

ORIGINAL ARTICLE

Factors associated with the leisure practice of individuals on hemodialysis

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Abstract

Introduction: Leisure practices are complex activities involving several dimensions of human life such as social, cultural, and health. Using them to increase well-being and in situations of chronic diseases help in the adaptation to the disease.

Objective: This study analyzed factors associated with leisure practice in individuals on hemodialysis.

Methods: Data were collected by interview during hemodialysis sessions in a cross-sectional, census, with 1024 individuals. Socioeconomic factors, lifestyle, clinical and treatment characteristics were associated with leisure practices and their magnitudes were evaluated by binary logistic regression.

Results: We found that being 40 years of age or younger increased the odds of engaging in more leisure activities by 5.26 times (95% CI = 3.86-10.15), never having smoked increased the odds of engaging in more leisure activities by 2.12 (95% CI = 1.04-4.30). However, those who had eight years or less of education were 71.1% less likely to practice more leisure (OR = 0.289, 95%CI = 0.17-0.49).

Conclusion: The factors associated with higher leisure practices of hemodialysis users are younger age, higher education, and absence of smoking, demonstrating the need to implement public policies to reduce health inequalities and increase leisure practices.

Keywords: leisure activities, renal dialysis, social determinants of health, noncommunicable diseases, chronic kidney disease.

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Authors summary

Why was this study done?

Leisure practices are complex activities involving several dimensions of human life such as social, cultural, and health. Using them to increase well-being and in situations of chronic diseases help in the adaptation to the disease. Individuals with chronic kidney disease who need hemodialysis have their lives impacted by social and cultural factors and leisure activities. This study was carried out to analyze the factors associated with the practice of leisure in individuals on hemodialysis.

What did the researchers do and find?

Authors interviewed 1024 individuals during hemodialysis and socioeconomic factors, lifestyle habits, clinical and treatment characteristics were associated with leisure practices. Its magnitudes were evaluated by binary logistic regression and found that the greatest leisure practices of hemodialysis users are younger age, higher education and absence of smoking.

What do these findings mean?

The main factors associated with leisure practices are socioeconomic factors and that the routines that hemodialysis impose do not prevent the performance of leisure activities. It is necessary to implement public policies to reduce health inequities and increase leisure practices and improve the well-being of this population.

INTRODUCTION

Chronic Kidney Disease (CKD) is a major public health problem and contributes significantly to the global burden of disease¹. It is estimated that in 2017 there were 700 million people diagnosed with CKD in the world². In Brazil in 2019, the estimated prevalence was 218 people per million, while the estimated incidence was 139.691 people. In the same year, 93.2% of the entire population on dialysis treatment were on hemodialysis³. This treatment interferes with users' social and cultural factors in such an important way that it influences their adherence to treatment and their leisure activities⁴.

Leisure encompasses complex activities with different dimensions of human life such as health, social and cultural factors. This relationship is described as complex, encompassing socio-economical issues⁵ to the point of decreasing socioeconomic inequalities in health⁶. They can include a wide range of options, such as physical activities and sports, theater, expressive and creative activities, and various hobbies. In this relationship, they can be used to benefit various dimensions of health^{6,7}. In chronic disease situations, leisure is a way to improve adaptation to illness and increase well-being⁸.

The association between leisure, social factors and health are well known⁹, but research on leisure does not usually use an instrument that evaluates all the possibilities of activities and people's engagement. Some surveys only evaluate the prevalence of physical activities¹⁰, some specify the amount of time spent on activities to study people's motivation, but not engagement¹¹ and also, those that research leisure based on qualitative methodologies¹².

The positive association between leisure activities and quality of life is already known¹³ but, in the scientific literature, few investigations evaluate whether any characteristic of hemodialysis treatment may be related to the frequency of leisure practices. The researchers found to concentrate on investigating only leisure-time physical activities^{13,14} of individuals on hemodialysis, assessing the quality of life only by social and artistic activities¹³ and assessing whether assessing is a tool that can help improve user satisfaction with the hemodialysis service¹⁵.

