QUALITY OF LIFE IN PATIENTS UNDERGOING MAINTENANCE HEMODIALYSIS AND THEIR SATISFACTION TOWARDS SERVICES PROVIDED AT A TERTIARY CARE HOSPITAL IN RAIGAD DISTRICT

Noopur Kulkarni[1], Nisha Relwani[1]*, Prasad Waingankar [1]& Aditya Nayak [2]

[1]Department of Community Medicine, Mahatma Gandhi Mission's Medical College and Hospital, Navi Mumbai.

[2]Department of Medicine, Mahatma Gandhi Mission's Medical College and Hospital, Navi Mumbai.

* Corresponding author: relwani_nisha@yahoo.com

ABSTRACT

Introduction: Increased morbidity and mortality associated with chronic kidney disease (CKD) detrimentally affects patient's Quality of life (QOL), which is an issue of significant public health importance. Thus, this study aims to assess the impact of physical, psychological, social, and demographic variables on quality of life among patients with ESRD undergoing Haemodialysis.
Methods: A cross-sectional, non-interventional study was conducted in the dialysis unit of a tertiary care hospital in Navi Mumbai. All patients(n=51) who are ≥18 years of age undergoing hemodialysis for at least 3 months were included. The study was conducted using a Kidney Disease Quality of Life 36-item scale and a Patient Satisfaction questionnaire. **Results:** The Physical component score (PCS) was 33.02±8.82 and Mental component score (MCS) was 42.05±7.23. The mean score of patient satisfaction was 66.25±5.75. **Conclusion:** The current study indicated that kidney disease exerted a more pronounced impact on physical health than on mental health. Additionally, patients expressed satisfaction with the healthcare provided at the facility.

Keywords: Haemodialysis, quality of life, patient satisfaction, Raigad.

Introduction:

The prevalence rate of Chronic Kidney Disease(CKD) is 17% in India as per data from the International Society of Nephrology's Kidney Disease Data Centre Study. (Varughese S & Abraham G ,2018). The global increase in CKD is largely driven by the global increase in non-communicable diseases like diabetes mellitus, hypertension, obesity, and aging (Modi G. K & Jha V,2006). Increased morbidity and mortality associated with Chronic Kidney Disease(CKD) negatively affect patients' Quality of life, which is an issue of significant public health importance (Varma P, 2015). In India, age-adjusted incidence of ESRD (End Stage Renal Disease) which is the end stage was 229 million (Singh A. K et al.,2013).

In the majority of patients with ESRD, hemodialysis (HD) is the first and most preferred mode of therapy followed by peritoneal dialysis (PD) (2%) and renal transplantation (5%) (Kalantar-Zadeh K et al.,2001). HD is a time-consuming procedure. It is costly, and needs more restrictions for diet and fluid intake, for people on long-term hemodialysis it means loss of freedom, constant dependency on the caregiver, disturbance of marital life, family, social life, reduction or lack of income as the person cannot work (Lopes A. A et al.,2002). Patients on HD may endure a high symptom burden and may experience distressing symptoms like fatigue, decreased appetite, trouble concentrating, swelling of feet and hands, and muscle cramps. All of these symptoms cause daily distress and negatively affects their Quality of life (QOL) (Cox K. J et al.,2017). WHO's definition of Quality of life(QOL) is "Individuals perception of their position in life in the context of culture and value systems in relation to their goals, expectations, standards and concerns". It is a broad-ranging concept affected by a person's complex physical health, psychological health state, level of independence, personal beliefs, and relationship to salient features of their environment (WHOQOL Group,1998). The significance of Health-Related Quality of Life (HRQOL) is growing in importance alongside patient-centered assessments, now acknowledged as a key gauge of the health system. And its measurement is necessary to optimize patient management (Romero M et al.,2013).

With advancing medical science, there are improved medications and advanced medical technology available at patient's disposal owing to which they are living longer lives, but the question is; are they living a better quality of life in spite of all this? Thus, this study aims to assess the impact of physical, psychological, social, and demographic variables on quality of life among patients with End Stage Renal Disease(ESRD) who are undergoing Hemodialysis(HD) as that will help us provide them with better medical management to optimize their health outcomes.

Methods:

Study design: It is a cross-sectional, descriptive, non-noninterventional study.

