

Quality of Life in Chronic Hemodialysis Patients: A Transversal Prospective Study at Point G UHC (Mali)

Hamadoun Yattara^{1,2}, Youssouf Singadou Ousmane Djiguiba^{3,4*}, Alassane Coulibaly⁵, Samba Konaré³, Aboubacar Sidiki Fofana^{4,6}, Nouhoum Coulibaly^{4,7}, Djénéba Maiga^{1,4}, Alkaya Touré^{1,4}, Atabieme Kodio¹, Seydou Sy^{1,2}

¹Nephrology Department of the Point G University Hospital, Bamako, Mali

²Faculty of Medicine and Odontostomatology, University of Science, Techniques and Technologies, Bamako, Mali

³Nephrology Unit of the Commune IV District Hospital, Bamako, Mali

⁴National Centre for Scientific and Technological Research, Bamako, Mali

⁵Nephrology Department of the Mother and Child Hospital Center “Luxembourg”, Bamako, Mali

⁶Nephrology Department of the Fousseyni Daou Hospital, Kayes, Mali

⁷Nephrology Unit of the Commune V District Hospital, Bamako, Mali

Email: *youssouf_djiguiba@yahoo.fr

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Abstract

Introduction: The KDQOL-SF (Kidney Disease Quality of Life Short Form) is a tool for assessing the quality of life of patients with kidney disease that examines areas more specific to CRFT. **Objective:** To assess the degree of satisfaction with physical and mental health among chronic dialysis patients and to determine the factors influencing it. **Methodology:** This was a prospective cross-sectional study conducted at the Point G University Hospital among chronic dialysis patients over a period of three months. **Results:** The ratio was 1.22 in favor of men. The average age was 45.3 years, with extremes of 19 and 71 years. The initial nephropathy was nephroangiosclerosis in 46% of cases. The average duration of dialysis for our patients was 36.4 months +/- 15.4 months, with extremes of 10 months and 192 months. KDQOL dissatisfaction rates concerned the dimensions of sleep (89%), pruritus (87%), sex life (86%), vascular access problems (76%), and walking ability (74%). Satisfaction rates concerned the following dimensions: assistance from paramedical staff (79%), assistance from spouse (79%), assistance from medical staff (78%), and assistance from employer (86%). Overall satisfaction on a scale of 0 to 10 was mostly rated 5, 6, and 7, with 34%, 33%, and 17% of cases, respectively.

Keywords

Quality of Life, Chronic Hemodialysis, KDQOL-36, Bamako (Mali)

1. Introduction

End-stage renal disease (ESRD) is an irreversible illness with serious consequences for patients' lives and is perceived as a social and professional handicap. Management of CKD, therefore, requires not only control of symptoms and morbidity, but also improvement of patients' quality of life [1].

According to the World Health Organisation (WHO), quality of life (QOL) is defined as the individual's perception of his or her place in life, in the context of the culture and value system in which he or she lives, and in relation to his or her goals, expectations, norms and concerns [1].

The KDQOL-SF (Kidney disease quality of life short form) is an instrument for assessing the quality of life of patients with kidney disease that looks at areas more specific to CKD. It therefore provides a more accurate assessment of quality of life in this population [2].

The resulting increase in survival on haemodialysis is creating new challenges in the management of cardiovascular and mineral-bone disorders [3]. Assessing HRQoL is a major public health issue in a world where the population is increasingly ageing and faced with the burden of chronic illnesses more than ever before.

2. Objectives

There are very few studies on the quality of life of chronic haemodialysis patients in our country, hence the interest of this study with the following objectives:

1) Evaluate the degree of satisfaction with the different components of health in chronic dialysis patients:

- Physical health
- Mental health

2) Determine the factors influencing quality of life in these patients.

3. Methodology

3.1. Type of Study

This was a prospective cross-sectional study.

3.2. Study Period

The study was conducted from 1 February to 31 March 2023.

3.3. Patients

This study concerned patients with chronic end-stage renal disease dialysed in the Point G University Hospital dialysis unit.

3.3.1. Inclusion Criteria

- Age \geq 18 years.
- On haemodialysis for more than three months.

3.3.2. Exclusion Criteria

- Age < 18 years.
- Aphasic (unable to express themselves orally).
- Refusal to participate in the study.
- Follow-up for psychiatric disorders or memory leakage.

