

Quality of life of patients bearing chronic kidney disease undergoing hemodialysis

Qualidade de vida de pessoas com doença renal crônica em hemodiálise

Calidad de vida de personas con enfermedad renal crónica en hemodiálisis

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ABSTRACT

Objective: This study's purpose has been to assess the quality of life of patients bearing chronic kidney disease undergoing hemodialysis. **Methods:** This descriptive study was carried out in a municipality of the Northwest region of Paraná State, Brazil. Data were collected in the second half of 2016 by using an instrument adapted and validated to evaluate these patients' life quality. The Kruskal-Wallis test was used for data analysis. **Result:** The generic dimensions that obtained the best evaluation were "emotional well-being" and "physical working capacity", while "social function" obtained the worst. Regarding the dimension of professional role, "satisfaction with care" and "sleep" obtained the best evaluations, while "cognitive function", "sexual function", "support and quality of social interaction" obtained the worst. **Conclusion:** This study highlights the importance of multiprofessional interventions in improving care and the social interactions and cognitive and sexual functions of patients undergoing hemodialysis. **Descriptors:** Quality of life, chronic kidney disease, kidney dialysis, hemodialysis, nursing.

RESUMO

Objetivo: avaliar a qualidade de vida de pessoas adultas com doença renal crônica em tratamento hemodialítico. **Método:** estudo descritivo, realizado em um município localizado no noroeste do estado do Paraná, Brasil. Os dados foram coletados no segundo semestre de 2016, utilizando instrumento adaptado e validado para avaliação da qualidade de vida de pessoas com deficiência renal crônica. Foi utilizado o teste de kruskal-wallis para tratamento das variáveis. **Resultado:** as dimensões genéricas com melhor avaliação foi o bem-estar emocional e funcionamento físico. A dimensão função social foi a pior avaliada. Nas dimensões específicas o papel profissional, satisfação com a assistência e o sono, obtiveram as melhores avaliações. A função cognitiva, função sexual, suporte e qualidade da interação social, foram as piores avaliadas. **Conclusão:** o estudo sinaliza a importância de intervenções multiprofissionais para melhora do suporte e qualidade da interação social, função cognitiva e sexual de pessoas em tratamento hemodialítico.

Descritores: Qualidade de vida; Insuficiência renal crônica; Diálise renal; Hemodiálise; Enfermagem.

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RESUMEN

Objetivo: evaluar la calidad de vida de personas adultas con enfermedad renal crónica en tratamiento hemodialítico. **Método:** estudio descriptivo, realizado en un municipio ubicado en el noroeste del estado de Paraná, Brasil. Los datos fueron recolectados en el segundo semestre de 2016, utilizando un instrumento adaptado y validado para evaluar la calidad de vida de las personas con deficiencia renal crónica. Se utilizó la prueba de kruskal-wallis para el tratamiento de las variables. **Resultado:** las dimensiones genéricas con mejor evaluación fueron el bienestar emocional y el funcionamiento físico. La dimensión de la función social fue la peor evaluada. En las dimensiones específicas el papel profesional, satisfacción con la asistencia y el sueño, obtuvieron las mejores evaluaciones. La función cognitiva, función sexual, soporte y calidad de la interacción social, fueron las peores evaluadas. **Conclusión:** el estudio señala la importancia de intervenciones multiprofesionales para mejorar el soporte y calidad de la interacción social, función cognitiva y sexual de las personas en tratamiento hemodialítico.

Descriptores: Calidad de vida; Insuficiencia renal crónica; Diálisis renal; Hemodiálisis; Enfermería.