Study setting: The study was conducted **i**n the Dialysis unit of Mahatma Gandhi Mission Hospital which is a tertiary care hospital in Navi Mumbai from January 2020 to March 2020.

Study participants: All the patients who were on maintenance hemodialysis in the calendar year January 2019 to December 2019 eligible as per the inclusion criteria were included in the study.

Study variables: Patients above 18 years of age who have given consent to participate, those who had Stage 5 renal disease, those who have been taking haemodialysis for at least the last 3 months and receiving hemodialysis 2 or 3 times/week for about 4 hours were included in the study. Hemodynamically and mentally unstable patients were excluded from the study. The study proforma was used to interview the patients.

Data sources: The primary data was collected by taking personal interviews using interviewer-administered study proforma.

Study size: Around 51 patients with ESRD(End Stage Kidney Disease) were enrolled for receiving dialysis from January 2019 to December 2019 and were eligible to participate in the study from the Dialysis unit of MGM Hospital,Navi Mumbai.

Study Tool: The questionnaire was divided into 3 parts:

- **Part I**: Demographic characteristics of the patient which has questions on socio-demography, cause, and duration of ESRD, co-morbidities, and frequency of hemodialysis sessions.
- **Part II:** The KDQOL-36, a validated survey developed by the RAND Corporation, consists of 36 items assessing health-related quality of life across four subscales. These include the Generic Core subscale, comprising the Physical Component Summary (PCS) and Mental Component Summary (MCS), each with 12 items; the Symptoms/Problems subscale with 12 items; the Burden of Kidney Disease subscale with 4 items; and the Effects of Kidney Disease subscale with 8 items. Scores of the different subscales will be calculated according to the KDQOL-36™ scoring program. The kidney-targeted scales include Burden of Kidney Disease, Symptoms and Problems of Kidney Disease, and Effects of Kidney Disease. The Burden of Kidney Disease items have five response options that range from “definitely true” to “definitely false.” Each of the KDQOL-36 kidney-targeted scales are scored by transforming all items linearly to a 0–100 possible range and averaging the items in the scale. On the KDQOL-36, higher scores indicate better HRQOL (Hays, R. D et al.,1994).
- **Part III:** Patient Satisfaction Questionnaire (**PSQ)** 18-item scale by RAND Corporation (Singh A. K et al.,2013). The PSQ-III measures satisfaction with medical care across seven dimensions: overall satisfaction, technical competence, interpersonal communication, effective communication, financial considerations, time allocation with the doctor, and accessibility (Marshall G. N. & Hays R. D, 1994). A memo on scoring the PSQ-III is also available on the RAND Corporation website which provides background information, results of psychometric analyses, and scoring rules for measures constructed from the periodic satisfaction surveys.

Statistical analysis:

The data was analyzed using SPSS version 20.0 and a Microsoft Excel spreadsheet. All variables were analyzed first using ANOVA test for the association between Health-Related Quality of Life (HRQOL) and different variables.

Ethical considerations: Ethical approval taken from the Institutional Ethics Committee. The approval number is N-EC/2020/01/01 dated 24/01/2024.

Results:

A total of 51 patients of the dialysis unit participated in the study in the duration of January 2019-December 2019.

Table 1: Distribution of patients according to their HRQOL scores (N=51)

Scale (number of items in scale)	Mean ± Standard Deviation(N=51)
Symptom/problem list (12)	78.72±13.61
Effects of kidney disease (8)	68.81±14.68
Burden of kidney disease (4)	20.22±18.52
SF-12 Physical Health Composite (PCS)	33.02±8.82
SF-12 Mental Health Composite (MCS)	42.05±7.23

Table 1 reveals that dialysis patients had higher scores in the Mental Health Composite (MCS) than in Physical Composite Score (PCS). This shows that though the symptoms are worsening and there is the overall burden of disease patients are trying to maintain mental functioning.

