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ORIGINAL ARTICLE

Relationship between quality of life and sociodemographic, clinical and lifestyle characteristics of patients undergoing hemodialysis

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Abstract

Introduction: In chronic diseases, QoL depends on several factors such as the type and duration of the disease, its treatment and side effects, the severity of symptoms, medication effects, patient age, limitations and self-care capacity. In chronic kidney disease it has also become a measure of health outcome.

Objective: assess the association between QoL and socioeconomic, lifestyle and clinical factors of patients on HD.

Methods: This is a cross-sectional epidemiological census, carried out among 1,024 patients on hemodialysis from all hemodialysis units at the metropolitan region in the Espirito Santo's, Brazil . Sociodemographic, lifestyle and clinical characteristics data were used. QoL was assessed using the Short-Form health Survey-36 (SF-36). Data were analysed by multiple linear regression.

Results: The best QoL was represented by mental health (72.16) and the worst QoL by the physical aspect (26.78). After multiple linear regression, predictors of QoL were identified, with emphasis on males, a predictor of better QoL for 5 of the 8 domains and the summaries of the physical and mental components. Education, associated with 5 domains, gives greater reference to income. Physical activity was a predictor of 7 of the 8 QoL domains and the summary of the physical component. Among the clinical variables, the number of complications is associated with 7 of the 8 domains and summaries of the physical and mental components.

Conclusion: Male sex is highlighted as a predictor of better physical and mental health and elderly people with better mental health, despite the impairment in physical health. The absence of physical activity is associated with worse physical and mental health. Clinically, having 3 or more intradialytic complications was associated with worse physical and mental QoL.

Keywords: Chronic kidney disease; Quality of life; Lifestyle; Socioeconomic conditions; Clinical characteristics; Hemodialysis.

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Authors summary

Why was this study done?
In Brazil, chronic kidney disease increases every year. Due to the various factors that affect the health of hemodialysis patients, low quality of life has become one of the main problems in this population, becoming a measure of health outcome. In this study, we evaluated socioeconomic factors, lifestyle and clinical factors in order to identify predictors of quality of life in this population.

What did the researchers do and find?
This is a cross-sectional study carried out in 11 hemodialysis centers in a metropolitan region of Brazil, which included 1024 patients. Most individuals had less than 8 years of education (n=523, 51.62%), were of mixed race/color (n=496, 49.06%), and had family income between 1 and 2 minimum wages (n=441, 43.70%) and used the public health system (n=774, 75.65%). We highlight male gender, education and family income as the main factors associated with better quality of life. We also highlight the difference between age groups in the influence on physical and mental health.
We identified the practice of physical activity as one of the most important predictors of quality of life, while the number of complications was shown to be a predictor of worse quality of life.

What do these findings mean?
We emphasize with the results of this study that the identified predictors are important for clinical monitoring in this population, avoidable factors that can significantly interfere in the physical and mental health of these individuals.

Highlights
Among the main socioeconomic predictors identified, we highlight male gender, education and family income as the main factors associated with better quality of life.
Clinically, having 3 or more intradialytic complications was associated with worse physical and mental QoL.
The practice of physical activity was identified as one of the most important predictors of quality of life, while the number of complications was shown to be a predictor of worse quality of life.

INTRODUCTION

In recent decades, non-communicable chronic diseases have reached epidemic proportions and consolidated Chronic Kidney Disease (CKD) as an important public health problem[1,2], substantially contributing to the burden of the disease in the world, since CKD presents diabetes and hypertension as the main causes[2,4].

It is estimated that 9% of the world population has CKD[2]. In Brazil, 8% of the population has some degree of the disease, with an increase of 34.78% of individuals on dialysis in 10 years, corresponding to 133,464 individuals[4]. Of this total, 92.30% undergo hemodialysis (HD)[4].

The benefit of HD in prolonging the patient's life and improving the clinical picture is known, however, patients on HD are subject to hemodynamic and metabolic changes, due to numerous factors, from disorders caused by the disease itself to side effects of treatment and medications[5], in addition to daily activities and social changes[6]. Such changes severely impact the Quality of Life (QoL) of this population[7-9].

In the health area, QoL is aimed at the perception of physical, psychological and social limitations, influenced by the disease, treatment and other health problems[10]. With the increase in chronic diseases and life expectancy, QoL has gained greater importance, in addition to being a predictor of mortality in patients with CKD1[11,12]. It has also become a measure of health outcome[13].

In chronic diseases, QoL depends on several factors such as the type and duration of the disease, its treatment and side effects, the severity of symptoms, medication effects, patient age, limitations and self-care capacity[9]. Add to this, the social inequality, an important problem in Brazil, which both predisposes to CKD and worsens the outcomes of those with the disease[14]. In this scenario, the socioeconomic level becomes a determinant of QoL. Added to the low level of education, the observed social inequality is closely related to the QoL of this population[16,17].

Although the relationship between Low QoL and CKD is well established[18-20], it can be deepened through the biopsychosocial model that concerns the commitment of each biological, social and clinical domain that affects the quality of life of these individuals[21]. Mainly because this approach can help in understanding the various aspects involving CKD, hemodialysis treatment and social support, as well as their impact on the well-being of individuals with CKD. Therefore, to identify QoL predictors of patients on HD, it is imperative to consider the multidimensionality that involves the topic. In addition to sociodemographic variables, we also studied life habits and clinical characteristics, including disease time since diagnosis, years of HD treatment, number of medications and complications, variables little explored in their correlation with the dimensions of QoL. Thus, the aim of this study is to assess the association between QoL and socioeconomic, lifestyle and clinical factors of patients on HD.

METHODS

Study Design

This was a cross-sectional epidemiological census.

Study Location and Period

The study was carried out from February to September 2019. The study was conducted in all hemodialysis units at the metropolitan region in the Espirito Santo's, Brazil and a total of 1351 individuals underwent hemodialysis at the time.

Study Population and Eligibility Criteria

Individuals of both sexes, over 18 years old, undergoing HD at the metropolitan region of Espirito Santo and having a confirmed diagnosis of CKD in the medical record, were included in the study. Were excluded individuals in contact precautions, those who were

hospitalized, those with speech or hearing impairment, and those transferred to clinics located outside the metropolitan region. Of the 1351 individuals in the hemodialysis units, 304 patients were excluded because they met the exclusion criteria (137 were in contact precaution, 74 were hospitalized, 40 had mental confusion and 53 had severe communication impairments). Only 23 (2.2%) individuals refused to participate in the research. Thus, the study population consisted of 1024 individuals.

Data Collection

Data collection took place on the premises of the hemodialysis units, during the period of the permanence of the individual in the health service. A face-to-face interview was conducted for administration of the questionnaires, which were applied in Portuguese.

To assess socio-demographic, clinical and life habits data, during the hemodialysis session, individuals answered a semi-structured questionnaire about socio-demographic, clinical and life habits characteristics. Socio-demographic characteristics included sex, age group, education, marital status, race/color, family income, occupation, and health care. Clinical characteristics included CKD time (period of diagnosis of CKD), HD time (period in HD treatment), number of medicaments, diseases and complications. Life habits included alcohol consumption, current physical activity and smoking load (number of cigarettes consumed per day, multiplied by years of smoking and divided by 20) as there is no consensus in the literature, it was considered a high smoking load above 1022. Physical activity was self-reported by the patients and it was considered the recommendation of the World Health Organization (WHO) of the practice of 150 minutes/week, for classification. Which patient reported his time of physical activity and later classified as "yes" for those who practiced physical activity at least 150 minutes a week, "no" for those who did not practice or "occasionally" for those who practiced less than 150 minutes/week[22].

QoL was assessed using the 36-Item Short Form Health Survey (SF-36) questionnaire, which was applied during the hemodialysis session. It is a questionnaire translated, validated, and culturally adapted for the Brazilian population by Ciconelli *et al.* (1999)[24]. The SF-36 is a multidimensional questionnaire, formed by 36 questions, comprising 8 domains: physical functioning, role physical functioning, bodily pain, general health perception, vitality, social functioning, role emotional functioning and mental health, which can be categorized in two dimensions: physical component summary and mental component summary[25]. In the present study, the eight domains of QoL and the two components were used. The score for each domain ranges from 0 to 100, so the higher the score, the better the QoL.

To assess reproducibility e reliability of the QoL questionnaire (SF-36) a pilot study was carried out. The collection of data for the pilot study occurred in January 2019 and included an analysis of the information of 57 patients on hemodialysis at a center that was different from the ones in the present study, but following all the methodological criteria presented. The pilot test was divided into two moments—test and retest—with a difference of 15 days between them and in which SF-36 was applied to the same patients, at both times. The test and retest analyses were performed using the Kappa coefficient and McNemar's test. The WinPepi (PEPI for Windows) and SPSS Statistics for Windows, version 22.0 (IBM Corp, Armonk, New York, United States of America) programs were used, and the confidence interval adopted was 95% and $p < 0.05$.

The results of the adjusted Kappa ranged from 0.80 to 1.00, showing high agreement of the questionnaire in both moments. In the McNemar test, values of $p > 0.05$ were obtained, demonstrating high agreement and low disagreement with the SF-36, and characterizing its good reproducibility. The reliability of the SF-36 questionnaire for the study population was confirmed by means of Cronbach's alpha coefficient, which ranged from 0.72 to 0.89.

