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Quality of Life of Chronic Haemodialytic Patients at Cotonou Teaching Hospital (BENIN)

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Abstract

Introduction: The objectives of this work were to assess haemodialytic patients' quality of life (QoL) and to identify factors affecting this QoL. Patients and Methods: It was a three (03) month monocentric and transversal study (from October 24, 2011 to January 27, 2012) conducted in the haemodialysis unit at Hubert Koutoukou Maga Teaching Hospital (CNHU-HKM) in Cotonou. Patients included were residents of Benin, aged 18 years and above, chronic haemodialysis in this unit for over 3 months, and willfully gave their consent. Quality of life was evaluated using questionnaire on Kidney Disease Quality of Life Short-Form French version 1.2 (KDQoL-SF 36). Epidemiological data, nephropathy etiologies and purification parametres were recorded in patients files. Data statistical analysis was performed using SPSS software 11.5. Results: In total 131 patients were involved in the study. The average age was 50.27 ± 12.17 years with a sex ratio of 1.69. Nephroangiosclerosis was the 1st cause. Most patients 128 (97.71 %) received two haemodialysis sessions on weekly basis. The Average Overall Score (AOS) based respectively on SF 36 and KDQoL was 48.55 and 58.55. The average of both SF 36 and KDQoL AOS was 53.55. Factors affecting hemodialytic patients quality of life were vitality, limitations related to mental health and physical condition, burden of kidney disease, effect of the disease on daily life and occupational status. The study revealed that: Patients education level was correlated with vitality ($p < 0.017$); The number of haemodialyses sessions was correlated with the consequences of kidney disease on daily life ($p < 0.025$). Conclusion: It is necessary to strengthen the staff by providing a psychologist and a dietician and also build new haemodialysis centres.

Keywords

Quality of Life, Haemodialysis Patients, Chronic Kidney Disease, Benin

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1. Introduction

Chronic kidney disease is the consequence of gradual and definite loss of kidneys functions. It is secondary to irreversible lesion of the kidney parenchyma [1]. At the terminal phase, the treatment uses kidney substitution techniques such as haemodialysis, peritoneal dialysis, in the absence of kidney transplant. Haemodialysis implies patient's short and long term constraints, despite countless progress made in recent years.

For the past few years, in the field of health, quality of life assessment has become widespread. This is one of the reasons the Kidney Disease and Quality of Life—Short Form (KDQoL-SF) has been proposed as an instrument for the assessment of haemodialytic patients' quality of life [2]. It is intended to measure both the impact of kidney disease and its treatment on the daily life of patients and their level of satisfaction [3]. The concept of "quality of life" is a very important topic in the sense that, from a subjective point of view its study helps to know the impact of diseases on patients' life [4].

In developed countries, haemodialysis care is well codified and abides by the recommendations set by learned societies. In Africa, it is not the case in all countries, because of the poorly equipped technical facilities. If hemodialytic patients' quality of life has thoroughly been studied in some African countries particularly in South and North African Countries, it is the contrast in sub-Saharan Africa where dialysis is not yet accessible to all patients and is therefore scarcely appreciated.

In West Africa, particularly in Senegal, a study has been made in Dakar on this theme in 2008 [5]. In Benin, it is the daily conventional haemodialysis that is practiced. Conventional haemodialysis corrects the renal failing and the hydroelectrolytics disorders; but it's little tolerated, and is not bound to a reduction of mortality. It's freely provided by the Government, but no study has been made so far on chronic haemodialytic patient's quality of life. Factors that are affecting their quality of life are unknown. That is why this study having the objectives below has been initiated:

General Objective:

Assessing haemodialytic patients' quality of life at CNHU-HKM of Cotonou and their determinants.

Specific Objectives:

- Assessing haemodialytic patients' quality of life in CNHU-HKM;
- Identifying factors that affect haemodialytic patients' quality of life;
- Determining the correlation between quality of life domains and epidemioclinical characteristics.

2. Patients and Methods

This work has been conducted in the haemodialysis unit at Hubert Koutoukou Maga Teaching Hospital (CNHU-HKM) in Cotonou, within the Nephrology-Haemodialysis University Hospital. It was a three (03) month monocentric and transversal study from October 24, 2011 to January 27, 2012 using self completed questionnaire for patients. Patients included in the study were residents of Benin, aged 18 years and above, chronic haemodialysis in the unit for over 3 months, and willfully gave their consent.

