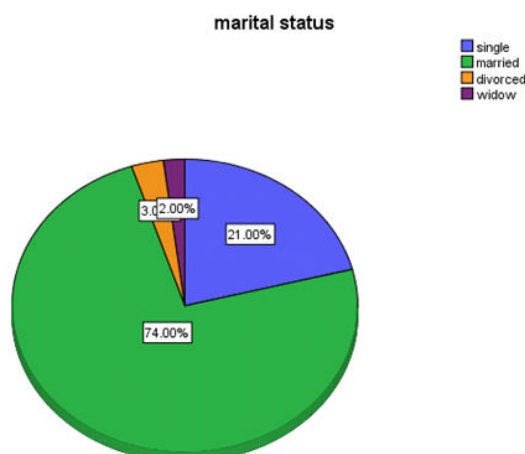
Figure 4: frequency of ethnicity distribution in patients of end stage renal disease in ibn-sina hospital in 2019 (n= 100).
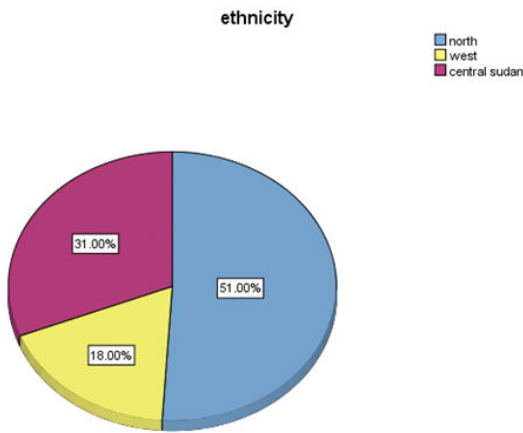

Figure 5: frequency distribution of employment status in patients of end stage renal disease in ibn-sina hospital in 2019 (n= 100).
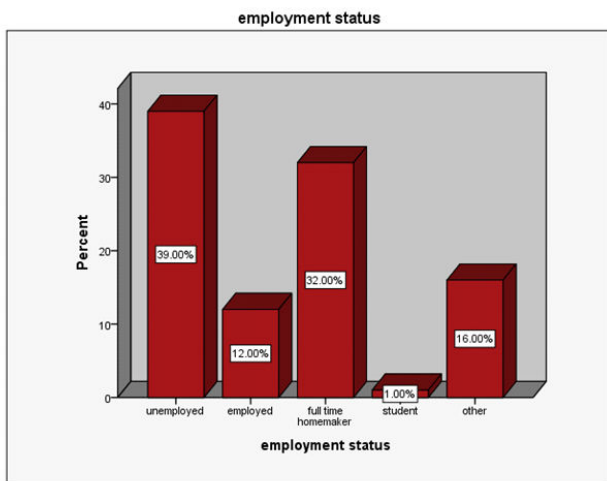
Figure 6: the effect of renal dialysis on income of patients undergoing dialysis in ibn-sina hospital in 2019 (n= 100).
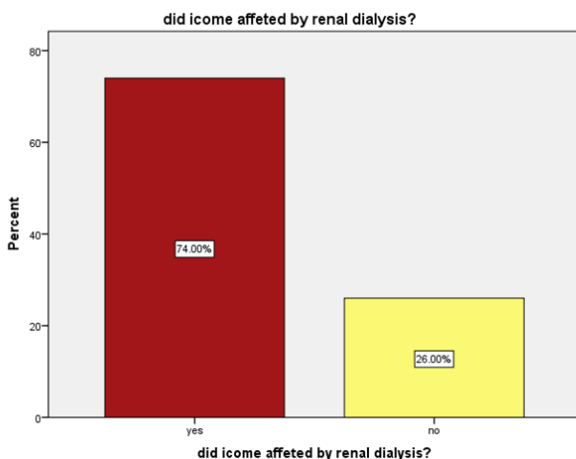
Figure 7: time of starting dialysis of patients undergoing dialysis in ibn-sina hospital in 2019 (n= 100).
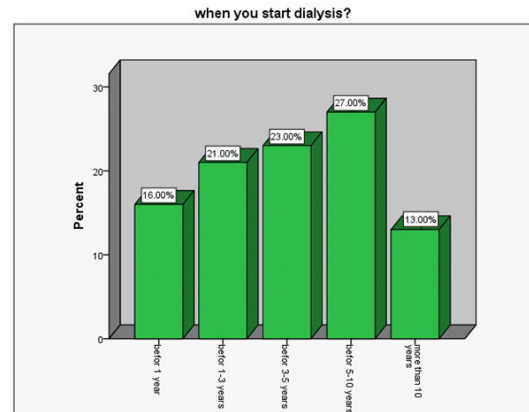
Table 1: frequency of co-morbidities of patients undergoing dialysis in ibn-sina hospital in 2019 (n= 100).