Data Analysis

The variables of the study were described as means and standard deviations or percentages. To check the normality of the quantitative variables, the Kolmogorov-Smirnov normality test was performed. As all variables were classified as non-parametric, the Mann-Whitney U test was used for variables with two categories and the Kruskal-Wallis test when the variable had three or more categories. To identify the differences, the Mann-Whitney U test was performed two by two. To test the associations between the independent variables and QoL, multiple linear regression was used. The variables that showed statistical significance in up to 20% in the Mann-Whitney U and Kruskal-Wallis tests were analyzed by regression. Adjustment variables were used in the regression analyses, they included socio-demographic variables: gender, age group, education, marital status, race/color, family income, occupation, and health care. Lifestyle variables: physical activity, alcoholism and smoking load, and clinical variables: HD time, CKD time, diseases and complications.

For all analyses, the level of significance adopted was 5% and performed using the statistical software IBM SPSS statistics version 22.0 (IBM Corp, Armonk, NY, USA).

Ethical and Legal Aspects of the Research

The study was approved by the Research Ethics Committee of the Federal University of Espírito Santo (UFES) under number 2.104.942.

RESULTS

Of the 1,024 individuals in the study, the average age was 54.7±14.7 years and most individuals (51.56%) were aged between 30 and 59 years.

According to the sociodemographic profile, most individuals had less than 8 years of education (n=523, 51.62%), were of mixed race/color (n=496, 49.06%), and had family income between 1 and 2 minimum wages (n=441, 43.70%). Most were retired or on leave due to chronic kidney disease (n=547, 54.21%), and used the public health system (n=774, 75.65%).

QoL assessed by the SF-36 domains, showed that the lowest score was physical functioning (26.78) and the

highest score was mental health (72.16). Regarding the physical and mental components summaries, a higher score was obtained for the mental component summary (47.98) when compared to the physical component summary (35.19).

Table 1 shows the sociodemographic data according to the 8 domains and 2 components of QoL.

Regarding gender, with the exception of the emotional aspect domain, there was a statistical difference in all domains and between the physical and mental components, in which males had better QoL.

Regarding age, young individuals aged 19 to 29 years old had better QoL in the physical capacity (p=0.001), physical aspect (p=0.005), pain (p=0.014), and physical component (p=0.001) domains. While the elderly, aged 60 years old or more, had better QoL in the domains of general health (p=0.001), mental health (p=0.003) and mental component (p=0.001). As for education, individuals that had between 8 and 11 years of schooling had better QoL in the domains of physical aspect (p=0.025), pain (p=0.025), vitality (p=0.001), social aspect (p=0.05), emotional aspect (p=0.001) and physical component (p=0.001). While individuals with more than 11 years of education had better physical capacity (p=0.001).

Regarding race/color, individuals of white race/color had better QoL for the emotional aspect domain (p=0.011). For family income, individuals with income above 5 minimum wages had better QoL, with a significant difference in all domains (p<0.005), with the exception of general health. And with regard to occupation, employed individuals had better QoL in the physical capacity (p=0.001) and physical component (p=0.001) domains. In relation to health care, individuals who used private care showed better QoL in the emotional aspect domain (p=0.031).

Table 2 presents the data on lifestyle habits in relation to the QoL domains. Of the total number of individuals, 95 (9.3%) reported consuming alcoholic beverages, 36.3% (n=372) reported being smokers in the past, and 76.4% (n=766) reported not practicing physical activity.

The smoking habit, represented by the smoking load, showed that individuals with a low smoking load had better QoL for the functional capacity domain (p=0.007). Regarding alcohol consumption, individuals who did not consume alcoholic beverages had significantly better QoL in the physical capacity (p=0.001), physical aspect (p=0.044) and emotional aspect (p=0.031) domains.

Regarding the habit of practicing physical activity, all QoL domains and the two components (physical and mental) obtained significant results (p<0.05).

Table 3 presents data on clinical variables in relation to QoL domains. For CKD time, 51.5% (n=525) reported having the disease for less than five years, and 48.5% (n=494) for more than five years. As for HD time, most individuals 38.1% (n=368) undergo hemodialysis for less than two years, while 26.1% (n=252) undergo hemodialysis between three to five years, 20.5% (n=198) between six and ten years, and 15.4% (n=149) for more than 10 years. Regarding the use of medications, it was found that the majority 70.4% (n=664) used less than five medications, while 29.6% (n=280) used more than five medications.

Most individuals 68.1% (n=697) reported having 3 or more diseases and 78.8% (n=807) reported having 2 or more complications. Individuals with the disease for less than 5 years had better QoL in the pain (p=0.003) and vitality (p=0.026) domains. On the other hand, individuals with the disease for more than 5 years had better QoL in the physical aspect domain (p=0.036).

For the duration of HD, individuals with 6 to 10 years of treatment had better QoL in the physical aspect (p<0.001) and emotional aspect (p=0.007) domains. Among individuals with 2 years of treatment or less, they had better QoL in the pain domain (p=0.010).

Regarding the number of medications used, individuals who used more than 5 medications had better emotional aspects (p=0.040). With regard to the number of diseases and complications, individuals with three or more diseases and three or more complications showed significantly worse QoL for all domains.

After adjustment for multiple linear regression, male gender was a predictor of better functional capacity (β= 0.147, p<0.001), pain (β= 0.174, p<0.001) and summary of the physical component (β= 0.138, p<0.001). The age group from 30 to 59 years old and over 60 years old were predictors of worse functional capacity (β= -0.184, p=0.008 and β= -0.370, p<0.001), physical aspect (β= -0.215, p=0.003 and β= -0.199, p=0.008) and physical component summary (β= -0.188, p=0.008 and β= -0.277, p<0.001), respectively. The categories of education above 8 years of schooling were predictors of better functional capacity. Family income strata were predictors of better functional capacity, physical aspect and summary of the physical component. The profession was a predictor of worse functional capacity among retired/on leave (β= -0.069, p=0.038) (Table 4).

For the domains related to mental health, after adjustment, male gender was a predictor of better QoL for vitality (β= 0.087, p=0.009), social aspect (β= 0.093, p=0.007), mental health (β= 0.134, p<0.001) and mental component summary (β= 0.072, p=0.048). The age group over 60 years old was a predictor of better mental health (β= 0.188, p=0.009) and summary of the mental component (β= 0.214, p=0.008). Education between 8 and 11 years of schooling was a predictor of better vitality (β= 0.102, p=0.003), emotional aspect (β= 0.083, p=0.034), mental health (β= 0.188, p=0.031) and summary of the mental component (β= 0.076, p=0.042), while education above 11 years of schooling was a predictor of worse social status (β= -0.122, p=0.002). Family income categories were predictors of better social appearance (Table 5).

For lifestyle habits related to the physical health domains, the absence of physical activity was a predictor of worse QoL for all domains: functional capacity (β= -0.272, p<0.001), physical aspect (β= -0.099, p= 0.004), pain (β= -0.081, p=0.018), general health status (β= -0.167, p<0.001) and summary of the physical component (β= -0.221, p<0.001). The high smoking burden was a predictor of worse functional capacity (β= -0.060, p=0.049) (Table 6).

Table 1: Association of Quality of Life and sociodemographic characteristics of patients on hemodialysis in a metropolitan region of Southeastern Brazil.

Variables	PF	RPF	BP	GH	VT	SF	REF	MH	PCS	MCS
All (n=1024)	46,04	26,78	63,47	48,21	53,76	67,98	42,41	72,16	35,19	47,98
Sex (n)										
Female (443)	39,3±27,1	21,4±34,4	56,7±31,3	46,3±22,5	49,5±22,5	63,6±28,0	39,4±43,6	67,7±22,3	32,9±9,7	46,5±11,4
Male (581)	51,0±29,6	30,8±37,0	68,5±29,2	49,5±23,3	56,9±21,7	71,6±27,1	44,4±44,7	75,5±20,0	36,8±9,6	49,0±10,7
p value	<0,001	<0,001	<0,001	0,046	<0,001	<0,001	0,092	<0,001	<0,001	0,001
Age group* (n)										
19 - 29 years (59)	69,2±26,2[a, b]	42,7±42,0[d,e]	66,3±30,4	49,2±23,6	57,2±26,8	67,9±31,9	54,2±45,0	68,6±24,1	41,4±9,5[i, j]	45,9±13,6
30 - 59 years (528)	50,2±28,2[a, c]	25,6±35,7 d	61,0±30,5[f]	45,6±22,5[g]	52,2±22,5	66,9±27,4	41,2±44,0	70,5±21,8 [h]	35,4±9,7[i, k]	46,8±10,9[l]
≥ 60 years (437)	37,7±27,9[b, c]	25,8±35,5 [e]	66,0±30,7[f]	51,1±23,2[g]	55,0±21,4	69,6±27,6	41,9±44,3	74,5±20,3 [h]	34,0±9,7[j, k]	49,6±10,7[l]
p value	<0,001	0,005	0,029	0,001	0,053	0,234	0,097	0,011	<0,001	0,001
Education*1 (n)										
≤ 8 years (523)	40,1±28,1[a, b]	23,8±34,6 [c]	62,0±30,8 [d]	48,4±23,4	51,8±22,2 [f]	68,5±28,2 [g]	37,3±43,5 [i, j]	71,0±22,3	34,0±9,6 [k l]	47,6±11,33
> 8 ≤ 11 years (332)	51,7±28,8[a]	30,3±38,1[c]	66,8±30,1[d, e]	48,6±22,8	57,5±21,6 [f]	69,8±26,9 [h]	47,6±45,3 [i]	74,4±19,7	36,5±9,9 [k]	49,0±10,6
> 11 years (158)	54,2±28,4[b]	28,3±36,3	59,4±31,0[e]	45,4±22,0	51,8±23,5	63,3±28,3 [g, h]	46,8±42,5 [j]	70,8±21,4	35,8±10,5 [l]	46,7±11,4
p value	<0,001	0,025	0,025	0,296	0,001	0,05	0,001	0,144	0,001	0,078
Marital Status* (n)										
With partner (570)	46,8±28,5	27,4±36,1	64,7±30,0	48,2±22,5	54,5±21,9	69,2±27,0	44,1±44,6	73,0±21,1	35,3±9,4	48,5±11,0
Without partner (54)	44,9±30,0	25,8±36,3	61,8±31,5	48,1±23,6	52,8±22,9	66,7±28,7	40,0±43,8	71,0±21,7	34,9±10,4	47,3±11,1
p value	0,235	0,341	0,169	0,939	0,191	0,215	0,146	0,122	0,291	0,068
Race/Color*2 (n)										
White (274)	45,5±30,3	28,9±37,6	65,9±30,1	47,7±22,8	53,6±22,7	68,4±28,6	48,9±44,6[a, b]	72,1±22,0	35,2±10,2	48,7±11,4
Black (241)	44,5±28,5	24,8±35,3	63,1±30,3	48,9±22,1	53,4±20,8	70,2±27,2	39,4±43,2[a]	73,7±20,1	34,7±9,4	48,4±10,5
Brown-skinned (496)	46,6±28,8	26,6±36,0	61,9±31,07	47,6±23,5	53,6±22,9	66,7±27,7	39,6±44,2[b]	71,1±21,6	35,2±9,8	47,1±11,1
p value	0,586	0,504	0,22	0,747	0,922	0,20	0,011	0,343	0,871	0,112
Family Income*3 (n)										

