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Assessment of Quality of Life of Chronic Kidney Disease Patients Undergoing Hemodialysis in Peshawar

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Abstract

Objective: To assess the Quality of Life (QOL) of patients undergoing haemodialysis at the Institute of Kidney Diseases (IKD) Peshawar, identify the challenges faced by them in their physical, psychological, environmental and social domains & evaluate the effects of various demographic factors on their Quality of Life.

Methodology: A cross-sectional study was conducted among 229 patients undergoing maintenance hemodialysis (MHD) at the Institute of Kidney Diseases (IKD) Peshawar from June 10 to November 15, 2023. Patients aged 18 years and above of either sex who had undergone maintenance haemodialysis for at least three month were included in this study. Data was collected using a pre-validated World Health Organization (WHOQOL-BREF) questionnaire & was analysed using SPSS Version 22.

Results: The mean age of the sample was 41+13.41 years. Out of 229 patients undergoing haemodialysis, males were 68.1%, whereas females were 32.9%. The social domain had the highest mean QOL score (54.6 +18.8), while the psychological domain showed the lowest score (45.6±13.6). Older age was associated with lower QOL scores in physical (p<.001) and psychological (p=.018) domains. Duration of dialysis was positively correlated with higher QOL scores in physical (p=.033) and psychological domains (p=.032). Single subjects also had better QOL scores in physical (p=.021) and psychological (p=.024) domains than married ones. Males had higher QOL scores in physical (p=.013) and social (p=.008) domains than females.

Conclusion: Patients with CKD undergoing haemodialysis had low scores in all four domains. Age, duration, gender & marital status affected one or more domains of QOL. Age was found to be the negative predictor of QOL of patients on maintenance haemodialysis.

Keywords: Chronic kidney disease, hemodialysis, Quality of Life

Introduction

CKD is defined as a gradual decline in kidney function over time. It is a slowly progressive disease that manifests when kidney function becomes one-tenth of normal and can occur because of a multitude of factors, with Diabetes and Hypertension being responsible for two-thirds of its cases.[1-2] Other factors that put an individual at risk are heart disease, obesity, family history, past damage to the kidneys, and older age.[3] It is an important cause of morbidity and mortality worldwide. The global estimated prevalence of CKD is 13.4% (11.7-15.1%), and patients with end-stage kidney disease (ESKD) needing renal replacement therapy are estimated to be between 4.902 and 7.083 million.[4] Annually, 1.2 million deaths from CKD-related disorders have been reported.[5] The numbers in Pakistan are not any less alarming, with CKD affecting 21 -24 % of its population.[6-7] The rising CKD cases in Pakistan can be attributed to the high prevalence of diabetes and hypertension, poor socio-economic conditions, flawed primary health care setup, and inadequate health education.

End Stage Renal Disease (ESRD) is the terminal stage of CKD, where the estimated glomerular filtration rate (eGFR) falls below 15, indicating that the kidneys are failing or close to failing. Currently no cure exists for ESRD but some treatment options i.e. haemodialysis or renal transplantation can help extend a patient's life expectancy and are the only resort for a patient's survival.[8]

Despite being a lifesaving modality, hemodialysis also has certain complications that negatively impact the life of an individual. Patients undergoing hemodialysis on a regular basis bear physical, mental, and social hurdles that affect their overall well-being.[9] Symptoms such as fatigue, constipation, cramps, depression, pruritus, nausea, vomiting, and depression impact all daily activities. Additionally, patients, along with their families, are faced with economic challenges, and they have to adapt to the frequent and tedious dialysis sessions, ultimately resulting in a compromised quality of life.[10-11]

QOL is an indicator that signifies the outcomes of a chronic prolonged illness. Many studies have associated patients with CKD undergoing dialysis with an overall decreased quality of life. It has become an increasingly important parameter for the evaluation of chronic conditions like CKD and for devising new interventions to improve treatment outcomes.[12]

