



### RESEARCH ARTICLE

## A STUDY TO DETERMINE THE QUALITY OF LIFE IN PATIENT WITH CHRONIC KIDNEY DISEASE ON DIALYSIS FOR MORE THAN THREE MONTHS AT APOLLO MULTISPECIALTY HOSPITAL, KOLKATA

Mangala Chatterjee and Sarita Mahapatra

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### Abstract

Chronic kidney disease and the methods of its treatment play an important part in shaping the Quality of Life of patients receiving dialysis. Quality of life is a multidimensional construct that are affected by one's disease and/or treatment. It focuses on the impact of health on a person's ability to live a fulfilling life. A descriptive survey was conducted to determine the quality of life in patient with chronic kidney disease on dialysis for more than three months at Apollo Multispecialty Hospital, Kolkata. 60 participants were selected by nonprobability convenient sampling technique and Modified Kidney Disease and Quality of life tool was used for collecting data. The result showed that 53% participants had average quality of life, 27% participants had poor quality of life and 20 % participants had good quality of life. It also revealed that 97% participants were married and 70% participants were male. Among all participants 42% belonged to age group between 47-62 years. It showed that there was significant association between quality of life and age, marital status, qualification, income and number of medications consumed daily and there was no significant association between quality of life and sex of the participants. There was positive correlation among domains of quality of life ( $r(59) = 0.250$ ,  $p < 0.05$ ).

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### Introduction:-

Chronic kidney disease is a condition in which the damaged kidneys cannot function and filter blood. As a result of this, excess fluid and waste from blood remain in the body and cause other health related problems. It is associated with increased risks of cardiovascular morbidity, premature mortality, and has severe impact on quality of life (QOL). Chronic kidney disease has varying levels of seriousness and usually gets worse over time.

Haemodialysis is a procedure which removes the waste products of metabolic reaction, electrolytes and extra water from the blood when the kidney does not perform its normal function<sup>8</sup>.

Quality of life is defined by the World Health Organization 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". Quality of life is one of the parameters to check the improvement of haemodialysis treatment. It is an important, yet neglected aspect of chronic kidney disease care.

Renal failure is a chronic disease that can seriously affect quality of life (QOL). Health-Related QOL represents the physical, psychological, and social domains of health<sup>4</sup>. Quality of life is an increasingly important factor in the assessment of the management of chronic kidney disease patients undergoing hemodialysis.<sup>5</sup>

The prevalence of chronic kidney disease has steadily increased over the last few decades. Multiple factors including improvements in life expectancy and increasing prevalence of comorbid conditions such as hypertension and diabetes have contributed to this rise. Chronic kidney disease has impacted the health-related quality of life (HRQOL).<sup>2</sup>

Chronic kidney disease and the methods of its treatment play an important part in shaping the Quality of Life of patients receiving dialysis.<sup>7</sup> Patients' perception of their wellbeing and patient-reported outcomes are becoming an integral part of evaluations of the human cost of chronic illnesses and the assessment of the impact of therapeutic interventions.<sup>1</sup> The importance of measuring health-related quality of life (HRQOL) has been underscored by recent studies indicating an association between various health-related quality of life (HRQOL) measures, mortality and hospitalization rates in dialysis patients<sup>1</sup>.

Several studies have shown a poor quality of life and increased depression in the hemodialysis patient population. Poor quality of life itself is also reported to increase complications.<sup>5</sup>

But even with the use of modern and effective dialysis machines for therapy, patients may still suffer from different types of complications.<sup>6</sup> There is minimal literature available on Quality of life in Chronic kidney disease patients from low and middle-income countries including India.

The current study intends to assess the quality of life and determine the association with selected demographic variables in chronic kidney disease on dialysis for more than three months.

### **Objectives:-**

1. To assess the quality of life in patient with chronic kidney disease on Haemodialysis for more than three months.
2. To assess the association of quality of life with selected demographic variables.
3. To assess the relationship between various domains of quality of life.

