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Clinical variables, lifestyle and coping in hemodialysis

Daniela Comelis Bertolin ¹

Clinical variables, lifestyle and coping of people with hemodialysis

Objective. To verify the relationship between coping strategies of people with chronic kidney disease undergoing hemodialysis and their clinical variables and lifestyle habits. **Methods.** It was developed a cross-sectional study that used the Coping Strategies Inventory of Folkman and Lazarus and a semi-structured questionnaire for collecting clinical variables and lifestyles of patients undergoing hemodialysis in the Urology and Nephrology Institute of São Jose do Rio Preto-SP (Brazil). **Results.** Participants were 107 adults undergoing hemodialysis, with an average age of 51 years; 62.4% were men. The main causes of chronic kidney disease were chronic glomerulonephritis, diabetes mellitus, undetermined cause and hypertension. The most reported coping strategies were focused on emotion. There were greater coping scores among people who had diabetes, those who had leisure and those who referred religion. People who exercised and those who had undergone renal transplantation had more positive coping. **Conclusion.** Clinical variables of people undergoing hemodialysis can be sources of stress, and lifestyle habits are associated with coping strategies to mitigate the effects of stress.

Key words: psychological adaptation; chronic renal failure; hemodialysis; stress; nursing.

Variables clínicas, estilos de vida y enfrentamiento en personas con hemodiálisis

Objetivo. Identificar la relación entre las estrategias del afrontamiento de las personas con enfermedad renal crónica en hemodiálisis y las variables clínicas y de estilos de vida. **Métodos.** Se desarrolló un estudio transversal en el que se utilizó el Inventario de Estrategias del Afrontamiento del Folkman y Lazarus y un cuestionario semiestructurado para la recolección de las variables clínicas y de estilos de vida de pacientes con tratamiento de hemodiálisis del Instituto de Urología y Nefrología de São José do Rio Preto (Brasil). **Resultados.** Participaron 107 personas en hemodiálisis con un promedio de edad de 51 años; 62.4% hombres. Las principales causas de la enfermedad renal crónica fueron la glomerulonefritis crónica, la diabetes Mellitus, la causa indeterminada y la hipertensión arterial. Las estrategias de afrontamiento más reportadas se centraron en la emoción. Se obtuvieron puntajes más altos de afrontamiento en las personas con diabetes, con tiempo libre, y los que practicaban una religión. Las personas que practicaban ejercicio y quienes habían sido sometidos a trasplante renal referían afrontamiento más positivo. **Conclusión.** Las variables clínicas de las personas en hemodiálisis pueden ser fuentes de estrés; por el contrario, los estilos de vida están asociados con las estrategias de afrontamiento para atenuar los efectos del estrés.

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Palabras clave: adaptación psicológica; insuficiencia renal crónica; hemodiálisis; estrés; enfermería.

Variáveis clínicas, hábitos de vida e enfrentamento em pessoas com hemodiálise

Objetivo. Verificar a relação entre os modos de enfrentamento das pessoas com doença renal crônica em hemodiálise e suas variáveis clínicas e hábitos de vida.

Métodos. Foi desenvolvido um estudo transversal no qual se utilizou o Inventário de Estratégias do Afrontamento do Folkman e Lazarus e um questionário semiestruturado para a recolecção das variáveis clínicas e de estilos de vida de pacientes com tratamento de hemodiálise do Instituto de Urologia e Nefrologia de São José do Rio Preto (Brasil).

Resultados. Participaram 107 adultos em hemodiálise com uma média de idade de 51 anos, 62.4% foram homens. As principais causas da doença renal crônica foram a glomerulonefrite crônica, a diabetes Mellitus, a causa indeterminada e a hipertensão arterial. Os modos de enfrentamento mais referidos foram focados na emoção. Obtiveram-se maiores escores de enfrentamento entre as pessoas que tinham diabetes, as que tinham lazer, e as que referiram religião. Referiram enfrentamento mais positivo as pessoas que praticavam exercícios físicos e as que haviam realizado transplante renal. **Conclusão.** As variáveis clínicas das pessoas em hemodiálise podem ser fontes de estresse, e os hábitos de vida associam-se aos modos de enfrentamento para amenizar os efeitos do estresse.

