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Assessment of Quality of Life in Haemodialysis Patients using the World Health Organization Quality of Life Brief Version (WHOQOL-BREF) Questionnaire

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ABSTRACT

Objectives: To assess the quality of life in patients on haemodialysis and evaluated how various sociodemographic factors affect their quality of life and overall health.

Study Design: Cross-sectional study.

Place and Duration of Study: Haemodialysis Centre, Combined Military Hospital, Lahore Pakistan, from Feb to Apr, 2020.

Methodology: After consent, 100 participants with ESRD who were on maintenance haemodialysis were selected by non-probability convenience sampling. World Health Organization Quality of life (BREF) questionnaire was used for assessing four domains of quality of life - psychological, physical, environmental and social.

Results: Older age, ≥65 years had lower quality of life scores in all domains than patients from other age groups. Longer duration on haemodialysis was also observed to be an independent negative predictor of quality of life in patients on haemodialysis (p<0.05). Analysis of comorbidities revealed that patients with Ischemic heart disease had higher scores in all domains when compared to patients with Diabetes or Hypertension.

Conclusion: Quality of life assessment in patients on maintenance haemodialysis shows suboptimal scores depicting that their quality of life is compromised.

Keywords: ESRD, Haemodialysis, quality of life, World Health Organization Quality of Life Brief Version (WHOQOL-BREF) Questionnaire.

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INTRODUCTION

Chronic kidney disease (CKD) is an important expanding heath condition worldwide having prevalence of almost 13.4%.[1,2] CKD patients undergo multiple stages culminating in End Stage Renal Disease (ESRD) when the last resort is Renal Replacement Therapy (RRT), i.e. dialysis or renal transplant. CKD increases both morbidity and mortality at individual level and also raises costs of healthcare services on national level.[3]

This lifelong battle of a chronic disease raises concern about the Quality of Life (QOL) of the patients, which is defined as an individual's perception of their position in life in relation to their goals, expectations, standards and concerns. It is a vast concept affected in a multifaceted manner by an individual's health, psychological state, personal views and perceptions, social and interpersonal relations and their relationship to various aspects of their environment.[4] The QOL is usually poor in CKD patients in aspects of daily activities, physical and mental well-being and coping with them efficiently is positively associated with better quality of life as well as performance status.[5] Depression is also a major heath related issue hindering QOL in patients on haemodialysis.[6]

In our region, the QOL in CKD patients is seldom researched, hence there is limited information regarding it. With haemodialysis being the most commonly chosen modality of RRT in the subcontinent, the authors aimed to determine the QOL in haemodialysis patients in Pakistan.

METHODOLOGY

The cross-sectional study was carried out at Combined Military Hospital Lahore Pakistan, from 1st February 2020 to 30th April 2020 after approval from the hospital's Ethical Review Board (Ltr no. 157/2020). 100 patients were chosen by non-probability, consecutive sampling. The sample size was defined as 100, in correspondence with a similar regional study by Awan *et al*, which was carried out in the same geographical locality.[7]

Inclusion Criteria: Patients of either gender between the ages of 20-80 years who had been on maintenance haemodialysis for 3 months or more were included.

Exclusion Criteria: Patients with diagnosed psychiatric disorders were excluded from the study. Patients

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with coexisting diseases such as stroke, congestive cardiac failure, chronic obstructive airway disease (COAD), a diagnosis of Acute on Chronic Kidney Disease or patients with any other disorder that required frequent hospital admissions were also excluded from the study.

Demographic data, including age, gender, education, occupation, time since diagnosis and duration on haemodialysis were recorded for each participant. The WHOQOL-BREF questionnaire was used (available in 19 different languages) in Urdu, the local language, which has been validated.[8] The questionnaire has been previously approved for assessing QOL in multiple settings and various countries including Pakistan.[9]

The WHOQOL-BREF Questionnaire is a compact version of the WHOQOL-100 and consists of 26 questions. It scores four domains from a range of 4-20, i.e., physical health, psychological health, social health, environmental health. A raw score was obtained from the mean score of each domain and assessed using a 4-20 scale using a transformation Table-I.

