

# Navigating the Complexities of Chronic Kidney Disease: A Resilience Analysis in Hemodialysis Patients

Silva, Marina M. ; Oliveira, Lucas R.

Universidade Federal do Rio Grande do Sul, Department of Nephrology, Porto Alegre, Brazil ; Instituto de Saúde Pública do Rio de Janeiro, Department of Public Health, Rio de Janeiro, Brazil

**Abstract**—Chronic Kidney Disease is considered a serious public health problem. The exploitation of resilience has been guided by studies conducted in various contexts, especially in hemodialysis, since the impact of diagnosis and restrictions produced during the treatment process because, despite advances in treatment, remains the stigma of the disease and the feeling of pain, hopelessness, low self-esteem and disability. The objective was to evaluate the level of resilience of patients in chronic renal dialysis. This is a descriptive, correlational, cross and quantitative research. The sample consisted of 100 patients from a Renal Replacement Therapy Unit in the countryside of São Paulo. For data collection were used the characterization instrument of Participants and the Resilience Scale. There was a predominance of males (70.0%) were Caucasian (45.0%) and had completed elementary education (34.0%). The average score obtained through the Resilience Scale was 131.3 ( $\pm$  20.06) points. The resiliency level submitted may be considered satisfactory. It is expected that this study will assist in the preparation of programs and actions in order to avoid possible situations of crises faced by chronic renal patients.

## I. INTRODUCTION

T

HE increasing number of patients with chronic kidney disease (CKD) in hemodialysis is becoming a problem for public health. In Brazil, it is estimated that between the years 2002-2012, there was an increase of 199.9% in the number of cases of individuals with CKD [1].

Kidney function can be measured by glomerular filtration, and its decrease is observed in CKD, defined as a clinical syndrome resulting from slow, progressive and irreversible loss of regulatory functions, excretory and endocrine kidney for a period not less than three months [2]. Studies show that therapeutic measures should be initiated early in the course of renal dysfunction; however,

currently the prognosis is still poor in the country and the world [3], [4].

Treatments available in CKD partially replace kidney function, relieving the symptoms and preserving the patient's life, however, none are curative. They are: continuous ambulatory peritoneal dialysis, automated peritoneal dialysis, intermittent peritoneal dialysis, kidney transplantation and dialysis [5].

Specifically, hemodialysis consists of an extracorporeal filtration process and purification of the blood of undesirable substances that must be eliminated from the sanguine fluid. In this process, there is a transfer of solutes between the blood

and the dialysis solution through an artificial semipermeable membrane by two major mechanisms: diffusion - solute flux according to the concentration gradient - and ultrafiltration - liquid removal through a hydrostatic pressure gradient [6], [7].

The prescription of this type of treatment varies according to the individual needs of each patient, however, is prescribed on average three sessions per week for a period of three to five hours per session, and often frame complications [8]-[10].

Once given the diagnosis of an incurable disease, individuals with CKD are seen as limited physically and emotionally. Thus, it can be noted that the CKD and its treatment produce psychological disorders, whereas for some patients their life starts to revolve around the disease and treatment, while for others, hemodialysis comes to represent a life expectancy on irreversibility of the disease, increasing comfort, relieving pain, preventing and limiting potential injuries, and providing subsidies resilient attitudes to face this situation being experienced [11]-[13].

Resilient attitudes are configured as phenomena that understand the way in which individuals go through difficult situations, how they manage to overcome them and are transformed from subjective experiences, cognitive processes and emotions [11]. That is, the term resilience refers to the ability of an individual to adapt and overcome a stressful situation in a healthy and profitable way [14].

In Brazil, studies on resilience began in the mid-90s; however, this issue was associated with risk factors for human development [15]. Over the years, resilience has to be studied as the ability to adapt to a situation, and intensely over the past five years, was understood as the ability of the human being to positively overcome the adversities faced [16]-[19].

The exploitation of resilience has been guided by studies in different contexts, especially in hemodialysis, as the impact of their diagnosis and disorders produced during the treatment process, because in spite of therapeutic advances that allow an improvement in the survival rate and quality of life, the stigma of the disease remains, besides the feeling of pain, hopelessness, low self-esteem



and inability [14]. Therefore, it highlights the importance of a study to investigate how each individual faces this situation of chronicity and its consequences in their daily lives, identifying factors associated with the disease in order to help patients live with this reality as best as possible, with autonomy, independence and quality of life. For this reason, this study intended to assess the level of adult and elderly resilience and chronic renal dialysis.

## II. METHOD

This is a descriptive, correlational, cross-sectional study, with a quantitative approach, on the level of adult and elderly resilience and chronic renal on hemodialysis, attended by Renal Care Unit Replacement in the city of São Carlos, in the countryside of São Paulo, which serves patients of the Sistema Único de Saúde (SUS), agreements and private.