Table 2: Health-related quality of life (HRQOL) scores by general characteristics (unit: mean ± SD)

Variables	N (%)	Symptom/ problem list	Effects of kidney disease	Burden of kidney disease	SF-12 Physical Composite	SF-12 Mental Composite
• **SEX**						
Male	28 (54.90)	78.3 ± 14.7	70.1 ± 15.8	21.0 ± 18.5	32.2 ± 8.9	42.0 ± 6.7
Female	23 (45.10)	79.2 ± 12.5	67.3 ± 13.3	19.3 ± 18.9	34.2 ± 8.6	42.1 ± 8.0
• **AGE**						
< 49 years	23 (45.10)	82.8 ± 12.2†	68.2 ± 15.3	21.5 ± 19.6	35.7 ± 8.4	37.1 ± 7.2
50 - 59 year	14 (27.45)	80.4 ± 12.7	71.9 ± 11.2	19.2 ± 11.6	31.2 ± 6.6	43.2 ± 6.7
60 - 69 year	13 (25.49)	69.9 ± 14.2	67.1 ± 17.7	20.7 ± 23.3	30.8 ± 10.9	45.5 ± 5.9†
+ 70 years	1 (1.96)	77.1 ± 0	62.5 ± 0	0.0 ± 0	27.1 ± 0	41.7 ± 0
• **RESIDENCE**						
Urban	34 (66.67)	78.4 ± 13.3	67.6 ± 16.1	23.7 ± 19.8	33.6 ± 9.8	42.5 ± 7.8
Semi urban	6 (11.76)	81.6 ± 19.2	71.4 ± 17.6	16.7 ± 17.5	36.3 ± 6.5	40.3 ± 9.5
Rural	11 (21.57)	78.2 ± 12.5	71.3 ± 7.1	11.4 ± 11.8	29.8 ± 5.1	41.6 ± 4.0
• **MARITAL STATUS**						
Married	48 (94.12)	78.9 ± 12.8*	68.8 ± 14.5	20.1 ± 18.5	33.2 ± 8.9	46.5 ± 1.3†

Unmarried	2 (3.92)	91.7 ± 5.9	81.3 ± 4.4	34.4 ± 13.3	33.7 ± 4.7	42.2 ± 6.94
Widowed	1 (1.96)	43.8 ± 0	43.8 ± 0	0.0 ± 0	23.9 ± 0	24.5 ± 0

*p <0.01 †p<0.05

In sociodemographic variables (Table 2) male, older age group, less educated, staying in a rural area, and with co-morbidities like HTN and diabetes mellitus, reported significantly lower QOL than the others in PCS domain. There was a significant association between younger age groups and HRQOL related to the symptom problem list. Also, a significant association was found between marital status and Mental health component as compared to unmarried and widowed.

Table 3: HRQOL scores by hemodialysis details characteristics (unit: mean ± SD)

Variables	N (%)	Symptom/ problem list	Effects of kidney disease	Burden of kidney disease	SF-12 Physical Composite	SF-12 Mental Composite
·**Duration of haemodialysis**						
> 1 year	39 (76.47)	79.2 ± 13.6	68.19 ± 15.1	21.96 ± 20.3	33.87 ± 9.2	42.61 ± 7.4
3-6 months	8 (15.69)	72.4 ± 15.0	67.97 ± 14.3	9.38 ± 6.7	29.22 ± 6.1	38.96 ± 7.3
6 months -1 year	4 (7.84)	86.5 ± 4.3	76.57 ± 11.6	25.00 ± 5.1	33.08 ± 8.6	42.78 ± 5.3
· Enrolled in MJPJAY scheme						
No	3 (5.88)	66.7 ± 19.9	52.1 ± 7.2	25.0 ± 25.0	38.7 ± 14.8	41.8 ± 15.0
Yes	48 (94.12)	79.5 ± 13.1	69.9 ± 14.4†	19.9 ± 18.4	32.7 ± 8.4	42.1 ± 6.8
· **Haemodialysis per week**						
2	42 (82.35)	79.5 ± 13.7	69.2 ± 14.9	21.0 ± 19.2	33.4 ± 8.7	42.8 ± 7.1*
3	9 (17.65)	75.0 ± 13.3	67.0 ± 14.1	16.7 ± 15.6	31.7 ± 9.7	38.4 ± 7.0

*p <0.01 †p<0.05

In Table 3 significant association was found between patients enrolled in Mahatma Jyotiba Phule Jan Arogya Yojana (MJPJAY) scheme and HRQOL with respect to the burden of kidney disease. Also, a significant association was found between the frequency of hemodialysis and Mental component scoring.