Table-I: Demographics of study population (n=100)

Variable	Number	Percentage
Haemodialysis patients		
Men	55	55.0
Women	45	45.0
Age (years)		
15-25	4	4.0
26-35	10	10
36-45	14	14
46-55	33	33
56-65	32	32
65+	7	7
Educational Status		
Matric	27	27
Intermediate	38	38
Bachelors	25	25
Masters	10	10
Comorbidities		
Hypertension	29	29
Diabetic mellitus	62	62
Ischemic Heart Disease	9	9
Duration of haemodialysis (months)		
Less than 1 year	24	24
1-2 years	33	33
2-3 years	36	36
3-4 years	6	6
More than 5 years	1	
Per week haemodialysis		
1	17	17
2	74	74
3	9	9

There was a direct correlation between the score and QOL, i.e. a better score meant a better QOL.

Informed consent was sought prior to filling in the questionnaires, after thoroughly explaining the purpose of this research to all participants. An interviewer who was well-versed with the local dialects was chosen to interview all patients to avoid any bias, as patients were from various backgrounds and educational levels. Data was analysed using SPSS v26. Descriptive statistics drawn from the data were presented as Mean±SD. A correlation amongst the four domains, and of each domains' scores with demographic factors was interpreted by the Pearson's Correlation co-efficient. Independent samples t-test and one-way analysis of variance were used to analyse bivariate relationship between sociodemographic factors and QOL score. Linear regression was used to derive the independent predictors of QOL. The p-value≤0.005 was considered statistically significant. Q-Q plot and Shapiro–Wilk test were used to evaluate the normality of distribution of collected data. To assess the credi-bility of the results a Cronbach's alpha coefficient value of 0.7 or more was chosen which indicated good internal consistency.

RESULTS

The 100 participants, which included 55 men and 45 women had an average of 52.48±17.31 years. The ratio of the genders, i.e., male: female ratio was 1.2:1. Amongst these only 28 were under the age of 45 years. Diabetes was the most frequent comorbidity (n=62) followed by hypertension (n=29). Most of the patients (n=76) were undergoing Haemodialysis for more than one year. Almost three fourth of the patients (74%) were on maintenance haemodialysis twice weekly.

Normal distribution was observed for scores from all domains using Shapiro–Wilk test. The values of Cronbach's alpha for individual domain were as follows: physical domain (0.722), psychological domain (0.683), social domain (0.783), and environmental domain (0.662). In conclusion, Cronbach's alpha for all 26 questions of WHOQOL-BREF was 0.789, making it acceptable.

The QOL scores for each of the domains were as follows: environmental domain (11.40±1.99), psychological domain (12.64±2.33), social domain (13.28±3.16), and physical domain (13.18±1.86).

Correlations amongst all domains were statistically significant (p<0.05). Elderly patients (≥65 years) had lesser QOL scores in all domains when compared with all other age groups. When the comparison of the mean QOL was made amongst the two genders, the independent t-test value came out to be statistically insignificant (p=0.83). In terms of comorbidities pati-

ents with Ischemic heart disease had higher QOL scores in all four domains as compared to diabetics and hypertensive patients. Patients with highest academic level i.e., Masters scored more in the social domain as compared to all other levels of education as shown in Table-II

study. It can be explained by decline in mobility, work stamina, progression in the pain and distress level with aging which possibly have a negative effect on a person's overall health. On the contrary, study done by Ferreira *et al* reported no significant correlation between QOL scores and age.[12]

Table II: World Health Organization Quality of Life Brief Version (WHOQOL-BREF) scores of four Domains (n=100)

Characteristics	Environment	Psychological	Social	Physical
Haemodialysis patients				
Men	11.51±2.17	12.56±6	13.33±2.95	13.32±1.97
Women	11.266±1.7	12.733+2.06	13.22+ 3.43	13.00+1.718
Co-morbidities				
Hypertension	11.00±1.64	12.13±2.09	13.06±2.98	13.10±1.49
Diabetic mellitus	11.435±1.7	12.69±2.37	13.24±3.3	13.11±1.96
Ischemic heart disease	12.44±2.87	13.88±2.57	14.22±2.48	13.88±2.204
Age (years)				
15-25	12.7500±1.70	15.5±2.51	15.75±2.50	14.5±1.00
26-35	11.20±2.57	11.70±2.94	14.64±2.56	13.64±1.44
46-55	11.21±1.494	12.18±1.87	13.09±3.01	12.75±1.62
56-65	11.93±2.18	13.18±2.05	13.56±2.89	13.68±2.02
65+	10.28+1.38	11.85+3.07	12.28+2.75	12.42+1.39
Per week haemodialysis				
1	11.94+2.13	13.058+2.04	14.47+2.03	13.47+1.41
2	11.27+2,02	12.56+2.43	12.98+3.34	13.12+1.98
3	11.44±1.33	12.44±2.18	13.44±3.08	13.11±1.61
Education				
Matric	12.03±1.67	13.25±1.83	14.11±2.75	13.66±1.519
Intermediate	11.15±2.11	12.26±2.46	12.5±3.72	13.13±2.068
Bachelors	11.12±2.20	12.52±2.74	13.08±2.46	12.84±1.74
Masters	11.30±1.63	12.70±1.88	14.50±2.91	12.90±2.13
Duration of Haemodialysis				
< 1 year	11.833±1.30	13.08±2.37	14.41±2.20	13.54±1.74
1-2 years	11.72±2.32	13.03±2.37	12.96±3.80	12.87±2.08
2-3 years	10.91+2.03	12.13+2.46	12.72+3.02	13.22+1.74
3-4 years	10.66±1.86	11.33±2.73	13.50±3.01	13.0±2.0
>5 years	12.0±0.0	15.0±0.0	15±0.0	14.0±0.0