### **Review of Literature:-**

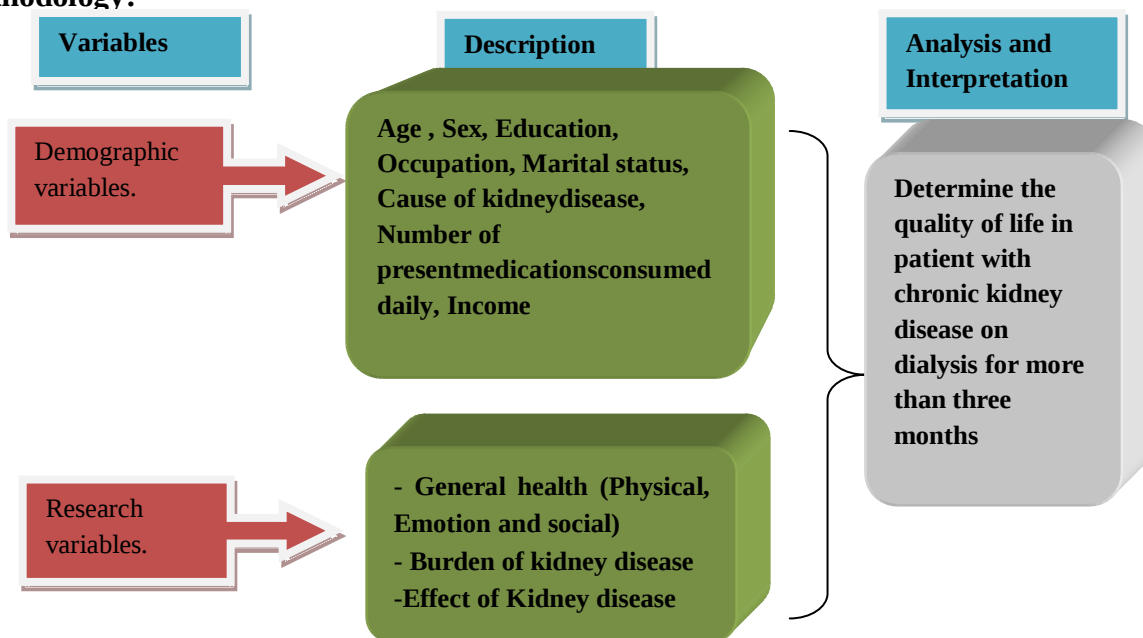
Mujais. K. S, Story K, Brouillette J et al<sup>1</sup> conducted a prospective evaluative study on Health-related Quality of Life in chronic kidney disease Patients: Correlates and Evolution over Time among 1186 chronic kidney disease Patients in nephrology clinics in North America. They found that baseline measures of HRQOL were reduced in chronic kidney disease patients in proportion to the severity grade of chronic kidney disease. These observations highlight the profound impact chronic kidney disease had on HRQOL and suggest potential areas that can be targeted for therapeutic intervention. Female gender and the presence of diabetes and a history of cardiovascular co-morbidities were also associated with reduced HRQOL.

Manavalan M, A. Majumdar A, Kumar HT K et al<sup>2</sup> evaluated the quality of life and its determinants across chronic kidney disease 3 to 5D using a kidney disease specific tool (Kidney Disease Quality of Life-SF™) in an underprivileged, predominantly rural population with high rates of illiteracy and unemployment among 204 participants from nephrology outpatient clinics. They observed the scores of individual domains were summarized to three composite scores – physical composite summary (PCS), mental composite summary (MCS), and kidney disease component summary score (KDCS). About 68.1% of participants were males. KDCS showed a significant decline ( $P = 0.01$ ) from chronic kidney disease 3 to chronic kidney disease 5D whereas MCS and PCS showed a non-significant decrease. Illiteracy and unemployment were associated with significantly lower KDCS, PCS, and MCS scores. Age  $\geq 50$  years was associated with poor PCS ( $29.49 \pm 8.20$  vs.  $34.17 \pm 9.99$ ;  $P < 0.001$ ).