INTRODUCTION

Chronic Non-Communicable Diseases (CNCDs) are characterized as a multifactorial group of morbidities and are currently considered an important public health problem, being responsible for increasing mortality rates in Brazil and worldwide due to its complications.¹

CNCDs are closely related to the people's living habits as well as the ageing process. The World Health Organization (WHO) has identified four key factors that increase the chances of contracting chronic diseases: active smoking, sedentary life, inadequate nutrition, and alcohol abuse.² In this context, the WHO has outlined strategies to reduce mortality by CNCDs until 2022.³

Among the CNCDs, Chronic Kidney Disease (CKD) is considered one of the main targets for the *Plano de Enfrentamento das Doenças Crônicas Não Transmissíveis* [Plan for Confronting CNCDs] in Brazil, due to its increasing occurrence over the years. According to the Brazilian Society of Nephrology (BSN), in 2014, there were approximately 112,004 people in undergoing dialysis, with a significant increase of 18% since 2010.⁴

CKD is defined as the slowly, silent, and irreversible process of losing the kidneys' function, in which the they are unable to perform normal functions, such as maintaining hydroelectrolytic and metabolic balance, leading to complications in other organs. Some pathologies are strongly associated with CKD, such as diabetes mellitus, arterial hypertension, various renal alterations, autoimmune disorders, and glomerulonephritis.⁵

CKD patients need to undergo blood-filtering therapies, more commonly known as Renal Replacement Therapies (RRT), until a renal transplant be possible.⁵ Patients undergoing RRT live with limitations and restrictions imposed by the frequency of the hemodialysis sessions—mostly three times a week with an average of five hours each. These factors make CKD patients experience an exhausting life: changes

in eating habits, social life, impaired appearance, physical limitations, pain, emotional changes, among others.⁶⁻⁷

The quality of life (QOL) of CKD patients has been highlighted in studies, mainly because the chronic disease is an obstacle for the normal progression of life with quality.⁸ The context in which these people live, mainly the treatment and the time spent in each hemodialysis session, worsen the quality of their psychological, physical, emotional, nutritional, social and mental aspects, consequently contradicting the patients' view of a good quality of life, especially of the younger ones.⁹

Hence, QOL evaluation favors the understanding of the social, economic, psychosocial, and clinical factors that interfere with CKD treatment, allowing the measurement of the chronic morbidity impact on the patient's life.¹⁰

Given this aforesaid context, it is important to know the sociodemographic and clinical characteristics of patients on dialysis in addition to the treatment that they are receiving and its complications. Supporting epidemiological data on the distribution of these risk factors is also essential in order to improve the care for these patients.¹¹

QOL analysis and identifying the dimensions and how the treatment affects them are relevant because they promotes health care actions, which in turn promotes the patients' QOL and the treatment they are receiving.¹¹ Thus, study's goal was to evaluate QOL of CKD adult patients undergoing hemodialysis.

METHODS

This is a cross-sectional, descriptive study conducted in health care unit in a municipality located in the Northwestern region of *Paraná* State, Brazil. This unit cared for 177 CKD patients undergoing hemodialysis within the age group from 2 to 86 years old.

Thirty adult patients were selected for this study. The inclusion criteria were: patients within the age group from 20 to 49 years old and undergoing hemodialysis for at least three months. Data collection were carried out in the hemodialysis room from September to October 2016 by means of interviews. Three questionnaires were used for covering socioeconomic aspects, clinical aspects, and QOL.

The questionnaire about the sociodemographic aspects contained variables related to age, sex, profession, marital status, education, religion, birthplace, comorbidities, treatment time, disease complications and medications in use. The socioeconomic part of the questionnaire evaluated the economic class, which were grouped in B, C, and DE.¹²

In order to collect the variables related QOL, an adapted version of the Kidney Disease and Quality of Life Short Form (KDQOL-SF™) questionnaire was used, translated¹³ and validated in Brazil.¹⁴ The KDQOL-SF™ assesses kidney diseases and is applied to patients undergoing dialysis.

The KDQOL-SF™ consists of 80 items, divided into 19 scales, being the Short-Form Health Survey (SF-36) composed of 36 items, plus 43 specifics for kidney disease. The 36 items are divided into eight dimensions: physical working capacity (10), limitations caused by physical

health problems (4), limitations caused by emotional health problems (3), social working capacity (2), mental health (5), pain (2), vitality (energy/fatigue) (4), perceptions of general health (5) and current health status compared with a year ago (1), which is computed separately.¹⁴

The specific part about kidney disease is divided into 11 dimensions: symptoms/problems (12), effects of kidney disease on daily life (8), overload imposed by kidney disease (4), working conditions (2), cognitive function (3), quality of social interactions (3), sexual function (2), and sleep (4); it also includes three additional scales: social support (2), stimulus of the dialysis team (2), and patient satisfaction (1). The instrument score ranges from 0 to 100, being 0 the worst classification and the highest scores always reflecting a better QOF.¹⁴

Data was inserted into an Excel spreadsheet and statistical analysis was performed by the IBM SPSS software, version 20.0. Descriptive analysis of the sociodemographic data and analysis of variance were performed by using the Kruskal Wallis test after verifying the data normality by using the Kolmogorov Smirnov test.