Few studies evaluate leisure practices in all their dimensions, especially for individuals on hemodialysis. This evaluation may encompass subjective aspects of activity preferences, keeping the characteristics of freedom of choice that leisure has in its conception. In this context,

we will describe which socioeconomic and lifestyle factors, and which clinical and treatment characteristics are associated with leisure practices in individuals on hemodialysis. Thus, the objective of this work is to analyze the factors associated with the practice of leisure in individuals on hemodialysis.

METHODS

Type of Study and Population

This is an epidemiological, cross-sectional, and census study. The study population consisted of individuals on hemodialysis in the Greater Vitória Metropolitan Region, Espírito Santo, Brazil (GVMR-ES). Participated in the research of all users of hemodialysis services in public and philanthropic entities, hospitals, and in private clinics convened in GVMR-ES of both genders, older than 18 years and in hemodialysis substitutive renal therapy between February and September 2019. Individuals who were under contact precaution, who did not reside in one of the municipalities of GVMR-ES, who were transferred to a hospital inpatient unit, and/or who had limitations in understanding or answering the questions due to some acute or chronic condition were excluded from the research.

Instrument

Data on socioeconomic characteristics, living habits, treatment, and clinical characteristics were collected. The data were categorized as follows:

(1) Socioeconomic characteristics: sex ("female" and "male"); age group ("18 to 39 years", "40 to 59 years" and "60 years or older"); self-reported race/color ("white", "black" and "brown")¹⁶; education in years of study ("up to eight years", "more than eight to 11 years" and "more than 11 years"); income in the minimum wage (MW) ("up to one MW", "more than one to two MW", "more than two to less than five MW" and "five or more MW"); marital status ("with partner" and "without a partner").

(2) Lifestyle characteristics: Drinking alcohol ("yes"/"no"); Smoker ("no, never smoked", "no, smoked in the past but quit" and "yes, regularly").

(3) Clinical and treatment characteristics: Self-reported diseases ("two or less" and "three or more"); Medications used ("less than five" and "five or more"); Self-reported intradialytic complications ("none", "one to three" and "three or more"); Time of chronic kidney

disease (“less than five years” and “five years or more”); Time of hemodialysis (“less than two years” and “two years or more”); City of treatment and residence (“same city” and “other city”); Type of care (“public”, “private” and “mixed”); Shift that performs hemodialysis (“morning”, “afternoon” and “evening”).

To measure the dependent variable, Leisure Practices, the Leisure Practices Scale¹⁷ was used. It is a Likert-type scale that evaluates eight leisure domains: artistic (going to the movies, theater, musical shows, participating in choir groups, etc.), manual (gardening, cooking, crafting, woodworking, etc.), physical sports (going to the gym, playing ball, hiking, etc.), intellectual (participating in courses, reading, listening or composing music, etc.), social (going to church, going out with friends, going to parties, visiting family, etc), tourism (traveling, participating in excursions, virtual (surf the internet, use social networks, play video games), leisure and contemplation (enjoy nature, the sunset, meditate, etc) with 11 points (from zero to ten, where zero means that the user never practices and ten that he always practices). The answers from the eight domains were added to get the result of the leisure practice scale, which can vary from zero to 80 points and dichotomized into “equal to or below the median” / “above the median” which were, respectively, denominated as “less leisure” and “more leisure”.

Data Collection

Data collection occurred between February and September 2019, on the premises of the hemodialysis units, during the period of the individual’s stay in the health service.

A pilot test was conducted in the format of a test and retest, in a 15-day interval, to assess the reliability and reproducibility of the data collection instrument. Fifty-eight individuals with CKD on the hemodialysis treatment in Colatina, a city with more than 100 thousand inhabitants located outside the GVMR-ES (and not included in the research sample) participated. Kappa and McNemar test statistics were performed. The adjusted Kappa values for the variables of the instrument ranged from 0.89 to 0.99, which expresses an almost perfect agreement, and in the McNemar tests no variable showed a significant tendency to disagree at a p-value <5%.

