

Quality of life related to the health of chronic renal failure patients on dialysis

Qualidade de vida relacionada à saúde de pacientes renais crônicos em diálise

Jéssica Maria Lopes¹

Raiana Lídice Mor Fukushima¹

Keika Inouye¹

Sofia Cristina Iost Pavarini¹

Fabiana de Souza Orlandi¹

Keywords

Renal dialysis; Nursing assessment; Chronic renal failure; Quality of life

Descritores

Diálise renal; Avaliação em enfermagem; Qualidade de vida; Insuficiência renal crônica

Submitted

December 19, 2013

Accepted

May 5, 2014

Corresponding author

Fabiana de Souza Orlandi
Washington Luis Highway, km 235,
São Carlos, SP, Brazil.
Zip Code: 13565-905
fabi_ferreira@yahoo.com.br

DOI

<http://dx.doi.org/10.1590/1982-0194201400039>

Abstract

Objective: To assess the quality of life related to the health of chronic renal failure patients on dialysis.

Methods: Cross-sectional study with 101 chronic renal failure patients who had been under dialysis treatment for three months. The instruments used for research were: Instrument of Characterization of Subjects and the Kidney Disease Quality of Life-Short Form. A descriptive analysis was performed and the standard deviation was found; Cronbach's alpha was used to assess the reliability of alpha values equal to or greater than 0.60.

Results: The quality of life was proven to be compromised in the following aspects: "Physical Function (30.20), Work Situation (37.13) and Physical Functioning". The best perceptions were: "Cognitive Function (89.31), Social Support (88.61) and Sexual Function (84.58)".

Conclusion: Quality of life related to the health of chronic renal failure patients on dialysis was more compromised in physical aspects.

Resumo

Objetivo: Avaliar a qualidade de vida relacionada a saúde de pacientes renais crônicos em diálise.

Métodos: Estudo transversal com a inclusão de 101 pacientes renais crônicos com três meses de tratamento dialítico. Os instrumentos de pesquisa foram: Instrumento de Caracterização dos Sujeitos e do *Kidney Disease Quality of Life- Short Form*. Foi realizada análise descritiva e desvio padrão; coeficiente Alfa de Cronbach para verificar a confiabilidade para valores de alfa iguais ou superiores a 0,60.

Resultados: A qualidade de vida mostrou-se comprometida nos domínios: "Função Física (30,20), Situação de Trabalho (37,13) e Funcionamento Físico". As melhores percepções ocorreram: "Função Cognitiva (89,31), Suporte Social (88,61) e Função Sexual (84,58)".

Conclusão: A qualidade de vida relacionada a saúde de pacientes renais crônicos em diálise apresentou maior comprometimento nos domínios físicos.

¹Universidade Federal de São Carlos, São Carlos, SP, Brasil.

Conflicts of interest: there are no conflicts of interest to declare.

Introduction

Chronic renal failure is considered to be a public health issue, and it consists of the slow, gradual and irreversible loss of renal function, resulting in failure of the kidneys to perform their basic functions.^(1,2)

The number of patients undergoing dialysis treatment has been growing over the years, from 42,695 cases in 2000 to 91,314 in 2011, hemodialysis being the most common form of treatment.⁽³⁾

During the treatment stage, chronic renal failure patients may have their quality of life altered, as there is anxiety prior to and during treatment, loss of autonomy, difficulty of dealing with an irreversible and incurable disease, difficulty of going to a hospital daily or weekly, decrease in vitality levels, limitations in performing everyday activities, and frequent lack of support from relatives and friends, all of which damage the patient's physical and mental health.⁽⁴⁾

As renal failure develops, patients can show symptoms that affect their daily life. In more advanced stages, the impact on the functional state and quality of life becomes very clear. Renal replacement therapies, such as hemodialysis, partially rectify the symptoms experienced by patients and result in additional changes to their lifestyle, which can affect quality of life.⁽⁵⁾

The objective of this study is to assess the quality of life related to the health of chronic renal failure patients on dialysis.

