Quality of Life and Oral Health of Chronic Renal Failure Patients on Dialysis

Qualidade de Vida e Saúde Bucal em Pacientes com Insuficiência Renal Crônica Submetidos à Hemodiálise

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Abstract

With the aim to assess the quality of life related to the geral (HRQoL) and to oral health of chronic renal failure patients on dialysis, a cross-sectional study of 108 chronic renal failure patients under dialysis for at least three months in a Kidney Clinic of Manaus was realized. The instruments used for research were: a questionnaire to characterize the study population, the Kidney Disease Quality of Life-Short Form (Short Form KDQOL-SF ™) and Oral Health Impact Profile 14 (OHIP-14). A descriptive analysis was performed, where the mean and standard deviation were calculated for the data with normal distribution, median and interquartile range, for those who did not present. The Mann-Whitney, Kruskal-Wallis and Spearman correlation coefficients were used (p <0.05). It was observed that 56.5% of the sample were men, with a mean age of 47.3 years, married (45.4%), low monthly family income (44.4%), complete high school (38%). and in hemodialysis for more than 24 months (78.7%). There was impairment in the physical domains of quality of life and oral health (71.30%) of the investigated patients, although they showed a poor perception about the latter. The variables that showed significant associations with quality of life scores were monthly family income, time on dialysis, and age. Impact on the quality of life related to the general and oral health of patients on dialysis therapy was observed, influenced by socio-demographic, economic and clinical variables.

Keywords: Renal Dialysis. Quality of Life. Oral Health.

Resumo

Com o objetivo de avaliar a qualidade de vida relacionada à saúde geral e bucal de pacientes com insuficiência renal crônica em diálise, realizou-se um estudo em 108 indivíduos, sob hemodiálise há pelo menos 3 meses, em uma Clínica de Nefrologia de Manaus. Os instrumentos utilizados foram: questionário para caracterização da população estudada, o Kidney Disease and Quality of Life - Short Form (KDQOL-SF™) e o Oral Health Impact Profile 14 (OHIP-14). Realizou-se análise descritiva, onde se calculou a média e desvio-padrão, para os dados com distribuição normal, mediana e o intervalo interquartil, para os que não apresentaram. Foram utilizados os testes de Mann-Whitney, Kruskal-Wallis e o coeficiente de correlação de Spearman (p<0,05). Observou-se que 56,5% da amostra eram homens, com média de idade de 47,3 anos, casados (45,4%), com baixa renda familiar mensal (44,4%), ensino médio completo (38%) e em hemodiálise há mais de 24 meses (78,7%). Houve comprometimento nos domínios físicos da qualidade de vida e na saúde bucal (71,30%) dos pacientes investigados, embora demonstrassem uma pobre percepção acerca deste último. As variáveis que apresentaram associações significativas com os escores de qualidade de vida foram a renda familiar mensal, o tempo de diálise e a idade. Constatou-se impacto na qualidade de vida relacionada à saúde geral e bucal dos pacientes sob terapia dialítica, influenciado por variáveis sóciodemográficas, econômicas e clínicas.

Palavras-chave: *Diálise Renal. Qualidade de Vida. Saúde Bucal.*

1 Introduction

Chronic Renal Failure (CRI) is considered a public health problem, in which health professionals routinely deal with a constant challenge and several are the causes and repercussions of this pathology in the daily life[1]. Its incidence is 242 cases for one million people per year, with an 8% increase every year[2].

The numerous adaptive changes imposed by chronic renal disease on patients impact on health-Related Quality Of Life (HRQOL) changes of the same[3,4].

The number of patients with CRI in dialysis treatment has been increasing gradually over the years. In 2017, the estimated total number of patients undergoing dialysis treatment was 126,583, with 92% of them undergoing hemodialysis[5,6].

Hemodialysis patients often present a compromised general health and immune response deficiencies, which can lead to systemic and oral alterations[7].