Table 4: Patient satisfaction mean scores according to their domains

Sr.No	Domains	Questions	Mean scores
1	General Satisfaction	3,17	3.35
2	Technical Quality	2,4,6,14	3.02
3	Interpersonal manner	10,11	3.53
4	Communication	1,13	3.37
5	Financial aspects	5,7	2.79
6	Time spent with doctor	12,15	3.09
7	Accessibility and convenience	8,9,16,18	3.68

In the patient satisfaction, assessment patients were satisfied overall with services provided at the tertiary care center (Mean±SD is 66.25±5) as seen in Table 4.

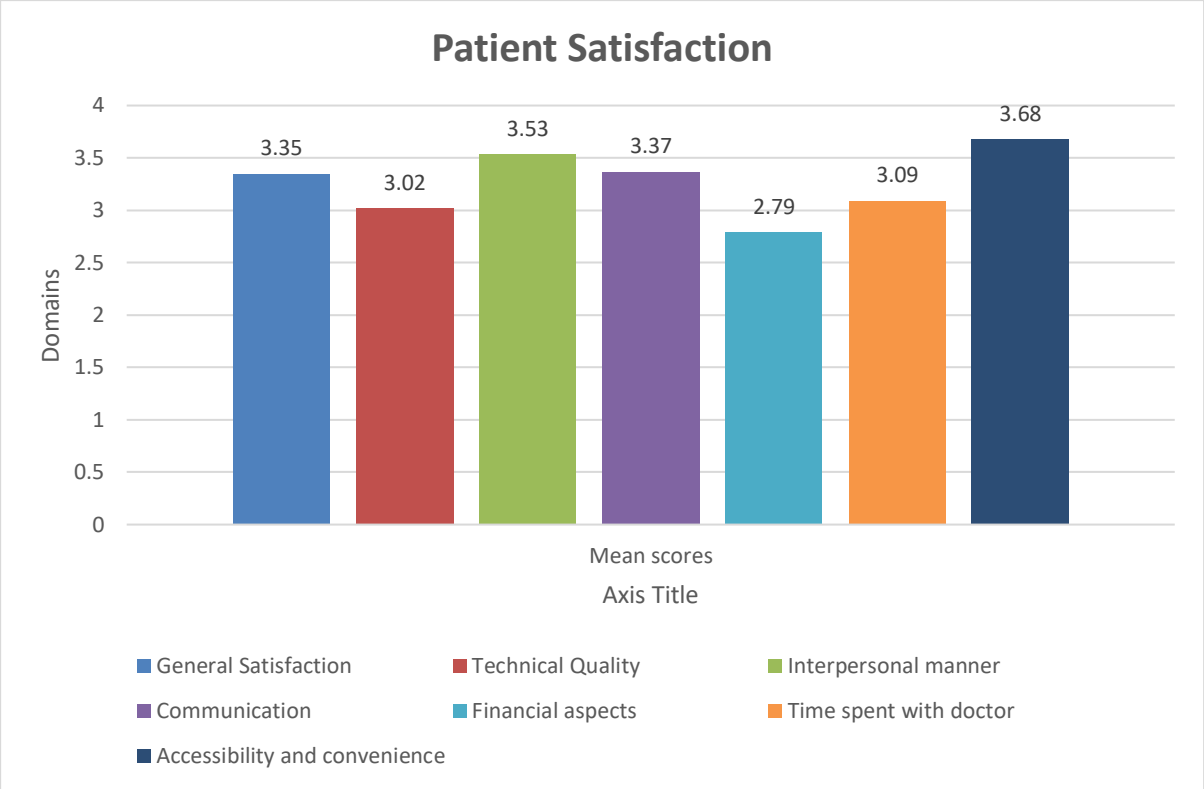

Figure 1: Patient satisfaction mean scores

The bar graph shows that patient satisfaction is lowest in financial aspects. Though patients are enrolled in MJPJAY Insurance scheme, as they belong to the poverty line, they still have to bear the expenses for medicines and erythropoietin injections which can bring about financial pressure for those who live on the bare minimum.