$co-morbid Frequencies				
		Responses		Percent of Cases
		N	Percent	
Co-morbidities a	hypertension	71	61.2%	95.9%
	diabetes	28	24.1%	37.8%
	cardiovascular	7	6.0%	9.5%
	hematological problem	1	0.9%	1.4%
	gout	9	7.8%	12.2%
Total		116	100.0%	156.8%
a. Dichotomy group tabulated at value 1.				

Table 2: the mean score of the components of QOL of patients undergoing dialysis in ibnsina hospital in 2019 (n= 100).

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
cognitive function	100	46.67	100.00	89.6659	12.33144
social support	100	.00	100.00	85.9998	19.20385
effects of kidney disease	100	31.25	100.00	82.9399	14.95371
symptom/problem list	100	6.25	100.00	80.4166	17.42039
quality of social interaction	100	33.33	93.33	78.1999	12.63637
sleep	100	12.50	95.00	66.8000	19.36844

overall health	100	10.00	100.00	61.2000	16.71387
patient satisfaction	100	.00	100.00	60.4999	20.05175
SF-12 mental composite	100	23.69	67.65	47.7215	9.38208
burden of kidney disease	100	.00	100.00	41.7500	21.82995
work status	100	.00	100.00	35.5000	41.00690
SF-12 physical composite	100	12.93	54.57	33.5089	10.25712
Valid N (list wise)	100				

Table 3: the mean score of the physical and mental components of SF-12 in patients undergoing dialysis in ibn-sina hospital in 2019 (n= 100).

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
physical functioning	100	0	100	45.80	30.149
role physical	100	0	100	7.25	23.915
pain	100	0	100	59.50	36.274
general health	100	5	100	46.05	19.698
emotional wellbeing	100	20	100	63.96	16.216
role emotional	100	0	100	64.00	46.825
social function	100	0	100	53.00	36.286
energy/ fatigue	100	0	90	46.35	19.744
SF-12 physical composite	100	12.93	54.57	33.51	10.257
SF-12 mental composite	100	23.69	67.65	47.72	9.382

Valid N (list wise)	100				

Table 4: the frequency distribution of scores for the components of QOL of patients undergoing dialysis in ibn-sina hospital in 2019 (n= 100).

Frequency (%)	Burden of kidney disease	Symptoms and problems	Effects of kidney disease	PCS	MCS	QOL
Below average	36	3	1	49	9	3
average	49	16	12	51	90	69
Above average	15	81	87	00	1	28

Table 5: Frequency distribution of demographic parameters and their significant association with quality of life of patients undergoing dialysis (N=100).

variable			Number/ %	Mean± SD	Significant level	
					Chi	ANOVA
Quality of life	Gender	male	62	59.09± 12.18	0.97	0.71
		female	38	59.97± 12.94		
	Age group	18-34	12	72.18± 10.67	0.05*	0.001*
		35-54	52	58.91± 10.77		
		55-74	30	56.06± 13.47		
		>75	6	54.45± 8.83		
	Marital status	single	21	62.55± 13.96	0.01*	0.04*
		married	74	59.10± 11.51		
		divorced	3	59.18± 11.01		
		widow	2	36.88± 14.65		
	Educational level	illiterate	5	53.40± 16.59	0.24	0.79
		Primary school	14	57.85± 12.88		
		Intermediate education	9	62.66± 11.42		
		Secondary school	38	60.00± 11.57		

