

# SOCIO-DEMOGRAPHIC AND CLINICAL PROFILE OF OLDER ADULTS RECEIVING HEMODIALYSIS

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**ABSTRACT:** This descriptive, transversal research aimed to characterize the elderly patients receiving hemodialysis therapy, in relation to socio-demographic and clinical aspects, in two nephrology centers in the city of Natal in the Northeast of Brazil, in January – March 2014. A total of 81 patients aged 60 years old or over participated in the study. The study was approved by the Ethics Committee. Through a structured questionnaire, it was identified that the patients' mean age was 70.2 years old ( $\pm 7.4$ ), 60.5% were married and 81.5% had either completed or not junior high school. The mean time in dialysis was 3.5 years ( $\pm 2.2$ ), 48.1% were hypertensives, 11.1% were diabetics, and 34.6% presented association of the two clinical comorbidities. The development of chronic kidney disease and dependence on hemodialysis treatment in elderly patients represent challenges to health managers, professionals and family members.

**DESCRIPTORS:** Chronic renal failure; Renal dialysis; Nursing.

## PERFIL SOCIODEMOGRÁFICO E CLÍNICO DE IDOSOS SUBMETIDOS À HEMODIÁLISE

**RESUMO:** Pesquisa descritiva, transversal que visou caracterizar os pacientes idosos submetidos à terapia hemodialítica, quanto aos aspectos sociodemográficos e clínicos, em dois centros de nefrologia da cidade de Natal, nordeste do Brasil, no período de janeiro a março de 2014. Participaram do estudo 81 pacientes com idade igual ou superior a 60 anos. O projeto obteve aprovação de Comitê de Ética. Por meio de formulário estruturado identificou-se que a média de idade dos pacientes foi de 70,2 anos ( $\pm 7,4$ ), 60,5% eram casados e 81,5% com ensino fundamental completo ou incompleto. A média de tempo em diálise foi de 3,5 anos ( $\pm 2,2$ ), 48,1% eram hipertensos, 11,1% diabéticos e 34,6% apresentavam associação das duas comorbidades clínicas. O desenvolvimento de doença renal crônica e a dependência de tratamento hemodialítico em pacientes idosos representam desafios aos gestores de saúde, profissionais e familiares.

**DESCRIPTORES:** Insuficiência renal crônica; Diálise renal; Enfermagem.

## PERFIL SOCIODEMOGRÁFICO Y CLÍNICO DE ANCIANOS SOMETIDOS A HEMODIÁLISIS

**RESUMEN:** Investigación descriptiva, transversal que tuvo como objetivo caracterizar los pacientes ancianos sometidos a la terapia hemodialítica, cuanto a los aspectos sociodemográficos y clínicos, en dos centros de nefrología de la ciudad de Natal, nordeste de Brasil, en periodo de enero a marzo de 2014. Participaron del estudio 81 pacientes con edad igual o superior a 60 años. El proyecto fue aprobado por el Comité de Ética. Por medio de formulario estructurado, se identificó que la media de edad de los pacientes fue de 70,2 años ( $\pm 7,4$ ), 60,5% eran casados y 81,5% tenían enseñanza básica completa o incompleta. La media de tiempo en diálisis fue de 3,5 años ( $\pm 2,2$ ), 48,1% eran hipertensos, 11,1% diabéticos y 34,6% presentaban asociación de los dos comorbilidades clínicas. El desarrollo de enfermedad renal crónica y la dependencia de tratamiento hemodialítico en pacientes ancianos representan desafíos a los gestores de salud, profesionales y familiares.

**DESCRIPTORES:** Insuficiencia renal crónica; Diálisis renal; Enfermería.

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## INTRODUCTION

Developing countries are increasingly affected by aging, and currently, approximately 60% of the older adults – defined as those aged 60 years old or above – live in these countries. The Brazilian calculation for 2025 is that 75% of the population will fall within this age range<sup>(1)</sup>.

In Brazil, the Statute of the Elderly was instituted on October 1st, 2003 and came into law in January 2004. According to Law N. 10.741, Article 1 is specifically to regulate the rights assured to people aged 60 years old or over in Brazil<sup>(2)</sup>.

Aging is unique to each human being, with the older adult possibly adopting different attitudes towards living in the light of this process. It is known that aging is part of life and that it is in this stage that, as a result of the high chronological age, changes of a biopsychosocial nature occur, which affect the individual's relationship with the environment<sup>(3)</sup>.

On the one hand, the aging of the population represents a success in public health, which is able to change mortality and increase life expectancy; economically, however, it represents a significant impact on financial policy, as aging is accompanied by a greater prevalence of chronic noncommunicable diseases, among which emphasis is placed on the cardiovascular diseases, arterial hypertension, diabetes mellitus, chronic kidney disease and cancers which require many – and complex – diagnostic procedures and prolonged treatment, with consequently greater onus on the public coffers<sup>(1)</sup>.