Continuation - Table 1: Association of Quality of Life and sociodemographic characteristics of patients on hemodialysis in a metropolitan region of Southeastern Brazil.

Variables	PF	RPF	BP	GH	VT	SF	REF	MH	PCS	MCS
No income (114)	38,9±27,0 a,b	18,6±31,3 e,f	57,7±31,7 i,j	45,1±24,8	51,0±26,1 m	61,3±30,6 p,q	37,7±43,79 t	71,3±24,4	32,2±8,3 x, y,z	47,2±12,0
1-2 basic salary (441)	44,2±27,8 c,d	23,6±34,3 g,h	61,6±30,1 k,l	47,5±22,4	52,1±20,5 n,o	66,9±27,0 r,s	39,1±43,6 u	69,6±20,8 v,w	34,6±9,7 x,a1,a2	46,9±11,0 a3, a4
2-5 basic salary (299)	49,0±30,4 a,c	30,1±38,0 e,g	66,5±30,6 i,k	49,4±22,2	55,1±22,7 n	70,4±27,5 p,r	43,3±44,9	74,7±20,6 v	36,3±9,6 y, a1	48,6±10,8 a3
> 5 basic salary (134)	53,2±30,9 b,d	33,6±38,0 f,h	67,8±29,8 j,l	49,1±23,8	57,9±23,2 m,o	72,0±26,9 q,s	52,0±43,9 t,u	74,6±21,5 w	37,1±10,5 z,a2	49,7±10,9 a4
p value	<0,001	<0,001	0,01	0,268	0,008	0,006	0,016	0,001	<0,001	0,022
Occupation*4 (n)										
Employed (348)	52,8±29,4 a, b	28,2±37,1	62,7±31,0	48,5±23,2	55,4±23,5	68,0±28,3	42,4±44,2	71,8±21,8	36,6±10,9 c, d	47,3±10,9
Retired (547)	41,5±28,4 a	26,2±35,8	64,8±30,6	47,8±23,3	53,8±21,6	69,3±27,3	41,8±44,4	73,1±20,9	34,3±9,6 c	48,7±11,0
Unemployed (114)	45,8±27,9 b	24,7±35,4	58,0±30,5	48,8±21,5	48,9±21,4	63,1±28,1	43,5±43,8	69,4±21,9	34,5±9,9 d	46,5±11,3
p value	<0,001	0,632	0,071	0,734	0,052	0,093	0,883	0,231	0,001	0,07
Health Care*5 (n)										
Public (774)	45,0±29,2	26,2±36,0	62,8±30,9	48,1±22,8	53,1±22,3	67,7±27,6	40,6±44,4 a	72,0±21,1	34,9±9,8	47,7±11,0
Private (224)	49,0±29,7	29,4±37,7	66,8±30,3	47,7±24,1	55,6±22,6	68,8±28,5	48,8±44,3 a	72,1±22,6	36,0±10,1	48,6±11,5
Mixed (25)	48,2±21,6	17,0±29,5	53,9±26,3	55,6±19,3	54,8±23,6	74,1±26,6	37,3±37,6	74,2±17,8	34,2±7,3	49,1±10,1
p value	0,169	0,219	0,068	0,231	0,264	0,409	0,031	0,875	0,292	0,375

PF= Physical Functioning; RPF= Role Physical Functioning; BP= Bodily Pain; GH= General Health; VT= Vitality; SF= Social Functioning; REF= Role Emotional Functioning; MH= Mental Health; PCS= Physical Component Summary; MCS= Mental Component Summary.

Mann-Whitney test (p<0,05). *Kruskal Wallis test (p<0,05).

Yellow and indigenous individuals corresponded to 1.2% (n=12) of the population, being disregarded from the analyses.

N= 1024. 1n= 1013. 2n= 1011. 3n= 998. 4n= 1009. 5n= 1023.

Equal letters in the same column of each variable represents statistical difference between the categories.

Table 2: Association of Quality of Life and Life Habits of patients on Hemodialysis in a Region of Southeastern

Variables	PF	RPF	BP	GH	VT	SF	REF	MH	PCS	MCS
All (n=1024)	46,04	26,78	63,47	48,21	53,76	67,98	42,41	72,16	35,19	47,98
Smoking load1 (n)										
Low (787)	47,3±29,3	26,0±36,2	63,7±30,5	48,6±22,4	53,5±22,1	68,3±27,6	42,1±43,8	72,4±20,7	35,4±9,8	47,9±10,9
High (222)	41,3±28,2	28,9±35,9	62,7±31,7	47,0±24,7	54,8±23,2	68,1±28,5	43,9±46,1	71,7±23,1	34,2±9,8	48,6±11,5
p value	0,007	0,104	0,700	0,249	0,418	0,919	0,848	0,923	0,142	0,298
Alcohol consumption* (n)										
Consumer (95)	45,0±29,0	26,2±36,2	63,2±30,8	48,6±23,1	53,9±22,4	68,3±27,9	41,3±44,2	72,4±21,3	34,9±9,8	48,0±11,0
Non-consumer (929)	55,4±28,7	31,8±36,1	65,2±2,4	44,3±22,0	52,0±21,9	66,6±26,3	51,7±44,1	69,0±22,2	37,0±10,2	46,8±11,6
p value	0,001	0,044	0,613	0,162	0,627	0,403	0,031	0,154	0,058	0,32
Physical activity2 (n)										
No (766)	40,4±27,8 [a, b]	23,5±34,6 d, e	61,9±30,7 f	46,0±22,9 [h]	50,8±21,7 [i]	66,2±28,2 [k]	39,5±44,0 [l]	70,6±21,5 [m]	33,6±9,5 [n, o]	47,3±11,1 [p]
Yes (207)	65,0±26,9 [a, c]	34,4±39,0 [d]	69,3±31,1 [f, g]	55,5±22,2 [h]	64,2±22,3 [i, j]	74,1±26,9 [k]	48,8±43,9 [l]	77,1±20,8 [m]	40,3±9,8 [n]	49,5±10,8 [p]
Occasionally (29)	53,4±23,9 [b, c]	40,5±38,0 [e]	62,0±24,5 [g]	53,0±22,1	52,4±17,2 [j]	67,5±20,0	49,4±45,9	71,1±20,4	38,0±8,4 [o]	47,1±10,9
p value	<0,001	<0,001	0,007	<0,001	<0,001	0,001	0,012	<0,001	<0,001	0,039

PF= Physical Functioning; RPF= Role Physical Functioning; BP= Bodily Pain; GH= General Health; VT= Vitality; SF= Social Functioning; REF= Role Emotional Functioning; MH= Mental Health; PCS= Physical Component Summary; MCS= Mental Component Summary.
Mann-Whitney test (p<0,05). *Kruskal Wallis test (p<0,05).
N= 1024. n1= 1019. n2= 967. n3= 947.
Equal letters in the same column of each variable represents statistical difference between the categories.

Table 3: Association of quality of life and Clinical characteristics of patients on Hemodialysis in a Metropolitan Region of Southeastern.