Palavras chave: adaptação psicológica; insuficiência renal crônica; hemodiálise; estresse; enfermagem.

Introduction

Hemodialysis (HD) is the treatment performed by most people with chronic kidney disease (CKD). It is estimated that in Brazil, 89.7% of people on dialysis perform HD, and incidence and prevalence rates in this treatment modality are increasing, especially among people aged over 65 and those whose the causes of CKD are hypertension and diabetes mellitus.¹ The number of people who undergo HD has accompanied the growth of CKD diagnosis, which is a public health problem throughout the world, a non-transmissible chronic disease mainly arising from hypertension and diabetes mellitus.² The CKD and its treatment lead to significant changes for people, such as restrictions on fluid and food intake; itching; cramps; tiredness; decline in bodily functions; sleep disorders; sterility; changes in family structure; uncertainty about the future; changes in social life; time spent with the treatment; difficulties with transportation to the HD unit; changes in work activities; and financial problems.³⁻⁶

These changes require adaptation and are characterized as stressors.⁷ The way people deal with stressors can mitigate its effects and favor adaptation. The set of cognitive and behavioral

strategies used by people to manage stressful situations is defined as coping. The coping strategies depend on the cognitive assessment of the stressful situation, and may be classified according to their function as focused on emotion (targeted to emotional response) and focused on the problem (practical actions aimed at the stressor solution).⁸ This study was conducted in order to verify the relationship between coping strategies of people with CKD undergoing HD and their clinical variables and lifestyle.

Methods

A cross-sectional quantitative study was developed at the Urology and Nephrology Institute of Sao Jose do Rio Preto-SP, from November, 7 2006 to March, 6 2007. The criteria for inclusion in the study were people aged 18 years or older without any impediment to answer the semi-structured interview and the inventory, and that had been undergoing HD for six months or more, considering that the adaptation to the treatment occurs in this period and to minimize the interference of neurological symptoms of uremia. Of the 192 people with CKD undergoing outpatient HD, 85 people were excluded: 34 due to refusal to participate in the study and 12 due to neurological deficit as a result of diseases

such as sclerosis, stroke, Down syndrome and schizophrenia, 19 for being less than six months undergoing HD; seven due to hearing impairment; six due to death; two by change of treatment; two due to unit transfer; one by recovering renal function; one by abandoning treatment and one for being younger than 18 years old.

To assess coping strategies related to CKD and HD, the studied population answered to the Coping Strategies Inventory of Folkman and Lazarus (CSIFL). In addition to this tool, interviewees answered a semi-structured script aimed at characterizing the population, containing sociodemographic data: age, gender, education, occupation, income. Patients were interviewed in the hemodialysis unit before the start of the session or until one hour before the end, to avoid compromising the answers due to their fatigue, and the interviews were conducted by the researcher, lasting on average 45 minutes. The CSIFL was translated and validated for the Portuguese language in Brazil. Thus, there is correspondence between the original English version and the translated version, which allows its use in other studies. The Cronbach's alpha (α) in the original study ranged from 0.56 to 0.85 among the factors.⁸

