

# Quality of life in Chronic Hemodialysis Patients

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## Abstract

**Background:** This study was conducted to assess the quality of life and burden of kidney disease in patients undergoing hemodialysis in physical, mental and social aspects.

**Methods:** This descriptive cross-sectional study was conducted from October 2015 to March 2016 and included 201 patients from dialysis centers of Holy Family Hospital, Benazir Bhutto Hospital, and District Head Quarters Hospital Rawalpindi. Using KDQOL-SF-36, patients were interviewed in Urdu to gather information on Physical Health Composite Summary (PCS), Mental Health Composite Summary (MCS) and Kidney Disease Composite Summary (KDCS) domains. Data entry and analysis was done using SPSS version-22.

**Results:** Amongst 201 patients undergoing hemodialysis the most common cause of ESRD and consequent dialysis was found to be Hypertension (n= 141), followed by Diabetes Mellitus (n= 28). Using SF-36 scoring, the mean score of quality of life was 47.29±27.05. The mean score for Physical Health Composite Summary (PCS) was 37.05±8.7, Mental Health Composite Summary (MCS) was 43.44±9.24 and Kidney Disease Composite Summary (KDCS) was 56.28±23.01. Thirty Eight percent (38%) patients had perceived health above average and 62% thought that their health was below average.

**Conclusion:** Quality of life is significantly reduced in majority of the patients undergoing chronic hemodialysis. The lowest score is found in physical health domain and the highest score is found in Kidney Disease domain.

**Key words:** Hemodialysis, Quality of life, QoL, End-stage-renal-disease (ESRD), Hypertension, Chronic Kidney Disease (CKD)

## Introduction

WHO defines quality of life as "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."<sup>1</sup> Patients with end stage renal disease (ESRD) can undergo three renal replacement therapies; Hemodialysis is one of them (the other two being renal transplant and peritoneal dialysis). The global average prevalence for dialysis has been estimated to be 215 patients per million population.<sup>2</sup> The perception of quality of life is subjective but it has been observed that those patients who show a better HRQoL (health related quality of life) at the beginning of treatment, cope better compared to those with a poor baseline score.<sup>3</sup> Chronic hemodialysis affects quality of life by emergence of adverse effects and secondary diseases like ischemic heart disease. On an average, every patient undergoing hemodialysis reports at least nine adverse effects including fatigue, pruritus, decreased sleep, decreased sexual desire and dry mouth. These symptoms are responsible for decline in the Quality of life in these patients.<sup>4</sup>

Patients going through dialysis do not function at the same level as the common population. The best quality of life has been seen in patients who undertook dialysis at home but this treatment modality has not been introduced in our country yet. In Pakistan, environmental domain had the highest score (p=0.000). Whereas, the lowest score was seen in physical health domain (10.3±3.8). Females (11.00±3.99) have lower QoL than males (12.65±4.26) in social relationship domain.<sup>5</sup> The prevalence of depression among these patients was estimated to be 25%.<sup>6</sup> Moreover, the greater the age lesser will be the quality of life in relation to physical and psychological health domain. Unmarried and educated patients have notably better QoL in physical health domain.<sup>7</sup> People with increased religious and spiritual perception enjoy social support and better QoL. They have less negative perception of illness effects and depression.<sup>8</sup> No research has been done to assess the decline in quality of life of hemodialysis patients in Rawalpindi and Islamabad. So this study will provide a basic outline, keeping which in mind, we can work to improve patient care in Nephrology Departments of Rawalpindi and Islamabad.

Contrary to popular belief, health is not merely the absence of physical disease but also includes emotional and social wellbeing. Patients of chronic hemodialysis are greatly affected in all these categories so analyzing the degree of effect on the Quality of life will give us an insight on what aspects of health need to be improved to increase the overall health of the patient. Accordingly we could arrange counseling and therapy sessions to improve QoL.

### **Materials and Methods:**

This descriptive cross-sectional study was conducted in dialysis centers of 3 public health care facilities of Rawalpindi; Holy Family Hospital Rawalpindi, Benazir Bhutto Hospital Rawalpindi and District Head Quarters Rawalpindi. The study was conducted from October 2015 to March 2016. Keeping level of confidence 95% and absolute precision 5%, minimally required sample size through WHO sample size calculator was 201. The study population comprised of patients undergoing hemodialysis for renal disease for more than 3 months. Patients having any chronic cardiac, vascular, renal or gastrointestinal disease were excluded. Patients who were reluctant to participate were also excluded. The sampling technique used was convenient sampling.