Methods

This is a cross-sectional study carried out in a specialized public health service located in the State of São Paulo, in the southeastern area of Brazil.

The sample was composed of 101 chronic renal failure patients on hemodialysis, the inclusion criteria being: 1) Aged 18 or over; 2) Diagnosed with chronic renal failure diagnosis;

3) Being in hemodialysis treatment for at least 3 months.

The research instruments were the Instrument of Characterization of Subjects and the Kidney Disease Quality of Life-Short Form (KDQOL-SF). The Instrument of Characterization of Subjects is composed of questions related to identification, sociodemographic data and clinical conditions. The KDQOL-SF was developed by the Working Group in 1997 (version 1.3) and validated in Brazil in 2003. The KDQOL-SF is applicable to patients under hemodialysis, aiming to measure the QVRS, in order to meet two essential properties: the assessment of the aspects that are important to the health condition and the integration of the information that came from specific and general domains, allowing for a thorough analysis. The score procedure is done through the KDQOL-SF measurement, and therefore is analyzed separately. Thus, there is not a unique value that results from the general assessment of quality of life related to health, but rather average scores for each aspect. This analysis enables identification of the actual problems related to patient health and which have an impact on quality of life.^(6,7)

The final score of each aspect varies within a range of 0 to 100, where the higher score reflects better quality of life.⁽⁶⁾

Data from the KDQOL-SF were transferred to a review program produced and made available by the Working Group. The program also has Microsoft Excel® sheets, which automatically recode all of the data of the items with reverse scores and calculates the scores by item of each aspect.

Data collected were transferred to a Microsoft Excel® sheet and the analyses were performed with the help of a statistics program: a) descriptive: frequency tables, with position figures (mean, median, minimum and maximum) and standard deviation; Cronbach's alpha: evaluates the internal consistency of the KDQOL-SF. Reliability is considered good for alpha values equal to or greater than 0.60.⁽⁷⁾

The development of the study complied with national and international rules of ethics in human research.

Results

The sociodemographic features found in this study are described in table 1. Out of 101 subjects participating in the study, 69 were male and 32 were female. Their age varied from 24 to 88 years; the age group with the greatest percentage of participants was 50 to 59, at 27%. According to the division by age group, 57 were adults and 44 were elderly. The prevalent ethnic group was white (n=50). Regarding marital status, the majority was married (n=56). As for schooling, most subjects had completed primary school (n=28).

Table 1 shows that most subjects had wages ranging from 1.1 to 2 times minimum wage (30.8%) and were Catholics. We see that the most prevalent basic disease was systemic hypertension (59.4%). Regarding the use of medicine, 100% of individuals made use of it.

In table 2, it is observed that the average age of the studied subjects was 56.4 (± 14.44) years. As for the clinical variables, the average hemodialysis treatment period was 43.15 (± 43.24) months. Concerning the laboratory tests, the average hematocrit and albumin levels were 32.78 ($\pm 15.03\%$) and 3.78 ($\pm 0.47\text{g/dl}$) respectively.

In table 3, the average scores of quality of life related to health are described. It was observed that the aspects that obtained lower scores were: "Physical Function (30.20), Work Situation (37.13) and Physical Functioning" (46.68). On the other hand, the aspects that obtained higher scores were: "Cognitive Function" (89.31), "Social Support" (88.61) and "Sexual Function" (84.58).

Regarding the internal consistency of KD-QOL-SF, most aspects obtained satisfactory Cronbach's alpha scores ($\geq 0,60$).