In the translation, cultural adaptation and validation into Portuguese, of the 66 analyzed items, 46 items composed the eight factors formed by the method of the main factors with oblique rotation, as in the original version: Confrontation: describes efforts to change the stressful situation; Problem Avoidance: describes one's efforts to move away from the stressful situation; Self-control: describes one's efforts to control their own feelings; Social support: describes one's efforts in the search for information and emotional support; Acceptance of responsibilities: describes the knowledge on one's contribution to the problem and the attempt to do the right thing; Escape-avoidance: describes desires, thoughts and behavioral efforts to escape or cancel the problem; Problem-solving: describes efforts to change the situation with analytical evaluation to solve the problem; Positive reappraisal: describes efforts to create a positive

meaning, focusing on personal growth, it also has a religious aspect.⁸

These CSIFL factors were classified as problem-focused coping strategies (confrontation and problem-solving); emotion-focused coping strategies (clearance, self-control, acceptance of responsibility, positive reappraisal and escape-avoidance); and problem-and-emotion-focused coping strategies (social support).⁸ The scale, according to the original English version, is Likert type with format that allows four types of answers, i.e., four scores: 0 = I have not used this strategy; 1 = I have used it a little; 2 = I have used it enough; 3 = I have used a lot. Zero is the lowest score used by people who do not use the ways of coping and 4 is the highest score used by people using greatly the ways of coping. The scale does not show total score as sum for evaluation, the items should be assessed by the mean scores within each factor.⁸

After approval of the Ethics Committee of IBILCE-UNESP, of Sao Jose do Rio Preto, authors conducted a pilot study, initiating the data collection, which lasted four months. Respondents were informed about the research and signed the Informed Consent Form. The development of the study met national and international standards of ethics in research involving human beings. The Statistical Package for Social Sciences (SPSS) version 21.0 was used for statistical analysis. It was performed the descriptive analysis and the Mann-Whitney test to compare the two independent samples. The comparison and correlation scores were considered statistically significant at $p < 0.5$.

Results

Among the 107 people who participated in this study, 67 (62.6%) were male, aged from 18 to 85 years, with mean age of 51.1 years and standard deviation (SD) of 14.3 years; average schooling of 7.6 years (SD = 4.6 years). The current HD time averaged 4.5 years (SD = 3.6 years), ranging from seven months to 18.6 years. The monthly family income was an average of 5.5 minimum wages (MW) (SD = 5.9 SM), the

Table 1. Distribution of clinical variables and lifestyle of 107 people on hemodialysis. Sao Jose do Rio Preto – SP, 2007

Clinical variables/lifestyle	n	%
Cause of CKD		
CGN	33	30.8
Diabetic nephropathy	19	17.8
Unknown cause	16	15.0
Arterial hypertension	15	14.0
Polycystic kidneys	11	10.3
Tubular interstitial nephritis	3	2.8
Chronic pyelonephritis	3	2.8
Lupus nephritis	3	2.8
Alport syndrome	2	1.9
Berger's Syndrome	1	0.9
Hemolytic uremic syndrome	1	0.9
Residual diuresis		
Present	48	44.9
Absent	59	55.1
Vascular access		
AVF	95	88.8
Short-term catheter	9	8.4
Long-term catheter	3	2.8
Previous Renal Therapy		
None	82	76.6
IPD	2	1.9
CAPD	1	0.9
RT	1	0.9
IPD-HD-RT	9	8.4
HD-RT	10	9.3
CAPD-RT	2	1.9
Feeling sad		
Always	19	17.9
Sometimes	47	44.3
Does not feel	40	37.7
Did not answer	1	0.9
Leisure activity		
Always	56	52.3
Sometimes	19	17.8
Has no leisure	32	30.0
Physical activity		
Always	25	23.4
Sometimes	25	23.4
Does not do	57	53.2
Alcohol consumption		
Sometimes	24	22.4
Does not drink	83	77.6
Smoking		
Yes	20	18.7
No	87	81.3
Religion		
Catholic	71	66.4
Evangelical	15	14.0
Other religions	16	15.0
Has no religion	5	4.7

Note: CGN- Chronic glomerulonephritis; AVF- Arteriovenous fistula; IPD- Intermittent Peritoneal Dialysis; CAPD-Continuous Ambulatory Peritoneal Dialysis; RT- Renal transplantation

predominant income range was between one and three MW for 41 (38.3%) people, and the current MW in Brazil, at the time of data collection, was R\$ 350.00. Regarding work, 10 (9.3%) people reported having some profitable activity related to work, and 97 (90.7%) people were not working and, of these 74 (76.3%) were retired. Table 1 shows the variables related to clinical conditions and lifestyle of the population studied.

