Health Related Quality of Life Among Chronic Kidney Disease Patients Undergoing Hemodialysis in Pakistan.

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Abstract

Background: Hemodialysis is a well-established replacement therapy for patient with end stage renal disease. But it has a great impact on the patient's quality of life. Therefore, the purpose of this study is to identify the health-related quality of life of patients receiving hemodialysis.

Methods: A cross sectional single centered survey was carried out from March 2018 to June 2018 at Department of Nephrology, Institute of Kidney diseases, Peshawar in Pakistan. A 36 item KDQOL validated Urdu version was used to identify the quality of life of patients.

Results: A total of n=184 patients having chronic kidney disease undergoing hemodialysis participated, of whom 63.6% were males and 57.1% patients were Pashtun. A multiple linear regression showed that patients having kidney disease caused due to hypertension had 45% higher kidney disease component summary (KDSC) score while 16% higher physical component summary (PCS) score and 60% higher mental component summary (MCS) score and were statistically significant. Similarly; Peshawari patients had 22% lower PCS score as compared to other ethnic groups; however, in MCS Peshawari patients had 16% higher score and were statistically significant.

Conclusion: The patients have poor quality of life receiving hemodialysis therapy in all three domains like PCS, MCS and KDSC.

Keywords: Health Related Quality of life, Hemodialysis, Pakistan.

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Introduction

Chronic kidney disease (CKD) has become a major public health issue worldwide and the incidence of chronic kidney disease is reported to be higher in South Asian populations as compared to European population.^{1,2} In Pakistan, CKD is on the rise; due to lack of a national registry to collect data of patients on dialysis.³ The elevated CKD incidence in Pakistan is considered to be the result of insufficient government support, high rates of diabetes and hypertension, faulty primary health care system and inadequate health education.⁵

Chronic dialysis has a great impact on the patients' health-related quality of life (HRQOL), as it affects physical, social, psychological and emotional well-being of patients often leading to anxiety, depression, restless leg syndrome, post-dialysis fatigue and generalized weakness.⁴ In Pakistan, the QOL in patients with ESRD is assumed to be poorer compared to other countries because only 40% patients can access dialysis service, of which, 67% receive inadequate dialysis (two dialysis/week) and are regarded as under-dialyzed. Patients with insufficient dialysis have poor QOL and lesser survival rate (1-2 years survival rate of 40.5%).⁵ Moreover, compared to developed countries, there

are very few formally trained nephrologists in Pakistan.⁶ The aim of this study was to measure HRQOL hemodialysis patients in a tertiary care center of Khyber Pakhtunkhwa province of Pakistan and to determine risk factor for poor HRQOL.

Methods

A cross-sectional, single center survey was conducted, patients were recruited from the Department of Nephrology, Institute of kidney disease (IKD) Peshawar, Pakistan from February 2018 to May 2018.

Study population

Inclusion criteria: Patients aged 18 years and above with CKD stage 5, both genders and undergoing hemodialysis at dialysis unit of Institute of kidney disease (IKD) Peshawar, were included in the study.

Sample size

The required sample size for this study was calculated by using a Cochrane sample size formula and based on 12.5 % prevalence reported in previous study, 169 was the required sample size according to the formula used.⁷ However, to make it more precise and decrease the chances of error we included 184 patients in the present study.

Data collection and instruments

After providing their informed consent, patients were asked to complete the Urdu version of KDQOL SF™ version 1.3.⁸

Statistical analysis

Data analysis was done using SPSS V.21. Patient's demographic characteristics and items of the KDQOL were summarized using frequency distribution. PCS and MCS were calculated using KDQOL SF™ 1.3 scoring program v.2.0. Multiple linear regressions were used to find the association of demographic characteristics such as dialysis per week, cause of CKD, gender, ethnicity, marital status, and education status. Beta coefficient (β) was used to compare the strength of the effect of dependent variables over the independent variables. The higher the β value, the stronger the relation. Statistical significance was set at p-value less than 0.05.

Results

A total of n=200 patients were approached and n=184 patients participated in this research project and the response rate was 92%, of whom (63.6%) were males. Majority of the respondents (38.1%) were among age group of 39 years or below; (57.1%) were Pashtun and (85.3%) were married as shown in table 1.

Patients having CKD caused by hypertension had 45% higher KDCS score as compared to others with $\beta = -0.451$ and CI 95% [-5.629 - -3.228], similarly patients who were not illiterate had 34% higher KDCS score as compared to others, $\beta = 0.341$ and CI 95% [1.881— 4.248] and both were statistically significant. The PCS score of patients having once a week dialysis and kidney disease caused by hypertension had 20% and 16% higher PCS score as compared to others with $\beta = -0.202$ and CI 95% [-6.657 - -1.572] and $\beta = -0.169$ and CI 95% [-1.240 - -0.222], respectively. Peshawari patients had 22% lower PCS score as compared to other ethnic groups with $\beta = 0.224$ and CI 95% [0.572 — 1.942] and among them patients who are not illiterate had 50% higher PCS score as compared to others $\beta = 0.508$ and CI 95% [1.501— 2.505] and were statistically significant. Patients having kidney disease caused by hypertension had 60% higher MCS score as compared to other with $\beta = -0.609$ and CI 95% [-4.048 — -2.809], while Peshawari patients had 16% higher MCS score as compared to other ethnic groups with $\beta = -0.164$ and CI 95% [-2.035 - -0.367] and were statistically significant, Table 2. The higher KDCS, PCS and MCS were indicative of better quality of life.