Variables	PF	RPF	BP	GH	VT	SF	REF	MH	PCS	MCS
All (n=1024)	46,04	26,78	63,47	48,21	53,76	67,98	42,41	72,16	35,19	47,98
CKD time1 (n)										
< 5 years (525)	46,3±28,7	24,3±35,2	66,3±30,8	48,9±22,5	55,1±22,7	69,1±28,2	40,5±43,9	72,4±21,5	35,5±9,5	48,0±11,2
≥ 5 years (494)	45,8±29,7	29,4±37,3	60,3±30,3	47,4±23,4	52,4±22,0	67,2±27,2	44,3±44,6	72,0±21,2	34,7±10,1	48,0±10,9
p value	0,702	**0,036**	**0,003**	0,298	**0,026**	0,190	0,230	0,618	0,195	0,863
HD time2 (n)										
0 - 2 years (368)	44,6±29,7	21,9±34,0 a,b,c	67,1±31,5 d, e	49,5±23,2	54,4±22,7	69,7±27,8	39,2±42,8 g	72,1±22,2	35,2±9,8	47,9±11,0
3 - 5 years (252)	48,6±27,3	27,7±36,9 a	64,0±30,6 f	48,5±22,0	55,1±23,6	68,1±28,2	43,7±45,8	72,8±21,6	35,7±9,4	48,1±11,6
6 - 10 years (198)	48,0±29,7	31,9±39,5 b	61,1±28,9 d	46,3±23,5	52,2±21,1	67,1±25,4	48,4±44,9 g	71,8±20,4	35,2±10,7	48,1±10,7
≥ 10 years (149)	44,2±30,0	30,0±35,1 c	56,3±29,3 e, f	46,5±22,7	52,0±19,6	67,6±27,7	42,5±43,8	73,2±19,0	33,8±9,6	48,4±10,2
p value	0,107	**<0,001**	**0,010**	0,060	0,643	0,447	**0,007**	0,741	0,926	0,129
Medicaments3 (n)										
< 5 medicines (667)	47,0±29,3	27,5±37,1	64,0±30,5	48,2±22,6	54,1±22,0	68,9±27,2	41,2±43,8	72,8±20,7	35,5±10,0	47,9±10,8
≥ 5 medicines (280)	44,9±28,3	26,0±35,2	61,8±30,6	47,7±23,2	53,3±23,0	66,3±29,4	48,2±45,7	71,3±22,6	34,4±9,5	48,4±11,9
p value	0,362	0,723	0,274	0,512	0,749	0,336	**0,040**	0,647	0,154	0,314
Diseases* (n)										
None (21)	56,1±31,1 a	34,5±39,9	72,6±25,6	53,7±16,0	56,4±22,8	77,0±24,7	42,2±44,3	71,6±14,8	39,8±8,6 r	47,5±8,0
One (149)	58,2±29,4 b, c	38,0±41,5 e, f	72,7±27,3 g	54,4±21,6 i	61,5±19,7 k	75,6±24,3 m	52,4±44,4 o	77,7±17,6p	39,4±10,2 s	50,5±9,3 u
Two (157)	52,0±27,9 b, d	29,2±37,3 e	69,4±28,5 h	53,5±23,0 j	58,7±21,7 l	72,3±25,8 n	45,4±43,4	76,2±19,6q	37,3±9,2 s, t	49,5±10,3 v
Three or more (697)	41,7±28,3 a,c,d	23,5±34,1 f	59,8±31,3 g, h	45,5±23,0 i, j	50,8±22,5 k, l	65,3±28,6 m,n	39,4±44,2 o	70,0±22,3p,q	33,6±9,5 r, s, t	47,0±11,5 u, v
p value	**<0,001**	**0,001**	**<0,001**	**<0,001**	**<0,001**	**<0,001**	**0,008**	**<0,001**	**<0,001**	**0,003**
Complications* (n)										
None (28)	67,5±29,4 a,b,c	52,6±42,6 e, f	84,7±23,0 g	60,2±21,6 j	74,2±15,8 m,n	86,3±18,9 r	57,1±44,3 u	86,0±11,8 v	43,8±9,2 y, z	54,0±7,2 a3
One (59)	52,9±32,0 a, d	41,1±41,7 g	80,4±27,6 h	56,9±21,7 k	59,3±19,2 m,o,p	77,5±21,6 r, s	48,0±45,5	79,7±17,8 w	40,0±10,7 y,a1	50,5±9,7 a4,a5
Two (66)	50,9±32,3 b	31,4±38,3 e	80,8±24,5 i	55,9±21,4 l	68,9±20,3 o, q	78,5±27,0 t	51,9±46,0	85,9±10,6 x	37,7±8,9 a2	54,5±8,4 a4,a6
Three or more (871)	44,4±28,3 c, d	24,5±34,9 f, g	60,3±30,5 g,h,i	46,6±22,9j, k,l	51,5±22,1 n,p,q	66,1±28,0s, t	40,7±43,9 u	70,1±21,8v,w,x	34,3±9,6z,a1,a2	47,1±11,2a3,a5,a6
p value	**<0,001**	**<0,001**	**<0,001**	**<0,001**	**<0,001**	**<0,001**	**0,048**	**<0,001**	**<0,001**	**<0,001**

PF= Physical Functioning; RPF= Role Physical Functioning; BP= Bodily Pain; GH= General Health; VT= Vitality; SF= Social Functioning; REF= Role Emotional Functioning; MH= Mental Health; PCS= Physical Component Summary; MCS= Mental; Component Summary; Mann-Whitney test (p<0,05). *Kruskal Wallis test (p<0,05).; N= 1024. 1n= 1009. n2= 1002; Equal letters in the same column of each variable represents statistical difference between the categories.

Table 4: Multiple linear regression considering socio-demographic variables associated with domains corresponding to physical health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Physical Functioning						
Sex						
Female						
Male	<0,001	0,207	8,54 – 15,83	<0,001	0,147	4,88 – 12,40
Age group						
19 - 29 years						
30 - 59 years	<0,001	-0,289	-24,70 – -8,94	0,008	-0,184	-18,66 – -2,87
≥ 60 years	<0,001	-0,485	-36,81 – -20,42	<0,001	-0,370	-30,10 – -13,56
Education1						
≤ 8 years						
> 8 ≤ 11 years	0,006	0,093	1,69 – 9,89	0,004	0,096	1,92 – 10,08
> 11 years	0,009	0,096	1,96 – 13,38	0,016	0,088	1,31 – 12,53
Family Income2						
No income						
1-2 basic salary	0,021	0,112	0,97 – 12,19	0,014	0,120	1,44 – 12,71
2-5 basic salary	0,002	0,152	3,47 – 15,73	0,012	0,125	1,75 – 14,02
> 5 basic salary	0,002	0,147	4,73 – 20,10	0,002	0,141	4,29 – 19,61
Occupation3						
Employed						
Retired	0,001	-0,110	-10,27 – -2,62	0,038	-0,069	-7,90 – -0224
Unemployed	0,597	0,018	-4,59 – 7,98	0,895	0,004	-5,85 – 6,69
Health Care4						
Public						
Private	0,839	-0,007	-5,19 – 4,22	0,505	-0,023	-6,20 – 3,05
Mixed	0,696	-0,012	-13,18 – 8,80	0,685	-0,012	-13,40 – 8,81
Role Physical Functioning						
Sex (n)						
Female						
Male	<0,001	0,115	3,78 – 12,85	0,084	0,059	-0,57 – 9,03
Age group						
19 - 29 years						
30 - 59 years	<0,001	-0,251	-27,83 – -8,24	0,003	-0,215	-25,53 – -5,28
≥ 60 years	<0,001	-0,277	-30,31 – -10,04	0,008	-0,199	-25,06 – -3,81
Education1						
≤ 8 years						
> 8 ≤ 11 years	0,458	0,026	-3,30 – 7,33	0,102	0,06	-0,90 – 9,97
> 11 years	0,498	-0,026	-9,81 – 4,77	0,921	-0,004	-7,74 – 6,99
Family Income2						
No income						
1-2 basic salary	0,146	0,075	-1,88 – 12,73	0,101	0,088	-1,24 – 13,92
2-5 basic salary	0,008	0,137	2,82 – 18,67	0,026	0,12	1,13 – 17,47
> 5 basic salary	0,002	0,146	5,51 – 24,87	0,001	0,16	6,62 – 26,48
Bodily Pain						

Continuation - Table 4: Multiple linear regression considering socio-demographic variables associated with domains corresponding to physical health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Sex						
Female						
Male	<0,001	0,202	8,38 – 16,71	<0,001	0,174	6,50 – 15,02
Age group						
19 - 29 years						
30 - 59 years	0,339	-0,071	-13,24 – 4,56	0,927	-0,007	-9,43 – 8,58
≥ 60 years	0,830	-0,016	-10,26 – 8,24	0,877	0,012	-8,67 – 10,15
Education[1]						
≤ 8 years						
> 8 ≤ 11 years	0,216	0,044	-1,69 – 7,49	0,177	0,049	-1,44 – 7,82
> 11 years	0,078	-0,068	-12,17 – 0,63	0,219	-0,048	-10,43 – 2,39
Marital Status						
With partner						
Without partner	0,668	0,014	-3,16 – 4,92	0,590	0,018	-2,94 – 5,17
Family income[2]						
No income						
1-2 basic salary	0,167	0,072	-1,88 – 10,83	0,294	0,056	-2,99 – 9,88
2-5 basic salary	0,012	0,133	1,94 – 15,85	0,084	0,094	-0,82 – 13,24
> 5 basic salary	0,029	0,110	0,99 – 18,50	0,079	0,089	-0,91 – 16,79
Occupation[3]						
Employed						
Retired	0,562	0,021	-3,02 – 5,56	0,101	0,059	-0,71 – 7,99
Unemployed	0,280	0,039	-3,17 – 10,94	0,153	0,052	-1,95 – 12,44
Health Care[4]						
Public						
Private	0,412	0,030	-3,07 – 7,50	0,887	0,005	-4,92 – 5,69
Mixed	0,248	-0,036	-19,44 – 5,21	0,317	-0,032	-19,17 – 6,21
General Health						
Sex						
Female						
Male	0,038	0,065	0,16 – 5,83	0,655	0,015	-2,29 – 3,65
Age group						
19 - 29 years						
30 - 59 years	0,252	-0,078	-9,76 – 2,56	0,966	0,003	-6,21 – 6,49
≥ 60 years	0,586	0,037	-4,50 – 7,95	0,160	0,100	-1,84 – 11,15
Physical Component Summary						
Sex						
Female						
Male	<0,001	0,211	2,90 – 5,44	<0,001	0,138	1,40 – 4,05
Age group						
19 - 29 years						
30 - 59 years	<0,001	-0,289	-8,40 – -2,92	0,008	-0,188	-9,10 – -0,052
≥ 60 years	<0,001	-0,367	-10,13 – -4,43	<0,001	-0,277	-8,37 – -2,61