The main cause of CKD among study participants was chronic glomerulonephritis (CGN), for 33 (30.8%) people, followed by diabetic nephropathy, for 19 (17.8%) people, and unknown causes, for 16 (15.0%) people. Importantly, among the elderly (age ≥ 60 years), the leading cause of CKD was diabetic nephropathy (30.3% of the elderly). In this study, the predominant coping strategies focused on emotion, yielding the following average scores of factors: confrontation - 0.60; clearance - 0.86; self-control - 1.20; social support - 1.23; acceptance of responsibilities - 0.94; escape-avoidance - 1.35; problem-solving - 1.36; and positive reappraisal - 1.41. The internal consistency of CSIFL factors, which was measured by Cronbach's alpha coefficient, had the following values: 0.50 (confrontation); 0.56 (clearance); 0.46 (self-control); 0.70 (social support); 0.60 (acceptance of responsibilities); 0.62 (escape-avoidance); 0.70 (problem-solving); and 0.75 (positive reappraisal). Table 2 shows the analysis of the association between the mean scores of coping strategies and clinical variables and lifestyle habits of the studied population.

By dividing the causes of CKD in only two categories of interest, people with diabetes and people without diabetes, it is seen that people with diabetes had higher mean scores for almost all factors, except for the clearance factor, and this may suggest that people who have diabetes mentioned more coping strategies than people who have other causes for CKD. In the analysis of the causes separately, it was found that people who had CGN as cause for CKD had higher mean scores for the factors problem-solving and positive reappraisal; when the cause was diabetic nephropathy, scores were higher in the factor

escape-avoidance, with predominance of coping strategies focused on emotion; when the cause of CKD was hypertension, the highest mean scores were in the factors confrontation, clearance, social support and acceptance of responsibilities, also prevailing the coping strategies focused on emotion.

For the variable venous access for HD, people who used the AVF as venous access for HD, had the highest mean scores in almost all factors, while people who used catheter had higher mean scores only for the factors escape-avoidance and confrontation, and there were no differences between the mean scores for the factor acceptance of responsibilities. As for undergoing kidney transplants, people who had undergone renal transplantation, regardless of its success, had higher mean scores for most factors, whereas for people who had never undergone renal transplantation, the highest mean scores were in the factors confrontation and clearance. Regarding physical exercise, people who practiced physical exercises had higher mean scores for the factors self-control, social support, problem-solving and positive reappraisal, since people who did not exercise had higher mean scores for the factors confrontation, clearance, acceptance of responsibilities and escape-avoidance. As for leisure, people who reported having leisure had higher mean scores for all factors, and there was no difference between the mean scores in the factor distance. With regard to religion, when comparing the mean scores of people who reported having a religion with the mean scores of people who reported having no religion, the latter had lower mean scores for all factors.

For a $p < 0.05$, there is highlight for the results of the variable leisure, in which the factors positive reappraisal ($p = 0.008$) and acceptance of responsibilities ($p = 0.002$) has the lowest p values, measured by using the Mann-Whitney test, indicating that people who reported having leisure activity (always and sometimes) reported these ways of coping more often than people who had not leisure, with prevalence of coping strategies focused on emotion.