3.4. Parameters Studied

Parameters likely to influence quality of life (QOL) in CKD patients were studied.

3.4.1. Socio-Demographic Data

- Age
- Gender
- Occupation
- Marital Status
- Medical Insurance

3.4.2. Clinical Data

- Causal kidney disease
- Comorbidities

3.4.3. Quality of Life Study

KDQOL-SF36 Tm.

1) The SF-36 questionnaire

As its name suggests, the SF-36 questionnaire is used in CKD surveys and consists of 36 questions exploring 8 domains, enabling an approach to both the mental and physical components of health.

- These 8 domains are as follows:
 - Physical activity
 - Limitations due to physical condition
 - Physical pain
 - Perceived health
 - Vitality
 - Life and relationships with others
 - Mental health
 - Limitations due to mental state
- The Physical Component Summary (PCS) assessed is reflected in the domains of Physical Activity, Limitations due to Physical Condition, Physical Pain and Perceived Health.
- The mental health component “MCS” (Mental Component Summary) is assessed through the scores of the domains “Vitality”, “Life and relationships with others”, “Psychological health”, and “Limitations due to psychological state”.

2) Kidney Disease Component Summary (KDSC)

- This section includes 05 dimensions and 29 items:

- List of symptoms/problems (12 items)
- Effects of kidney disease (8 items)
- Weight of kidney disease (4 items)
- Quality of social interaction (3 items)
- Sexual function (2 items)
- The KDQOL-SF is also made up of 13 types of pre-established answers in the questionnaire. Depending on the patient's response, each item is converted into a score.
 - The items are then grouped together to calculate the score for each quality of life domain.
 - A higher score indicates a better quality of life.
 - Patients' overall assessment of their state of health on a scale of 1 to 10 is subjective.
 - The KDQOL-SF scoring manual, including the programme used to convert patient responses into a score, is available on the official KDQOL website (<https://www.kdqol-complete.org/>) or on the HAS website (Haute autorité de Santé).

3.5. Data Support

Each patient was given an individual follow-up sheet systematically recording data from the dialysis records of patients in the nephrology department, the patients' medical records, and the questioning of patients and/or caregivers.

3.6. Ethical Aspects

Anonymity and confidentiality were agreed beforehand after being informed of the information and explanations. Respect for medical codes of ethics was an integral part of our study. The data will only be used for scientific purposes.

3.7. Data Entry and Analysis

The data were entered into Word and Excel 2010 and analysed using SPSS 20.0 software. We used the Chi-square statistical test to compare our results, with a significance level of $p < 0.05$.

4. Results

During our study, we collected data on 100 patients (**Figure 1**) undergoing chronic dialysis at Point G University Hospital, of whom 55% were men and 45% were women, giving a male-to-female ratio of 1.22 in favor of men (**Figure 2**). The 46 - 55 age group was the most represented, with 29% of cases, the average age being 45.3 years, and the extremes being 19 and 71 years. Patients ($n = 34$) had to change their place of residence for dialysis. Married patients accounted for 78% of cases. Patients living with their families accounted for 93% of cases. Insured patients accounted for 70% of cases. Nephroangiosclerosis was present in 46% of cases (**Table 1**). Clinically, hypertension was found in 57% of patients, pain in 44%, and pruritus in 24%. Pa-

tients with a duration of 3 - 60 months were the most numerous, accounting for 48% of cases (Table 2). The average duration of dialysis for our patients was 36.4 months \pm 15.4 months, with extremes of 10 months and 192 months. Patients (87%) received two sessions per week, and 97% had four hours per session. The average BMI was 21.04. The AVF was the main vascular access in 88% of cases (Figure 3). Residual diuresis was observed in 27% of patients, including 18 cases (66.7%) with a volume between 0 and 500 ml (Table 3). Patients with diuresis had been on dialysis for less than 2 years ($p = 0.03$). KDQOL dissatisfaction rates concerned the following dimensions: sleep (89%), pruritus (87%), sex life (86%), vascular access problems (76%), ability to walk (74%), and relationship problems (73%) (Table 4). KQDOL satisfaction rates concerned the following dimensions: assistance from paramedical staff (79%), assistance from spouse (79%), assistance from medical staff (78%), assistance from employer (86%), and assistance from friends and family (64%). Scales 5, 6, and 7 represented 34%, 33%, and 17% of cases, respectively (Figure 4).