Several instruments appear in the literature in order to measure HRQOL in patients affected by chronic renal failure, especially KDQOL-SF™ 1.3. It is a complex, multidimensional construct of simple application, composed of a set of concepts, developed specifically for individuals with chronic renal disease[2].

The relationship between quality of life and oral health has been a very evident theme in the literature[8,9]. Thus, over the past decades, many studies have been carried out in adults and elderly people related to the indicator Quality Of Life Related to Oral Health (QRSB) - to evaluate the influence of

symptoms and limitations (functional, psychological, social and pain experience) caused by oral diseases on the well-being of the individual, in addition to his or her ability to perform daily activities. Among the most commonly used instruments to evaluate QRSB, OHIP-14, a reduced version of OHIP-49[7,9] is found.

Oral diseases are a chronic problem in renal patients; therefore, they can have negative impacts on HRQOL in these patients [10-12]. Evidence suggests that reduced renal function may be related to poor oral conditions, including periodontal disease[13]. There are reports in the literature of signs and oral symptoms that affect CRI patients, which should be carefully observed by the surgeon-Dentist during dental treatment, including accumulation of calculus, uremic breath, paleness of the mucous membranes, xerostomia, gingival bleeding, stomatitis, bone alterations, malocclusion, enamel hypoplasia, dental erosion, sensitivity to percussion and chewing, dysgeusia and dental mobility [9,14-16]. To this end, the inclusion of the surgeon-Dentist in the multidisciplinary team is necessary, as well as the establishment of a protocol of dental care to renal patients, aiming at the knowledge of the complexity of these and the ability to assist them at all levels, with common and specific approaches to the stages of the disease, in addition to preventive and educational measures to minimize their effects[11,14-17].

Few studies have investigated QRSV and QRSB in patients submitted to hemodialysis[7,10,12,18,19]. Thus, in view of the immense repercussion in the emotional, economic, financial and social aspects of CRI patients submitted to hemodialysis therapy, noting such alterations may direct multiprofessional healthcare teams in the follow-up and treatment of CRI patients, as well as understanding their daily restrictions.

Therefore, the objective of this study was to evaluate the QVRS and QVRSB of CKD patients under hemodialysis at a Nephrology Clinic in Manaus, Amazonas, Brazil, in the year 2018.

2 Material and Methods

This cross-sectional study was carried out at the Renal Clinic of Manaus, Amazonas, a reference in dialysis treatment throughout the northern region of Brazil, taking care by private initiative and agreements, including with The Single Health System, patients with renal disease, from Manaus and the Amazon interiors, in addition to those of other neighboring states, such as Amapá, Pará, Rondônia, Acre and Roraima.

Of the 161 patients with chronic renal failure who sought hemodialysis treatment, in the three daily shifts, in the aforementioned Nephrology Clinic, in 2018, considering a 95% confidence level and a 5% margin of error, 114 were invited to participate in the study, once all the criteria for inclusion of the research were met: age over 18 years; diagnosis of chronic renal failure; registration in the hemodialysis service for at least three months; absence of any impediment to the explanation

and application of the questionnaire as follows: cognitive deficit, psychiatric disorders, mental confusion, sequels of stroke - aphasia and deafness-second information of the clinic's health team; agreement to sign the free and informed consent term. Patients submitted to renal transplantation and/or those who died during the research period were excluded, as well as questionnaires with incomplete information.

The assessment of the demographic and socioeconomic conditions of the patient and his or her family was carried out through a self-applicable questionnaire applied by a calibrated researcher, who explained how filling should occur and was available to answer any questions, addressing data such as sex, age, skin color, marital status, schooling (years of study), monthly family income, basic diseases, use of medications and treatment time.