Several studies have been conducted to assess the quality of life of patients undergoing hemodialysis in developed countries; however, previous studies have assessed QOL using a 36-item Short Form Health Survey (SF-36) and KDQOL-SF 1.3. The SF-36 assesses physical and mental health domains using the same questions, which leads to complex results.[13] Similarly, KDQOL-SF 1.3 is a well-validated test tool based on 80 items but has limitations in ease of use and convenience. Therefore, this study was conducted using the WHOQOL-BREF questionnaire because it is easier to interpret and is a relatively simple diagnostic tool for assessing QOL.[14]

Moreover, there have been few recent studies conducted in Pakistan pertaining this topic therefore this study is conducted to fill the gap in knowledge and provide up to date information. The study is intended for evaluating QOL of patients undergoing haemodialysis with regards to physical, mental, psychological and environmental health domains as highlighted in World Health Organisation Quality of Life questionnaire (WHOQOL-BREF).

Methodology

This was an observational cross-sectional study conducted among patients with CKD undergoing MHD at the Institute of Kidney Diseases Peshawar. Data was collected from August 27, 2023, to September 15, 2023. Institutional ethical approval was obtained prior to data collection, and permission was taken from the IKD administration.

Sample size of 229 was calculated by Cochran's formula. Patients were selected by convenience, non-probability serial sampling. Patients from both genders who were at least 18 years of age and had been on MHD since at least 3 months were included. Patients with altered mental status & physical disabilities (potential confounders) and those in a state of emergency & needing urgent medical attention were excluded.

Socio-demographic information such as age, gender, education, marital status and duration on haemodialysis were collected and QOL was measured using WHOQOL-BREF questionnaire. Informed written consent was taken from each respondent. Urdu version of WHOQOL-BREF14 questionnaire was read out by the investigators where needed and their responses were recorded.

WHOQOL-BREF questionnaire is based on 26 items. Item 1 and Item 2 evaluates an individual's overall perception of their QOL and health. The rest of the items were included in physical, psychological, social and environmental domains. Each item is based on a 5-point Likert scale.

Data was analyzed using the statistical software SPSS version 22. Categorical variables were presented in the form of percentages and frequencies. Pearson correlation was used to find the association between demographic variables like age and duration of dialysis with transformed scores of all four domains. Independent samples T-test was used to find the association between mean scores and marital status in each domain. A p value of <0.05 was considered to be statistically significant.

Results

A total of 229 respondents were included in this study. The average age of the sample was 41+13.4 years. Amongst the patients 156(68.1%) were males whereas 73(31.9%) were females. 96(41.9%) were illiterate, 4(32.3%) had received primary education only, 41(17.9%) patients had secondary and 18(7.9%) patients had received tertiary education. 174(76.0%) were married, 52 (22.7%) were single, and only 3(1.3%) were widowed, whereas no divorced subjects were found, as shown in table 1. As in Table 2, 33(14.4%) of the respondents reported very poor QOL, and another 77(33.6%) had poor QOL. 38 (16.6%) of the subjects had good QOL, while only 4(1.7%) were found to have very good QOL. Table 3 encompasses some aspects of the physical domain. Majority 82 (35.7%) of the patients were satisfied with their sleep while 52(22.7%) were dissatisfied. Only 4(1.7%) of the respondents were very satisfied with their capacity to work.

Table 4 shows that very few patients were extremely satisfied with the psychological aspects of their health. The majority of the patients were not doing satisfactorily in this domain.

Most of the respondents 94 (41%) were satisfied with their personal and social relationships. 84 (36.7%) were satisfied with their support from friends (Table 5).

Table 6 covers the environmental aspects of the QOL. Most of the respondents 100(43.7%) were satisfied with their physical environment. 64(27.9%) reported less opportunities for leisure activities. Only 8 (3.5%) reported to have complete satisfaction regarding availability of money to meet their needs.