This investigation was carried out after the authorization of the Head of the Department of Gerontology of Universidade Federal de São Carlos and approval of Ethics committee in research, nº. 1232888. The sample studied consisted of 100 patients on hemodialysis, aged over 18 years with a diagnosis of CKD who consented to participate in this study by reading and signing the Termo de Consentimento Livre e Esclarecido.

The instrument of characterization of the Participants and the Resilience Scale (RE) were applied. The first has aimed to sociodemographic and clinical characterization of the participants, while the second identifies the level of resilience of individuals, having been developed in 1993 [20] and translated, adapted and validated to Brazil in 2005 [21]. It consists of 25 statements on a Likert scale of 7 points. Its total score can range 25-175 points, wherein the higher the score, the greater the individual resilience level [20].

Data were initially taken to an Excel data sheet for Windows 7 and the Statistical Package for Social Sciences (SPSS), in its version 19.0 for Windows, aimed at descriptive analysis with making frequency tables, measures position (mean) and dispersion (standard deviation), Cronbach's alpha to check the internal consistency of the instrument used and the correlation analysis Spearman to verify the existence and magnitude of the relationship between resilience and sociodemographic and clinical data of the participants. The magnitude of the correlations was classified: (2004) low (<0.3); moderate (0.3 to 0.59); strong (0.6 to 0.9) and perfect (1.0) [22]. It was considered as a cutoff for statistical significance level of 5% ( $p < 0.05$ ).

## III. RESULTS

Between the 100 patients interrogated, 70.0% were male. Most participants (45.0%) declared that they were Caucasian and have completed basic education (34.0%).

The average age of respondents was 55.41 ( $\pm 14.44$ ) years, ranging from 20 years to 88 years. All patients reported daily use of some kind of medication and the average number of use of 7.58 ( $\pm 2.79$ ). The mean duration of hemodialysis reported by participants was 89.58 ( $\pm 60.69$ ) months.

The resilience measurements obtained by the application of the RE in 100 patients is presented in Table I. Thus, one can observe a mean score of 131.38 ( $\pm 20.62$ ) points ranging from 52-175 points. The Cronbach's alpha presented by the instrument was 0.83, indicating a high level of reliability.

Table II shows the descriptive statistics obtained by issue of RE. Regarding the 25 items that make up the instrument, it appears that the number of item 6 had the highest average score (6.72  $\pm$  0.94), indicating that 85.0% of respondents were completely agree and 11.0 % were very much agree with the statement "I feel proud to have done things in my life." On the other hand, the number of item 11 had the lowest average score, which shows that 54.0% of patients totally disagreed and 14.0% highly disagreed with the statement "I rarely think about the purpose of things."

Regarding the calculation of the Spearman correlation coefficient of resilience with the sociodemographic and clinical characteristics of the patients interrogated, it can be seen in Table III, the negative correlation of moderate magnitude between the RE and age, indicating that the higher the score on the scale, the lower the age of the respondent ( $r = -0.314$ ;  $p < 0.001$ ).

With regard to education, there is the existence of positive correlation of weak magnitude with the RE, indicating that the higher the education of the respondent, the higher the score on the instrument ( $r = 0.222$ ;  $p = 0.027$ ). Concerning the time of hemodialysis, there is the negative correlation, with moderate magnitude RE, wherein the higher the hemodialysis time, the lower the score on the scale ( $r = -0.317$ ;  $p = 0.001$ ) (Table III).

Finally, with respect to the number of drugs, there is a negative correlation with moderate magnitude RE, wherein the larger the number of medications used by the patient, the lower the score the RE ( $r = -0.453$ ;  $p < 0.001$ ) (Table III).

## IV. DISCUSSION

The prevalence of males between the participants evaluated in the present study (70.0%) is supported by several studies in chronic renal patients, such as research [23] on the factors associated with cognitive function in patients with CKD treated by university hospital Federal University of Maranhão, where 52.4% of respondents were male, and the study [24] on the coping strategies used by chronic renal patients on hemodialysis in northeastern Brazil, where 57.1% of respondents were male.

The average age of participants surveyed in this study was 55.4 years, outlining data similar to findings on the quality of life of patients undergoing hemodialysis at a public hospital in the interior of Minas Gerais, where the average age of respondents was 57.5 years [25] and the findings on the evaluation of chronic renal failure patients on hemodialysis pain in a nephrology unit in Rio Grande do Sul, where the average age of respondents was 58.98 years [26].

With regard to ethnicity, in this study, most of the patients declared to be of white ethnicity (45.0%), which can also be observed in the study of [27] conducted on the chronic renal patient profile seen in the hemodialysis service of Unit nephrology hospital in the state of São Paulo (60.7%), and research on electrocardiographic changes in patients under hemodialysis treatment at a clinic in the city of São Paulo was obtained 54.7% [28].

As to education, most patients said to have completed elementary school (34.0%), which is also indicated by the study [29] regarding the patient's perception of the care provided in nephrology units of Maranhão state (39.4%), in the study by [30] on the nutritional status of patients with CKD in Singapore (23.0%), and an investigation about the

quality of life of dialysis patients in an indoor unit in countryside of São Paulo (%) [31].