Table 1. Sociodemographic and Clinical features

Variables	n(%)
Gender	
Female	32 (32)
Male	69(68)
Age group (yrs)	
18-29	4(4)
30-39	11(11)
40-49	14(14)
50-59	28(27)
60-69	25(25)
70-79	12(12)
80 or over	7(7)
Color of skin	
White	50(49.5)
Brown	31(30.7)
Black	20(19.8)
Marital status	
Married	56(55.5)
Divorced	16(15.8)
Widowed	13(12.8)
Single	12(12)
Other	4(3.9)
Schooling	
None	7(6.9)
Primary education incomplete	21(20.8)
Primary education complete	28(27.7)
Secondary education incomplete	20(19.8)
Secondary education complete	16(16)
Higher education complete	7(6.9)
Higher education incomplete	2(1.9)
Income*	
Equal to or lower than 1MW**	25(26.6)
From 1.1 to 2 MW	29(30.8)
From 2.1 to 3 MW	24(25.5)
More than 3 MW	16(17.1)
Religion	
Catholic	68(67)
Evangelical	21(22)
Spiritist	3(3)
Jehovah's Witness	2(2)
None	7(6)
Basic disease	
Hypertension	60(59.4)
Type 2 Diabetes mellitus	27(26.7)
Glomerular nephritis	4(4)
Genetic/hereditary	3(3)
Other	7(6.9)
Use of medicine	
Yes	101(100)
No	0(0)
Total	101

*Seven subjects were unable to provide their incomes; **MW=Minimum wage

Table 2. Length of hemodialysis and laboratory exam results

Variable	n	Mean (Sd)**	Median	Minimum	Maximum
Age (years)	101	56.40(14.44)	58.00	24.00	88.00
Time of Hd* (months)	101	43.15(43.24)	36.00	3.00	240.00
Hematocrit (%)	101	32.78(5.03)	33.30	19.20	47.40
Albumin (g/dl)	101	3.78(0.47)	3.80	2.10	6.90

*Hd = Hemodialysis; **Sd = Standard deviation

Table 3. Quality of life related to health

Aspects	Mean (\pm Sd)**	Median	Variation	Cronbach's alpha
Symptoms/problems	76.09(\pm 13.06)	79.17	31-100	0.72
Effects of renal failure	68.01(\pm 14.83)	68.75	31-100	0.60
Disease burden	51.36(\pm 23.13)	50.00	0-100	0.63
Work situation	37.13(\pm 28.68)	50.00	0-100	0.32
Cognitive function	89.31(\pm 13.57)	93.33	47-100	0.60
Quality of social interaction	82.97(\pm 12.45)	86.67	33-93	0.42
Sexual function	84.58(\pm 20.94)	93.75	25-100	0.79
Sleep	66.73(\pm 17.27)	70.00	20-95	0.70
Social support	88.61(\pm 20.13)	100.00	17-700	0.71
Incentive by the dialysis staff	79.83(\pm 22.77)	75.00	0-100	0.76
Satisfação do paciente	66.83(\pm 20.61)	66.67	0-100	-
Patient's satisfaction	46.68(\pm 31.39)	45.00	10-100	0.60
Physical functioning	30.20(\pm 35.59)	25.00	15-90	0.92
Pain	69.13(\pm 32.43)	80.00	32-88	0.78
General state of health	49.36(\pm 16.70)	45.00	0-100	0.92
Emotional well-being	69.98(\pm 14.08)	72.00	0-100	0.65
Emotional function	74.59(\pm 31.67)	100.00	10-90	0.57
Social function	55.45(\pm 26.01)	62.50	13-54	0.67
Energy/Fatigue	60.50(\pm 18.51)	60.00	25-61	0.74

Discussion

The limitations of the results of this study are associated with the cross-sectional pattern, which does not allow for the establishment of cause and effect relationships.

Patients with chronic renal failure under hemodialysis treatment live with an incurable disease that needs long-term treatment. Besides, the evolution of the disease and its complications lead to limitations and changes in their quality of life and that of their relatives and friends. Out of the 101 studied subjects,

the majority of was male (68%). The Brazilian Society of Nephrology confirmed in the 2011 Census that approximately 57% of chronic renal failure patients were male, whereas 42% were female.⁽³⁾