In order to evaluate the HRQOL of the participants in this study, a trained researcher explained to the participants the objectives of the study and presented the self-applicable questionnaire in the resting room, under his or her supervision to clarify any doubt, before the beginning of the hemodialysis session, using KDQOL- SF1.3™, Developed in 1997 by the KOL DQ working *Group/Rand Corporation* of the University of Arizona in the United States of America (USA), translated and validated in Brazil in 2003. This questionnaire covers 80 items, distributed in 19 dimensions, of which 43 questions are specific to chronic renal disease and 36 questions are generic, in addition to a question of general health identification. The process of encoding the questionnaire follows the "Manual for *use and correction of kidney disease and quality of life - short form* - KDQOL- SF™ 1.3''. There are three questions with a type of dichotomous answer (yes, no). However, the most frequent response format is the Likert scale with three, four, five, six, or seven points. In general terms, a score is given for each item (or question), later transformed into a scale from 0 to 100, where higher scores reflect a better quality of life. The QVRS instrument also presents the item containing a scale ranging from 0 to 100 for "General Health Evaluation".

The evaluation of the outcome of QVRSB was carried out, through a self-applicable questionnaire, of the translated version and validated for the Portuguese version of OHIP-14[21], a simplified instrument that evaluates the overall impact of oral health on the quality of life (14 questions whose scores can range from 0 to 56), through seven QVRSB domains: "functional limitation"; "physical pain"; "psychological discomfort"; "physical disability"; "psychological disability"; "social disability" and "total disability". For each of the 14 questions of OHIP-14, the patients were asked about the frequency that they experienced the impact in recent days and the answers were coded as "Never" (0), "Rarely" (1), "sometimes" (2), "Repeatedly" (3) and "Always" (4). The lower the OHIP-14 score, the better the QVRSB. The prevalence of the impact was analyzed as a categorical variable that classified the individuals into two groups: no

impact (scores 2 = sometimes, 1 = rarely and 0 = never) and with impact (scores 4 = always and 3 = repeatedly) [19]. If the individual declared an impact on at least one item of the OHIP-14, it was considered impactful; otherwise, it was considered without impact. After the application of the instruments, the patients received guidance, through lectures, on the main oral alterations resulting from the pathology and its treatment, as well as on the care to be taken to prevent or minimize them, in addition to receiving dental treatment referral to the School of Dentistry of the Federal University of Amazonas.

The QVRS data were tabulated in the instrument/spreadsheet available *online* and free for analysis of KDQOL-SF™1.3, elaborated and made available by *the working Group* .

A descriptive analysis was performed, where the mean and standard deviation (SD) were calculated for the data with normal distribution, thorough the Shapiro-Wilk test, and median and interquartile range, for those who did not exhibit normal distribution. In the comparison of medians with categorical variables, the non-parametric Mann-Whitney tests were used for two groups, and Kruskal-Wallis tests were used. Whereas in the analysis of the relationship among quantitative variables, Spearman's correlation coefficient (r) was used.

The software used for data analysis was Minitab program version 17 (State College, Pennsylvania, USA) and the significance level set for statistical tests was 5%.

The development of the study followed the ethical norms of research in human beings and was submitted to and approved by the Research Ethics Committee of the Federal University of Amazonas (CAAE n° 88667718.9.0000.5020).

3 Results and Discussion

Of the 114 patients with CRI invited to participate in the study, 108 comprised the sample, since one was excluded due to death and five due to incomplete information in the questionnaires.

The demographic, socioeconomic and clinical characteristics of the population studied are presented in Chart 1. Of the investigated participants, 56.5% were male and 43.5% were female. The mean age was 47.3 ± 15.5 years, ranging from 18 to 83 years, with a predominance from 50 to 60 years (25.9%). In relation to schooling, the majority (38%) had 12 years of study, which corresponds to full secondary education. Most of the study participants were married (45.4%) and received monthly family income equal to or less than one minimum wage (44.4%).