Quality of life was evaluated using Kidney Disease Quality of Life Short-Form French version 1.2 (KDQoL-SF) [2]. It was a self completed questionnaire comprising 79 items and made up of 2 modules.

A generic module: Short-Form (SF-36) made-up of 36 questions grouped into eight domains namely:

- General health (D1);
- Physical activity (D2);
- Limitations due to physical conditions (D3);
- Limitations due to mental state (D4);
- Life and relationships with others (D5);
- Physical pain (D6);
- Vitality (D7);
- Mental health (D8).

These eight domains were also divided into 2 dimensions:

- Physical health dimension was in correlation with "general health", "physical activities", "limitations due to physical activity", "physical pain", and "vitality";
- Mental health dimension was in correlation with "limitations due to mental activity", "life and relationship with others" and "mental health".

A specific module adapted to kidney pathology, comprising 43 items and divided into 11 domains:

- Burden of kidney disease (D9);
- Quality of the immediate circle (D10);
- Cognitive functions (D11);
- Symptoms and problems (D12);
- Effects of the disease on daily life (D13);
- Quality of sexual activity (D14);
- Sleep (D15);
- Family and friendly relationship (D16);
- Occupational status (D17);
- Patient's satisfaction (D18);
- Encouragement from dialysis team (D19).

These 19 domains were also divided into 04 dimensions:

- A physical health dimension in correlation with "general health", "physical functioning", "limitations due to physical activity", "physical pain", "vitality" and "occupational status";
- A mental health dimension in correlation with "limitations due to mental activity", "life and relationship with others" "mental health", "quality of the immediate circle", "burden of kidney disease";
- A dialysis specific dimension in correlation with "cognitive functions", "symptoms and problems", "effects of the disease on daily life", "quality of sexual activity" and "sleep";
- A dimension related to patient's care satisfaction along with a question concerning "patient satisfaction" as well as "encouragement from dialysis team".

Scoring of answers was based on a 0 to 100 scale, whereby 0 represented the worst quality of life and 100 the best. An average score was calculated for each domain (DAS) to help identify most affected domains, based on the following formula [(100/S-s) * (Y-s)].

"S" being the maximum score that an individual might have in the field, "s" the minimum score and Y is the patient score in the domain.

Furthermore, an average score was calculated for each SF-36 and KDQoL dimension. The overall average score (OAS) was obtained through the calculation of the quotations average; the higher the score, the better the quality of life.

The interpretation of our results was made on the basis of 50 as average for the DAS.

Patients had to fill out the questionnaire by themselves, though sometimes they are assisted by the only one doctor available to either help patients check their chosen answers or translate in local dialect for uneducated patients. The assistance offered by this doctor complied with the recommendations of KDQoL. The formulations in the local dialect have been selected and validated by the research team so as to minimize biases. Epidemiological characteristics (age, sex, level of education, occupational status, marital status, standard of living), etiologies of nephropathy, and dialysis related parametres (number of haemodialyses sessions on weekly basis, vascular access) were filled out by the doctor through each patient's medical record. The standard of living was evaluated on the basis of housing stress, education challenges, lack of financial resources, and poor access to health care. With regard to chronic kidney disease patients, the lack of one of these elements taken separately was regarded as a sign of underprivileged life conditions (UNDP, 2006). On that basis, high, average and low standards of living were clearly defined.

Data were recorded and analyzed using SPSS software 11.5. Univariate and bivariate analyzes were conducted, and 0.05 was the adopted threshold of significance.

3. Results

In total, 133 patients met our inclusion criteria. Out of that figure, there was 1 refusal and 1withdrawal during our investigation, so this brings the figure to 131 patients who effectively took part in the study.

3.1. Characteristics of the Population

3.1.1. Socio-Economic Characteristics of the Study Population

The average age of patients was 50.27 ± 12.17 with 18 and 76 years as extremes. It is worth noting that males were predominant, with a sex ratio of 1.69. Uneducated patients accounted for 12.50%. The other socio-economic characteristics were found in **Table 1**.