A A, Soderkvist K B, Medin C et al<sup>3</sup> conducted a study on Health-related quality of life in different stages of chronic kidney disease and at initiation of dialysis treatment. They found that all HRQoL dimensions deteriorated significantly with chronic kidney disease stages with the lowest scores in chronic kidney disease 5. The largest differences between the patient groups were seen in 'physical functioning', 'role physical', 'general health' and in

physical summary scores (PCS). Patients in CKD 5 demonstrated deteriorated scores with a medium sized magnitude (ES 0.5 – 0.79) in ‘role emotional’ and mental summary scores compared to the patients in CKD4. Glomerular filtration rate <45 ml/min/1.73 m<sup>2</sup>, age ≥ 61 years, cardiovascular disease (CVD), diabetes, C-reactive protein (CRP) ≥5 mg/L, haemoglobin ≤110 g/L, p-albumin ≤ 35 g/L and overweight were associated with impaired HRQoL. CRP and CVD were the most important predictors of impaired HRQoL, followed by reduced GFR and diabetes. They also found that at the time for dialysis initiation HRQoL is substantially deteriorated.

### Methodology:-



**Fig. 1:-** Schematic presentation of research design.

According to the objectives of the study quantitative approach was considered as most appropriate. Descriptive survey research design was suitable for this study. The sample selected for the present study consisted of 60 chronic kidney disease patients who are receiving haemodialysis for more than three months in Dialysis Unit of Apollo Multispecialty Hospitals, Kolkata. Permission of Institutional Ethics Committee was taken and informed consent was obtained from the participants. Non-probability convenient sampling technique was used to select the subject. Inclusion criteria was chronic kidney disease patient on Haemodialysis for more than 3 months at Apollo Multispecialty Hospital, Kolkata whose age is more than 18 years and available during the study period, who speaks Bengali, Hindi or English as well as given permission to take them as sample for the study. Unconscious and critically ill patient with confusion or disorientation and patient with any physical or mental disabilities were excluded from the study.

The data was collected through Modified Kidney Disease and Quality of Life (KDQOL).

### Tool consists of two sections:-

**Section 1:** Questionnaire on background information to collect information on participant's demographic characteristics. It contains total 13 questions which include age, education, causes of kidney disease, gender, marital status, number of present medications consumed daily, income and employment.

**Selection 2:** Structured multiple choice questionnaire consisting of 19 questions to collect information about quality of life in patient with chronic kidney disease on dialysis for more than three months. It consists of three aspect, General health (Physical, Emotion and Social health), Burden of Kidney Disease and Effects of Kidney Disease on Daily Life. Score is given to each answer according to the option. The scoring criteria (Score less than 190 is good, score between 191 to 210 is average and score more than 210 is poor).

## Results:-

In the present study the obtained data were organized, tabulated, analyzed and interpreted under the following sections.

- Section I: -This section describes demographic information of the participants.
- Section II -This section describes quality of life of chronic kidney disease on haemodialysis for more than three months.
  - Section II-A- Description and findings of the total score of quality of life of chronic kidney disease on haemodialysis for more than three months.
  - Section II-B- Association between quality of life with age, sex, education, marital status, number of present medications consumed daily and income.
- Section III - Findings the correlation between various domains of quality of life.

### Section I:

**Table 1:-** Frequency and percentage distribution of demographic variables.

**N=60**

| SL. No.  | Demographic Variables                        | Frequency | Percentage ( %) |
|----------|----------------------------------------------|-----------|-----------------|
| <b>1</b> | <b>Gender</b>                                |           |                 |
|          | Male                                         | 42        | 70              |
|          | Female                                       | 18        | 30              |
| <b>2</b> | <b>Age in years</b>                          |           |                 |
|          | <30                                          | 2         | 3               |
|          | 31-46                                        | 15        | 25              |
|          | 47-62                                        | 25        | 42              |
|          | >63                                          | 18        | 30              |
| <b>3</b> | <b>Education</b>                             |           |                 |
|          | 10th                                         | 4         | 7               |
|          | 12th                                         | 6         | 10              |
|          | Graduation                                   | 30        | 48              |
|          | Master                                       | 20        | 35              |
| <b>4</b> | <b>Marital status</b>                        |           |                 |
|          | Married                                      | 53        | 97              |
|          | Unmarried                                    | 7         | 3               |
| <b>5</b> | <b>Numbers of medications consumed daily</b> |           |                 |
|          | ≥ 5                                          | 31        | 48              |
|          | <5                                           | 29        | 52              |
| <b>6</b> | <b>Income per month</b>                      |           |                 |
|          | 15,501-30000                                 | 6         | 10              |
|          | 30001-50000                                  | 23        | 38              |
|          | > 50001                                      | 31        | 52              |
| <b>7</b> | <b>Causes of kidney disease</b>              |           |                 |
|          | Hypertension                                 | 14        | 23              |
|          | Diabetes                                     | 29        | 49              |
|          | Hypertension and Diabetes                    | 8         | 13              |
|          | PCOD                                         | 3         | 7               |
|          | Don't Know                                   | 6         | 8               |