Observational studies have pointed out the prevalence of the disease in male subjects.⁽⁸⁻¹¹⁾ In other studies, the prevalence was in female subjects.⁽¹²⁻¹⁴⁾ Regarding the age groups, despite the high percentage of elderly people (42%), the most prevalent age group was 50 to 59. This finding was also observed in another study, where the prevalent age group was 40 to 60.⁽¹⁴⁾ As for the color of skin, white was prevalent, similar to other studies.^(8,10) Concerning marital status, it was observed that most subjects were married (55.5%). Similar results were found in several studies.^(8-10,15,16) Regarding religious belief, most individuals declared themselves as Catholics (67.0%). This finding conforms to other studies which reported that the subjects were Catholic in 57% and 85% of cases.^(17,18) As for schooling, it was observed that the prevalence was of subjects who had completed primary school (27.7%), similar to other studies in which 63.2% and 56.4% of individuals had the same education level.^(6,19)

Concerning income, most subjects had up to two times the minimum wage (30.8%). In other studies found in the literature, results were consistent with the present one, as 34% and 46% had a minimum wage or less.^(15,17)

As for clinical features, the prevalence of systemic hypertension was observed (59.4%) as a basic disease, followed by *diabetes mellitus* (26.7%). This finding conforms to the results of another study that observed that their subjects had *diabetes mellitus* and hypertension as a basic renal disease in more than 71% of the total cases.⁽¹⁰⁾

In this study, the average hemodialysis treatment time was approximately 43 months (which corre-

sponds to 3.6 years). Similar results were found in the literature, where the average treatment period was 40 months.⁽¹¹⁾

Regarding albumin, the average score of participants was 3.78 (± 0.47) g/dl. Albumin is the most common marker used to evaluate the nutritional status of hemodialysis patients. The recommended value for albumin is above 3.5 mg/dl, therefore we can consider the results of this study within the normal range.^(3,20)

There are publications that found albumin levels above the average (4.11mg/dl and 4.2g/dl, respectively).^(11,12) Another clinical variable that was analyzed was the laboratory test result of hematocrit, used as an anemia marker, which has a reference value of 33%⁽²¹⁾ It is worth mentioning that many studies indicate that anemia affects the quality of life related to the health of chronic renal failure patients. There is also evidence in the literature that indicates that hemodialysis patients show significant improvement in their survival when normal hematocrit is reached.⁽²²⁾

In our study, the average value of hematocrit obtained was (32.78%), which is close to the minimum expected value. A research study carried out in two Spanish hospitals with 53 patients undergoing peritoneal dialysis found an average value of 33.46%.⁽¹³⁾ As for the drugs, all participants made use of them. Another study found an average of 4.1 drugs per day for each hemodialysis patient.⁽¹⁶⁾

In the assessment of quality of life related to health, high average scores were obtained in the aspects "Cognitive Function" (89.31), "Social Support" (88.61), "Sexual Function" (84.58) and "Quality of Social Interaction" (82.97). The highest average score was for "Cognitive Function" (89.31). Despite having obtained this result, it is worth mentioning that chronic renal failure patients are a group at risk for cognitive decline. In that sense, even with good performance in this aspect, periodic evaluation of cognitive function is necessary, as there are many risk factors for cognitive impairment.⁽²³⁾ The second aspect with the high performance was "Social Support" (88.61). The importance of social support to the individual is considerable, as the participation of family in care is an essential resource

for improving better acceptance of the disease and treatment by patients. Other works also show high average scores of 79.1, 88.2 and 81.1.^(6,13,15) Another aspect that presented high average scores in our study was "Sexual Function" (84.58), and there are other studies with similar results.^(6,15)

However, a decrease in the levels of quality of life was observed due to erectile dysfunction, which is a prevalent condition in chronic renal failure patients. Therefore, the results in this aspect must be analyzed cautiously, as the sample of patients who had sexual intercourse up to three weeks before the test was composed of 30 individuals, which is considered low.⁽²⁴⁾

The lowest average scores of quality of life related to health were: "Physical Function (30.20), Work Situation (37.13) and Physical Functioning" (46.68).