3.1.2. Etiologies of Kidney Disease

Nephroangiosclerosis and diabetic nephropathy were respectively the first and second cause of chronic kidney disease, with respectively 25.58% and 15.19%. Other etiologies are found on **Figure 1**.

Table 1. Socio-economic characteristics of the population.

	Effective N = 131	Percentage
Age		
18 - 38	23	18
38 - 58	69	52.4
58 - 76	39	29.6
Sex		
Male	82	62.88
Female	49	37.12
Level of education		
Out-of-school	16	12.50
Primary	24	18.75
Secondary	46	35.94
Tertiary	42	32.81
Occupational status		
With a profession	47	40.87
Pensioners	42	36.52
Without a profession	26	22.61
Marital status		
Married	95	72.73
Unmarried	36	27.27
Benefit from a PEC*		
Yes	131	100
Standard of living		
High	38	06.82
Average	84	64.39
Low	09	28.79

*Benefit from free haemodialysis provided by the Government of Benin.

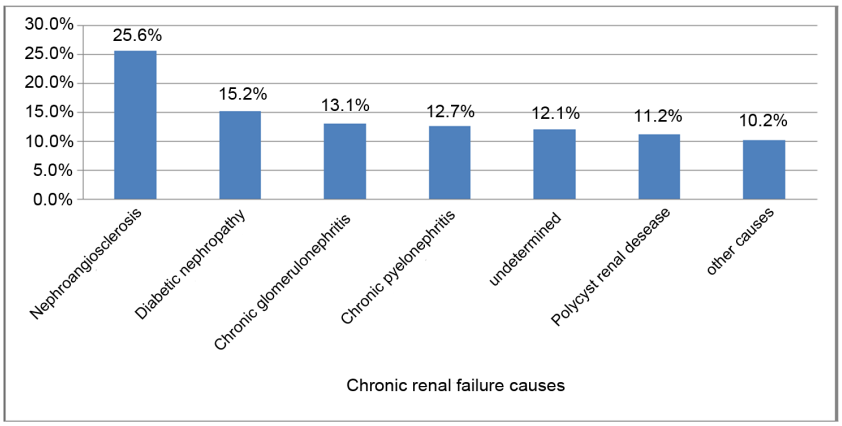

Figure 1. Patients classification per different kidney disease etiologies.

3.1.3. Required Haemodialysis Parametres

Only 3 patients received 3 haemodialysis sessions on weekly basis. And all our patients had an arteriovenous fistula as shown in **Table 2**.

3.1.4. Complications of the Patients

Frequents complications were dominated by anaemia (72.51%) and infection (35.51%). **Table 3** showed the frequent complications of our patients.

3.2. Overall Assessment of Hemodialytic Patients Quality of Life

The average of SF 36 and AOS of KDQoL Overall Average Score (AOS) was 53.55. The different domains average scores ranged from 27.46 to 80.44 as shown in **Table 4**.

3.3. Factors Affecting Quality of Life

According to the generic module, vitality, limitations due to mental health and physical condition were factors that affect hemodialytic patients' quality of life of in CNHU-HKM of Cotonou (**Figure 2**).

Depending on the specific module, occupational status, burden of the disease and consequences of kidney disease on daily life together with those found in the generic module, constituted factors which adversely affect the quality of life of hemodialytic patients in CNHU HKM-Cotonou (**Figure 3**).

3.4. Correlations between Different Domains and Epidemioclinical Data

- Patients education level was significantly correlated with vitality ($p < 0.017$);
- Patients number of haemodialyses sessions was significantly correlated with the effects of kidney disease on daily life ($p < 0.025$);
- Patients' living standard was significantly correlated with physical functioning ($p < 0.020$);
- Patients occupational status was significantly correlated with cognitive functions ($p < 0.001$);

Table 2. Patients classification per required haemodialysis parameters.

	Effective N = 131	Percentage
Number of weekly sessions		
- 2	128	97.71
- 3	3	2.29
Type of vascular access		
- Arteriovenous fistula	131	100

Table 3. Frequent complications of the patients.

	Effective N = 131	Percentage
Anemia	95	72.51
Infection (lung, urinary, otolaryngology)	46	35.11
Carpal chennal syndrom	35	26.71
Hepatitis C	31	23.66
Hyperkaliemia	28	21.37
Undernutrition	23	17.55
Malaria	12	09.16
Unchecked high blood pression	12	09.16
Hepatitis B	08	06.10
Dysfonction of vascular access	04	03.05

Table 4. Average scores for different domains and dimensions.