				Chi	ANOVA
	university	30	58.88±13.34		
	Higher education	4	62.65±12.79		
ethnicity	north	51	58.11±11.64	0.72	0.43
	west	18	58.86±13.00		
	Central Sudan	31	61.77±13.37		
Employment status	Unemployed	39	57.62±11.48	0.26	0.01*
	employed	12	68.34±12.36		
	house wife	32	57.61±11.87		
	student	1	86.46±0		
	other	16	58.76±12.35		
Co-morbidities	yes	74	58.81±11.87	0.43	0.44
	no	26	60.10±13.98		
Family history	yes	47	59.96±12.59	0.88	0.66
	no	53	58.86±12.37		
Duration of dialysis	Befor 1 year	16	66.69±6.88	0.07*	0.002*
	1-3 yr	21	63.87±10.92		
	3-5 yr	23	59.14±10.04		
	5-10 yr	27	55.78±12.91		
	>10 yrs	13	51.01±16.05		

Table 6: Frequency distribution of demographic parameters and their significant association with the physical composite PCS of patients undergoing dialysis (N=100).

Variable			Number r/ %	Mean± SD	Significant level	
					Chi	ANOVA
Physical composite	Gender	Male	62	34.26±10.41	0.41	0.35
		Female	38	32.28±10.02		
	Age group	18-34	12	43.69±7.31	0.008*	0.001*
		35-54	52	33.57±9.32		
		55-74	30	29.63±10.29		
		>75	6	31.90±11.03		
	Marital status	Single	21	36.96±10.06	0.44	0.15
		Married	74	32.88±10.28		
		Divorced	3	32.74±7.47		
		Widow	2	21.67±1.05		
	Educational level	Illiterate	5	38.91±13.68	0.96	0.61
		Primary school	14	30.48±9.99		
		Intermediate education	9	33.57±11.37		
		Secondary school	38	32.57±10.19		
		university	30	35.25±9.86		
		Higher education	4	39.26±9.79		
	ethnicity	north	51	32.63±10.01	0.38	0.58
		west	18	33.29±11.06		
		Central Sudan	31	35.06±10.33		
	Employment status	Unemployed	39	34.22±10.22	0.17	0.04*
		employed	12	35.76±11.45		
		house wife	32	29.97±8.72		
		student	1	53.80±0		
		other	16	35.91±10.51		
	Co-morbidities	yes	74	33.34±9.44	0.65	0.78
		no	26	33.99±12.49		
	Family history	yes	47	33.42±10.58	0.99	0.93
		no	53	33.59±10.06		
	Duration of dialysis	Befor 1 year	16	37.53±7.46	0.004*	0.002*

		1-3 yr	21	37.59± 10.16		
		3-5 yr	23	35.45± 7.59		
		5-10 yr	27	28.79± 10.43		
		>10 yrs	13	28.31± 12.15		

Table 7: Frequency distribution of demographic parameters and their significant association with the mental composite MCS of patients undergoing dialysis (N=100).