Continuation - Table 4: Multiple linear regression considering socio-demographic variables associated with domains corresponding to physical health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Education[1]						
≤ 8 years						
> 8 ≤ 11 years	0,171	0,047	-0,42 – 2,41	0,219	0,043	-0,53 – 2,31
> 11 years	0,880	-0,006	-2,10 – 1,80	0,589	-0,021	-2,53 – 1,43
Family Income[2]						
No income						
1-2 basic salary	0,004	0,148	0,95 – 4,87	0,002	0,157	1,11 –5,05
2-5 basic salary	<0,001	0,199	2,12 – 6,37	<0,001	0,193	1,94 – 6,20
> 5 basic salary	<0,001	0,179	2,47 – 7,63	<0,001	0,193	2,83 – 8,04
Occupation[3]						
Employed						
Retired	0,015	-0,084	-2,98 – -0,31	0,146	-0,052	-2,40 – 0,35
Unemployed	0,462	-0,026	-1,37 – 3,01	0,502	0,024	-1,45 –2,96

Multiple linear regression (p<0,05).
N= 1024. n1= 1013. n2= 988. n3= 1009. n4= 1023.
PF: Adjusted for smoking history, physical activity, duration of HD, number of diseases and number of complications.
RPF: Adjusted for smoking history, alcohol consumption, physical activity, duration of HD, number of diseases and number of complications.
BP: Adjusted for physical activity, CKD time, HD time, number of diseases and number of complications.
GH: Adjusted alcohol consumption, physical activity, time on HD, number of diseases and number of complications.
PCS: Adjusted for smoking history, alcohol consumption, physical activity, CKD time, number of medications, number of diseases and number of complications.

Table 5: Multiple linear regression considering socio-demographic variables associated with domains corresponding to mental health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Vitality						
Sex						
Female						
Male	<0,001	0,152	3,84 – 9,93	0,009	0,087	0,97 – 6,89
Age group						
19 - 29 years						
30 - 59 years	0,198	-0,095	-10,77 – 2,23	0,999	0,000	-6,26 – 6,26
≥ 60 years	0,554	-0,045	-8,79 – 4,71	0,427	0,059	-3,89 – 9,21
Education[1]						
≤ 8 years						
> 8 ≤ 11 years	0,013	0,089	0,90 – 7,59	0,003	0,102	1,67 – 8,03
> 11 years	0,267	-0,042	-7,19 – 1,99	0,407	-0,03	-6,25 – 2,53
Marital Status						
With partner						
Without partner	0,637	0,016	-2,24 – 3,66	0,391	0,041	-2,60 – 6,27
Family Income[2]						
No income						
1-2 basic salary	0,576	0,030	-3,33 – 5,98	0,417	0,041	-2,60 – 6,27
2-5 basic salary	0,242	0,062	-2,04 – 8,09	0,548	0,031	-3,36 –6,32
> 5 basic salary	0,059	0,092	-0,22 – 12,16	0,09	0,079	-0,789 – 10,95

Contnuation - Table 5: Multiple linear regression considering socio-demographic variables associated with domains corresponding to mental health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Occupation[3]						
Employed						
Retired	0,399	-0,030	-4,49 – 1,79	0,773	-0,01	-3,46 – 2,57
Unemployed	0,539	-0,022	-6,78 – -3,54	0,449	-0,026	-6,86 – 3,04
Social Functioning						
Sex						
Female						
Male	<0,001	0,133	3,74 – 11,24	0,007	0,093	1,42 – 9,12
Education[1]						
≤ 8 years						
> 8 ≤ 11 years	0,498	-0,024	-5,46 – 2,65	0,490	-0,024	-5,51 – 2,64
> 11 years	0,001	-0,132	-15,80 – -4,41	0,002	-0,122	-15,08 – -3,57
Race/Color[2]						
White						
Black	0,521	0,025	-3,38 – 6,68	0,822	0,009	-4,47 – 5,63
Brown-skinned	0,911	-0,004	-4,54 – 4,05	0,551	-0,023	-5,59 – 2,98
Family Income[3]						
No income						
1-2 basic salary	0,020	0,123	1,10 – 12,72	0,013	0,132	1,57 – 13,24
2-5 basic salary	<0,001	0,192	5,32 – 17,94	0,001	0,177	4,40 – 17,11
> 5 basic salary	<0,001	0,182	7,06 – 22,32	<0,001	0,178	6,65 – 21,91
Occupation4						
Employed						
Retired	0,820	0,008	-3,39 – 4,28	0,388	0,03	-2,17 – 5,59
Unemployed	0,816	-0,008	-7,22 – 5,69	0,676	-0,015	-7,91 – 5,13
Role Emotional Functioning						
Sex						
Female						
Male	0,309	0,034	-2,79 – 8,78	0,927	0,003	-6,09 – 6,69
Age group						
19 - 29 years						
30 - 59 years	0,016	-0,173	-27,74 – -2,84	0,158	-0,108	-22,80 – 3,70
≥ 60 years	0,009	-0,192	-30,12 – -4,36	0,376	-0,07	-20,16 – 7,62
Education[1]						
≤ 8 years						
> 8 ≤ 11 years	0,048	0,072	0,05 – 13,46	0,034	0,083	0,59 – 14,99
> 11 years	0,574	0,022	-6,68 – 12,04	0,376	0,038	-5,55 – 14,68
Marital Status						
With partner						
Without partner	0,446	-0,026	-8,22 – 3,62	0,638	-0,017	-7,97 – 4,89
Race/Color[2]						
White						
Black	0,130	-0,060	-14,28 – 1,84	0,023	-0,097	-18,91 – -1,41

Contnuation - Table 5: Multiple linear regression considering socio-demographic variables associated with domains corresponding to mental health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Brown-skinned	0110	-0,064	-12,54 – 1,27	0,172	-0,058	-12,56 – 2,25
Family Income[3]						
No income						
1-2 basic salary	0,825	0,012	-8,25 – 10,34	0,945	0,004	-9,71 – 10,41
2-5 basic salary	0,630	0,026	-7,69 – 12,70	0,777	-0,017	-12,51 – 9,35
> 5 basic salary	0,124	0,079	-2,78 – 23,12	0,278	0,059	-6,24 – 21,67
Health Care4						
Public						
Private	0,533	0,023	-5,29 – 10,23	0,356	0,037	-4,39 – 12,20
Mixed	0,263	-0,036	-28,38 – 7,76	0,403	-0,029	-28,16 – 11,32
Mental Health						
Sex						
Female						
Male	<0,001	0,168	4,53 – 10,02	<0,001	0,134	3,04 – 8,64
Age group						
19 - 29 years						
30 - 59 years	0,420	0,056	-3,46 – 8,30	0,132	0,105	-1,37 – 10,42
≥ 60 years	0,061	0,134	-0,26 –11,93	0,009	0,188	2,04 – 14,36
Education[1]						
≤ 8 years						
> 8 ≤ 11 years	0,124	0,054	-0,68 – 5,66	0,031	0,075	0,32 – 6,60
> 11 years	0,302	-0,039	-6,64 – 2,06	0,559	-0,022	-5,57 – 3,01
Marital Status						
With partner						
Without partner	0,542	0,020	-1,93 – 3,67	0,249	0,038	-1,14 – 4,40
Family Income[2]						
No income						
1-2 basic salary	0,472	-0,037	-6,02 –2,79	0,569	-0,029	-5,62 – 3,08
2-5 basic salary	0,259	0,059	-2,03 – 7,55	0,484	0,036	-3,05 – 6,43
> 5 basic salary	0,478	0,034	-3,75 – 8,00	0,474	0,034	-3,66 – 7,88
Mental Component Summary						
Sex						
Female						
Male	0,004	0,100	0,71 – 3,77	0,048	0,072	0,017 – 3,19
Age group						
19 - 29 years						
30 - 59 years	0,600	0,039	-2,40 – 4,15	0,170	0,106	-1,01 – 5,70
≥ 60 years	0,083	0,134	-0,39 – 6,42	0,008	0,214	1,24 – 8,26
Education1						
≤ 8 years						
> 8 ≤ 11 years	0,168	0,050	-0,49 – 2,85	0,042	0,076	0,065 – 3,48
> 11 years	0,086	-0,067	-4,34 – 0,28	0,265	-0,045	-3,68 – 1,01
Marital Status						

Contnuation - Table 5: Multiple linear regression considering socio-demographic variables associated with domains corresponding to mental health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
With partner						
Without partner	0,871	0,006	-1,36 – 1,61	0,541	0,021	-1,04 – 1,98
Race/Color[2]						
White						
Black	0,620	0,020	-1,52 – 2,55	0,852	-0,008	-2,26 – 1,87
Brown-skinned	0,617	-0,020	-2,19 – 1,30	0,314	-0,041	-2,67 – 0,86
Family Income[3]						
No income						
1-2 basic salary	0,727	-0,019	-2,77 – 1,93	0,529	-0,035	-3,18 – 1,63
2-5 basic salary	0,348	0,051	-1,33 – 3,79	0,853	0,010	-2,37 – 2,87
> 5 basic salary	0,136	0,074	-0,75 – 5,52	0,245	0,060	-1,30 – 5,11
Occupation[4]						
Employed						
Retired	0,327	0,036	-0,79 – 2,37	0,161	0,052	-0,46 – 2,78
Unemployed	0,698	0,014	-2,08 – 3,11	0,590	0,020	-1,95 – 3,41

Multiple linear regression (p<0,05).
N= 1024. n1= 1013. n2= 988. n3= 1009. n4= 1023.
VT: Adjusted for physical activity, CKD time, number of diseases and number of complications.
SF: Adjusted for physical activity, CKD time, number of diseases and number of complications.
REF: Adjusted for alcohol consumption, physical activity, duration of HD, number of medications, number of diseases and number of complications.
MH: Adjusted alcohol consumption, physical activity, number of diseases and number of complications.
MCS: Adjusted for physical activity, duration of HD, number of diseases and number of complications.