For the QOL classification, the manual recommendations for using DQOL-SF were followed.¹⁵ The higher the scores, the better the QOL for that dimension. Therefore, the dimensions scores were distributed in bands as follows: 1st range (scores from 0% to 20% - low QOL); 2nd range (scores from 20.01% to 40% - low QOL); 3rd range (scores from 40.01% to 60% - low QOL); 4th range (scores from 60.01% to 80% - good QOL) and 5th range (scores from 80.01% to 100% - good QOL).¹⁶

This study was developed in accordance with the guidelines of the Resolution No. 466/12 from the National Health Council/Health Ministry. Furthermore, this study was approved by the Research Ethics Committee under the *Certificado de Apresentação para Apreciação Ética (CAAE)* [Certificate of Presentation for Ethical Appraisal] No. 57613716.1.0000.0104). All participants signed the Free and Informed Consent Term.

RESULTS

The study was carried out with 30 adult patients with CKD, most them being male (60%), age group from 40 to 49 years old (46.6%), single/divorced (56.7%), retired or pensioner (63, 3%), and belonging to the C economy class (66.7%) (Table 1).

Table 1 - Sociodemographic profile of adults undergoing hemodialysis.

	n	%
Age group		
20-29 years	8	26.7
30-39 years	8	26.7
40-49 years	14	46.6
Sex		
Male	18	60.0
Female	12	40.0

	n	%
Marital status		
Married	13	46.3
Single/Divorced	17	56.7
Occupation		
Employed	9	30.0
Unemployed	2	6.7
Retired/Pensioner	19	63.3
Economic class		
B	7	23.3
C	20	66.7
DE	3	10.0
Morbidity*		
Hypertension	27	90.0
Diabetes Mellitus I	6	20.0
Diabetes Mellitus II	5	16.7
Lupus	1	3.3
Family with CKD members	1	3.3
Complications *		
Anemia	15	50.0
Arterial hypertension	9	30.0
Hyperphosphatemia	5	16.7
Other	3	9.9

*Variables possibly having more than one response.
Source: research data.

Most of the interviewees had hypertension (90%) as comorbidity, followed by diabetes mellitus type I (20%). The most predominant complications attributed to CKD were anemia (50%), arterial hypertension (30%), and hyperphosphatemia (16.7%).

As can be seen in Table 2, most of the interviewees reported that their health condition was better or slightly better (26.7%) compared to a year ago, and 70% said that their health condition is the best possible currently, even undergoing hemodialysis.

Table 2 - Evaluation of general health condition of adult patients undergoing hemodialysis.

	n	%
How would you rate your overall health now compared to last year?		
Much better now than it was a year ago	8	26.7
A little better now than a year ago	8	26.7
About the same as a year ago	5	16.7
A little worse now than a year ago	4	13.2
Much worse now than a year ago	5	16.7
How would you rate your health?		
The worst possible (0 - 4)	2	6.7
Middle term between worse and better (5)	7	23.3
The best possible (6 - 10)	21	70.0

Source: research data.

Table 3 shows the classification of the QOL dimensions. "Emotional well-being" (71.6 ± 25.2) was the best general dimension evaluated, followed by physical working capacity (76.5 ± 21.4). The "social function" dimension (28.6 ± 17.1) obtained the worst evaluation.

Concerning the specific dimensions, “professional role” (79.1 ± 14.8), “patient satisfaction” (66.6 ± 15.3) and “sleep” (62.7 ± 13.8) were the best assessed. “Cognitive function” (26.1 ± 15.3), followed by “sexual function” (28.6 ± 17.1), “social support” (31.6 ± 19) and “quality of social interaction” (33.4 ± 17.5) were the worst evaluated.