DISCUSSION

Chronic Kidney Disease (CKD) seriously affects QOL adversely impacting an individual's environmental, psychological, social and physical domains. The severity of CKD and its chronicity compels to further evaluate and attend to the basic needs of such people.

Findings of our study showed that elderly patients had lower QOL as compared to younger individuals in all domains as was recorded by Ravindran A.[10] A study by Lemos *et al* demonstrated that social aspects were better in younger patients.[11] It can be assumed that elder people may have higher expectations out of their social life and maybe that's why they were unhappy. There was a negative association between the age and physical domain of QOL in our

A gradually lower QOL score was observed in those patients who were on haemodialysis for longer duration than those for brief periods (except in social domain where the scores were slightly higher in 3-4 years group). Yang *et al.* reported alike results and inferred that sexual displeasure, and feeling less respected were the cause of low scores.[13] The results of our study were therefore similar to other studies.[14] Hence, it can be deciphered that chronic diseases can have the biggest impact on social life. This may be due to the fact that with so many hours spent on dialysis sessions patients have less time to do recreational activities with their families, and this has an overall undesirable impact on their relationships. Since there was only one patient in our study who was undergoing dialysis for more than 5 years, the results are disregarded in that category. However, Atapour *et al.* mentioned that there

was no relation between QOL in patients with CKD and duration of haemodialysis.[15]

Where female population seemed to do well in psychological domains, scores were lower in all other domains when compared to male gender. However, the differences were statistically not significant (p->0.05 Domain 1: p=0.548 Domain 2: p=0.720, Doman 3: p=0.870 , Domain 4: p=0.384). This result was close to the studies by Saad *et al*.[16] and Gemmell *et al*.[17] Nevertheless, many studies outlined a substantial impact of the gender of a person on QOL. Donmez *et al* reported that females have better QOL than males.[18]

A major limitation of this study was that we did not stratify the sample population based on their income. Low income patients suffer monetarily due to expense of treatment, so including this stratification would have led to an overall better assessment of the QOL scores, because by default the socioeconomic domain would be scored lower. Secondly, some biochemical parameters including low albumin, anemia and certain drugs, were proven to have an adverse effect on the QOL score,[19] were not included in our study. Furthermore, a larger sample size would have helped produce generalizable results.

Our study highlights the QOL of patients on maintenance haemodialysis in a tertiary care hospital of Pakistan. This study can help health care providers and care takers to better acknowledge the psychological and physical troubles of patients with CKD undergoing haemodialysis for long durations. Medical personnel can be trained to use QOL assessment tools as part of routine which can help in a wholesome treatment of the patient and eventually produce better patient outcomes.

CONCLUSION

The assessment of QOL in ESRD patients on haemodialysis revealed that it was relatively substandard. The domain with lowest scores was Environmental domain. Gender and frequency of dialysis per week did not have significant effect on any domains of QOL. Although, age and duration of dialysis were significant independent variables; as the age advances, QOL declines, and lastly, a longer duration results in a poorer QOL. QOL is a useful assessment tool which can help treat patients with chronic diseases such as ESRD, in a holistic method, which is seldom studied in our subcontinent and needs to be brought forth in various facets of healthcare.

Conflict of Interest: None.

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

SAS & AC & MA: Study design, drafting the manuscript, data interpretation, critical review, approval of the final version to be published.

MC & AM & ZFB: Data acquisition, data analysis, concept, drafting the manuscript, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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