KDQoL and SF 36 domains	Average score	Standard deviation
• **SF 36**		
General Health (D1)	52.84	±19.69
Physical activities (D2)	50.39	±23.51
Limitations due to physical conditions (D3)	27.46	±35.34
Limitations due to mental state (D4)	31.57	±39.85
Life and relationship with others (D5)	62.45	±23.05
Mental pain (D6)	55.47	±24.44
Vitality (D7)	46.70	±16.33
Mental health (D8)	50.09	±19.32
Physical Health Dimension (PHD)	**46.54**	**±25.75**
Mental Health Dimension (MHD)	**47.70**	**±24.64**
AOS of SF36	**48.55**	**±16.85**
• **KDQoL**		
Burden of illness (D9)	38.07	±25.11
Quality of immediate circle (D10)	62.10	±14.89
Cognitive functions (D11)	70.18	±18.29
Symptoms/problems (D12)	66.98	±18.26
Effects of the disease on daily life (D13)	47.43	±22.19
Quality of sexual activity (D14)	55.21	±33.64
Sleep (D15)	56.66	±15.60
Family and friendly relationship (D16)	62.75	±28.12
Occupational status (D17)	45.45	±29.16
Patient's satisfaction (D18)	58.79	±16.65
Encouragement from dialysis team (D19)	80.44	±21.07
Physical Health Dimension (PHD)	**46.54**	**±17.55**
Mental Health Dimension (MHD)	**50.56**	**±17.74**
Specific Dialysis Dimension (SDD)	**56.79**	**±15.30**
Patient Satisfaction Dimension (PSD)	**69.09**	**±15.35**
AOS of KDQoL	**58.55**	**±22.09**

- Patients sex was respectively significantly correlated with vitality and symptoms/problems ($p < 0.043$ and $p < 0.008$);
- Patients marital status was significantly correlated with vitality and support from healthcare team ($p < 0.008$ and $p < 0.009$).

Patients age was respectively significantly correlated with physical functioning, physical pain, perceived health and sexual function ($p < 0.005$, $p < 0.047$, $p < 0.019$ and $p < 0.000$) (see **Table 4**).

Table 5 shows domains which were statistically significant correlated with epidemioclinical variables.

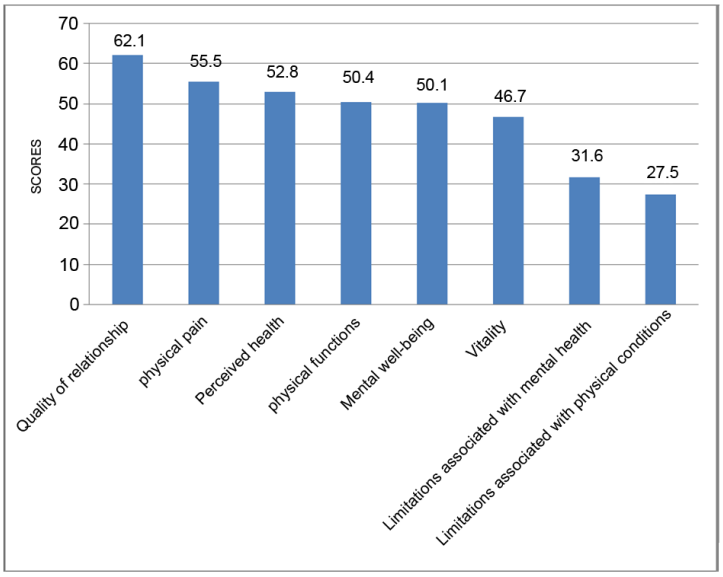

Figure 2. Average Scores for haemodialytic patients SF-36 domains.