After approval from Institutional Research Forum of RMC and permission from the nephrology departments of respective hospitals; KDQOL-SF-36 consisting of 36 questions was used. The research team recorded the responses in the questionnaire after interview of patients in Urdu. Collected information included demographic details of patients, causes of end stage renal disease and effects on quality of life of patients undergoing hemodialysis in physical, mental and social health domains. The QoL scores for physical functioning, physical limitations, pain, emotional wellbeing, social functioning, and energy were recorded and then mean scores for Physical health Composite Summary (PCS), Mental health summary (MCS), and Kidney Disease Composite Summary (KDCS) domains of the KDQOL-SF-36 were calculated. Score above 50% in any domain was considered as above average and below 50% was considered as below average. The higher the score, the better the quality of life in all the domains. Social Package of Statistical Sciences (SPSS) version 22 for windows was used to analyze the data through percentages and frequencies.

### **Results**

Amongst 201 patients undergoing hemodialysis, 92 (45.8%) were males and 109 (54.2%) were females. The mean age of patients was found to be 42.7 (S.D= 14.09). 67 (33.3%) were uneducated, 71 (35.3%) were educated up to primary, 41 (20.4%) up to secondary, 12 (6%) up to HSSC, 6 (3%) up to Graduate, and 4 (2%) were educated up to Post Graduate level. 61 (30.3%) were unmarried and 140 (69.7%) were married. The mean duration of dialysis was found to be 19.9 months (S.D=11.07), with minimum duration of 3 months and maximum duration of 60 months. 174 (86.6%) had their dialysis done twice weekly, 21 (10.4%) had it done once every week and 6 (3%) patients had their dialysis done three times a week. The most common cause of ESRD and consequent dialysis was found to be Hypertension (n=141), followed by Diabetes Mellitus (n=28). Thirteen patients (6.5%) didn't know the cause of their chronic kidney failure.

On analysis of patient's responses using SF-36 scoring, the mean score of quality of life was 47.29±27.05. The mean general health score was 41.70±20.49 amongst which 38% patients had perceived health above average and 62% thought that their health was below average. The QoL scores were 38.97±24.55 for physical functioning, 33.75±38.48 for physical limitations, 57.61±30.02 for pain, 58.36±19.39 for emotional wellbeing, 47.88±27.46 for social functioning and 50.93±16.97 for energy. The mean score for Physical Health Composite Summary (PCS) was 37.05±8.7, Mental Health Composite Summary (MCS) was 43.44±9.24 and Kidney Disease Composite Summary (KDCS) was 56.28±23.01. A strong negative correlation of QoL with age and gender of patient was seen.

### **Discussion**

Hemodialysis is the most commonly used renal replacement therapy in Pakistan due to the financial hurdles in renal transplant and the difficulties in repeated peritoneal dialysis. The physical adverse effects and limitations due to dialysis are usually taken into consideration and treated accordingly but the social and psychological side effects of multiple dialysis per week are not usually considered even though they contribute to overall health of patient. A study done by Anees M, et al in Lahore has found KDQoL SF- 36 to be valid for Pakistani population.<sup>9</sup>

The mean quality of life in our study was found to be 45.59±13.67 which is significantly higher than a study done in Tunisia (38.2) but below average.<sup>10</sup>

Although an Iranian study also identified Hypertension as the main cause of ESRD (31.9%) but our study indicates a significantly high percentage of patients with hypertension as the cause of ESRD (70.5%).<sup>11</sup> This contrasts with multiple studies that have identified Diabetic Nephropathy as the most common cause of ESRD (53.4%).<sup>12, 13</sup>

**Table I: Socio Demographic Details**

	Frequency (n)	Percentage (%)
<b>Gender</b>		
Male	92	45.78
Female	109	54.22
<b>Marital status</b>		
Unmarried	61	30.3
Married	140	69.7
<b>Education</b>		
Uneducated	67	33.3
Primary	71	35.3
Secondary	41	20.4
Higher Education	22	11.0
<b>Dialysis per week</b>		
1/week	21	10.4
2/week	174	86.6
3/week	6	3.0
<b>Cause of ESRD</b>		
Don't know	13	6.5
HTN	141	70.1
DM	28	13.9
PKD	4	2.0
Chronic Pyelonephritis	2	1.0
Trauma	5	2.5
DM+HTN	7	3.5
Neurogenic Bladder	1	5.0