Variable			Number/ %	Mean± SD	Significant level	
					Chi	ANOVA
Mental composite	Gender	Male	62	46.65± 9.48	0.27	0.15
		Female	38	49.47± 9.06		
	Age group	18-34	12	51.26± 7.63	0.35	0.55
		35-54	52	46.87± 10.63		
		55-74	30	47.74± 7.66		
		>75	6	47.83± 9.16		
	Marital status	Single	21	47.42± 10.73	0.63	0.90
		Married	74	47.74± 9.17		
		Divorced	3	51.13± 4.19		
		Widow	2	44.96± 13.22		
	Educational level	Illiterate	5	45.36± 10.17	0.11	0.24
		Primary school	14	46.68± 12.67		
		Intermediate education	9	52.59± 5.68		
		Secondary school	38	49.33± 7.77		
		university	30	45.89± 9.46		
		Higher education	4	41.76± 13.17		
	ethnicity	North	51	46.64± 9.22	0.28	0.39
		West	18	50.08± 10.73		
		Central Sudan	31	48.12± 8.83		
Employment status		Unemployed	39	47.31± 9.37	0.71	0.15
		employed	12	47.34± 7.69		
		house wife	32	50.16± 8.83		
		Student	1	57.92± 0		
		Other	16	43.74± 10.67		
Co-morbidities		Yes	74	47.14± 9.81	0.80	0.29
		No	26	49.38± 7.94		
Family history		Yes	47	48.48± 8.62	0.18	0.45
		No	53	47.04± 10.03		
Duration of dialysis		Befor 1 year	16	51.58± 9.50	0.59	0.21
		1-3 yr	21	48.67± 9.78		
		3-5 yr	23	45.91± 9.21		
		5-10 yr	27	48.03± 8.84		
		>10 yrs	13	43.99± 9.24		

Discussion

The studies on the QOL of patients with chronic disease have increased these days. It has become an integral parameter to assess patient satisfaction and improvement with therapy. This is very true, especially in conditions like ESRD. ESRD is associated with many co-morbid conditions and require close medical management and follow-up. These facts can cause severe stress and significantly affect patient's overall physical and mental well-being. Patients have to deal with a strict nutritional regimen, debilitating physical complaints, social challenges, and psychological distress attributed to the often debilitating aspect of ESRD. (9)

Improvement in the QOL has become the major treatment goal in ESRD patients, because quality of life is considered an indicator of quality of health care and a part of disease control plans. In this study, which based on 100 participants, the mean overall score of quality of life was found to be in the average range, which was consistent with the description of majority of patients of their general health, and also with the results of a two studies by Vosooghi and Namdar. However, it disagreed with results of some studies that reported quality of life of hemodialysis patients satisfactory, and also with Harirchi's study that reported quality of life of these patients as bad. ((35), (36), (37))

The results of our study were inconsistent with studies conducted in other countries such as Lundoglu in Turkey with mean overall quality of life score of 65, Tagi in Japan with 61, Vezcoez in Spain with 65, and Fugi Sava in Japan with 68 ((38), (39)). But they are indicative of lower scores in dimensions of quality of life compared to studies conducted abroad. A reason for this could be adequate dialysis in other countries compared to the dialysis carried out in our countries. Branvald explains that with the development of hemodialysis, thousands of lives of patients with advanced chronic renal failure have been saved, and their mortality rate dramatically reduced. Obviously, by increasing number of dialysis sessions and nutritional improvement, quality of life of these patients will drastically improve. (40) In the present study, majority of patients were dialyzed 8 hours per week, on average, over one or two sessions. While in other countries dialysis time is 20-24 hours per week. The low duration of dialysis in the patients in this study could be the reason for low quality of life of these patients.

Our study showed a significant relationship between the general quality of life, and age, marital status and the duration of dialysis, with no significant relationship to the other independent variables such as gender, educational level, occupation, ethnicity, family history and co-morbidities, of note marital status is showed to be significantly related to the symptoms domain, and the educational level significantly associated with the effect of kidney disease. But another study done by Marc M saad et al, showed that no relationships were statistically significant between dependent variables of QOL and the independent variables, except for sex carried the strongest statistical significance (with a P-value of 0.16) as a predictor of "the burden of kidney disease on daily life.(9) This difference between two results may renders to the variations in sample size of both studies.

In SF-12 health related quality of life, the PCS and MCS scores allow the physicians to rapidly assess whether the health needs of importance to the patients have being met. In our study the physical composite scored lower than the mental composite, this finding is in agreement with other reports of studies of functional health status of hemodialysis patients.((41), (42)) and disagreed by Raymond's study in Holland (43); the reason for lowest physical dimension may be due to the renal complications and co-morbidities associated with it, other studies explained this reduction in PCS related to female sex, diabetes as a cause of ESRD and low level of albumin, besides the co-morbidity due to pulmonary or cardiac disease. (11)In terms of mental health, it seems cultural and religious attitudes in the society have been involved, and at the time of data collection and interview with patients, despite physical problems, most patients were still thankful of God and stated that they were satisfied with whatsoever He has ordained.