The mean domain scores for physical, psychological, environmental and social components of QOL questionnaire were transformed to a scale of 0-100. The highest mean score was in social domain (54.2±18.8) followed by environmental (51.0±13.4) and physical (45.7±15.4) domains. Psychological domain showed the lowest mean score (45.6±13.6).

Pearson correlation showed that age was negatively associated with scores in physical [r(229)= -0.260 p< 0.01] and psychological [r(230)=- 0.157, p= .018] domains. In the case of the duration of dialysis, a positive association was found with scores in physical [r(229)= .141, p= .033] and psychological [r(230)=.142,p =.032]

The mean scores in physical domain for the single subjects were higher (50.13) than the married ones (44.49). This difference was statistically significant (p=0.021). Similarly, single subjects scored higher in psychological domain (p= 0.02). Male subjects scored higher than females both in physical & psychological domains. The difference was statistically significant (p= .013 & p= .008 respectively).

Table 1. Demographic profile of the sample

Characteristics (N= 229)		Frequency	Percentage
Gender	Male	156	68.1%
	Female	73	31.9%
Marital status	Married	226	98.7%
	Widowed	3	2.3%
	Divorced	None	None
Educational status	Illiterate	96	41.9%
	Primary level	74	32.3%
	Secondary level	41	17.9%
	Higher level	18	7.9%

Table 2. Quality of Life

N=229	Frequency	Percentage
Very Poor	33	14.4%
Poor	77	33.6%
Neither good nor poor	77	33.6%
Good	38	16.6%
Very good	4	1.7%

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Table 3. Physical Health Domain Satisfaction

N=229	Very Satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
Sleep	28(12.2%)	82(35.7%)	46(20.1%)	52(22.7%)	21(9.2%)
Daily life activity	3(1.3%)	63(27.5%)	49(21.4%)	90(38.9%)	25(10.9%)
Capacity of work	4(1.7%)	52(22.7%)	48(21.0%)	101(44.1%)	24(10.5%)

Table 4. Psychological Domain Satisfaction

N=229	Not at all	A little	A moderate amount	Very much	Extremely
Bodily appearance	21(9.2%)	59(25.8%)	52(22.7%)	90(39.3%)	7(3.2%)
Meaning of life	12(5.2%)	60(26.2%)	71(31.0%)	67(29.3%)	19(8.3%)
Enjoy your life	50(21.8%)	68(29.7%)	60(26.2%)	44(19.2%)	7(3.1%)
Concentration	50(21.8%)	57(24.9%)	67(29.3%)	51(22.3%)	4(1.7%)

Table 5. Social and Personal Life Satisfaction

N=229	Very Dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
Personal relationship	10(4.4%)	42(18.3%)	58(25.3%)	94(41.0%)	25(10.9%)
Sex life	27(15.8%)	34(19.9%)	55(32.2%)	46(26.9%)	9(5.3%)
Support from friends	12(5.2%)	53(23.1%)	58(25.3%)	84(36.7%)	22(9.6%)
Concentration	50(21.8%)	57(24.9%)	67(29.3%)	51(22.3%)	4(1.7%)

Table 6. Environmental Domain Satisfaction

N=229	Not at all satisfied	A little satisfied	Moderately satisfied	Mostly satisfied	Completely satisfied
Physical Environment	14(6.1%)	26(11.4%)	82(35.8%)	100(43.7%)	7(3.1%)
Availability of information	43(18.8%)	55(24.0%)	82(35.8%)	47(20.5%)	2(0.9%)
Opportunity for leisure activities	53(23.1%)	64(27.9%)	57(24.9%)	54(23.6%)	1(0.4%)
Enough money to meet your needs	37(16.2%)	51(22.3%)	60(26.2%)	73(31.9%)	8(3.5%)

Discussion

A substantial portion of CKD patients in this study reported dissatisfaction with their QOL, reflecting the challenges and burdens associated with the disease. Other studies have reported similar results.[15-17] The findings of this study offer insights into the complex interplay of physical, psychological, social, and environmental factors affecting the QOL of CKD patients undergoing hemodialysis in Peshawar.