In particular, Chronic Kidney Disease (CKD), with an increasing number of patients who depend on renal replacement therapy in order to survive, generates a major social and economic impact, making clear the need to implement health promotion and harm prevention strategies in the primary healthcare network. CKD constitutes an important cause of morbidity and mortality and, without doubt, is an issue specific to Public Health<sup>(4)</sup>.

According to data from the census of the Brazilian Society of Nephrology (SBN), undertaken in 2013, it is estimated that 100,397 people have kidney disease and are receiving dialysis treatment. In relation to the prevalence

of patients aged over 60 years old, an increase was ascertained, from 70,872 cases in 2006, to 92,091 cases in 2010. This increase is partly due to the improvement in the quality of the dialysis procedures, with a consequent reduction in mortality. It should be noted that in Brazil, the Unified Health System (SUS) meets the costs of the treatment of 90.8% of patients who require renal substitution therapy<sup>(5)</sup>.

One study emphasizes that the age-related morphofunctional changes of the kidneys are extensive and occur in a manner similar to other organs and systems of the human body. However, the silent character of kidney disease, which becomes established slowly and progressively, makes the understanding of these changes in structure and function crucial for early diagnosis in elderly patients. There is, however, a shortage of studies related to the degree of renal function in older adults<sup>(6)</sup>.

This study's relevancy lies in the fact that it assists in the identification of shortcomings or gaps which may be contributing to the late diagnosis of kidney disease in the older adult. Another relevant aspect is that it may be able to contribute to better knowledge of the situation of older adults with chronic kidney disease receiving dialysis treatment, among the users of public services.

In the light of the above, the aim was to characterize elderly patients receiving hemodialysis therapy in relation to the socio-demographic and clinical aspects.

## METHOD

This descriptive and transversal study was undertaken in January – March 2014 in two nephrology centers in the metropolitan region of the city of Natal, in the Northeast of Brazil. The dialysis services researched are part of the Unified Health System (SUS) and provide attendance in the modes of hemodialysis and peritoneal dialysis to patients of all ages. For this, they have multi-professional teams made up of physicians and nurses who are specialists in the area of nephrology, a social worker, a psychologist and a nutritionist.

For the selection of the sample, the following inclusion criteria were adopted: to be registered

on the dialysis center's computerized system for the treatment of hemodialysis, to be of either sex, and to be aged 60 years old or over. Patients were excluded – even if registered – if they were not receiving treatment in the data collection period, as were those who had difficulties in communicating.

Older adults were considered to be those aged 60 (sixty) years old or over, in accordance with Law N. 10.741, of October 1st 2003, of the Elderly Statute<sup>(2)</sup>. In this regard, 85 older adults met the study's inclusion criteria, although four were receiving inpatient treatment in hospital during the data collection period. As a result, the sample was made up of 81 older adults.

The data collection instrument consisted of a structured questionnaire, the first part of which contained questions on socio-demographic characteristics, and the second, questions on clinical aspects. It is noteworthy that the questionnaire had previously been subjected to a pre-test with 10 older adults in another nephrology center of the metropolitan region in order to assess applicability.

The study participants were interviewed individually after reading and signing the terms of free and informed consent, meeting the ethical precepts stipulated for studies involving human beings<sup>(7)</sup>. The project was considered and approved by the Ethics Committee of the Onofre Lopes Teaching Hospital (HUOL) under record N. 233.953 and CAAE: 01094212.8.0000.5292.

The data obtained were typed in Microsoft Excel XP spreadsheets and subjected to descriptive statistical treatment. The data were expressed through means, minimum and maximum values,

and standard deviations. This study's results are presented below, in the form of tables.

## RESULTS

In the universe of 166 older adults registered, for hemodialysis treatment in the centers studied, the research sample corresponded to 81 (48.9%) patients who met the selection criteria.

In Table 1, it may be observed that 50.6% were female, and that 54.3% were in the age range between 60 and 70 years old, with a mean age of 70.2 years old ( $\pm 7.4$ ). In relation to the marital situation, the majority was married (60.5%), and 24.6% were widowed. Regarding religion, the majority were Roman Catholic (76.5%), followed by Protestants (18.5%). The predominant level of education was junior high school (81.5%), and monthly family income varied between 1 and 5 minimum salaries (58.0%).

The time of hemodialysis treatment among the older adults varied from 1 to 10 years, with a mean of 3.5 years ( $\pm 2.2$ ). Access via the bloodstream, of the arteriovenous fistula (AVF) type was broadly used for the hemodialysis procedure among the older adults (82.7%).