In this context, the results suggest that the set of symptoms of the diseases, along with the patients' everyday life factors, have a negative impact on hemodialysis patients. Worthy of note is that the "Physical Aspect" may be the most affected in the perception of these patients.⁽¹⁵⁾

In our study, the second most affected aspect was "Work Situation." Work is a basic condition for human emancipation and is part of each person's identity; therefore, it becomes one of the most precious values of human beings. As a result of the disease and treatment, patients often need to stop working, and this has an impact on quality of life. To stop working or to reduce the workload is an aspect that is opposed to the lifestyle the individual had before, so it has a negative impact on quality of life.⁽¹⁴⁾

The third aspect with a lower average score was "Physical Functioning," showing that there is a decrease in the ability to perform everyday activities or work. Some studies have suggested the implementation of a program of regular exercise for this group.⁽²⁵⁾

Conclusion

Quality of life related to the health of chronic renal failure patients on dialysis showed a better percep-

tion of the aspects “Cognitive Function,” “Social Support,” “Sexual Function” and “Quality of Social Interaction”; and lower scores in “Physical Function,” “Work Situation,” “Physical Functioning” and “General State of Health”.

Acknowledgments

Research done with the support of the Research Support Foundation of São Paulo (FAPESP, as per its acronym in Portuguese), process number 2012/19453-2.

Collaborations

Lopes JM and Fukushima RLM contributed in the execution of the research, planning, analysis and interpretation of data, writing of the article, and final approval of the published version. Inouye K and Pavarini SCI contributed in the analysis and interpretation of data, writing of the article and final approval of the published version. Orlandi FS participated in the conception of the project, planning, analysis and interpretation of data, writing of the article, critical review of the content and final approval of the published version.