Table 6: Multiple linear regression considering lifestyle variables associated with domains corresponding to physical health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Physical Functioning						
Smoking load[1]						
Low						
High	0,021	-0,069	-8,98 – -0,73	0,049	-0,060	-8,52 – -0,019
Alcohol consumption						
Consumer						
Non-consumer	0,007	0,081	2,29 – 14,09	0,495	0,021	-3,85 – 7,97
Physical activity2						
yes						
No	<0,001	-0,347	-28,17 – -19,66	<0,001	-0,272	-22,83 – -14,37
Occasionally	0,036	-0,066	-22,04 – -0,73	0,115	-0,048	-19,72 – 2,14
Role Physical Functioning						
Smoking load1						
Low						
High	0,164	0,044	-1,56 – 9,16	0,293	0,035	-2,65 – 8,78

Continuation - Table 6: Multiple linear regression considering lifestyle variables associated with domains corresponding to physical health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Alcohol consumption						
Consumer						
Non-consumer	0,217	0,039	-2,83 – 12,50	0,716	0,012	-6,39 – 9,29
Physical activity[2]						
Yes						
No	<0,001	-0,127	-16,24 – -5,17	0,004	-0,099	-13,96 – -2,64
Occasionally	0,390	0,029	-7,77 – 19,93	0,256	0,038	-6,00 – 22,57
Bodily Pain						
Physical activity[2]						
Yes						
No	0,002	-0,102	-12,11 – -2,68	0,018	-0,081	-10,59 – -0,97
Occasionally	0,228	-0,04	-19,25 – 4,60	0,467	-0,024	-17,20 – 7,89
General Health						
Alcohol consumption						
Consumer						
Non-consumer	0,085	-0,066	-10,14 – 0,40	0,184	-0,043	-8,44 – 1,62
Physical activity[2]						
Yes						
No	<0,001	-0,181	-13,33 – -6,32	<0,001	-0,167	-12,59 – -5,42
Occasionally	0,583	-0,018	-11,31 – 6,37	0,565	-0,019	-12,00 – 6,56
Physical Component Summary						
Smoking load[1]						
Low						
High	0,263	-0,034	-2,25 – 0,61	0,202	-0,041	-2,49 – 0,52
Alcohol consumption						
Consumer						
Non-consumer	0,170	0,042	-0,61 – 3,49	0,835	0,007	-1,84 –2,28
Physical activity[2]						
Yes						
No	<0,001	-0,279	-7,99 – -5,02	<0,001	-0,221	-6,58 – -3,56
Occasionally	0,259	-0,036	-5,85 – 1,57	0,201	-0,042	-6,11 –1,28

Multiple linear regression (p<0,05).
N= 1024. n1= 1009. n2= 1002.
PF: Adjusted for sex, age group, education, income, profession, health care, length of HD, number of diseases and number of complications.
RPF: Adjusted for sex, age group, education, income, time on HD, number of diseases and number of complications.
BP: Adjusted for sex, age group, education, marital status, income, profession, health care, time on CKD, time on HD, number of diseases and number of complications.
GH: Adjusted for sex, age group, duration of HD, number of diseases and number of complications.
PCS: Adjusted for sex, age group, education, income, profession, time with CKD, number of medications, number of diseases and number of complications.

For the domains related to mental health, the absence of physical activity and its occasional practice were predictors of worse vitality, (β= -0.241, p<0.001 and β= -0.086, p=0.007) respectively, of social aspect (β= -0.096, p=0.005) and mental health (β= -0.117, p<0.001). The non-consumption of alcoholic beverages was a predictor of worse mental health (β= -0.062, p=0.047) (Table 7).

For clinical characteristics associated with the physical health domains, the number of complications was a predictor of worse QoL for all domains. The categories of time on HD were predictors of better physical appearance and over 10 years of HD was the worst predictor of pain (β= -0.123, p=0.005) (Table 8).

Table 7: Multiple linear regression considering lifestyle variables associated with domains corresponding to mental health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Vitality						
Physical activity[1]						
Yes						
No	<0,001	-0,252	-16,67 – -9,97	<0,001	-0,242	-15,94 – -9,25
Occasionally	0,006	-0,088	-20,27 – -3,30	0,007	-0,086	-19,41 – -3,14
Social Functioning						
Physical activity[1]						
Yes						
No	<0,001	-0,12	-12,15 – -3,60	0,005	-0,096	-10,70 – -1,86
Occasionally	0,229	-0,04	-17,45 – 4,18	0,278	-0,036	-16,91 – 4,87
Role Emotional Functioning						
Alcohol consumption						
Consumer						
Non-consumer	0,045	0,063	0,22 – 19,08	0,407	0,029	-5,99 – 14,78
Physical activity[1]						
Yes						
No	0,011	-0,084	-15,54 – -1,97	0,106	-0,059	-13,82 – 1,32
Occasionally	0,949	0,002	-16,56 – 17,68	0,114	0,057	-3,92 – 36,75
Mental Health						
Alcohol consumption						
Consumer						
Non-consumer	0,107	-0,051	-8,34 – 0,81	0,047	-0,062	-9,10 – -0,052
Physical activity[1]						
Yes						
No	<0,001	-0,133	-10,03 – -3,45	<0,001	-0,117	-9,18 – -2,58
Occasionally	0,160	-0,046	-14,26 – 2,35	0,169	-0,044	-13,57 – 2,38
Mental Component Summary						
Physical activity[1]						
Yes						
No	0,011	-0,084	-3,91 – -0,49	0,074	-0,063	-3,42 – 0,16
Occasionally	0,272	-0,036	-6,74 – 1,90	0,907	-0,004	-4,93 – 4,38

Multiple linear regression (p<0,05).; N= 1024. n1= 1002. ; VT: Adjusted for sex, age group, education, marital status, income, occupation, time with CKD, number of diseases and number of complications.; SF: Adjusted for gender, education, race/color, income, profession, time with CKD, number of diseases and number of complications.; REF: Adjusted for sex, age group, education, marital status, race/color, income, health care, length of HD, number of medications, number of diseases and number of complications.
MH: Adjusted for sex, age group, education, marital status, income, number of diseases and number of complications.
MCS: Adjusted for sex, age group, education, marital status, race/color, income, occupation, length of HD, number of diseases and number of complications.

Table 8: Multivariate linear regression considering clinical variables associated with domains corresponding to physical health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Physical Functioning						
HD time2						
0 - 2 years						
3 - 5 years	0,115	0,005	-0,90 – 8,26	0,363	0,03	-2,29 – 6,26
6 - 10 years	0,260	0,039	-2,10 – 7,79	0,572	0,019	-3,36 – 6,08
≥ 10 years	0,599	-0,018	-6,93 – 4,00	0,061	-0,061	-10,36 – 0,23
Diseases						
None						
One	0,690	0,032	-10,41 – 15,73	0,446	0,059	-7,70 – 17,47
Two	0,734	-0,028	-15,41 – 10,85	0,794	0,021	-10,97 – 14,34
Three or more	0,070	-0,186	-24,09 – 0,93	0,618	-0,049	-15,23 – 9,06
Complications						
None						
One	0,080	-0,095	-24,82 – 1,41	0,047	-0,09	-24,18 – -0,18
Two	0,061	-0,104	-25,37 – 0,58	0,075	-0,092	-22,56 – 1,09
Three or more	0,003	-0,210	-28,24 – -6,04	<0,001	-0,235	-29,11 – -8,78
Role Physical Functioning						
CKD time1						
< 5 years						
≥ 5 years	0,906	0,005	-6,25 – 7,04	0,957	0,002	-6,32 – 6,67
HD time2						
0 - 2 years						
3 - 5 years	0,044	0,072	0,15 – 11,81	0,024	0,083	0,87 – 12,58
6 - 10 years	0,018	0,112	1,75 – 18,38	0,007	0,128	3,07 – 19,66
≥ 10 years	0,080	0,077	-0,93 – 16,43	0,028	0,098	1,03 – 18,57
Diseases						
None						
One	0,496	0,056	-10,67 – 22,03	0,277	0,089	-7,23 – 25,19
Two	0,859	-0,014	-17,92 – 14,95	0,975	0,003	-16,07 – 16,59
Three or more	0,588	-0,056	-19,98 – 11,34	0,845	0,02	-14,02 – 17,13
Complications						
None						
One	0,125	-0,083	-29,27 – 3,56	0,180	-0,074	-27,14 – 5,08
Two	0,014	-0,137	-36,72 – -4,16	0,032	-0,122	-33,51 – -1,53
Three or more	<0,001	-0,279	-42,32 – -14,53	<0,001	-0,281	-41,45 – 14,01
Bodily Pain						
CKD time1						
< 5 years						
≥ 5 years	0,607	-0,514	-6,94 – 4,05	0,646	-0,021	-6,83 – 4,24
HD time2						
0 - 2 years						
3 - 5 years	0,297	-0,037	-7,38 – 2,26	0,204	-0,046	-8,16 – 1,74
6 - 10 years	0,227	-0,056	-11,12 – 2,64	0,195	-0,061	-11,67 – 2,38