**Table II: MCS, PCS and KDCS scores**

	Mean	SD
<b>MCS</b>	<b>43.44</b>	<b>9.24</b>
Energy	50.93	16.97
Social Functioning	47.88	27.46
Emotional Role limitation	49.17	39.10
Emotional Wellbeing	58.36	19.39
<b>PCS</b>	<b>37.05</b>	<b>8.77</b>
Physical Functioning	38.97	24.55
Physical Role limitation	33.75	38.48
Pain	57.61	30.02
General Health	41.70	20.49
<b>KDCS</b>	<b>56.28</b>	<b>23.01</b>
Symptoms/Problems List	66.47	17.95
Effects of Kidney Disease	60.83	17.47
Burden of Kidney Disease	28.93	22.55
Work Status	42.00	36.30
Cognitive Function	66.13	22.00
Quality of Social Interaction	60.34	20.44

Sexual Function	52.43	17.25
Sleep	53.75	17.46
Social Support	65.42	28.20
Dialysis Staff Encouragement	68.53	23.33
Patient Satisfaction	54.27	30.24
<b>Overall Score</b>	<b>45.59</b>	<b>13.67</b>

PCS: Physical Health Composite Summary

MCS: Mental Health Summary

KDCS: Kidney Disease Composite Summary

**Table III: Comparison of scores in the KDCS, MCS and PCS domains of the KDQOL-SF36 in various countries with our study**

Country	Pakistan*	Saudi Arabia <sup>19</sup>	Euro pe <sup>20</sup>	US A <sup>21</sup>	Korea <sup>22</sup>	Brazi l <sup>23</sup>	Tur key <sup>24</sup>	Iran <sup>11</sup>
PCS	37.05	52.7	35.5	33.1	53	60	62	40.79
MCS	43.44	54.1	43.3	46.6	51	68	71	47.79
KDCS	56.28	59.7	69.9	71.1	62.9	67.9	63.8	57.97

\*These are scores of our study.

The lowest score in burden of disease domain was consistent with multiple international studies.<sup>13,14</sup>

KDCS, PCS, and MCS scores in our study were slightly lower than a study done in Lahore.<sup>9</sup> MCS and PCS scores in an Indian study were found to be almost similar to our study (45±23 vs 43.44±9.24 and 34±17 vs 37.05±8.7 respectively).<sup>15</sup> Another point of significance here is that the score of physical health domain is lower than mental health domain. Low score in all three summary scores especially in PCS has been associated with increased mortality and hospitalization in various studies.<sup>16,17</sup> In physical health domain, the lowest score was found in physical role limitation (33.75±38.4) which corresponds to a Malaysian study that also indicated that role limitation had the lowest score (30.3±38.5) whereas pain had the highest score in both studies (57.61±30.02 vs 66.9±24.3 respectively). But in contrast, social functioning (47.88±27.46) had the lowest score in MCS category in our study whereas in this study it had the highest score (66.8±26.0).<sup>18</sup>

On comparison of PCS, MCS and KDCS of our study with various other countries, following observations were made: the scores of all three domains were higher in studies done in Saudi Arabia, Korea, Brazil, Turkey and Iran while the scores of PCS in Europe and USA (35.5 and 33.1 respectively) and scores of MCS in Europe (43.3) were lower than our study.<sup>11, 19, 20-24</sup>

In order to improve Quality of life in patients undergoing hemodialysis, proper education of patient and his/her family is essential. Interpersonal psychotherapy and counselling session of patients

should be arranged with a trained psychologist. Moreover, encouragement by dialysis staff and good doctor-patient relationship would have positive influence on patient's self-perception. Regular dialysis, good drug compliance and self-motivation can improve patient's physical limitations providing an overall better quality of life.

## Conclusion

Quality of life is significantly reduced in majority of the patients undergoing chronic hemodialysis. The lowest score is found in physical health domain and the highest score is found in Kidney Disease domain.

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