Discussion:

Earlier studies conducted using KDQOL 36-item scale has provided robust results and it's a very useful tool for assessing health related quality of life. Monitoring physical health status and mental health status along with the subjective perception of patients' own wellbeing are of pertinent importance in patients with ESRD. This assessment can give great insights and guide the proper management of patients, thereby leading to better patient concordance and improving patient survival. Our study gives a detailed description of all components of quality of life in CKD patients.

Assessment of Health-Related Quality of Life:

A study led by Shunichi Fukuhara et al., spanning three continents, found that compared to many other countries, patients undergoing hemodialysis in the USA exhibited higher mental component scores than physical ones, a trend consistent with our findings. Conversely, Japanese hemodialysis patients

expressed greater perceived burden from their kidney disease, yet demonstrated significantly better physical functioning (Fukuhara, S et al., 2003). In our study, dialysis patients showed higher scores in MCS than in PCS, and this has been also reported in several previous studies (Kalantar-Zadeh K et al.,2001) (Lopes A et al.,2013) (Spiegel B. M. R et al.,2008). Put differently, even as the physical health of dialysis patients deteriorates, their mental well-being remains relatively intact. This phenomenon was previously attributed to the adaptive nature of patients' expectations in response to their chronic illness (Kim J. Y et al., 2014).

Determinants of HRQOL

Our study reported male sex, and older age group as factors that affect HRQOL, which is similar to a study conducted by Priyamvada P et al (Priyamvada P et al.,2017). Contrary to the study conducted by Priyamvada P, another study by Vazquez et al reported females to have poor HRQOL as compared to males (Vázquez I et al.,2005). Patients who are less-educated and staying in rural area reported significantly lower QOL than the others in PCS domain. A parallel investigation conducted by Wassef Om yielded comparable results, suggesting that the influence of higher education may enhance patients' awareness of their disease, and its symptoms, and strengthen their ability to cope with the challenges of hemodialysis treatment (Wassef O.M et al., 2018). However, this observation contradicts the findings of Al-Jumaih et al., who concluded that the quality of life (QOL) scores remained unaffected by educational attainment. They proposed that highly educated patients may have elevated expectations regarding their health status, potentially leading to dissatisfaction with both their physical and mental well-being (Al-Sayyari et al., 2011).

Association between determinants and HRQOL

There was significant association between younger age patients and HRQOL related to symptom problem list as younger patients have more expectations from treatment and are less adapted to the disease condition as compared to older patients (Nayana S. A et al.,2017). Furthermore, a notable correlation was identified between marital status and the Mental Health component. Theofilou et al. noted that married individuals tend to exhibit higher quality of life (QOL), indicating that improved psychological and social welfare may be linked to familial circumstances and the presence of a supportive partner offering care and affection (Theofilou P, 2022). Also significant association was found between patients enrolled in Mahatma Jyotiba Phule Jan Arogya Yojana (MJPJAY) scheme and HRQOL with respect to burden of kidney disease as those enrolled in MJPJAY fared better in the above domain. In a study conducted by Joshi et al similar findings were reported on improvement of QOL scores due to insurance scheme (Joshi A,2018). This could be attributed to the fact that insurance schemes provide good financial coverage and social security thus reducing their burden. Thus, male sex, older age group, marital status, enrolment in MJPJAY scheme and higher education status are significant determinants of HRQOL.

Study Limitation:

The study limitations are that it relies on individual perception and their responses accordingly. It also does not take into consideration effect of biochemical markers which is also has a significant influence on QOL.

Conclusion

The overall quality of life in dialysis patients is impaired. Dialysis patients have higher MCS scores than PCS scores. Married patients, younger age groups, those enrolled in MJPJAY insurance scheme, those without comorbidities, and those having 2 sessions of hemodialysis per week have better overall quality of Life. Patient satisfaction mean score is highest in accessibility and convenience and lowest in the financial aspects domain. The patient who are unmarried and young having low MCS scores having low MCS scores hence facilities for routine counselling and assurance should be provided to not just the patients but their caregivers also to have overall good quality of life. The older patients who have higher MCS scores than PCS should be provided with better health infrastructure and management for coping with other commodities. Implementation of interdisciplinary and multidisciplinary approach like forming group and giving community yoga sessions, counselling and experience sharing, intra-dialytic exercises to improve symptoms and also mental peace will help in elevating their quality of life.

Conflicts of Interest

The authors declare no conflicts of interest.

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