Table 2. Mean scores of factors of Coping Strategies Inventory of Folkman and Lazarus applied to people undergoing hemodialysis, according to clinical variables and lifestyle habits. Sao Jose do Rio Preto - SP 2007

Fator Clinical variables/lifestyle habits	Confron- tation	Clearan- ce	Self-con- trol	Social suport	Acceptance of responsi- bilities	Esca- peavoid- ance	Pro- blem- solving	Positive interpre- tation
CGN	0.52	0.88	1.26	1.20	0.93	1.34	1.48	1.50
Diabetic nephropathy	0.72	0.82	1.26	1.23	0.97	1.44	1.42	1.40
Arterial hypertension	0.83	1.02	1.27	1.30	1.23	1.42	1.15	1.41
Unknown cause	0.36	0.78	0.93	1.22	0.90	1.00	1.28	1.25
Diabetes mellitus – Yes								
	0.72	0.82	1.26	1.23	0.97	1.44	1.42	1.40
Diabetes mellitus - No	0.56	0.86	1.19	1.22	0.93	1.32	1.34	1.41
Yes	0.60	0.86	1.13	1.14	0.90	1.36	1.30	1.33
Residual diuresis -No	0.58	0.85	1.25	1.30	0.97	1.33	1.41	1.47
Venous access - AVF	0.59	0.86	1.24	1.25	0.94	1.34	1.36	1.44
Venous access - Catheter central	0.61	0.80	0.91	1.06	0.94	1.37	1.31	1.12
Have undergone RT	0.56	0.83	1.31	1.30	1.07	1.43	1.58	1.69
Have not undergone RT	0.60	0.86	1.17	1.20	0.90	1.32	1.30	1.34
Sadness - Referred	0.63	0.86	1.22	1.33	0.98	1.47	1.33	1.45
Sadness – Not referred	0.55	0.87	1.21	1.08	0.89	1.16	1.43	1.37
Physical exercises - Yes	0.52	0.82	1.28	1.28	0.87	1.30	1.44	1.53
Physical exercises - No praticam	0.65	0.88	1.13	1.18	1.01	1.38	1.29	1.30
Leisure - Yes	0.59	0.86	1.23	1.30	1.01	1.43	1.44	1.50
Leisure - No	0.59	0.84	1.14	1.05	0.78	1.15	1.17	1.20
Religion - Catholic	0.61	0.87	1.23	1.20	0.93	1.33	1.36	1.37
Religion - Evangelical	0.58	0.97	1.12	1.12	0.82	1.40	1.28	1.37
Religion - Other religions	0.61	0.75	1.20	1.57	1.23	1.40	1.58	1.61
Religion – Do not have	0.26	0.57	1.00	0.70	0.46	1.20	0.80	1.22

Nota: CGN- Chronic glomerulonephritis; AVF- Arteriovenous fistula; RT- Renal transplantation

Discussion

Studies addressing the clinical variables, lifestyle and coping strategies of people undergoing HD are still scarce. About the clinical variables analyzed in this study, almost no data were found in the literature relating to the ways of coping. The results of this study were limited by the cross-sectional design that does not allow the

establishment of cause and effect relationships. The identification in coping strategies of people undergoing HD contributes to the better understanding of the behavior of these people in the coping process, facilitating the planning of nursing care that favors the adaptation of people to the stressors associated with CKD and HD. In this study, coping strategies focused on emotion were the most mentioned by people

undergoing HD, corroborating recent studies that suggest that people undergoing HD tend to use coping strategies more focused on emotion.⁹⁻¹¹ However when analyzing different populations of people who undergo HD, these refer to both coping strategies focused on emotion and coping strategies focused on the problem. For example, among people undergoing HD with age above 40 years, those with higher education and those working predominantly use coping strategies focused on the problem; whereas men, people living in the countryside and the people undergoing HD for a longer time refer to coping strategies more focused on emotion.^{4,12}

In this study, the main causes of CKD were CGN, diabetes mellitus, and unknown cause and arterial hypertension, similar to the data from the Brazilian census on dialysis, conducted in 2013, in which the main causes of CKD are arterial hypertension, diabetes mellitus and CGN.¹ People with diabetes had higher scores than those who had other causes for KCD for almost all factors, which may suggest that they use more ways of coping because they identify a greater number of stressors related to the disease and treatment. In another study, the most mentioned coping strategies by people with diabetes were active and planning coping strategies, focused on the problem.¹³