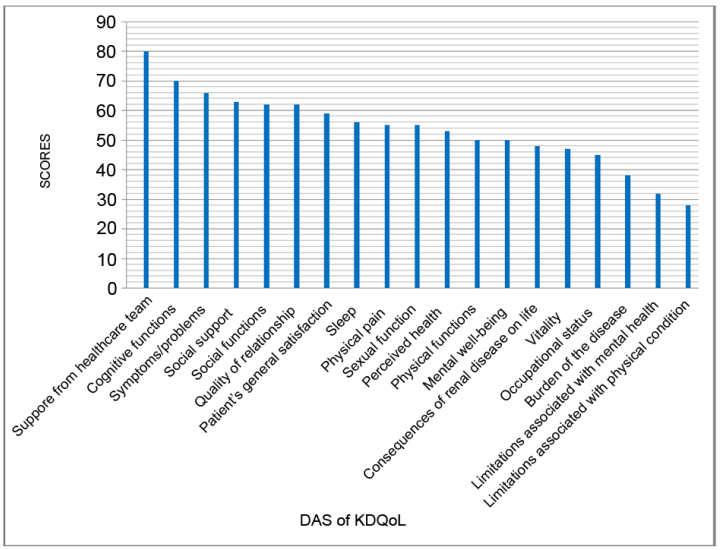

Figure 3. Average scores of haemodialytic patients KDQoL domains.

Table 5. Correlation between epidemioclinical characteristics and KDQoL domains.

	D1	D2	D6	D7	D11	D12	D13	D14	D19
Level of education				0.017*					
Age	0.019*	0.005**	0.047*					0.000**	
Sex				0.043*		0.008**			
Number of sessions							0.025*		
Marital status				0.008**					0.009**
Occupational status					0.001**				
Standard of living		0.020*							

**Correlation is significant at 0.01level; *Correlation is significant at 0.05 level.

4. Discussion

Nowadays, Quality of Life (QoL) assessment is very interesting in haemodialysis therapeutic programmes. All surveys were mainly facing problems of non homogeneity of study populations, and the choice of the evaluation tool to use. It is the French version of the questionnaire that was used because it has been used repeatedly for studies on quality of life in the African context.

The choice of KDQoL is linked not only to its use in many studies [3] [6]-[9], but also to its specific dimension to dialysis which helps to separate levels of perceived health of dialytic patients from the duration of its execution requiring only 20 to 30 minutes. Its acceptability was good since we only recorded one refusal in our study and also only one missing answer (0.8%). Bioni *et al*. [10] in France and Mohamed Nasr *et al*. [11] in Tunisia respectively found 5.5% and 32% missing answers.

4.1. Overall Quality of Life

The overall quality of life of haemodialytic patients at CNHU-HKM of Cotonou during the period of our study is average. We found the same result as Ouattara in Senegal in 2008 who found an average overall quality of life evaluated at 50.50 of haemodialytic patients [5]. This could be explained by an average treatment of haemodialytic patients. In France in 2008, Boini found an average quality of life. Furthermore, the author showed that quality of life for haemodialytic patients during the study impaired very much in relation to the general population [10].

4.2. Factors Affecting Quality of Life of Haemodialytic Patients

4.2.1. Per SF 36

Out of the 08 domains, only 03: namely vitality, limitations related to physical activity and mental activity impaired. Water and food restrictions as well as complexity of treatment could explain severe impairment of the domain "limitations due to physical condition". **Figure 4** shows the results of several studies compared to those of this study [11]-[14].

The low Domain Average Score (DAS) of limitations associated with physical conditions, which was observed by most authors, tallies effectively with our results [5] [12]-[14]. Mohamed, N., Jose, A. and Peter, B. observed like this study a low DAS for vitality [11]-[13]. This could be explained by the complexity of the treatment. Moreover, DAS of limitations related to mental health is average in most studies, while it is low in our study [11]-[14]. This could be explained by anxiety for dialysis and insufficient psychological support probably due to the absence of a psychologist in our team. With regard to the physical health dimension of our study, our patients' quality of life was higher when compared to that of Jose, A. and Peter, B. who found 35.2 and 33.3 respectively, while mental health dimension was like those of Jose, A. and Peter, B. respectively 47.9 and 47.5 [12] [13].