Table 1: Socioeconomic data distributed according to the frequency of leisure practices of individuals on hemodialysis in the metropolitan region of greater Vitória (ES), Brazil

	Leisure practices				p-value ^a	
	Less leisure		More Leisure			
	n	%	n	%		
Sex ^b					0.520	
	Female	206	47.6	227	52.4	
	Male	306	53.8	263	46.2	
Age group (in years) ^b					<0.001	
	> 18 and < 39	38	21.6	138	78.4	
	> 40 and < 59	193	48.1	208	51.9	
	≥ 60 years old	281	66.1	144	33.9	

Data Analysis

The normality of the variables was assessed using the Kolmogorov-Smirnov test. The descriptive analysis was presented as absolute and relative frequencies. Pearson’s chi-square test was used to calculate the difference between the proportions of leisure time practice (less leisure and more leisure) and the other variables. To calculate the odds ratio, we used the binomial logistic regression model. We included those with statistical significance up to 5% in the association test and that did not present collinearity. The significance level was set at 5% and the 95% confidence interval (95%CI). Data were analyzed using IBM SPSS Statistic²².

Ethical and Legal Aspects of the Research

The research was approved by the Research Ethics Committee of the Health Sciences Center of the Federal University of Espírito Santo (UFES), under number 3.002.709 and CAAE 68528817.4.0000.5060 and met the criteria of Resolution No. 466/2012 of the National Health Council. The individuals on hemodialysis who agreed to participate in the research signed the Informed Consent Form (ICF) before answering the questionnaire.

RESULTS

We identified 1351 users in the hemodialysis units of GVMR-ES. Of these, 215 were excluded (137 for being in contact precaution and 78 with comprehension limitations or to answer the questionnaire) and there were also 89 losses (67 for being admitted to other hospital units, besides 15 who died and seven who were transferred from the hemodialysis unit before data collection). Of the 1047 eligible individuals, 23 (2.2%) refused to participate. The population of this study was thus constituted of 1024 individuals on hemodialysis.

In the bivariate analyses, we observed that leisure practices were associated with some socioeconomic variables. The greatest involvement in leisure activities was associated with being 18 to 40 years old (p<0.001), having 11 or more years of schooling (p<0.001), and receiving more than two to five minimum wages (p<0.001) (table 1).

Continuation - Table 1: Socioeconomic data distributed according to the frequency of leisure practices of individuals on hemodialysis in the metropolitan region of greater Vitória (ES), Brazil

	Leisure practices				p-value ^a
	Less leisure		More Leisure		
	n	%	n	%	
Race/color ^c					0.982
	White	136	50.7	132	49.3
	Brown	122	51.7	114	48.3
	Black	248	51.0	238	49.0
Education (in years) ^d					<0.001
	≤ 8	329	65.5	173	34.5
	> 8 to ≤ 11	137	41.3	195	58.7
	> 11	37	23.6	120	76.4
Income (in minimum wages) ^e					<0.001
	< 1	61	57.0	46	43.0
	> 1 and < 2	263	61.0	168	39.0
	> 2 and < 5	111	37.6	184	62.4
	> 5	58	43,6	75	56,4
Marriage Status ^b					0.221
	With partner	275	49.4	282	50.6
	No partner	237	53.3	208	46.7

^aChi-square test. ^bn=1002; ^cn=989; ^dn=991; ^en=966

For individuals on hemodialysis an association of higher leisure practices was observed with the consumption of alcoholic beverages (p=0.005) and with never having smoked (p<0.001) (table 2).

Greater leisure practices were observed among

individuals on hemodialysis who self-reported fewer diseases (p=0.008), those who used the private treatment system modality (p<0.001), and those who performed hemodialysis in the morning or evening shifts (p=0.002) (table 2).

Table 2. Lifestyle data, clinical and treatment characteristics are distributed according to the median leisure practices of individuals on hemodialysis in the metropolitan region of great Vitória (ES), Brazil

	Leisure practices				p- value ^a
	Less leisure		More Leisure		
	n	%	n	%	
Drinking alcohol ^b					<0.001
	No	477	52.5	431	47.5
	Yes	35	37.2	59	62.8
Smoker ^c					<0.001
	No, I have never smoked	265	45.5	318	54.5
	No, I smoked in the past, but quit	213	59.2	147	40.8
	Yes, regularly	34	64.2	19	35.8
Self-reported diseases ^b					0.008
	< 2	146	45.1	178	54.9
	> 3	366	54.0	312	46.0
Medications used					0.124
	< 5	337	51.5	317	48.5
	≥ 5	127	46.0	149	54.0
Self-reported intradialytic complications ^b					0.425
	None	11	40.7	16	59.3
	1 to 3	100	53.8	86	46.2