Continuation - Table 8: Multivariate linear regression considering clinical variables associated with domains corresponding to physical health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
≥ 10 years	0,006	-0,119	-17,24 – -2,87	0,005	-0,123	-18,16 – -3,15
Diseases						
None						
One	0,882	-0,012	-14,55 – 12,50	0,954	-0,005	-14,45 – 13,62
Two	0,585	-0,044	-17,37 – 9,81	0,591	-0,045	-17,98 – 10,25
Three or more	0,070	-0,183	-24,91 – 0,99	0,092	-0,177	-25,13 – 1,90
Complications						
None						
One	0,698	-0,021	-16,27 – 10,89	0,713	-0,02	-16,27 – 11,13
Two	0,785	-0,015	-15,33 – 11,59	0,826	0,012	-12,00 – 15,02
Three or more	0,001	-0,220	-30,39 – -7,40	0,018	-0,166	-25,67 – -2,45
General Health						
HD time[2]						
0 - 2 years						
3 - 5 years	0,586	-0,019	-4,62 – 2,61	0,544	-0,021	-4,73 – 2,49
6 - 10 years	0,103	-0,057	-7,17 – 0,65	0,143	-0,052	-6,89 – 0,99
≥ 10 years	0,118	-0,054	-7,78 – 0,87	0,163	-0,049	-7,55 – 1,27
Diseases						
None						
One	0,893	0,011	-9,62 – 11,05	0,792	0,021	-8,87 – 11,63
Two	0,966	-0,003	-10,61 – 10,17	0,973	0,003	-10,18 – 10,53
Three or more	0,155	-0,147	-17,08 – 2,71	0,232	-0,122	-15,87 – 3,84
Complications						
None						
One	0,552	-0,032	-13,52 – 7,23	0,698	-0,021	-12,50 – 8,37
Two	0,301	-0,058	-15,67 – 4,85	0,462	-0,042	-14,18 – 6,44
Three or more	0,014	-0,173	-19,84 – -2,28	0,035	-0,150	-18,50 – -0,65
Physical Component Summary						
CKD time[1]						
< 5 years						
≥ 5 years	0,159	-0,044	-2,09 – 0,34	0,126	-0,048	-2,14 – 0,26
Medicaments[3]						
< 5 medicines						
≥ 5 medicines	0,475	-0,022	-1,82 – 0,85	0,724	-0,011	-1,55 – 1,07
Diseases						
None						
One	0,901	0,010	-4,17 – 4,73	0,748	0,026	-3,68 – 5,12
Two	0,537	-0,052	-5,86 – 3,05	0,718	-0,030	-5,23 – 3,60
Three or more	0,029	-0,225	-8,99 – -0,47	0,223	-0,126	-6,87 – 1,60

Continuation - Table 8: Multivariate linear regression considering clinical variables associated with domains corresponding to physical health.

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Complications						
None						
One	0,242	-0,063	-7,45 – 1,88	0,239	-0,061	-7,18 – 1,79
Two	0,028	-0,128	-9,57 – -0,55	0,043	-0,116	-8,75 – -0,140
Three or more	<0,001	-0,263	-11,29 – -3,43	<0,001	-0,261	-10,93 – -3,39

Multiple linear regression (p<0,05).
N= 1024. n1= 1019. n2= 947. n3= 947.
PF: Adjusted for sex, age group, education, income, profession, health care, smoking load, physical activity.
RPF: Adjusted for sex, age group, education, income, time on CKD, time on HD, smoking, alcohol consumption, physical activity.
BP: Adjusted for sex, age group, education, marital status, income, occupation, health care, physical activity.
GH: Adjusted for sex, age group, alcohol consumption, physical activity.
PCS: Adjusted for sex, age group, education, family income, occupation, smoking load, alcohol consumption, physical activity.

Table 9: Multiple linear regression considering clinical variables associated with domains corresponding to mental health

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Vitality						
CKD time[1]						
< 5 years						
≥ 5 years	0,077	-0,53	-5,04 – 0,26	0,066	-0,056	-5,17 – 0,168
Diseases						
None						
One	0,279	0,086	-4,40 – 15,26	0,120	0,12	-2,02 – 17,44
Two	0,454	0,060	-6,09 – 13,61	0,275	0,087	-4,32 – 15,17
Three or more	0,538	-0,062	-12,35 – 6,44	0,879	0,015	-8,16 – 10,07
Complications						
None						
One	0,004	-0,151	-24,22 – -4,77	0,002	-0,155	-24,62 – -5,45
Two	0,333	-0,052	-14,33 – 4,86	0,503	-0,036	-12,58 – 6,18
Three or more	<0,001	-0,321	-28,37 – -11,94	<0,001	-0,304	-26,99 – -10,83
Social Functioning						
CKD time[1]						
< 5 years						
≥ 5 years	0,310	-0,031	-5,12 – 1,62	0,372	-0,029	-5,12 – 1,191
Diseases						
None						
One	0,877	-0,012	-13,47 –11,51	0,687	-0,033	-15,44 – 10,17
Two	0,616	-0,042	-15,72 – 9,31	0,396	-0,071	-18,41 – 7,28
Three or more	0,133	-0,154	-21,09 – 2,78	0,097	-0,173	-22,72 – 1,87
Complications						
None						
One	0,215	-0,066	-20,17 – 4,54	0,239	-0,063	-20,18 – 5,04
Two	0,258	-0,062	-19,23 – 5,16	0,300	-0,058	-18,89 – 5,83
Three or more	0,001	-0,219	-27,53 – -6,65	0,008	-0,187	-25,18 – -3,87
Role Emotional Functioning						

Continuation - Table 9: Multiple linear regression considering clinical variables associated with domains corresponding to mental health

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
HD time[2]						
0 - 2 years						
3 - 5 years	0,441	0,029	-4,48 – 10,29	0,270	0,043	-3,33 – 11,90
6 - 10 years	0,036	0,078	0,58 – 16,62	0,013	0,097	2,20 – 18,97
≥ 10 years	0,611	0,019	-6,53 – 11,11	0,459	0,029	-5,82 – 12,89
Medicaments[3]						
< 5 medicines						
≥ 5 medicines	0,028	0,073	0,787– 13,54	0,020	0,081	1,21 – 14,50
Diseases						
None						
One	0,216	0,107	-7,67 – 33,98	0,232	0,105	-8,29 – 34,16
Two	0,479	0,062	-13,36 – 28,45	0,655	0,04	-16,52 – 26,27
Three or more	0,760	0,033	-16,82 – 23,03	0,909	0,013	-19,24 – 21,61
Complications						
None						
One	0,424	-0,046	-31,21 – 13,14	0,568	-0,034	-28,86 – 15,84
Two	0,450	-0,047	-29,67 – 13,16	0,615	-0,032	-27,20 – 16,11
Three or more	0,063	-0,141	-36,46 – 0,97	0,110	-0,126	-34,61 – 3,51
Mental Health						
Diseases						
None						
One	0,191	0,105	-3,17 – 15,86	0,146	0,144	-2,45 – 16,47
Two	0,263	0,092	-4,09 – 14,96	0,355	0,074	-5,01 – 13,96
Three or more	0,857	0,018	-8,25 – 9,92	0,763	0,03	-7,65 –10,44
Complications						
None						
One	0,188	-0,069	-15,74 –3,08	0,326	-0,052	-14,21 – 4,72
Two	0,949	-0,003	-9,57 – 8,96	0,548	0,033	-6,45 – 12,16
Three or more	<0,001	-0,245	-22,67 – -6,79	0,006	-0,187	-19,22 – -3,14
Mental Component Summary						
HD time[2]						
0 - 2 years						
3 - 5 years	0,630	0,017	-1,31 – 2,17	0,466	0,027	-1,13 – 2,48
6 - 10 years	0,672	0,015	-1,48 – 2,29	0,587	0,020	-1,42 – 2,51
≥ 10 years	0,648	0,016	-1,60 – 2,57	0,706	0,014	-1,79 – 2,65
Diseases						
None						
One	0,194	0,107	-1,68 – 8,28	0,187	0,109	-1,66 – 8,51
Two	0,326	0,082	-2,50 – 7,51	0,531	0,053	-3,49 – 6,76
Three or more	0,708	0,039	-3,86 – 5,68	0,873	0,017	-4,50 – 5,30

Continuation - Table 9: Multiple linear regression considering clinical variables associated with domains corresponding to mental health

Variables	P value	Beta	CI (95%)	P value	Beta Adjusted	CI (95%)
Complications						
None						
One	0,134	-0,082	-8,82 – 1,18	0,135	-0,083	-8,92 – 1,20
Two	0,859	-0,010	-5,39 – 4,49	0,907	0,007	-4,70 – 5,30
Three or more	0,002	-0,220	-11,00 – -2,53	0,010	-0,185	-9,92 – -1,32

Multiple linear regression (p<0,05).
N= 1024. n1= 1019. n2= 947. n3= 947.
VT: Adjusted for sex, age group, education, marital status, income, occupation, physical activity.
SF: Adjusted for sex, education, race/color, income, occupation, physical activity.
REF: Adjusted for sex, age group, education, marital status, race/color, income, health care, alcohol consumption, physical activity.
MH: Adjusted for sex, age group, education, marital status, income, alcohol consumption, physical activity.
MCS: Adjusted for sex, age group, education, marital status, race/color, income, occupation, physical activity.

For the domains related to mental health, except for the emotional aspect, the number of complications was a predictor of worse QoL for all domains. Time on HD between 6 to 10 years (β= p=0.013) and the use of more than 5 medications (β= 0.081, p=0.020) were predictors of better emotional appearance.

DISCUSSION

The results demonstrate that QoL is multidimensional and it can be affected by inherent individual's characteristics and by clinical conditions. The determining factors were male gender, age, education, physical activity and the number of intradialytic complications are highlighted as factors associated with both physical and mental health and, therefore, important predictors of QoL in this population.