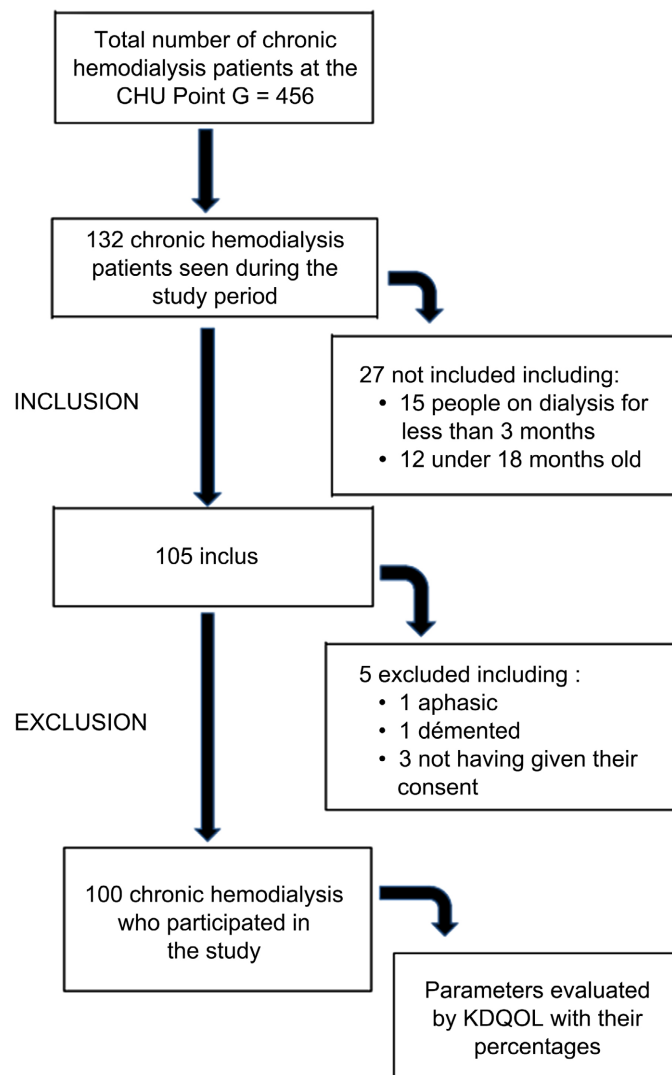


Figure 1. Flowchart and results.

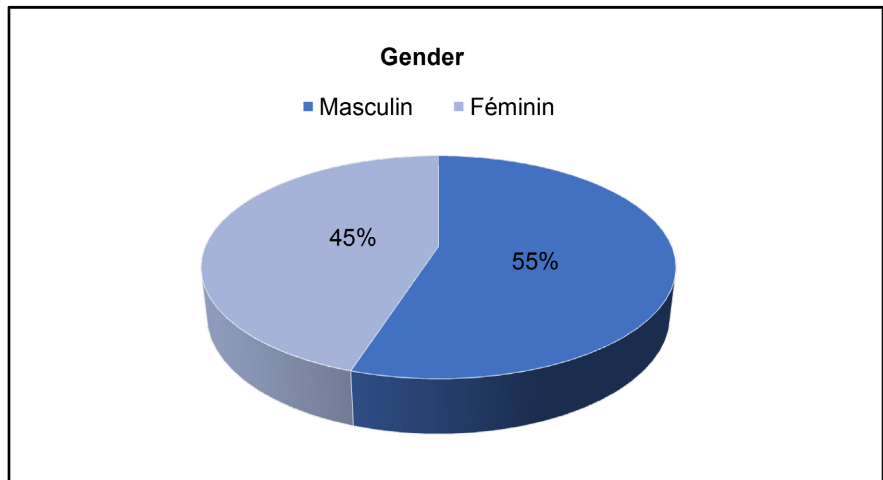


Figure 2. Distribution by gender (n = 100).