Table 3 - Evaluation of the specific and generic QOL dimensions of adult patients undergoing hemodialysis.

	Average	SD	Range	Classification
Generic Dimensions				
Physical function	66.5	22.8	4 th Range	Good QOL
General health	61.3	14.4	4 th Range	Good QOL
Energy/fatigue	52.0	20.2	3 rd Range	Low QOL
Physical working capacity	76.5	21.4	4 th Range	Good QOL
Emotional well-being	71.6	25.2	4 th Range	Good QOL
Ache	42.3	22.6	3 rd Range	Low QOL
Social role	28.6	17.1	2 nd Range	Low QOL
Emotional function	59.5	10.6	3 rd Range	Low QOL
Specific dimensions				
Cognitive function	26.1	15.3	2 nd Range	Low QOL
Sleep	62.7	13.8	4 th Range	Good QOL
CKD side-effects	42.5	13.4	3 rd Range	Low QOL
CKD overload	57.0	14.8	3 rd Range	Low QOL
Sexual function	28.6	17.1	2 nd Range	Low QOL
Quality of social interaction	33.4	17.5	2 nd Range	Low QOL
Symptoms/problems	39.3	14.7	2 nd Range	Low QOL
Working condition	79.1	14.8	4 th Range	Good QOL
Patient's satisfaction	66.6	15.3	4 th Range	Good QOL
Care from the nursing team	46.2	6.2	3 rd Range	Low QOL
Social Support	31.6	19.0	2 nd Range	Low QOL

1st range (0% to 20% scores), 2nd range (scores from 20.01% to 40%), 3rd range (scores from 40.01% to 60%), 4th range (scores from 60.01% to 80%), 5th range (scores from 80.01% to 100%), QOL: quality of life. Source: research data.

DISCUSSION

Non-communicable chronic diseases (NCDs) are now considered one of the major public health problems and are responsible for many deaths. Age is a factor that must be considered regarding NCDs. The elderly are generally the most affected population, but there is evidence that the number of young people with chronic disease has increased. Therefore, CKD should not only be a concern for the elderly, but also for the young.

There are several risk factors that may lead the young to develop CKD, such as smoking, sedentary life, unhealthy food intake, excess salt intake, sugar intake, and alcohol consumption.¹ CKD affect the patients' everyday life, leading them to change their habits and search for better living conditions.¹⁷

According to a study that evaluated the QOL of adult patients with CKD, most of them were males, which is in a good agreement with other studies.^{6,18}

Regarding the participants' occupation, most them were retired or pensioner due to the limitations imposed by the disease and its treatment. Also, they had to undergo daily dialytic therapy or three or four times per week, causing difficulties in their working.¹⁸ This may be related to the participants' socioeconomic status since most of them were from the class C, corroborating with results of another study carried out with patients with similar clinical characteristics,¹⁹ as well as the difficulties of accessing health care and lack of control of primary diseases.¹⁷

The most predominant comorbidities among the patients were arterial hypertension and diabetes mellitus, one of the most important factors for the CKD growth,^{4,17} and this is due to the renal tubule damage caused by CKD. Hypertension is considered as both cause and consequence of CKD and mainly compromises the kidneys' vascular structures.²⁰

The malignant and accelerated form of CKD can cause severe microvascular kidney disease, characterized by malignant nephrosclerosis, in which the renal arteriole wall's muscular layers thicken, which reduces the flow and causes renal ischemia. However, microvascular kidney disease may progress more slowly in patients with chronic hypertension, characterizing a hyaline arteriosclerosis. Progressive sclerosis of the glomeruli causes slow and continuous loss of renal filtration since the hyperflux and intraglomerular pressure promote glomerular sclerosis.¹⁷

Diabetes mellitus is another comorbidity that is strongly associated with CKD and its pathogenesis is not yet fully understood. Nevertheless, is known that the duration time of diabetes mellitus and non-adherence to treatment are risk factors for KCD.¹⁷

Most of the participants reported having anemia, hypertension, and hyperphosphatemia. Anemia, presented in half of the patients, is one of the most frequent CKD complications. Its main causes are the deficiency of the production of the hormone erythropoietin by renal peritubular fibroblasts and iron deficiency.²¹