TABLE I  
DISTRIBUTION OF THE RESILIENCE SCALE, ACCORDING TO THE AVERAGE, STANDARD VARIATION AND CRONBACH'S ALPHA AS THE RESPONSES OF ADULT AND ELDERLY CHRONIC PATIENTS

Instrument	Average	SD*	Median	Minimum	Maximum
RS	131,38	20,62	129,5	52	175

\*SD=Standard Deviation

TABLE II  
DISTRIBUTION OF THE RS ACCORDING TO THE AVERAGE VARIABLE, MEDIAN, STANDARD VARIATION AND CRONBACH'S ALPHA AS THE RESPONSES OF ADULTS AND ELDERLY CHRONIC PATIENTS

Questions
1. When I make plans I follow through with them.
2. I usually manage one way or another.
3. I am able to depend on myself more than anyone else.
4. Keeping interested in things is important to me
5. I can be on my own if I have too.
<b>6. I feel proud that I have accomplished things in my life.</b>
7. I usually take things in stride.
8. I am friends with myself.
9. I feel that I can handle many things at a time.
10. I am determined.
<b>11. I seldom wonder what the point of it all is.</b>
12. I take things one day at a time.
13. I can get through difficult times because I've experienced difficulty before.
14. I have self-discipline.
15. I keep interested in things.
16. I can usually find something to laugh about.
17. My belief in myself gets me through hard times.
18. In an emergency, I'm someone people generally can rely on.
19. I can usually look at a situation in a number of ways.
20. Sometimes I make myself do things whether I want to or not.
21. My life has meaning.
22. I do not dwell on things that I can't do anything about.
23. When I'm in a difficult situation, I can usually find my way out of it.
24. I have enough energy to do what I have to do.
25. It is okay if there are people who don't like me.

\*SD= Standard deviation

TABLE III  
SPEARMAN CORRELATION COEFFICIENTS BETWEEN THE RS AND THE SOCIODEMOGRAPHIC AND CLINICAL DATA FROM ADULT AND ELDERLY PATIENTS WITH CKD ON HEMODIALYSIS

	Age	Education	Hemodialysis Time	Number of Drugs
r	-0,314	0,222	-0,317	-0,453
p	<b>&lt;0,001</b>	<b>0,027</b>	<b>0,001</b>	<b>&lt;0,001</b>
n	100	100	100	100

Regarding the use of medication, all patients use daily declare any medications, and 7.58 (± 2.79) the average number of use, which is also indicated by the study of [32]

regarding the potential interaction between prescription drugs to patients with CKD from Juiz de Fora ( $5.60 \pm 3.20$ ), and research about the most used drugs for chronic renal population of Rio Grande do Sul ( $6.30 \pm 3.10$ ) [33].

With respect to the hemodialysis time, the average value reported by the subjects was  $89.58 (\pm 60.69)$  months. However, other studies showed different results - lower average values - as performed with patients in the nephrology department of a public hospital in Belo Horizonte ( $39.60 \pm 36.00$ ) [34], and carried out with patients of an evangelical hospital in the countryside of Espirito Santo ( $43.37 \pm 47.38$ ) [35].

With respect to data regarding the resilience and older adults with CKD on hemodialysis evaluated by the RE, there was the award of the mean score of  $131.3 (\pm 20.62)$  points. This score can be considered as satisfactory, since the mean value sets up the instrument above the average value (75.0). This satisfactory result was also reported by other studies with patients treated by other units in the country and the world, as the research on religiosity and resilience of patients seen by a hospital in the state of Ceará, in which through the same instrument, It found the average value of  $138.0 (\pm 21.00)$  points [36].

Not only the work about resilience and behavior patients health promotion a clinic in northern Taiwan also found a satisfactory score resilience ( $139.0 \pm 21.17$ ) by the same scale [37].

Still by Conner-Davidson Resilience Scale, there was a favorable level of resilience ( $61.2 \pm 20.59$ ) in a study on the effect of resilience for depression and life satisfaction of patients seen by a hospital in Korea [38].

Finally, an investigation on the resilience of 61 patients with CKD undergoing treatment in a tertiary hospital in Itajubá, Minas Gerais, found through the RS, which 61.0% of its total sample showed satisfactory trend resilience in dialysis [39].

## V. CONCLUSION

According to the proposed objective and the results found, it is concluded that the level of adult and elderly resilience assessed CKD is satisfactory, since the average score set above the average of the instrument value.

In this context, it may be noted that this resilience assists patients in coping with the disease. Thus, it is suggested to carry out further studies in order to verify and evaluate resilient attitudes of patients with CKD, in order to avoid possible situations of crisis, as the restrictions brought about by the disease and its treatment. It is hoped that this study will assist in the preparation of programs and actions in order to provide a better quality of life for CKD patients.

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