Table 1 - Distribution according to demographic, socioeconomic and clinical data of patients with CRI, on hemodialysis, treated at the Renal Clinic, Manaus – AM, 2018

Variables (n=108)	f_i	%
Sex		
Male	61	56.5
Female	47	43.5
Age (years)		
18 |--- 30	16	14.8
30 |--- 40	19	17.6
40 |--- 50	23	21.3
50 |--- 60	28	25.9
60 |--- 70	11	10.2
70 |--- 80	10	9.3
80 |--- 90	1	0.9
Mean ± SD	47.3 |--- 15.5	
Schooling		
Illiterate	6	5.6
Elementary School	35	32.4
School	41	38.0
Upper Level	26	24.0
Marital Situation		
Single	40	37.0
Married	49	45.4
Widow/widower	1	0.9
Separated	6	5.6
Lives with companion	12	11.1
Income (minimum wages)		
≤ 1	48	44.4
1 ---| 2	19	17.6
2 ---| 5	27	25.0
> 5	14	13.0
Hypertension	91	84.3
Diabetes	29	26.9
Time of Hemodialysis		
3 to 7 months	8	7.4
8 to 12 months	4	3.7
13 to 24 months	11	10.2
Over 24 months	85	78.7
Use of medication	107	99.1

f_i = = simple absolute frequency; SD = Standard deviation.
Source: Research data.

Regarding the clinical characteristics, it was observed that the main comorbidities reported by the patients were systemic arterial hypertension (84.3%) and diabetes mellitus (26.9%). 78.7% of the investigated participants had been submitted to hemodialysis for more than 2 years and 99.1% used medications.

Knowledge of the sociodemographic socioeconomic profile of the quality of life of CRI patients is of fundamental importance in the conduction of more effective clinical approaches, in the possible finding of the need for psychological support, due to the emotional alterations suffered, as well as physiotherapeutic to alleviate physical questions[6].

In this study, a slight predominance of males (56.5%) was observed, in agreement with several studies found in the literature[6,18,22-24] which also pointed to the male sex as the most

prevalent. Perhaps this is due to the fact that the last census carried out in our country showed that approximately 57% of patients with chronic renal failure on dialysis were male[5].

The mean age was 47.3 years, with a predominance of married patients, aged 40-60 years, and with low income, corroborating other studies that show that a large proportion of the interviewees were married and had low monthly family income[18,25]. The mean age of 44, 4 years was also found in a descriptive and cross-sectional study carried out with 58 individuals in hemodialysis therapy in the city of Patos-PB[23]. The finding of increasingly advanced age means is mainly due to the aging of the population, in addition to the increase in the prevalence of non-communicable chronic diseases such as diabetes mellitus and systemic arterial hypertension, the main causes of CRI. Therefore, the tendency is increasingly to observe elderly patients with terminal chronic renal disease.

The fact that a large part of the sample is married may be due to the fact that the presence of a partner for these patients represents in a certain way the role of the "caregiver" or the "companion", and it is often necessary according to the degree of dependence and difficulty in which they are due to the disease [4].

The most prevalent level of schooling in this study was complete secondary education, differing from that found in studies performed with patients from a public health service in Sao Paulo, from a dialysis and volunteer center of a Family Health Strategy Unit in Goiânia[3,18], where 27.7% and 68.6% of those investigated, respectively, had only full basic education. This may have occurred due to the Renal Clinic of Manaus, site of the study, being a private institution, although it maintains agreement with the Single Health System.

Regarding the clinical characteristics, it was observed that the main comorbidities reported by the patients were systemic arterial hypertension (84.3%) and diabetes mellitus (26.9%).

Systemic arterial hypertension, among the basic RIC pathologies, was the most prevalent one, followed by diabetes, in agreement with the findings of other studies [4,18]. Greater attention to family history, both on the part of patients (who should obviously receive adequate information about it) and on the part of health professionals (including the surgeon-Dentist), would make it possible to obtain an early diagnosis or to adopt preventive measures that might postpone the installation of chronic renal disease in younger age groups.