The study indicates that age and duration of dialysis were significantly associated with quality of life in physical and physiological domains. Other study reported similar results.[18-19] Yet, another study from Pakistan reported findings contrary to it.[16] However, the study had limitation of a small non-probability sample.

The negative association between age and scores in the physical domain can be attributed to the decline in physical health with increasing age. As individuals age, they experience physiological changes like compromised organ function, decreased bone and muscle mass and reduced activity. Also, increasing age puts a subject at risk of developing various co-morbid medical conditions like diabetes and hypertension, which can significantly impair the quality of life.[20-21] Similarly, the negative correlation between age and scores in the psychological domain can be explained by multiple factors, such as older subjects may have been undergoing

hemodialysis for a longer duration, and the burden of ongoing treatment could possibly have affected their psychological well-being. Also, younger patients may have a stronger social support system and more effective coping mechanisms to deal with stress and challenges associated with hemodialysis, which could lead to better psychological domain scores.

Duration of dialysis was found to be positively correlated with quality of life in physical and psychological domains. This might be because patients who have been on hemodialysis may have had more time to adapt to their condition and are more familiar with the dialysis experience since it has become a routine part of their life. Longer-term dialysis patients might also have better access to resources, support services, healthcare education, and better coping mechanisms, which could lead to improved physical and psychological well-being. This finding is in contradiction to findings of other studies.[22-23]

The results also showed that males scored higher in physical and social domains than females. Certain cultural factors can influence how individuals express their feelings and concerns. Males may underreport physical distress, which might have led to the increased scores. Socioeconomic status and access to resources can possibly explain better scores if males in this study had better access to healthcare, nutrition, and better opportunities for physical activity. Another study from Lahore also reported similar findings.[24] In contrast, a study reported a higher quality of life in female patients.[25] The study, however, used a different tool to measure the QOL.

While married subjects were expected to score higher than single subjects, the results surprisingly showed single subjects having better scores in physical and psychological domains than married ones. This might be owed to family and household responsibilities that can lead to increased stress and a reduced ability to focus on self-care and psychological well-being. A study conducted in Saudi Arabia[26] didn't report any statistically significant difference in QOL between men and women. The study used a different questionnaire for data collection.

An important limitation of the study is that the study was only confined to IKD Peshawar and the findings may not fully represent CKD patients in other healthcare settings.

Conclusion

Overall, the QOL of patients on haemodialysis is not satisfactory. Age, gender, marital status, and duration of hemodialysis are important associated factors. Older and married patients have lower QOL in general, while males and patients on hemodialysis for a longer time have better QOL. There is an urgent need to conduct similar large-scale multi-center studies and comprehensive, evidence-based interventions to address the multi-faceted challenges faced by these patients.

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Authors' Contribution Statement

AIK contributed to the conception, design, acquisition, analysis, data interpretation, and manuscript drafting. KNA contributed to the design, acquisition, analysis, interpretation of data, manuscript drafting, critical review, and final approval of the version to be published. AAK contributed to the analysis, data interpretation, and manuscript drafting. SZ contributed to the analysis, data interpretation, and manuscript drafting. SK contributed to the analysis, data interpretation, and manuscript drafting. ZB contributed to the analysis, data interpretation, and manuscript drafting. SFS contributed to the analysis, data interpretation, and manuscript drafting. MA contributed to the analysis, data interpretation, and manuscript drafting. SA contributed to the analysis, data interpretation, and manuscript drafting. UAK contributed to the analysis, data interpretation, and manuscript drafting. All authors are accountable for their work and ensure the accuracy and integrity of the study.

Conflict of Interest

Authors declared no conflict on interest

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None

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.