According to their association with socio-demographic characteristics, age showed a significant negative correlation with physical domain, with increasing age, a physical functioning decrease. With growing older, due to physiological changes of aging, passage of time, and addition of other diseases to the initial disease, quality of life declines especially in the physical functioning dimension. Many other studies show that there are

roughly linear decline in PCS with age.((9), (14) But MCS remain relatively stable in older subjects, as confirmed in a study done sanjeev K. Mittal (11). Some studies show that there is decrease in MCS with getting older as in Taghizadeh study and Namadar, explained by that; these people may feel inadequate due to separation from their children that may be in transitional stage of life like marrying and making a family, and because of increased dependencies on children due to diseases and subsequent disabilities, and reduced effectiveness, and thus could develop problems in terms of mental component summary. In contrary DeOreo found in his study MCS increased significantly in older dialysis patients, it may be that with older age, patients are better able to adapt emotionally for their chronic disease, based on their wealth of life experience. (41) Duration of dialysis also showed a significant negative correlation with PCS and no effect on MCS, in contrast to the study done by Mittal which showed that both PCS and MCS tend to decline in the initial months of dialysis but stabilized over time and Namdar show no significant relationship to both.

Other independent variables such as sex, educational level, marital status, co-morbidites and family income, not significantly related to the HRQOL PCS and MCS, but occupation to some extent shows a relationship. In comparison to other studies which show that marital status and men sex having better scores in both PCS and MCS.((11), (12)) with the study by Taeibi that confirms the same relationship but in the physical functioning dimension only.(14) Other studies that showed significantly higher quality of life with higher education ((44),(45), (46), (47)); People with higher education try to find out about their disease and how they should care for themselves, they are also more capable of being taught and follow instructions of the doctor and treatment team with care. Therefore, they have better quality of life. In our study this relationship is not significant may be justified by lower sample size and so low number of educated patients. Employment status is one of the most important factors in quality of life. The insignificant difference found in this study was probably due to low number of employed patients. There are many other factors which aren't covered in this study and play an important role in indicating a QOL, this was the metabolic profile and nutritional status in the body, covered in other studies.(9), (11), (14).

Conclusion

The results showed large variations in the dimensions of quality of life in end stage renal disease as the result of hemodialysis, with the affection of age and duration of dialysis as a determinant for physical composite in specific and quality of life in general while mental composite remain not affected by any of the in dependent variable. Family and health care team members can use factors influencing the patients' quality of life in order to provide care and support programs for patients to help them cope with the illness and improve their quality of life.

Recommendation

Next studies better to involve larger sample size to correctly measure the associations, and to use a longitudinal design

instead of cross sectional in order to further investigate the effects of diseases on quality of life, also to take into account the metabolic and nutritional status of the patients, and the difference modalities of the treatment. Secondly, improving patients' QOL has evolved as one of the primary goals of renal replacement therapy beyond dialysis prescriptions, there are several domains of poor performance that offer the opportunities to improve HRQOL in ESRD. Improving physical functioning and promoting independency could be an important perspective to change the disease perception and lessen its incapacitations.

More importantly, transplantation still remains the most effective form of renal replacement therapy for improving HRQOL, and it is an imperative modality to consider in managing patients.

Limitation

This study done was cross sectional study so lack the capability of assessing causal effect, and the sample size is small due to exclusion of patients who come at the night shift dialysis and we took only the patient of ESRD on hemodialysis with exclusion of those on peritoneal dialysis and who underwent kidney transplant. So I recommended next time to take a wide variety of patients in order to make a significant result. In order to further investigate the effects of diseases on quality of life, metabolic profile and nutritional status of the patients would be considered.

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