The renal system is responsible for filtrating metabolic products and excretes excess liquids, maintaining homeostasis; the levels of chemical elements, such as potassium, sodium, phosphorus, and calcium; and maintains the endocrine and regulatory functions. Hyperphosphatemia, another complication cited by the participants, is an excess of non-excreted phosphorus in the human body, which can cause hormonal, bone, cardiac and intestinal disorders.²² Other common complications presented by the patients are hypertension, edema, muscle spasms, reduction of urine output, nausea, among others.¹⁹

In the context of the patients' self-evaluation, it is possible to observe that despite having CKD, difficulties, and undergoing hemodialysis, when comparing their current health condition with that of a year ago, most interviewees reported being much better or a little better than a year ago. And regarding the overall health evaluation, 70% of the patients reported having the best health condition

possible. This can be observed in another research carried out in *Goiânia* city, *Goiás* State, Brazil.¹⁹

Regarding the dimensions of the Kidney Disease and Quality of Life Short Form (KDQOL-SF™) questionnaire, “emotional well-being” was the best evaluated dimension by the participants, which is considered the individual’s autonomy according to another study.⁹ On the other hand, “physical function”, which evaluates the degree of activity that the patient can perform, such as climbing stairs or walking, showed a good classification of QOL, even though it limits the activities of daily life according to the literature. This reflects the interviewees’ age since the “physical working capacity” dimension evaluates the health conditions associated with the limitations of physical activities.¹⁸⁻¹⁹

Another dimension that showed a good QOL and confirms its relationship with age, which the greater the age, the more impaired the person will be regarding the accomplishment of physical activities, being demonstrated in this study because it was carried out with adult patients, was well evaluated.¹⁸⁻¹⁹

“Cognitive function” was the worst dimension evaluated, since most of the patients reported being confused regarding CKD and not so much regarding concentration and difficulty of thinking.¹⁹ “Sexual function” also presented low QOL, being linked to the many physical and psychological changes that are caused by the disease, such as hormonal alteration, blood dysfunctions that lead to a decrease in energy level and constant fatigue and even social interaction and decreased interest of the individual.²³

As for “social support” and “quality of social interaction”, both were evaluated as bad, mainly due to frustrations, the impact and wear and tear caused by treatment time, lack of support networks, comorbidities that cause the state to worsen physical, stress, low self-esteem and lack of motivation to perform leisure activities.⁹ The patient’s satisfaction with the clinic and care received a good classification since most of the patients reported being well attended.

Although it did not interfere with the results of this investigation, the sample obtained was small, allowing inference only for this population, but it enabled us to evaluate the influence of QOL dimensions regarding CKD and hemodialysis treatment. It is stressed that the younger population, the focus of this study, reduced their participation in hemodialysis clinics, which strengthen the importance of this study for the knowledge of health professionals who assist in the population with these clinical characteristics.

The results of this study can contribute to the planning of nursing actions, favoring the reassessment of health care practices and management of health care actions for CKD people undergoing hemodialysis attention to the population in a more holistic way and identifying needs, with resolution and improvement of the QOL.

Furthermore, it is suggested that new research can be carried out, especially regarding the recent changes in care actions for people with chronic illness in Brazil and that

may possibly involve the development of risk factors for the treatment of these people, mainly considering their age and lifestyles. In this respect, it is also suggested that new studies be carried out, mainly qualitative methodologies, to complement the results of this study.

CONCLUSIONS

Considering the demographic data, most of the participants were male, within the age group from 40 and 49 years old, single/divorced, retired or pensioner, and belonged to class C. The most common comorbidities were first hypertension, followed by Diabetes mellitus types I and II and the most predominant complications related to CKD were anemia, hypertension and hyperphosphatemia.

The Kidney Disease and Quality of Life Short Form (KDQOL-SF™) questionnaire presented as an important tool to analyze the most and least affected dimensions in the study population. The best generic dimension evaluated was “emotional well-being”. It is concluded that clinical and demographic conditions can influence the QOL of patients during treatment. It is hoped that this study will help health professionals to identify the most prevalent problems in these populations, allowing the planning of actions that improve the QOL of these patients.

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