Regarding the intake of drugs, almost all of the investigated (99.1%) made use of them. It is important to point out that many patients present a reduction in salivary pH and flow due to the systematic and continuous use of medications, such as antihypertensive drugs, hypoglycemic drugs, antidepressants, among others. The hyposalivation caused by these drugs leads to alterations in the electrolytic and organic composition of saliva, reducing its buffer capacity, with consequent increase in the mineral loss of the dental structure and impairment of the remineralization, which may increase the risk to caries. In addition, defense mechanisms exercised by saliva can be compromised as a consequence of hyposalivation. Some of these medications may also act by promoting a gingival increase that, associated with poor oral hygiene, provides inflammation and development of early periodontal disease and may lead to postural hypotension, or even to blood crasis alteration. Therefore, the knowledge of the Surgeon-Dentist regarding possible adverse effects in the oral cavity, as well as drug interactions between these drugs and local anesthetics and/or drug therapy in Odontology is fundamental.

The time of hemodialysis treatment prevalent in the patients investigated was greater than 24 months (78.7%), a fact also evidenced in a study performed in a hemodialysis clinic of Piaui state municipality, where the time of hemodialysis of 35.9% of the population studied was greater than two years [4,18]. The long wait for renal transplantation causes dialysis treatment to last for years, compromising the quality of life of patients.

The generic and specific dimensions of KDQOL-SF™ were measured on a standardized scale ranging from 0 to 100, and the mean, Sd, median, minimum and maximum values observed in the study population are presented in Chart 2.

Table 2 - HRQOL of patients with RIC, on hemodialysis (n=108), treated at the Renal Clinic, Manaus - AM, 2018, through the KDQOL-SF™1.3 questionnaire

Domains (n° of items)	Mean	Sd	Median	Minimum	Maximum
Generic					
Physical Operation (10)	44.91	25.75	40.00	0.00	95.00
Physical Function (4)	22.92	29.82	0.00	0.00	100.00
Pain(2)	57.55	26.00	57.50	0.00	100.00
General Health (5)	47.64	21.78	50.00	5.00	90.00
Emotional Well-Being (5)	69.93	23.26	76.00	16.00	100.00
Emotional Function (3)	35.80	38.86	33.33	0.00	100.00
Social Function (2)	65.51	27.39	75.00	0.00	100.00
Energy/Fatigue (vitality) (4)	57.22	22.01	55.00	0.00	100.00
Specific					
Symptoms/Problems (12)	66.57	20.04	67.71	0.00	100.00
Effects Of Renal Disease (8)	59.06	22.44	62.50	0.00	100.00
Overload Imposed By Renal Disease (4)	35.47	24.63	31.25	0.00	100.00

Conclusion

Domains (n° of items)	Mean	Sd	Median	Minimum	Maximum
Professional Activity (2)	20.83	33.58	0.00	0.00	100.00
Cognitive Function (3)	77.41	22.53	83.33	6.67	100.00
Quality of Social Interaction (3)	74.57	23.33	80.00	6.67	100.00
Sexual Function* (2)	86.67	19.91	100.00	12.50	100.00
Sleep (4)	68.61	20.72	71.25	5.00	100.00
Social Support (2)	70.22	33.10	83.33	0.00	100.00
Dialysis Staff stimulation (2)	70.60	30.39	75.00	0.00	100.00
Patient satisfaction (1)	57.87	20.44	50.00	0.00	100.00
Health assessment in general	60.00	21.83	50.00	0.00	100.00

*n=60.

Source: Research data.

In the generic dimensions, the lowest average scores were: "physical function" (22.92); "emotional function" (35.80); "physical function" (44.91) and "general health" (47.64). In the specific dimensions, the lowest average scores were: "professional activity" (20.83); "burden imposed by renal disease" (35.47) and "patient satisfaction" (57.87). The highest quality of life scores were found in the specific dimensions of the instrument as "sexual function" (86.67); "cognitive function" (77.41) and "quality of social interaction" (74.57).

The item "Health Assessment in general" has a scale from 0 to 100, where 0 means the worst possible (as bad or worse than being dead), 50 (half-term between the worst and the best) and 100 (the best possible). The results showed that, among the population studied, the prevailing mean was 60 (Chart 3). Only 3 (2.8%) patients answered 0; 43 (39.8%) answered 50; 40 (37%) answered between 60 and 90; and 10 (9.3%) answered 100.