Regarding the clinical data, Figure 1 shows that among persons with CKD receiving hemodialysis, the predominant comorbidity was Systemic Arterial Hypertension (SAH), present in 82.7% of those studied. Of these, 48.1% presented SAH in isolation and 34.6% in association with diabetes mellitus (DM). It was also observed that 11% of the older adults had DM in isolation as the comorbidity, and 6.2 had Congestive Heart Failure (CHF), characterized by cardiovascular compromise.

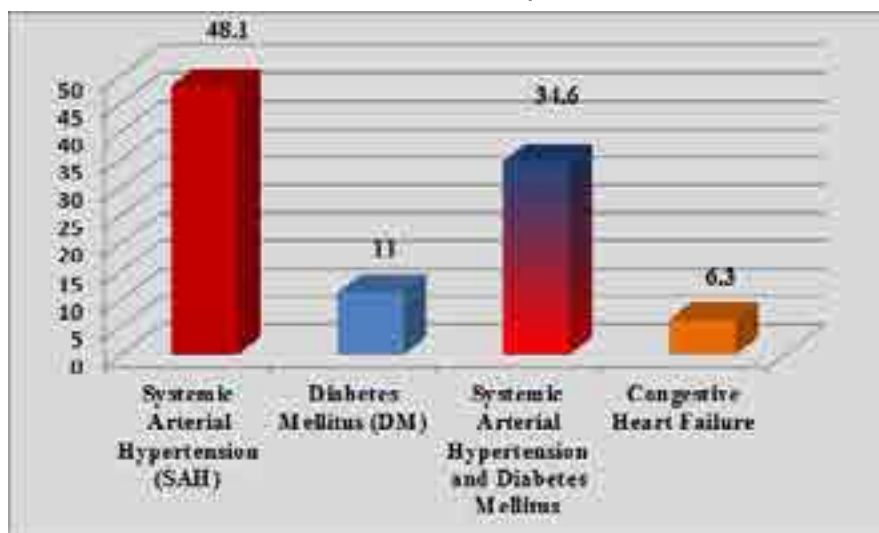


Figure 1 – Distribution of the older adults receiving hemodialysis treatment by comorbidity. Natal-RN, 2014.

Table 1 – Distribution of the socio-demographic data of the older adults receiving hemodialysis treatment. Natal-RN, 2014.

Categories	(n=81)	%
Sex		
Male	40	49,4
Female	41	50,6
Age range		
60 to 70	44	54,3
71 to 80	30	37,0
81 to 90	07	8,7
Marital status		
Single	02	2,5
Married	49	60,5
Separated	05	6,2
Divorced	05	6,2
Widowed	20	24,6
Religion		
Roman Catholic	62	76,5
Protestant	15	18,5
Spiritualist	02	2,5
Other	02	2,5
Education level		
Junior high school	66	81,5
Senior high school	02	2,5
Higher education	13	16,0
Monthly family income		
< 1 salary	04	4,9
1 a 5 salaries	47	58,0
6 a 10 salaries	19	23,5
> 10 salaries	11	13,6
Time in hemodialysis		
< 1 year	20	24,7
1 a 3 years	25	30,9
4 a 6 years	17	21,0
7 a 10 years	19	23,4
Type of access		
Arteriovenous fistula	67	82,7
Arteriovenous graft	05	6,2
Short-term catheter	08	9,9
Long-term catheter	01	1,2

## DISCUSSION

There was similarity between the number of the male and female older adults, which diverges from the findings of other studies<sup>(8-11)</sup> undertaken with kidney patients, in which the male sex predominated.

In a study undertaken<sup>(8)</sup> to outline the biopsychosocial profile of patients with chronic kidney disease receiving hemodialysis treatment in the South region of Brazil, the male sex predominated, corresponding to 60.0% of the sample studied. The same occurred in another study<sup>(9)</sup> in a hemodialysis unit in the state of São Paulo, in which it was identified that 61% were male. Authors<sup>(10)</sup> have studied the characteristics of patients with chronic kidney disease receiving hemodialysis in the South region of Brazil, and have identified that the majority of patients was also male (59.3%).

Another relevant aspect is that the number of older adults in Brazil is growing each year, and that consequently there is an increase in the volume of patients who progress to CKD and who require renal replacement therapies in order to survive<sup>(12-13)</sup>. These data were confirmed by the Brazilian Society of Nephrology's census, undertaken in 2011, among patients receiving hemodialysis who were aged 65 years old or over<sup>(5)</sup>.

In relation to the marital situation of the older adults studied, authors<sup>(10-11)</sup> obtained similar results when they studied patients receiving hemodialysis, in which those who were married predominated.

In relation to religion, studies<sup>(11,14)</sup> have observed that spirituality can compromise the patients' capacity to deal with the illness, and, moreover, aggravate physical and emotional symptoms and interfere in the outcome of the CKD. Research in the Center-West region of Brazil, with 120 patients with chronic kidney disease receiving hemodialysis, obtained similar results to this study, with a percentage of 79.2% of Roman Catholics. The authors report that spiritual questions remain little addressed in the studies undertaken by nurses<sup>(14)</sup>.