Regarding the type of vascular access for HD, 11.2% of people were using peripheral venous catheter, similar to data from the Brazilian census of 2013, in which 15.4% of people undergoing HD were using catheter.¹ And among people who use catheter the highest scores were for the factors confrontation and escape-avoidance. The confrontation coping strategies correspond to offensive strategies for coping with the situation, and escape-avoidance coping strategies can be described as efforts to escape and/or avoid the stressor.¹⁴ The coping strategies related to escape can modulate negative affect of people undergoing HD and have been associated with less survival time. Besides, patients who used escape at the start of treatment showed worsening of their emotional state over time.^{15,16}

People who had undergone transplantation had higher scores for the factors self-control, social support, acceptance of responsibilities, problem-solving, positive reappraisal and escape-avoidance, with prevalence of more positive coping strategies. According to the literature, the quality of life after successful kidney transplantation is better than when undergoing HD.¹⁷ This may suggest that people who had undergone renal transplantation felt more hopeful for the future to make a new transplant. Among the 75 people (70.0%) who reported any leisure activity, the mean scores were higher in all factors. The restrictions imposed by the treatment of CKD also affect the needs of recreation and leisure, because the treatment causes a lot of changes in their lives, such as exams, medications, medical consultations, HD sessions, complications during HD, and all these factors affect the quality of life of people with CKD. Leisure activities promote pleasure and can make the individual forget the difficulties and concerns for a moment.¹⁸

The inability to schedule vacations and the difficulties to travel due to lack of vacancies to perform the treatment in other dialysis centers are among the main stressors reported by people undergoing HD.^{3,6} Most people reported not exercising, and among people who reported exercising there was prevalence of more positive ways of coping. Lifestyle habits of people undergoing HD may be affected by physical and psychological impairment; however, the literature has shown that an exercise program for these people can contribute to the control of blood pressure, improvement of functional capacity, heart function, muscle strength and quality of life.¹⁹

In this study, 95.3% of people reported having religion, and among these the coping scores were higher in all factors. Religious beliefs act as cognitive mediators for the interpretation of adverse events in a positive way, which can facilitate the adaptation of people to their health condition.^{3,6,10}

The results of this study allow concluding that the clinical variables can be considered

stressful situations experienced by people with CKD undergoing HD, to which these people must adapt. For this purpose, patients may use coping strategies; so, for each clinical variable, different ways of coping are required. On the other hand, lifestyle habits, evaluated in the present study, may be behavioral strategies that help coping with stressful situations. In this study, the coping strategies that had higher mean scores were related to the factor positive reappraisal, with a predominance of coping strategies focused on emotion. In relation to clinical variables, there were few differences when comparing the mean scores of each cause of CKD separately and the coping strategies. However, when comparing the mean scores of people with diabetes with people who had other causes for CKD, people with diabetes had higher mean scores in almost all factors, which may suggest that people with diabetic nephropathy referred more coping strategies than people who had other causes for CKD. And this may be because people with diabetes undergoing HD have other duties and restrictions related to the metabolic control of diabetes in addition to the treatment of CKD and HD, accumulating a greater number of stressors.

The realization of kidney transplantation for people undergoing HD led to more positive coping strategies, related to the factors self-control, social support, acceptance of responsibilities, problem-solving and positive reappraisal. As for the lifestyle, it is emphasized that most people did not practice physical activities. People who had leisure and those with religion had higher scores for almost all factors of CSILF. Knowledge about stress-generating clinical variables and more positive coping strategies by nurses can direct the planning of care for people with CKD undergoing hemodialysis that promotes reducing or ameliorating the deleterious effects of stress caused by the disease and treatment, involving investment in education programs for people with CKD and their families, addressing self-care, coping strategies and physical exercise, which can contribute to improved quality of life and health outcomes of these people.

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