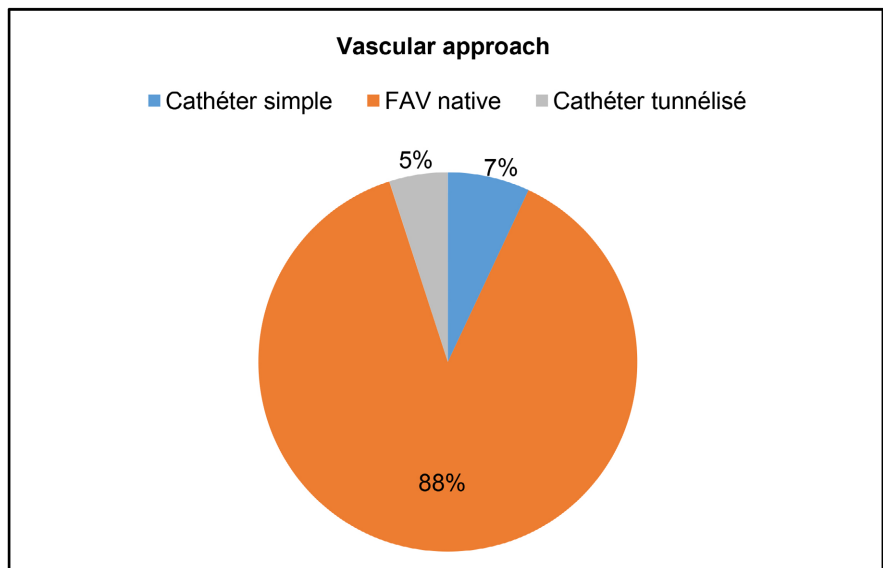


Figure 3. Distribution according to vascular access.

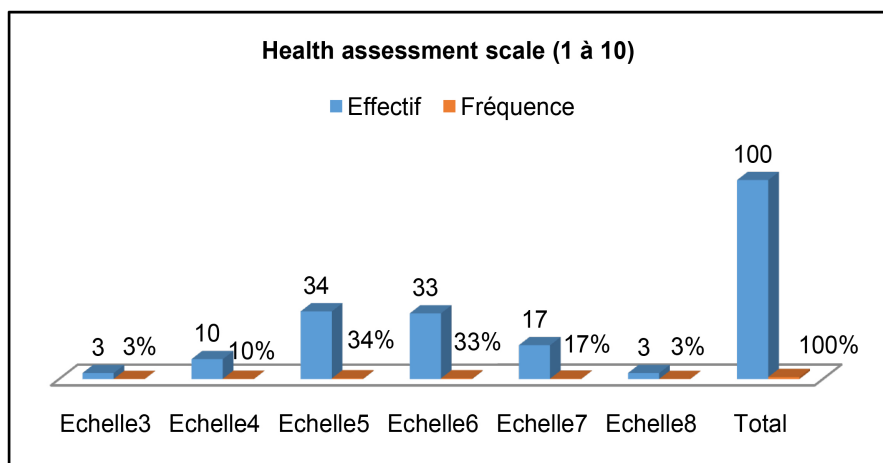


Figure 4. Overall assessment of health status.

Table 1. Distribution according to causal nephropathy.

| Causal Nephropathy | Effective | Frequency |
|------------------------------------|------------|-------------|
| Nephroangiosclerosis | 46 | 46% |
| Nephrodiabetc | 19 | 19% |
| CNG | 9 | 9% |
| Drug-induced and toxic nephropathy | 4 | 4% |
| Urologica | 4 | 3% |
| Infectious nephropathy | 3 | 4% |
| Systemic disease | 2 | 1% |
| Obstetric | 1 | 1% |
| Polycystic fibrosis | 1 | 2% |
| Undetermined | 11 | 11% |
| Total | 100 | 100% |

Table 2. Distribution is according to the length of time on dialysis.

| Length of Time on Haemodialysis | Workforce | Frequency |
|---------------------------------|------------|-------------|
| [3 - 60 months[| 48 | 48% |
| [60 - 120 months[| 39 | 39% |
| [120 - 192 months[| 13 | 13% |
| Total | 100 | 100% |

Table 3. Distribution of residual diuresis according to length of time on dialysis (n = 27).

| Seniority in Dialysis | Diuresis | | | | Total |
|---------------------------|---------------------|------------------------|-------------------------|-------------------------|-----------------|
| | 0 - 500 ml n (%) | 501 - 1000 ml n (%) | 1001 - 1500 ml n (%) | 1501 - 2000 ml n (%) | |
| [3 - 60 months[| 10 (58.9) | 3 (17.6) | 3 (17.6) | 1 (5.9) | 17 (100) |
| [60 - 120 months[| 6 (75) | 2 (25) | 0 | 0 | 8 (100) |
| [120 - 192 months[| 2 (100) | 0 | 0 | 0 | 2 (100) |
| Total | 18 (66.7) | 5 (18.5) | 3 (11.1) | 1 (3.7) | 27 (100) |

Khi² = 1.06, ddl = 1, p = 0.032.