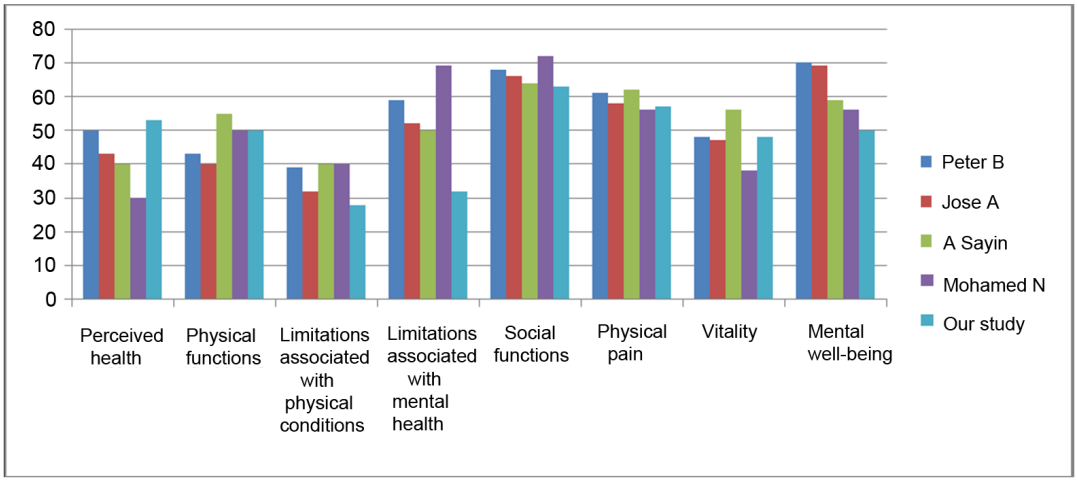

Figure 4. Study histograms comparing quality of life per SF-36.

The two SF-36 dimensions impaired but physical dimension was a bit more impaired than the mental dimension. This observation was made by several authors [5] [15]. These results could be explained by the following factors: Physical inactivity, damage of the musculoskeletal system, low dose of dialysis, anaemia.

Globally, our haemodialytic patients DAS of KDQoL were comparable to those in the study of Boini Stephanie and Mohamed Nasr [10] [11] except for domains namely "limitations due to mental state", "limitations due to physical activity" and "quality of sexual activity" (**Figure 5**).

Indeed, it appears that our patients had better sex quality than those of Mohamed and Boini; however, they were more limited physically and mentally compared to Stephanie Boini and Mohamed Nasr's patients [10] [11]. Anaemia associated with dialysis could explain these results.

4.2.2. Per KDQoL

The analysis of KDQoL scores dimensions showed similar results to those found by Boini Stephanie and Mohamed Nasr [10] [11], except that mental health dimension (MHD) score is higher in the Tunisian study, and patient satisfaction dimension (PSD) score is higher in the French study (**Figure 6**).

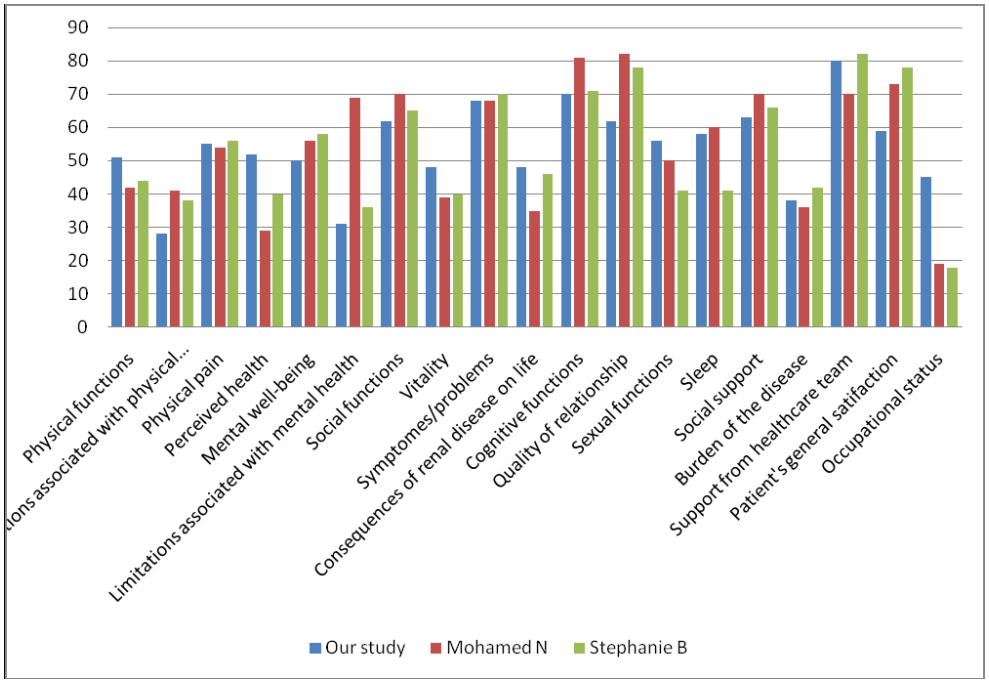

Figure 5. Study histogram comparing quality of life per KDQoL.