Continuation - Table 2. Lifestyle data, clinical and treatment characteristics are distributed according to the median leisure practices of individuals on hemodialysis in the metropolitan region of great Vitória (ES), Brazil

	Leisure practices				p- value ^a	
	Less leisure		More Leisure			
	n	%	n	%		
CKD time ^e	> 3	401	50.8	388	49.2	0.074
Hemodialysis Time ^f	< 5 years	276	54.0	235	46.0	0.733
	≥ 5 years	235	48.4	251	51.6	
City of residence and treatment ^b	< 2 years	106	51.2	101	48.8	0.688
	≥ 2 years	370	49.9	372	50.1	
Type of care ^g	Same city	326	51.6	306	48.4	<0.001
	Other City	186	50.3	184	49.7	
The shift that performs Hemodialysis ^b	Public	414	54.8	341	45.2	0.002
	Private	89	40.3	132	59.7	
	Mixed	9	36.0	16	64.0	
Morning		195	46.8	222	53.2	
Afternoon		205	58.7	144	41.3	
Evening		112	47.5	124	52.5	

^aChi-square test; ^bn=1002; ^cn=996; ^dn=930; ^en=997; ^fn=949; ^gn=1001.

Table 3 presents the regression with the variables that presented a p-value lower than 0.05 in the bivariate analysis. Age group, education, and smoking remained associated with leisure practices.

Binary logistic regression showed that being less than 40 years old increases the odds (95%CI= 3.413-9.252) by 6.26 times and being between 40 and less than 59 years old increases the odds (95%CI= 1.748-3.412) of practicing more leisure activities by 2.44 times when compared to individuals aged 60 years or older. The individuals on hemodialysis who had less than eight years of the study

presented 71.1% fewer chances (95%CI= 0.166 - 0.493) and those with more than eight to 11 years of the study presented 55.7% fewer chances (95%CI= 0.267-0.736) of being in the group that practice more leisure when compared to individuals with 8 years or less of study.

For lifestyle variables, users who reported never having smoked were 2.8 times more likely (95% CI= 1.301-6.051) to practice leisure time above the median. No variables among those configuring clinical and treatment characteristics were significant after adjustment.

Table 3. Binary logistic regression between leisure practices below or equal to the median and above the median and associated variables in users of hemodialysis services in the metropolitan region of great Vitória (ES), Brazil

	p-value	Leisure practices	
		OR	IC95%
Age group (in years)			
> 18 and < 39	<0.001	6.263	3.865-10.149
> 40 and < 59	<0.001	2.442	1.748-3.412
≥ 60		1	
Education (in years)			
≤ 8	<0.001	0.289	0.170-0.491
> 8 a ≤ 11	0.002	0.443	0.267-0.736
> 11		1	
Income (in minimum wages)			

Continuation - Table 3. Binary logistic regression between leisure practices below or equal to the median and above the median and associated variables in users of hemodialysis services in the metropolitan region of great Vitória (ES), Brazil

		p-value	Leisure practices OR	IC95%
	< 1	0.334	0.718	0.366-1.406
	> 1 and < 2	0.145	0.660	0.378-1.154
	> 2 and < 5	0.112	1.535	0.905-2.603
	> 5		1	
Drinking alcoholic beverages	No	0.115	0.220	0.428-1.215
	Yes		1	
Smoker	No, I have never smoked	0.038	2.118	1.042-4.302
	No, I smoked in the past, but I quit	0.187	1.628	0.789-3.355
	Yes, regularly		1	
Self-reported diseases	< 2	0.062	1.357	0.985-1.870
	> 3		1	
Medications used	< 5 medicines	0.171	0.796	0.575-1.103
	≥ 5 medicines		1	
Type of care	Public	0.707	0.923	0.609-1.399
	Private	0.755	1.189	0.400-3.537
	Mixed		1	
The shift that performs Hemodialysis	Morning	0.904	0.977	0.665-1.434
	Afternoon	0.250	0.787	0.524-1.184
	Evening		1	

OR: Odds Ratio; IC95%: 95% Confidence Interval; Hosmer and Lemeshow model fit = 6.760; R² Nagelkerke = 0.261.