Table 4. Factors influencing quality of life (dissatisfaction).

| Influencing Factors of QDV (Dissatisfaction) | Effective | Prevalence | P |
|--|-----------|------------|------|
| Sleep | 89 | 89% | 0.09 |
| Pruritus | 87 | 87% | 0.2 |
| Sex life | 86 | 86% | 0.5 |
| HTA | 83 | 83% | 0.04 |
| Vascular access problems | 76 | 76% | 0.9 |
| Ability to walk | 74 | 74% | 0.9 |
| Problems in a relationship | 73 | 73% | 0.5 |
| Muscle pain | 72 | 72% | 0.7 |
| Water restriction | 71 | 71% | 0.03 |
| Enjoying your leisure life | 60 | 60% | 0.4 |

5. Discussions

The response rate for the KDQOL-36 questionnaire was 86% compared with 89% for Cissé *et al.* [4]. This rate is acceptable and reinforces our choice of selection and inclusion criteria.

87% of our patients had two dialysis sessions per week, a consensual number depending on the context, even though according to the KDIGO 2013 recommendations, 3 dialysis sessions of 4 hours per week are required, *i.e.*, 12 hours per week [5].

5.1. Socio-Demographic Data

In the course of our study, we had colligated 100 chronic dialysis patients at the Point G University Hospital, *i.e.*, a participation rate of 75.75%. The male sex represented 55% and the female sex 45%, *i.e.*, a ratio of 1.22 in favor of men. Male predominance was found in Conakry by Bah *et al.* [6] and in Bamako by Diallo *et al.* [7], respectively, 1.15 and 2.

Patients aged between 46 and 55 years accounted for 29% of cases. This may be explained by the fact that this age group is much more exposed to cardiovascular risk factors [1] [2].

The average age of our patients was 45.3 years, with extremes of 19 and 71 years. Patients on dialysis for CKD in Mali are younger than those in Dakar, Cotonou, and Conakry, with respectively 50.5 years by Cissé *et al.* [4], 50.2 years by Ka *et al.* [8], and 48.8 years by Bah *et al.* [6]. It was higher than that of Diallo *et al.* [7] in Bamako, with 40.3 years. In addition, the DOPPS study [9] in Europe found 63.9

years. This could be explained by the onset of cardiovascular risk factors (hypertension, diabetes, etc.), which are increasingly prevalent in the young population south of the Sahara, or by other causes or additional risk factors (genetics, socio-economic level, level of education, etc.).

Secondary education accounted for 45% of cases. In Cotonou, Ka *et al.* [8] found 35.94% and 40% in Bamako by Diallo *et al.* [7].

Self-employed patients accounted for 40% of cases, whereas Diallo *et al.* [7] found 30% self-employed patients, and Ka *et al.* [8] found 22.61% patients in paid employment.

Married patients accounted for 78% of cases, whereas in Cotonou Ka *et al.* [8] found 72.73% married patients, and in Bamako 70% by Diallo *et al.* [7].

Patients lived with their families in 93% of cases.

Medical insurance was observed in 70% of cases, compared with 98% by Oussaih *et al.* [10].

5.2. Clinical Data

Nephroangiosclerosis was observed in 46% of patients, whereas Samaké *et al.* found 31.4% of vascular nephropathy [11] and 25.58% of NAS in Cotonou by Ka *et al.* [8].

Of 29 initially non-hypertensive patients, 24 developed hypertension during ESRD, *i.e.*, 82.7% of cases. A similar result of 73% was found by Oussaih *et al.* [10]. This denotes the occurrence of hypertension in CKD [1]-[3].

Stroke (2%), CV disease (4%), smoking (8%), and arthropathy (1%) were collected. In Morocco, Oussaih *et al.* [10] found 4% stroke, 19% CV disease, 4% smoking, and 4% arthritis.

Clinically, 57% of patients had hypertension, 44% pain, and 24% pruritus.

5.3. Substitution Methods

Patients between 3 months and 60 months old accounted for 48% of cases.

The average age of our patients on dialysis was 36.4 months \pm 15.4 months, with extremes of 10 months and 192 months. On the other hand, Oussaih *et al.* [10] found an age of 100.08 years \pm 72.84 years.