Data presented in table 1 showed that 70% participants were male and 30% participants were female, maximum participants (42%) belonged to the age group of 47- 62 years. It represented that 48% participants had graduated whereas 35% participants had completed master degree. It showed that majority of participants (97%) were married. It also depicted that 48% of the participants were on medication more than or equal to five. It revealed that 52% of the participants' income were more than 50000 per month. It highlighted that 49% participants were diabetes and hypertension was observed in 23% of participants.

**Section II****Section II A****Table 2:-** Mean and standard deviation of domain of quality life of quality of life.**N=60**

| Domains of quality of life                    | Mean | Standard Deviation |
|-----------------------------------------------|------|--------------------|
| General health (Physical, Emotion and social) | 89.8 | 1.414              |
| Burden of Kidney disease                      | 49.1 | 9.192              |
| Effect of Kidney Disease                      | 52.2 | 5.656              |

Data presented in table 2 showed that mean score of general health was 89.8 and standard deviation 1.414, mean score of burden of kidney disease was 49.1 and standard deviation 9.192 and the mean score of effect of kidney disease was 52.2 and standard deviation was 5.656.

**Table 3:-** Frequency and percentage distribution of quality of life.**N=60**

| Quality of Life | Rating  | Frequency | Percentage |
|-----------------|---------|-----------|------------|
|                 | Good    | 12        | 20%        |
|                 | Average | 32        | 53%        |
|                 | Poor    | 16        | 27%        |

Data presented in table 3 showed that 53% participants had average quality of life, 27 % participants had poor quality of life and 20 % participants had good quality of life.

**Section II B****Table 4:-** Association between quality of life and demographic variables.**N=60**

| Demographic data                  | Chi-square (X <sup>2</sup> ) | df | P-value | Remarks         |
|-----------------------------------|------------------------------|----|---------|-----------------|
| Age                               | 7.62                         | 6  | 0.267   | Significant     |
| Sex                               | 0.116                        | 2  | 0.943   | Not significant |
| Marital Status                    | 1.825                        | 2  | 0.4     | Significant     |
| Qualification                     | 8.283                        | 6  | 0.218   | Significant     |
| Income                            | 3.076                        | 4  | 0.545   | Significant     |
| No. of medications consumed daily | 2.47                         | 1  | 0.116   | Significant     |

Data presented in Table 4 showed the association between quality of life and demographic variables.

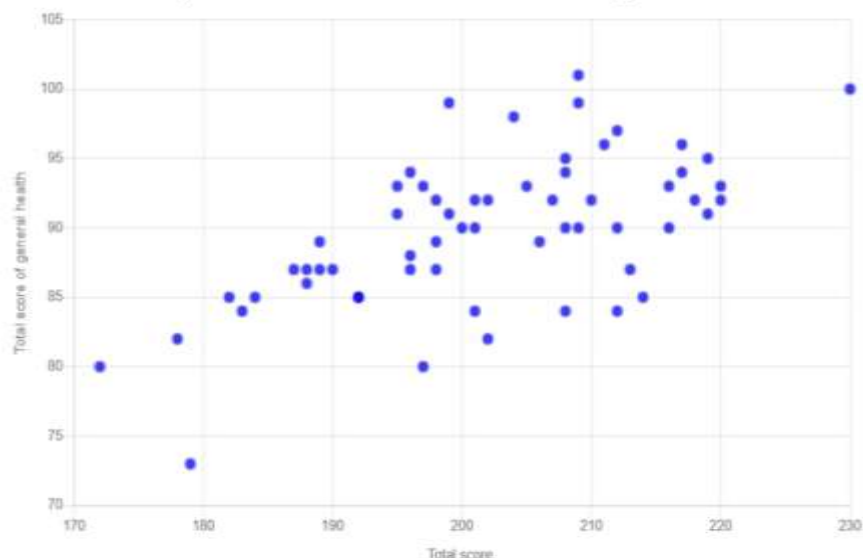
It was observed that the calculated chi square value was more than the 'p' value of age, marital status, qualification, income and number of medications consumed daily. So there were significant association between quality of life and age, marital status, qualification, income and number of medications consumed daily and there was no significant association between sex and quality of life of the participants as calculated chi square value is less than the 'p' value.