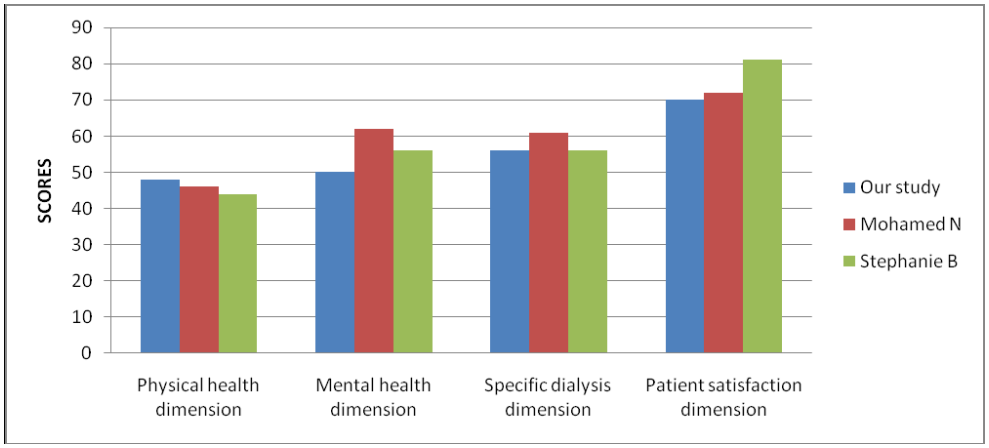

Figure 6. Study histograms comparing different KDQoL dimensions.

4.3. Correlation between Quality of Life and Patients Epidemioclinical Characteristics

Age was correlated with physical functioning, physical pain, perceived health and sexual functions. Literature reports that a higher age is correlated with these domains. This could be explained by a deterioration of physical health and a decline in general adaptive capacity with growing age [11] [14] [15].

Patients education level was correlated with vitality. Low education levels associated with impairment of quality of life (QoL) were found by Mohamed Nasr and Valderrabano who highlighted that a high level of education protects against impairment of QoL [11] [16].

With regard to marital status, Neto observed that married haemodialytic patients had better QoL [17]. Indeed, the presence of the spouse helps the patient to overcome difficulties associated with renal disease [11]. In our study, patients marital status is correlated with vitality and also with support from healthcare team. This could be explained by the fact that haemodialytic patients recognize the support provided to them by healthcare team.

With regard to sex, Sayin, A. found in his study that women had high scores compared to men [14]. Other authors on the contrary, reported that female sex was associated with QoL impairment [11] [15] [16].

To some extent, QoL is influenced by inadequate number of dialyses sessions. We believed that the inadequate number of generators could explain this result. It is therefore logical that patients with inadequate dialysis dose had a slightly impaired QoL than others.

5. Conclusions

The overall assessment of chronic haemodialysis patients' quality of life at CNHU-HKM of Cotonou is broadly average (53.55). Factors impairing the quality of life of haemodialysis patients are according to SF36: vitality and limitations related to mental health and physical condition; and according to KDQoL: burden of kidney disease, effect of the disease on daily life and occupational status.

Age was correlated with physical functioning, physical pain, perceived health and sexual functions. Patients education level was correlated with vitality. Patients number of haemodialyses sessions was correlated with the effects of kidney disease on daily life. Patients occupational status was correlated with cognitive functions.

The recourse to the haemodiafiltration online and the increase of the number of the sessions will contribute to improve the quality of life of these patients. It has the advantage to offer a better tolerance. It's associated with a reduction of the carpal channel and of the mortality.

In the same way, it is necessary to increase staff by providing a psychologist and a dietician, and to build new haemodialysis centres in the city.

Disclosure of Conflict of Interest

None.

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