Interdialytic weight gain (IWG) of less than 2 kg was found in 49.4% of our patients (n:87) undergoing two sessions, with an average of -1.78 kg, compared with 46.1% of patients (n:13) undergoing three sessions, with an average of 1.54 kg. Ka *et al.* found that 97.71% of patients had two sessions per week.

The duration of the dialysis session was 4 hours in 97% of cases, compared with 98% in Ka *et al.* [8].

Patients were dialysed using an AVF, a tunnelled catheter, and a simple catheter in 88%, 7% and 5% of cases, respectively. This result can be appreciated in the light of the KDQOL recommendations, for which the minimum required rate of dialysis on AVF is 65% [5].

Residual diuresis was found in 27 patients, 63% of whom had been on dialysis

for less than 60 months, 29.6% for 60 - 120 months, and 7.4% for 120 - 192 months, with a $p = 0.03$.

In our study, patients with residual diuresis had a better quality of life in 75% of dimensions compared with those without residual diuresis. This is confirmed by most studies, which have shown that low residual diuresis is associated with poorer quality of life and a higher risk of hospitalisation [2]-[4] [8] [9].

5.4. Quality of Life

The KDQOL dissatisfaction rates concerned the following dimensions:

- Sleep (89%). Diallo *et al.* [7] found that 46.67% of patients had difficulty sleeping.
- Pruritus (87%).
- Sexual life (86%) against 30% found by Diallo *et al.* [7].
- HTA (83%, $p: 0.04$).
- Vascular access problems (76%), of which 48% of patients had undergone two AVFs, 19% had undergone three AVFs, 5% had undergone four AVFs, and 6% had exhausted their vascular capital. 84% had started catheter dialysis.
- Ability to walk (74%).
- Marital problems (73%).
- Socially: Abandonment by friends (36%), change of residence in favour of dialysis (34%), bachelor's degree (11%), dropping out of school (6%), divorce (5%), dropping out after engagement (4%). On the other hand, Diallo *et al.* 4.76% divorce.
- Water restriction (71%, $p = 0.03$).
- Enjoyment of leisure time (60%) compared with 20% found by Diallo *et al.*[7].

Other Consequences: interference with MR and patients' lives (89%, $p = 0.02$), time spent by patients on MR (83%, $p = 0.03$).

These are exactly the same findings made in Dakar by Cisse *et al.* [5], Ka *et al.* [6] in Cotonou, and in the DOPPS study [9].

The KQDOL satisfaction rates concerned the following dimensions:

- Assistance by paramedical staff (79%) compared with 85.1% by Cisse *et al.* [5].
- Assistance by medical staff (78%) compared with 86% by Okpechi *et al.* [12].
- Assistance by spouse (78.6%) versus 66.7% found by Diallo *et al.* [7].
- Assistance by employer (86%).
- Comprehension within the couple was 76% compared with 66.7% found by Diallo *et al.* [7]. This could be explained by religious belief.
- Assistance from friends and family (64%). This can be explained by the particular nature of Malian society, which is based on cohesion and mutual aid.

These scores corroborate those found by Okpechi *et al.* [12] in South Africa and by Mapes *et al.* [13]. Generally speaking, the studies mention the positive effects of social support (family, friends, the employing service, and encouragement from the dialysis team).

Overall assessment of patients' satisfaction with their general state of health:

- Satisfaction was 67% compared with 60% found by Daillo *et al.* [7].
- Dissatisfaction was 33% compared with 40% found by Diallo *et al.* [7].

6. Conclusions

During end-stage chronic renal failure, the reduction in morbidity and mortality is achieved not only by haemodialysis sessions, but also by correction of phosphocalcic disorders, correction of anaemia, good nutrition, and correction of CRVD in order to improve the quality of life of these patients.

Quality of life is a complex concept that results from an interaction between several components: the disease itself, the patient's psychological traits and behaviour in the face of the disease, social support, etc.

Despite this complexity, life expectancy should be considered as a criterion for the evaluation of the suppléation methods proposed for CKD patients.

It is also an important objective of therapeutic management, which should enable these patients to enjoy a life closer to normal.

Several factors influence the concept of quality of life, as well as the complexity and standardised assessment of this concept, which explains the multiplicity of assessment scales and scores. In our study, we have attempted to make as broad an assessment as possible.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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