**Section III****Table 5:-** Correlation coefficient between quality of life and general health of the participants.**N=60**

| Variables                      | Mean   | 'r' value |
|--------------------------------|--------|-----------|
| Total score of quality of life | 202.01 | +0.612    |
| Total score of general health  | 89.8   |           |

'r'(59) = 0.250 , p<0.05

Table 5 showed that there was a moderately positive correlation between total score of quality of life and total score of general health as the calculated 'r' value (+0.612) is more than the table value.



**Fig. 2:-** Scattered diagram showing Positive correlation between total score of quality of life and total score of general health as the value of 'r' is +0.612.

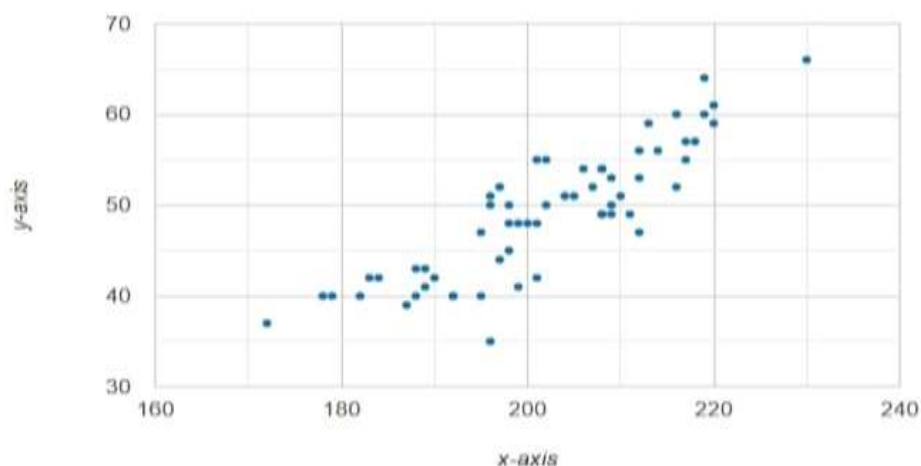
**Table no 6:-** Correlation coefficient between quality of life and burden of kidney disease of the participants.  $N=60$

| Variables                               | Mean   | 'r' value |
|-----------------------------------------|--------|-----------|
| Total score of quality of life          | 202.01 | +0.8686   |
| Total score of burden of kidney disease | 49.1   |           |

'r'(59) = 0.250 ,  $p < 0.05$

Table 6 showed that there was a highly positive correlation between total score of quality of life and total score of burden of kidney disease as the calculated 'r' value (+0.8686) is more than the table value.

$$r = 0.8686$$



**Fig. 3:-** Scattered diagram showing positive correlation between total score of quality of life and total score of burden of kidney disease as the value of 'r' is +0.8686.