DISCUSSION

This work was organized to identify and analyze the factors associated with the practice of leisure in individuals on hemodialysis. Thus, elements linked to the daily life of hemodialysis treatment, clinical characteristics, lifestyle, and socioeconomic habits were investigated.

Leisure is described in the literature as capable of helping in health, adaptation to chronic diseases, and well-being. Using an instrument that addresses the 8 dimensions of leisure in research with hemodialysis users is unprecedented and helps to explain the contradiction that the literature points out about the frequency of leisure practices in this population. It should be noted that presenting associations of clinical characteristics and treatment of this population is also unprecedented and contributes to the hemodialysis service teams guiding their users based on the scientific literature.

The results show that the factors associated with more leisure practices of individuals on hemodialysis

are age, level of education, and smoking habit, and then, the groups that most practice leisure activities are young adults, with higher levels of education and who did not smoke. However, it is important to point out that this study used an instrument to evaluate leisure practices never used before with the study population, which points to greater caution in comparing results for analysis.

The main finding of this work is that the results of the final adjusted model indicate that clinical and treatment characteristics do not affect the leisure practices of individuals on hemodialysis in their different contexts. Although we did not find research in the literature that specifically investigates this relationship, some articles use the impact of these treatment characteristics on patients' lives to justify lifestyle studies¹⁸. Socioeconomic inequalities hinder more the realization of leisure practices than the treatment routine, which gives indications that if the subject can organize himself to enjoy leisure moments, the heavy routine that a hemodialysis treatment imposes may be overcome.

In the present study lower levels of education are related to lower levels of leisure practices. This association is also found in studies that investigated only the elderly¹⁹ or only adults²⁰. Low education, besides being a barrier to leisure¹⁹ is associated with lower cognitive levels and impairment in social functions of hemodialysis users²¹, which may cause users to have fewer internal resources to cope/practice more domains of leisure and adjust them to the reality they live after the disease has been diagnosed and treatment has started.

Although some studies indicate that low income is a limiting factor for the access to leisure¹⁸, it was not verified any association between the frequency of leisure practices and income. Manual, social and virtual activities are more practiced by people with lower income and less education, and on the other hand, artistic activities are performed by people with higher education, as well as tourism activities are more practiced by people with higher income²². The sum of the answers of all the domains may have masked the relations of each domain with income, which may explain the result found.

The findings corroborate with the scientific literature, that older people have fewer leisure practices. The increase in age is a factor that decreases the chances of performing sports-physical leisure activities²³ and increases the sedentary leisure time⁴. It is also important to consider that the senescence process increases the possibility of sarcopenia, and in individuals on hemodialysis, this is an important functional limiting factor²⁴. The changes that the body presents in the senescence process, added to those provided by CKD and the psychological effect of long periods in a treatment environment, often only reinforce a new place in the world: that of being sick. The process of becoming ill has a lot of pain, suffering, and doubts about the diagnosis²⁵. This framework associated with setting a preference for certain domains of leisure may impact the decrease in leisure practices by older people.

Leisure can be a helping element in changing this picture because it is a fundamental process that collaborates in the construction of meanings of the “art of life”²⁶ and can help the person not only to experience/be in the everyday life, but to overcome the feeling of being sick by the hope in the future and also to renew the meaning of his existence²⁷, providing a better quality of life⁸.

Never having smoked was positively associated with higher leisure practices in this study. Although the habit of smoking is associated with sedentary leisure²⁸, many other activities open themselves as leisure possibilities. This result can be explained by the fact that hemodialysis service users, due to chronic kidney disease, are exposed to a lot of information and guidance about food and healthy habits and people who do not smoke have more chances to adhere to healthy eating patterns²⁹, which can increase the sense of well-being and willingness to varied leisure activities.

In this sense, it is noted that the leisure practices of individuals on hemodialysis need more attention from health professionals. Hemodialysis generates important changes in people’s lives, in their daily lives, in their work/study, and their eating habits. The hemodialysis service teams must have professionals who understand

the importance of leisure activities and their potential to facilitate the management of symptoms, improve well-being, and adapt to life with a chronic disease.