In relation to educational level, a similarity was ascertained in the educational level found – junior high school complete and incomplete – among the older adults in the present study, with studies

undertaken in the Northeast and South region, in spite of there being socioeconomic discrepancies between these different regions of Brazil<sup>(10,15)</sup>.

Regarding the monthly family income of the people studied, variation between less than one and up to five minimum salaries was observed, among whom 4.9% had an income below one minimum salary. It is worth noting that the national minimum salary in force in the data collection period was R\$ 724,00 (seven hundred and twenty-four reais). A low socioeconomic level is considered a factor for developing chronic diseases. However, the appearance of CKD is inversely related to a person's economic power and presents a greater relationship with ethnic characteristics<sup>(11,16)</sup>.

The time spent in the modality of hemodialysis varied between one and 10 years, with a mean of 3.5 years ( $\pm 2.2$ ). In one study undertaken<sup>(10)</sup>, the predominant time spent in hemodialysis was 2 to 4 years (30.0%). However, the sum of the number of patients for whom the number was 0 to 4 years totalled 53.3%, close to the findings of the present study, which reached 55.6%.

The majority of the older adults used the AVF as a means of accessing the bloodstream during the hemodialysis sessions. The AVF obtained by a surgical junction between an artery and a vein is considered the definitive vascular access for hemodialysis<sup>(17)</sup>.

In one study<sup>(18)</sup> undertaken on vascular access for hemodialysis in a hospital in Cuba, 66.6% of the persons studied used the AVF as the vascular access and 33.4%, a short-term catheter. In relation to the insertion site, the jugular vein was used most (20.0%), followed by the subclavian vein (13.3%).

The place or site of insertion of the short-term catheter must be chosen carefully, taking into consideration the specific anatomical and clinical characteristics of the patient. The procedure of implanting the catheter is fast and requires the same care inherent to any surgical procedure. After the implementation, it is necessary to confirm the positioning of the catheter by radiography, prior to initiating hemodialysis<sup>(19)</sup>.

Currently, the site of choice for implanting the short-term catheter for hemodialysis is the internal jugular vein, as use of the subclavian vein has diminished due to serious complications associated with it, such as the development of

venous thrombosis and delayed stenosis. The type of vascular access and the existence of infection influence the mortality of patients receiving dialysis<sup>(18)</sup>.

Results relating to clinical data similar to those found in the present study were found in a separate study<sup>(10)</sup> undertaken with 32 patients receiving hemodialysis, in which the comorbidities associated with CKD were SAH at 21% and DM at 11% of those studied.

SAH (35%) and DM (30%) were also the predominant base diagnoses among 100,397 patients receiving hemodialysis, according to the results of the 2013 census of the Brazilian Society of Nephrology. It should be noted that the census did not cover all patients receiving dialysis in Brazil, as the information was collected from 54.9% of the nephrology centers functioning in that country<sup>(5)</sup>.

One study undertaken with 86,588 individuals at high risk for CKD in the United States identified that 63.3% were hypertensives, 27.7% were diabetics, and that during the course of one year, 15% progressed to CKD<sup>(20)</sup>.

Arterial hypertension can occur in isolation during the hemodialysis session, being responsible for 5% of complications, but when added to the cardiac arrhythmias, bradycardia and tachycardia, corresponds to 8% of the complications during the hemodialysis procedures. The physiopathology of the hypertensive crisis remains obscure, the indication to suspend the antihypertensive medications in the pre-dialysis period being a contributing factor to the rise in arterial pressure<sup>(4)</sup>.

## CONCLUSION

The analysis of the 81 older adults receiving hemodialysis treatment revealed the following socio-demographic characteristics: the patients' mean age was 70.2 years ( $\pm 7.4$ ), and the majority were married; they had been educated to junior high school level; they were Roman Catholics, and had a monthly family income varying from less than one minimum salary up to five minimum salaries. In relation to clinical aspects, the mean time in dialysis was 3.5 years ( $\pm 2.2$ ) and the arteriovenous fistula was the predominant access among the older adults. Hypertension and diabetes were the predominant comorbidities,

followed by patients who had both conditions simultaneously.

The aging of the population, the development of CKD and dependence on hemodialysis treatment represent a major challenge for health managers, professionals and family members. Due to this, the work of the professionals of the health services – principally those of nursing – must be directed towards health education, based in the prevention of chronic noncommunicable diseases such as CKD.

Knowing the socio-demographic characteristics, as well as the clinical characteristics, of elderly patients with chronic kidney conditions is an important tool for the health team to plan which intervention is most appropriate for each older adult. Furthermore, it is necessary for the health professionals to continuously seek knowledge on the main causes of CKD in Brazil.

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