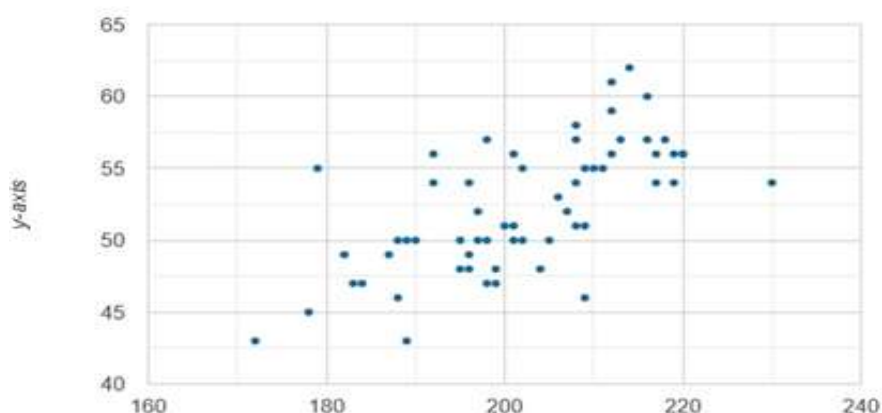
**Table 7:-** Correlation coefficient between quality of life and effect of kidney disease of the participants. N=60

| Variables                               | Mean   | 'r' value |
|-----------------------------------------|--------|-----------|
| Total score of quality of life          | 202.01 | +0.6613   |
| Total score of effect of kidney disease | 52.2   |           |

'r'(59) = 0.250 ,  $p < 0.05$

Table 7 showed that there was moderately positive correlation between total score of quality of life and total score of effect of kidney disease as the 'r' value (+0.6613) is more than the table value.

$$r = 0.6613$$



**Fig. 4:-** Scattered diagram showing Positive correlation between total score of quality of life and total score of effect of kidney disease as the value of 'r' is +0.6613.

### Discussion:-

**In this study,** 53% participants had average quality of life, 27 % participants had poor quality of life and 20 % participants had good quality of life. Alam M, Khatoon F, Begum SA, Alam M M conducted a study on assessment of Quality of Life of Chronic Kidney Disease Patients Receiving Hemodialysis with Kidney Disease Quality of Life which was similar to our study findings and found that 84 patients (67.7%) had good quality of life and 40 (32.3%) reported poor quality of life.<sup>7</sup>

This study showed that there was significant association between quality of life and age, marital status, qualification, income and number of medications consumed daily and there was no significant association between quality of life and sex of the participants and a similar finding was observed by Ravindran A, Sunny A et al conducted a cross sectional study on assessment of Quality of Life among End-Stage Renal Disease Patients Undergoing Maintenance Hemodialysis observed that quality of life of patients declined with aging in all four domains. Being male, younger, educated, and unmarried appeared to have a favourable effect on several aspects of patients' quality of life<sup>4</sup>.

The present study showed that there was positive correlation with general health, burden of kidney disease and effect of kidney disease with quality of life ('r'(59) = 0.250 ,  $p < 0.05$  whereas a similar result was found by Pakaya E, Syam Y, Syahrul S that correlation of self-efficacy and self-care of patients undergoing hemodialysis with their quality of life and found that there was a significant positive correlation between self-efficacy and self-care with the quality of life of patients undergoing hemodialysis ( $p = 0.024$ ,  $r = 0.25$ , and  $p = 0.02$ ,  $r = 0.259$ , respectively). In addition, this study found that self-efficacy and self-care of patients undergoing hemodialysis are correlated positively ( $p = 0.002$ ,  $r = 0.341$ ).<sup>10</sup>

**Limitation:-**

The study finding could not be generalized because:

1. The study was conducted in a single setting with a small sample size.
2. No randomization was used for selection of sample.
3. The study was limited only to assess the quality of life of chronic kidney disease patient on dialysis.

**Future Scope:-**

1. A similar study may be conducted on a larger sample, in different settings.
2. Longitudinal study could be conducted to assess the quality of life in various stages of chronic kidney disease.
3. A comparative study can be conducted with rural and urban area and in Government and private Hospital.
4. After identification of existing status of the chronic kidney disease patient, an exploratory survey can be carried out to find out the underlying factors leading to chronic kidney disease and performances in various stages.
5. A similar study can be conducted on chronic kidney disease before and after dialysis.

**Conclusion:-**

Findings from the present study provides an indicative picture of the quality of life of the chronic kidney disease patient on dialysis for more than three months. After conducting this study, it is helpful to understand the impact of chronic kidney disease on quality of life and suggest potential areas that can be targeted for therapeutic intervention. This could enhance the improvement of patients care and improve the quality of life of the patient and their family.

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