Mental health represented the best QoL of the individuals in the study, while the worst QoL was represented by the physical aspect. This data is corroborated by the summaries of components, in which the mental component obtained higher scores in relation to the physical component. Better mental health at the expense of physical health is a common finding in this population, and it is related to the chronic nature of the disease, in which the individual adapts not only to the disease, but psychologically to his reality over time, influencing QoL[17,26-28].

Advanced age is related to the gradual decline in physical health[29], however, the older the patient, the greater the adherence to treatment[26]. Elderly individuals value social and emotional support, regardless of the state of frailty[30], influencing their perception of QoL. In this context, it was observed in this study that while being young (19 to 29 years old) was a predictor of better functional capacity and physical aspect, being elderly (≥ 60 years old) was a predictor of better mental health. Similar results were found in other studies[31,32].

Despite the high mental health of the general population in the study, there was a low QoL for females when compared to males. Low QoL among women is also observed in other studies[29,31]. Gerogianni *et al*., (2017)[33], identified higher levels of anxiety and depression in women undergoing hemodialysis when compared to men, a result attributed to the social context in which the women find themselves, for various daily responsibilities that impact QoL.

In this social context, socioeconomic factors also stand out. In this study, education was configured as a predictor of mental health and functional capacity, a result similar to previous studies[17,31,32]. Higher levels of education allow greater access to information and better economic status, enabling a more assertive assessment of QOL[16]. It is also assumed that individuals with a higher level of education tend to develop more intellectual than physical activities[29], which explains the better functional capacity of individuals over 8 years of schooling in our findings.

Therefore, it is noted that social inequities such as low education, which are responsible for increasing the risk of CKD, continue to influence on their QoL even after HD treatment. In this context, racial disparities also become a determinant of health[34,35]. In our findings, in accordance with other studies[35,36], there was a predominance of non-white individuals (71.97%), and the negative impact of black and mixed race/color, as a predictor of worse emotional appearance.

Added to this scenario, the socioeconomic level is reported by different studies as a determining factor of QoL[13,17,38]. Low socioeconomic status both increases the risks that predispose to CKD, as well as worsens the outcomes of those with the disease[15]. In this study, most individuals (43.1%) had a family income between 1 and 2 minimum wages, and the lower the income, the worse the QoL. Therefore, there is a greater association of socioeconomic level with physical health domains, as well as profession, which is a predictor of better QoL for functional capacity among employed individuals.

Thus, the set of associations of sociodemographic characteristics allow us to assume that individuals with higher education and better socioeconomic status develop more intellectual activities, requiring less physical effort, preserving physical health, in addition to presenting better economic conditions and greater clarification to deal with the disease[16,17,32,38].

Besides socioeconomic factors, the lifestyle habits of hemodialysis population also impact QoL[39,31,40]. Smoking and alcohol consumption are poorly studied habits in this population, however some studies demonstrate their low prevalence in patients on HD[36,40]. In this study, even

considering a minority with high smoking burden, it negatively affected their functional capacity. Moreover, the consumption of alcoholic beverages, despite negatively affecting their functional capacity, positively impacted their mental health.

In our findings, the practice of physical activity was a predictor for all QoL domains, proving the benefit of practicing some exercise both for physical and mental health, for patients on HD. However, despite the Kidney Disease Outcomes Quality Initiative (KDQOI) guidelines recommending that HD patients be encouraged to increase their level of physical activity[40], studies have verified the low adherence to physical activity practice by this population, as well as this study, and have focused on proving the clinical and QoL benefits of the regular practice of physical activity[31,39,42].

The improvement in physical performance and QoL of patients on HD was verified after an exercise program for 6 months, safely allowing the encouragement of simple and sustainable physical activity in this population, with the aim of improving clinical outcomes[43].

Since frailty and physical malfunction are perhaps the most disabling disorders in patients on chronic dialysis[44,45], our findings, in agreement with the studies mentioned above, prove the practice of physical activity as a fundamental practice for QoL of patients on HD.

Clinical characteristics were also identified as predictors of QoL. The time on hemodialysis showed an inverse association with the physical aspect and pain domains, indicating worsening of pain and physical aspect, the longer the time on HD. On the other hand, individuals between 6 to 10 years of hemodialysis treatment presented better emotional aspects, reflecting once again the patient's adaptation to the disease over the years. Previous studies have failed to prove the effect of hemodialysis time on QoL[38,40,47,48]. However, Pan *et al*., (2018)[32] observed that time on hemodialysis above 4.5 years was inversely associated with QoL, and a positive association was observed between longer dialysis time and the mental component, a result similar to our findings .

Another clinical feature predicting the emotional aspect was the number of medications. It is known that the population with CKD commonly has other associated diseases. Multimorbidity, the presence of two or more diseases in the same individual is frequently observed in this population, and has become a growing concern in the care of individuals with CKD, resulting in an increase in the treatment burden and contributing to polypharmacy[49,50].

Unlike previous studies[17,38,51] that identified that the greater the number of medications being used by the individual, the worse the QoL, this study showed that individuals using five or more medications had a better emotional aspect when compared to individuals using fewer medications. Thus, the drug load contributed positively to the study population, however, in addition to the impact of the disease itself, the patient with CKD on HD is subjected to the consequences of the treatment itself, which despite the benefits also causes complications[52].

Intradialytic complications are frequently seen in patients on HD[52] and play a significant role in worsening QoL[32]. In this study, most individuals (85.05%) had 3 or more complications, placing themselves as the clinical characteristic that is most associated with QoL. Therefore, the greater the number of complications, the worse the QoL, emphasizing the vulnerability of these individuals and the necessary intervention for this modifiable risk factor very present in this population.

Finally, this study has some limitations. Due to the cross-sectional nature of the study, it was not possible to determine a causal effect between QoL and the study variables. In addition, this study was carried out in a single state in Brazil, but the results may support further studies that point to a causal relationship. However, the strengths of the study help to circumvent this limitation. Since the metropolitan region surveyed concentrates the largest number of individuals undergoing HD in the state, provided us a large sample size. In addition, the use of all domains of QoL is highlighted, which allows exploring the influence of each variable studied on quality of life and precisely identifies the most effected domains.

CONCLUSION

Quality of life is impacted by different aspects involving CKD, such as social, clinical and lifestyle characteristics. Therefore, in addition to considering the various factors that influence quality of life, we demonstrate the importance of using quality of life in all its dimensions, identifying the positive or negative associations between each factor with each domain of quality of life.

The male sex is highlighted as a predictor of better physical and mental health, and the influence of age group characterizes elderly people with better mental health despite the impairment in physical health. Physical activity was an important predictor of QoL, highlighting that the absence of physical activity is associated with worse physical and mental health. Clinically, it was possible to observe how the number of complications negatively affects the QoL of HD patients, since having 3 or more complications was associated with worse physical and mental QoL. Encouraging the practice of physical activity and preventing intradialytic complications are modifiable factors that can promote the QOL of HD patients, contributing to a better health outcome. As low QOL is one of the main problems in this population, our findings highlighted the potential of QOL assessment for holistic clinical treatment.

Author Contributions

All authors contributed to the manuscript. Marina Abelha Barreto: Participated in data collection, data analysis, statistical analysis and writing of the text. Monica Cattafesta: Participated in the study design, statistical analysis and final version of the text. Alexandre Cardoso da Cunha: Participated in data collection and revision of the text. Miriam Patricia Castro Pereira Paixão: Participated in data collection and revision of the text. Edson Theodoro dos Santos Neto: Participated in the general orientation of the research, definition of the study design and final revision of the text. Luciane Bresciani Salaroli: Participated in the general orientation of the research, definition of the study design, statistical analysis, discussion of results and final version of the text.

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Conflicts of Interest:

The authors report no conflict of interest.

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Resumo

Introdução: nas doenças crónicas, a QV depende de vários fatores como o tipo e duração da doença, o seu tratamento e efeitos secundários, a gravidade dos sintomas, os efeitos da medicação, a idade do paciente, as limitações e a capacidade de autocuidado. Na doença renal crónica também se tornou uma medida dos resultados de saúde.

Objetivo: avaliar a associação entre QV e fatores socioeconômicos, de estilo de vida e clínicos de pacientes em HD.

Método: trata-se de um censo epidemiológico transversal, realizado entre 1.024 pacientes em hemodiálise de todas as unidades de hemodiálise da região metropolitana do Espírito Santo, Brasil. Foram utilizados dados sociodemográficos, de estilo de vida e características clínicas. A QV foi avaliada por meio do questionário de Qualidade de Vida (SF-36). Os dados foram analisados por regressão linear múltipla.

Resultados: as crianças tinham idade média de 8,36 anos, sendo 82% de eutróficas e com tempo médio de tela de duas horas diárias. As análises do controle postural revelaram que as crianças apresentaram maiores ajustes posturais com os olhos fechados em comparação com os olhos abertos e ao usar o aplicativo do smartphone o ajuste postural foi semelhante ao encontrado com olhos fechados. Na estabilometria, os deslocamentos posturais realizados pelas crianças se comportaram de modo semelhante à avaliação estática apenas na área total da superfície dos pés.

Conclusão: o sexo masculino é destacado como preditor de melhor saúde física e mental e idosos com melhor saúde mental, apesar do comprometimento na saúde física. A ausência de atividade física está associada a pior saúde física e mental. Clinicamente, ter 3 ou mais complicações intradialíticas foi associado a pior qualidade de vida física e mental.

Palavras-chave: Doença renal crônica; Qualidade de vida; Estilo de vida; Condições socioeconômicas; Características clínicas; Hemodiálise.