References

- Bastos MG, Kirsztajn, GM. Doença renal crônica: importância do diagnóstico precoce, encaminhamento imediato e abordagem interdisciplinar estruturada para melhora do desfecho em pacientes ainda não submetidos à diálise. *J Bras Nefrol.* 2011;33(1):93-108.
- Frota MA, Machado JC, Martins MC, Vasconcellos VM, Landin, FL. Qualidade de vida da criança com insuficiência renal crônica. *Rev Esc Anna Nery.* 2010;14(3):527-33.
- Sesso RC, Lopes AA, Thomé FS, Lugon JR, Watanabe Y, Santos DR. Diálise Crônica no Brasil - Relatório do Censo Brasileiro de Diálise. *J Bras Nefrol.* 2012;34(3):272-7.
- Terra FS. Avaliação da qualidade de vida do paciente renal crônico submetido à hemodiálise e sua adesão ao tratamento farmacológico de uso diário. *Rev Bras Clin Med.* 2010;8(2):119-24.
- Poppe C, Crombez, G, Hanoulle I, Vogelaers D, Petrovic M. Improving quality of life in patients with chronic kidney disease. *Nephrol Dial Transplant.* 2013;28(1):116-21.
- Silva AS, Coelho DM, Diniz GC. Qualidade de vida dos pacientes com insuficiência renal crônica submetidos à hemodiálise em um hospital público de Betim, Minas Gerais. *Sinopse Múltipla.* 2012; 1(2): 103-13.
- Hair JF, Anderson RE, Tathan RL, Black WC. *Análise multivariada de dados.* 5a ed. Porto Alegre: Bookman; 2007. 593 p.
- Bass A, Ahmed SB, Klarenbach S, Culleton B, Hemmelgarn BR, Manns, B. The impact of nocturnal hemodialysis on sexual function. *BMC Nephrol.* 2012; 13 (67):13-67.
- Biavo BM, Tzanno-Martins C, Araujo ML, Ribeiro MM, Sachs A, Uezima CB, Draibe SA, Rodrigues, CI, Barros EJ. Aspectos nutricionais e epidemiológicos de pacientes com doença renal crônica submetidos a tratamento hemodialítico no Brasil, 2010. *J Bras Nefrol.* 2012;34(3):206-15.
- Bignotto LH, Kallas ME, Djouki RJ, Sassamil MM, Voss GO, Soto CL, Frattini F, Medeiros FS. Achados eletrocardiográficos em pacientes com doença renal crônica em hemodiálise. *J Bras Nefrol.* 2012;34(3):235-42.
- Guerreiro VG, Alvarado OS, Espina MC. Qualidade de vida de pessoas em hemodiálise crônica: relação com variáveis sociodemográficas, médico-clínicas e de laboratório. *Rev Latinoam Enferm.* 2012;20(5):1-9.
- Barberato, SH, Buchares SG, Souza AM, Costantini CO, Constantini CR, Pecoits-Filho. R. Associação entre marcadores de inflamação e aumento do átrio esquerdo em pacientes em hemodiálise. *Arq Bras Cardiol.* 2013;100(2):41-6.
- Varela L, Vázquez MI, Bolanos L, Alonso, R. Predictores psicológicos de La calidad de vida relacionada con La salud em pacientes em tratamiento de diálisis peritoneal. *Rev Nefrol.* 2011;31(1):97-106.
- Grasselli CS, Chaves EC, Simao, TP, Botelho, PB, Silva RR. Avaliação da qualidade de vida dos pacientes submetidos à hemodiálise. *Rev Bras Clin Med.* 2012;10(6):503-7.
- Braga SF, Peixoto, SV, Gomes IC, Acurcio, FA, Andrade EI, Cherchiglia ML. Fatores associados com qualidade de vida relacionada à saúde de idosos em hemodiálise. *Rev Saúde Pública.* 2011;45(6):1127-113.
- Sgnaolin V, Prado AE, Figueiredo L. Adesão ao tratamento farmacológico de pacientes em hemodiálise. *J Bras Nefrol.* 2012;32(2):109-16.
- Medeiros MCWC, Sá MPC. Adesão dos portadores de doença renal crônica ao tratamento conservador. *Rev Rene.* 2011;12(1):65-72.
- Valcanti CC, Chaves EC, Mesquita AC, Nogueira DA, Carvalho EC. Coping religioso/espiritual em pessoas com doença renal crônica em tratamento hemodialítico. *Rev Esc Enferm USP.* 2012;46(4):838-45.
- Grincekov FR, Fernandes N, Chaoubah A, Bastos K, Quereschi AR, Pecoits-Filho R, Divino Filho, JC, Bastos MC. Fatores associados à qualidade de vida de pacientes incidentes em diálise peritoneal no Brasil (BRAZPD). *J Bras Nefrol.* 2011;33(31): 38-44.
- Santos FR, Figueiras MS, Chaobah A, Bastos MG, Paula RB. Efeitos da abordagem interdisciplinar na qualidade de vida e em parâmetros laboratoriais de pacientes com doença renal crônica. *Rev Psiqiatr Clín..* 2008;35(3):87-95.
- Morsch CM, Gonçalves LF, Barros E. Health-related quality of life among hemodialysis patients – relationship with clinical indicators, morbidity and mortality. *J Clin Nurs.* 2006;15(4):498-504.
- Coyne DW. The health-related quality of life was not improved by targeting higher hemoglobin in the Normal Hematocrit Trial. *Kidney Int.* 2012;82(2):235-241.
- Condé SA, Fernandes N, Santos FR, Chaouab A, Mota MM, Bastos MG. Declínio cognitivo, depressão e qualidade de vida em pacientes de diferentes estágios da doença renal crônica. *J Bras Nefrol.* 2010;32(3):242-8.

24. Nora R, Zambone GS, Fácio Junior FN. Avaliação da qualidade de vida e disfunções sexuais em pacientes com insuficiência renal crônica em tratamento dialítico em hospital. Arq Cienc Saúde. 2009;6(2):72-5.
25. Nery RM, Zaninil M. Efeitos de um programa de 12 semanas de exercícios físicos sobre a capacidade funcional e a qualidade de vida de pacientes com doença renal crônica em hemodiálise. J Bras Nefrol. 2009;31(2):151-3.