Table 3 - Spearman's Correlation Coefficient between the specific and generic dimensions of KDQOL-SF™ and the variables age, schooling (years of study), family income and hemodialysis time of RIC patients treated at the Renal Clinic, Manaus -AM, 2018

1. Dimensions	Age		Years of study		Income		Dialysis time	
	r	p	r	p	r	P	r	p
Specific								
Problems / symptoms	0.00	0.966	0.17	0.083	0.25	*0.009*	-0.17	0.087
Effects of the disease	0.18	0.065	0.00	0.985	-0.03	0.774	-0.21	*0.032*
Disease burden	-0.04	0.693	0.14	0.142	0.13	0.168	-0.11	0.274
Professional Activity	0.13	0.181	0.30	*0.002*	0.38	*<0.001*	-0.19	*0.048*
Cognitive Function	0.20	*0.040*	0.06	0.541	0.10	0.307	-0.03	0.783
Quality/ Social Interaction	0.30	*0.002*	-0.12	0.216	0.08	0.385	-0.19	*0.047*
Sexual Function	-0.16	0.101	0.28	*0.004*	0.12	0.218	-0.02	0.873
Sleep	0.00	0.967	0.24	*0.014*	0.29	*0.002*	-0.14	0.162
Social Support	0.28	*0.004*	0.03	0.738	0.24	*0.012*	-0.23	*0.017*
Staff Stimulus	0.24	*0.013*	0.16	0.096	0.18	0.064	-0.22	*0.024*
Patient satisfaction	-0.12	0.224	0.28	*0.003*	0.32	*0.001*	-0.25	*0.010*
Generic								
Physical Operation	-0.34	*<0.001*	0.12	0.221	0.07	0.480	0.10	0.324
Physical Function	-0.17	0.083	0.14	0.165	0.13	0.194	0.10	0.325
Pain	-0.16	0.092	0.18	0.067	0.20	*0.039*	-0.14	0.142
General Health	0.02	0.843	-0.12	0.223	-0.05	0.612	-0.02	0.841
Emotional well-being	-0.02	0.860	0.04	0.651	0.14	0.147	-0.12	0.233
Emotional Function	-0.12	0.229	0.15	0.118	0.16	0.110	0.11	0.277
Social Function	0.12	0.220	0.08	0.409	0.19	*0.046*	-0.13	0.174
Energy/ Fatigue	-0.02	0.819	-0.02	0.821	0.06	0.572	-0.12	0.198
Overall assessment	0.10	0.321	-0.09	0.341	-0.01	0.933	-0.07	0.467

r = Spearman correlation Coefficient

Source: Research data.

The evaluation of quality of life has been receiving special attention in patients affected by chronic renal disease, since dialysis treatment, despite prolonging survival, has a great impact on several aspects of the life of these individuals. In this sense, KDQOL-SF™ was used, an instrument that can provide a wide view of the various factors that interfere in the quality of dialysis individuals, using generic measures (SF-36) and specific measures regarding chronic dialysis

renal disease. The use of the KDQOL-SF™ instrument to evaluate the HRQOL of these patients has proved useful, since it makes it possible to improve the communication between the healthcare team professionals who assist them, facilitating the implementation of specific actions so that patients are educated and stimulated to live with more satisfaction, reducing complications caused by renal disease[23].

The analysis of the results of the KDQOL- SF™ instrument in the present study revealed that among the generic dimensions, those with the lowest average scores were " physical function", "emotional function", "physical functioning" and "general health", resembling other published previous studies [3,18, 22-24] . Physical and functional capacity is reduced in these patients due to several factors. First, due to the deficiency of vitamins and minerals (iron and calcium) induced by hemodialysis, which filters the blood to remove urea (toxic) and carries with it those substances necessary for muscle activity. Thus, its lack causes damage to muscle metabolism. Secondly, there are associated comorbidities such as heart disease, hormonal changes and myopathy (protein catabolism) that cause fatigue to small and medium efforts and also dyspnea. Thirdly, there are changes in emotional function, such as depression and anxiety. Finally, the sedentary lifestyle (less than 30 minutes of exercise three times a week) induced by the disease, according to patients' reports[3]. There is a need to implement a regular physical exercise program for this group of patients.