Discussion

In the present study, we found poor quality of life of patients receiving hemodialysis in all three domains such as PCS, MCS and KDCS. In our study it was observed that the mean score for KDCS was higher than PCS and MCS scores; which are similar to findings of another study done in India.⁹

Table 1: Demographics characteristics of 184 maintenance hemodialysis patients.

Variables		Frequency (n)	Percent %
Gender	Male	117	63.6
	Female	67	36.4
Age	39 years or below	70	38.0
	40 to 49 years	60	32.6
	50 years or above	54	29.3
Ethnicity	Peshawri	36	19.6
	Pashtun	105	57.1
	Punjabi	35	19.0
	Afghani	8	4.3
Marital status	Married	157	85.3
	Single	27	14.7
Highest level of education	Illiterate	53	28.8
	Primary Level	50	27.2
	Secondary Level	45	24.5
	Graduate Level	23	12.5
	Postgraduate Level	13	7.1
Co-morbid conditions	Don't know	28	15.2
	Hypertension	62	33.7
	Diabetes	69	37.5
	Polycystic kidney disease	5	2.7
	Chronic glomerulonephritis	20	10.9
Monthly income	Less than Rs. 30,000	136	73.9
	Rs. 30,000 - Rs. 50,000	42	22.8
	Rs. 51,000 - Rs. 75,000	3	1.6
	Rs. 75,000 - Rs. 100,000	2	1.1
	Rs. 100,000 and above	1	0.5
Dialysis Per week	Once per week	11	6.0
	Twice per week	173	94.0

The current study reported significantly poorer QOL in the presence of hypertension compared to other comorbidities (especially diabetes), measured as KDSC, PCS and MCS, respectively. This higher difference may be due to higher kidney disease burden in the presence of diabetes, because diabetes as reported in these studies was the leading cause of CKD. Our study findings are aligned with the finding by others also.⁹⁻¹¹

Similarly, we found higher QOL among educated patients in all three domains (KDSC, PCS and MCS) because educated patients can easily adopt to guidelines and precautions from their healthcare team. Similar results were reported by a recent study conducted in Pakistan.¹² Ethnicity is another factor affecting the quality of life of hemodialysis patients. Our study reported, 16% higher QOL under MCS among Peshawari patients while 22% lower physical health compared to other ethnic groups. The lower MCS score among other ethnic groups except Peshawari may be due to the differences in patients' beliefs, disease perception, and understanding of treatment modalities which directly affect psychological well-being of the patient.^{13,14}

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Table 2: Multiple linear regression analysis of kidney disease component summary, physical component summary and mental component summary among 184 maintenance hemodialysis patients.

Characteristic	KDCS			PCS			MCS		
	β	CI[95%]	p-value	β	CI [95%]	p-value	β	CI [95%]	p-value
Dialysis/Week: once	-0.086	-9.992; 2.000	0.190	-0.202	-6.657; -1.572	0.002	-0.088	-5.423; 0.763	0.139
CKD Cause: Hypertension	-0.451	-5.629; -3.228	<0.001	-0.169	-1.240; -0.222	0.005	-0.609	-4.048; -2.809	<0.001
Gender: Male	0.063	-1.520; 4.404	0.338	-0.096	-2.214; 0.298	0.134	0.120	0.042; 3.098]	0.044
Ethnicity: Peshawari	-0.015	-1.812; 1.421	0.812	0.224	0.572; 1.942	<0.001	-0.164	-2.035; -0.367]	0.005
Marital status: Married	0.100	-0.835; 7.046	0.122	-0.120	-3.307; 0.034	0.055	0.020	-1.668; 2.397	0.724
Education status: Illiterate	0.341	1.881; 4.248	<0.001	0.508	1.501; 2.505	<0.001	0.201	0.425; 1.646]	0.001

According to the demographic characteristics of the study population, kidney disease was common in younger patients, which are inconsistent with a study by Yang et al.¹⁵ Similar points were highlighted by other authors in Pakistan about young age patients suffering from CKD and multiple factors were considered to be accountable for poor outcomes during dialysis including late referral, malnutrition, anemia, inadequate dialysis, and the lack of availability of qualified nephrologists at dialysis unit.¹⁶⁻¹⁹ Males were more exposed to kidney disease and hemodialysis verses females as reported by studies.^{10,20} The mental component score of males were 12% higher verses females and this difference may be due to poor access of women to health care in our culture especially in pashtun society.

Overall, patients on hemodialysis in our study were observed to have poor quality of life and the possible reason for this may be inadequate dialysis, lack of knowledge and poor literacy status of patients, short duration of dialysis session, less number of nephrologist in dialysis unit, economic burden and limited resources provided by the government for the health budget.

There are some potential limitations of the study; we conducted this study in a single center, instead multicenter studies are needed in order to make the results more generalizable. Moreover, we did not include an important aspect of HRQOL estimate of sexual function of the study participants due to social barriers.

Conclusion

The present study reported poor quality of life in hemodialysis patients in all three domains such as physical component summary, mental component summary and kidney disease component summary. Therefore, proper attentions are needed to improve the QOL of hemodialysis patients by identifying and removing factors which impair the QOL of patients.

Conflict of Interest: None declared

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