As the main limitation of this study we can point out the difficulty of studying behavioral characteristics quantitatively, however, it is important because it is unprecedented research in the literature, being one of the few studies that investigate the leisure of individuals on hemodialysis with an instrument with the 8 domains of leisure practices. Another limitation is, in a cross-sectional study, establishing temporal causality between the associations. We also understand that by using the Leisure Practices Scale considering the totality of the 8 domains, the possibility of discussing the different characteristics of each of the eight leisure domains and their associations with the variables studied was diminished. However, the form of analysis adopted values the variety of leisure practices, considering them as a personal (or collective) choice, free and that generates pleasure.

■ CONCLUSION

This work sought to study the association of socioeconomic factors, lifestyle habits, clinical characteristics, and hemodialysis treatment to the leisure practices of individuals on hemodialysis. All individuals under treatment for GVMR-ES, in the period from February to September 2019, were interviewed and based on Pearson’s Chi-square result, the binomial logistic regression model was assembled to estimate the odds ratio of each factor in leisure practices.

Based on the results, it is possible to infer that the factors associated with higher leisure practices of individuals on hemodialysis are socioeconomic factors. Being less than 40 years old and not yet experiencing the decline in body functionality that senescence produces is one of the factors that contribute to greater leisure practices. Another factor identified by the research is the higher level of education that is associated with lower cognitive levels and impairment in social functions as limiting such practices.

Another factor associated with higher leisure practices was the habit of not smoking. The exposure to the various guidelines and recommendations for healthy habits and care regarding CKD that the individual on hemodialysis receives. This may increase the periods of the feeling of well-being that facilitate leisure practices.

The main finding is that, unlike the initial hypothesis of the research, the clinical characteristics and treatment were not associated with the leisure practices of the individual on hemodialysis. Despite the constant treatment routine, individuals on hemodialysis find ways to participate in leisure activities and live a life that is not centered only on the disease. These findings indicate the importance of having public policies that favor the reduction of social and health inequalities and that are aimed at promoting leisure practices in this population. It also points to the need for hemodialysis service teams to have professionals who can perform interventions to expand such practices and favor an increase in the well-being of people who are on treatment.

Author Contributions

Conceptualization, A.C.C.; methodology, A.C.C., L.B.S. e E.T.S.N.; formal analysis, A.C.C.; writing—original draft preparation, A.C.C.; writing—review and editing, L.B.S., E.T.S.N., and M.C.; supervision, L.B.S. and E.T.S.N.; project administration, L.B.S.; funding acquisition, L.B.S. and E.T.S.N. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflict of interest.

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Resumo

Introdução: práticas de lazer são atividades complexas envolvendo várias dimensões da vida humana como social, cultural e de saúde. Utilizá-las para aumentar o bem-estar e em situações de doenças crônicas ajudar na adaptação à doença.

Objetivo: este estudo analisou fatores associados à prática de lazer em indivíduos em hemodiálise.

Método: dados coletados por entrevista durante as sessões de hemodiálise em corte transversal, censitário, com 1024 indivíduos. Fatores socioeconômicos, hábitos de vida, características clínicas e de tratamento, foram associados às práticas de lazer e suas magnitudes foram avaliadas por regressão logística binária.

Resultados: identificou-se que ter 40 anos ou menos aumentou a chance de praticar mais lazer em 5,26 vezes (IC95% = 3,86-10,15), nunca ter fumado aumentou em 2,12 as chances de praticar mais lazer (IC95% = 1,04-4,30). Entretanto, aqueles que tinham oito anos ou menos de estudo apresentaram 71,1% menos chances de praticar mais lazer (OR = 0,289, IC95% = 0,17-0,49).

Conclusão: os fatores associados com as maiores práticas de lazer de usuários de hemodiálise são menor idade, maior escolaridade e ausência de tabagismo demonstrando a necessidade de implementar políticas públicas para diminuir as inequidades em saúde e aumento das práticas de lazer.

Palavras-chave: atividades de lazer, diálise renal, determinantes sociais da saúde, doenças não transmissíveis, insuficiência renal crônica.

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