The emotional function evaluates signs of depression and anxiety problems and they interfere with work, daily activities and attention to perform them. In most cases, the symptoms of depression and anxiety are associated with poor quality of life related to health at generic and specific KDQOL-SF ™ [3] scales.

As for the "general health" domain, the patient with chronic renal disease lives daily with the denial and, above all, suffers from the consequences imposed by the disease and its evolution, as well as having to undergo painful treatment, with numerous limitations and alterations that affect their own quality of life[6].

In the specific dimensions, the lowest average scores were: "professional activity"; "burden imposed by renal disease" and "patient satisfaction, similar to other studies[3,6].

In our study, the aspect of" professional activity "obtained the lowest mean score among all the dimensions analyzed, corroborating the findings of other published studies[22,23] . This finding can be explained by the fact that, due to the disease and the treatment instituted, patients need to stop working or reduce the workload, which contrasts with the lifestyle before the disease, causing a negative impact on their quality of life[18]. Work expresses relevance in people's lives as self-realization, as well as financial in the maintenance of the family institution, especially for adults[4]. The low scores of the domains "burden imposed by renal disease" and "patient satisfaction" reflect, respectively, the interference of the pathology in the lives of

these patients, mainly due to the time spent on treatment, as well as some problems or complaints, of these patients, with the care they received in the dialysis unit of the study [6].

The highest quality of life scores were found in the specific dimensions of the instrument as "sexual function", cognitive function" and "quality of social interaction"[18,22,23]. One point that draws attention is that "sexual function" obtained the highest score among all dimensions in this study, which is in disagreement with previous studies[6,18] . Studies on sexual function point to unfavorable aspects for hemodialysis patients, such as physical, psychological changes and the use of medications[3]. This divergence may have occurred, perhaps, due to the patients' embarrassment in answering questions related to sexual activity, taboo subject, which led only 60 of the 108 individuals participating to claim sexual activity in the last 4 weeks.
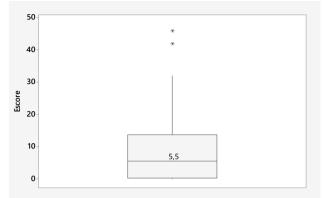
The relation between the specific and generic dimensions of the HRQOL instrument (KDQOL-SF™) and the study variables was performed using the Spearman Correlation Coefficient (Chart 3). In relation to the specific dimensions, the correlation coefficient showed a significant result between the following dimensions: "list of problems and symptoms" with monthly family income; "effects of renal disease" with hemodialysis time; "professional activity" with schooling, monthly family income and hemodialysis time; "cognitive function" with age; " quality of social interaction" with age; "sexual function" with schooling; "sleep" with schooling and monthly family income; "social support" with age, monthly family income and hemodialysis time; "team stimulation" with age and time of hemodialysis; "patient's satisfaction" with schooling, monthly family income and hemodialysis time.

Significant correlation coefficients between the generic dimensions "physical functioning" with age; "pain" and "social function" with the variable family income were observed.

The parameters which exhibited the strongest correlations were monthly family income, dialysis time and age. The variables low monthly family income and low schooling seem to be strong predictors of poor HRQOL in chronic renal patients undergoing hemodialysis[10].

The median total OHIP-14 score (5.5) is shown in Figure 1, whose minimum and maximum values were 0 and 46, respectively. The domains that obtained the highest scores (worst QRSB) were: "psychological disability", "psychological discomfort", "functional limitation" and "physical disability". Regarding the distribution of patients according to the presence or absence of impact on QRSB, using OHIP-14, 71.3% had some impact and only 28.7% did not.

Figure 1 - Boxplot of the OHIP-14 instrument score applied in CKD patients, on hemodialysis (n=108), treated at the Renal Clinic, Manaus -AM, 2018

Source: Research data.

The total score of the subjective indicator of the impact of the oral conditions on the quality of life (OHIP-14) showed a median of 5.5, with a minimum and maximum values of 0 and 46, respectively, higher than that found in a study conducted in Germany[7], whose mean total score was 2.46 in patients with chronic renal failure submitted to hemodialysis. Another study also demonstrated a poor impact on the quality of life related to oral health in 68% of patients in the transplant queue in the municipality of Bauru, SP[25]. However, a study carried out in Iran demonstrated poor QVRSB in the 512 chronic renal patients undergoing hemodialysis when compared to healthy individuals [10]. Perhaps the possible intercultural difference among the studied populations explain the variations in the averages of the total OHIP-14 scores. The OHIP-14 values do not seem to reflect the oral health of patients with chronic renal disease and are able to explain the insufficient follow-up and oral health care observed in these patients [25]. Lower quality of life negatively influences the emotional aspect, which in turn reduces the perception of oral health. This fact is extremely worrying because patients' perceptions of the social and behavioral consequences of their oral condition and treatment play an important role in the way they care for oral health. This situation is perfectly understandable, because when the patient is faced with the rigorous and debilitating treatment of hemodialysis, for years, without expectation for transplantation, his or her quality of life becomes very compromised or even nonexistent, since the individual loses control of his or her social and professional life with the consequent mental alteration, the depression. Add to this the influence of patients' age, financial situation, brutal interference in their way of life, pain, discomfort and progressive deterioration of their increasingly evident health[17]. Therefore, the motivation for the practice of meticulous oral hygiene and the maintenance of a regular preventive program in patients with chronic renal disease is of fundamental importance, which should be presented insistently by both the nephrologist and the dentist [9,11,14-16] .

In our study, there was no significant correlation between the OHIP-14 scores and the quantitative variables, nor with the categorical variables, although there was a negative correlation among the instrument scores, income and schooling, as well as a positive correlation among the said scores, age and dialysis time, differing from that found by another author[25] who observed a significant inverse relationship between OHIP-14 and dialysis time. Greater awareness of the importance of oral health care and access to health services can explain a better quality of life in patients with higher education and income[10].

The lack of correlation between OHIP-14 and the variables of this study may be explained by the low median value of the total score found. However, when analyzing the percentage of individuals who have marked scores 0 (never), 1 (rarely) or 2 (sometimes) in the questions of the instrument, it was observed that this score (28.70%) was lower than that of those who attributed scores 3 (repeatedly) or 4 (always), indicating that 71.3% of the investigated participants had some impact on their QRSB. The OHIP-14 domains that obtained the highest average scores, denoting an impact on QRSB, were "psychological disability", "psychological discomfort" and "functional limitation". The negative impact on the quality of life of these individuals can be attributed to oral alterations resulting from nephropathy and the dialysis treatment instituted, which may have consequently influenced the worsening of the dimension of psychological discomfort in relation to the other dimensions evaluated by OHIP-14[10,25] .

One of the limitations of our study was the fact that the study occurred in only one reference center of Nephrology of the Amazon, of a private nature, although it maintains agreement with the Single Health System, in addition to the fact that it is a cross-sectional study, which makes it impossible to establish the cause-effect relationship.

4 Conclusion

Impact on the quality of life related to the general and oral health of patients on dialysis therapy was thus observed, influenced by socio-demographic, economic and clinical variables. Oral health care ends up being neglected in the face of systemic symptoms resulting from the disease and its treatment. Thus, the knowledge of the health professionals involved about the disease and its consequences, as well as the insertion of the surgeon-Dentist in the dialytic therapy team, so that the same can act in the pre, trans and post-dialysis period, promoting educational-preventive and curative dental treatment.

Due to the scarcity of scientific studies on the subject, mainly related to oral health, new studies should be carried out, involving not only the subjective measurement of quality of life, but also the evaluation of objective data such as dental caries and periodontal disease, salivary flow, among others, in order to improve the results found.

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