Factors associated with functional health literacy in old people undergoing pre-dialysis treatment

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Abstract

Objective: To evaluate the factors associated with functional health literacy in the elderly undergoing pre-dialysis treatment. *Method*: This is a cross-sectional study, carried out with 60 elderly people diagnosed with chronic kidney disease and assisted in the conservative treatment outpatient clinic of a public hospital in the city of Recife, Pernambuco, Brazil. Data were collected using the instrument of Test of Health Literacy in Adults, an abbreviated version and a structured questionnaire, which were subsequently analyzed using descriptive and inferential statistics. *Result*: Functional health literacy was insufficient 43(71.7%) and was associated with lower education (p-value=0.000) and non-white race (p-value=0.040). *Conclusion*: The educational level and race are factors that interfere in functional health literacy, serving as subsidies for the elaboration of educational actions adjusted to the reality of this public.

Keywords: Health Literacy.
Health of the Elderly.
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INTRODUCTION

With the growth of the older population, there was an increase in the prevalence of Chronic Noncommunicable Diseases (CNCDs), such as arterial hypertension and diabetes, which are the main causes of Chronic Kidney Disease (CKD)[1]. In Brazil, a survey conducted in 2018 found that 35% of dialysis patients were 65 years of age or older[2].

Several factors predispose the individual to the development of CKD, including social determinants, such as low family income and inadequate housing conditions; psychological determinants, such as anger, stress, cognitive decline and depression; behavioral determinants, such as smoking, alcoholism, use of illicit drugs, unhealthy diet and physical inactivity, as well as frequent risk factors, including: hypertension, diabetes mellitus, overweight/obesity and low medication adherence; and educational determinants, such as inadequate health literacy[3].

Functional Health Literacy (FHL) or Health Literacy refers to the skill required for functionality in the health environment, including the ability to perform basic reading and numeracy tasks[4]. It has implications for people's knowledge, motivation and competence to access, understand, evaluate and apply health information regarding the judgment and decision-making related to health care, disease prevention and health promotion, in order to maintain or improve quality of life[5].

The World Health Organization (WHO) identified FHL as one of the determinants of health, as this competence can help in the effectiveness of the communication process, which, through strategies, increases access to information, promotes individual and collective empowerment in health control and encourages the promotion of care[6].

In the pre-dialysis treatment of CKD, it is common for individuals to receive information about their condition, using unknown medical terminologies, such as laboratory results and even clinical procedures to which they will be submitted. This information requires basic reading and numbering skills, so that, in fact, the individual can understand its meaning[7].

In this context, in the senescence process there is a decrease in functional reserve in several organs and systems; this regression, associated with CKD, can interfere in the understanding of the guidelines provided by the health team and thus contribute to low adherence to treatment[8].

For the activities and actions developed by health professionals to be effective, health education is a tool that provides, mainly through consultation with the multiprofessional health team, the opportunity for guidance on self-care. However, it is necessary to know the level of understanding that individuals have about the orientations received. In this way, the FHL can directly influence the level of understanding, knowledge and change in life habits[7].

Currently, there are few instruments used to measure FHL, the most cited being: Rapid Estimate of Adult Literacy in Medicine (REALM) and Test of Functional Health Literacy in Adults (TOFHLA). However, they are not specific to the older public[9].

In addition to the absence of a specific instrument to assess FHL in old people, there is also a lack of educational interventions for this audience. Among these interventions, there is a lack of workshops, educational programs, courses and training. Associated with this, the need to use simple language, adaptation of the material based on the specificity of the old person, in order to facilitate the FHL[10].

Considering that old people undergoing pre-dialysis treatment are faced with the need for changes in their routine, such as complex medication regimens, an appropriate diet and frequent outpatient consultations, FHL emerges as a skill that can facilitate the understanding of the guidelines and contribute to their autonomy and self-care.

Thus, the evaluation of the factors associated with the FHL of the old person undergoing pre-dialysis treatment may signal, for professionals, important variables to be worked on in providing assistance to this population, in order to contribute to a better understanding of the guidelines and adoption of self-care measures. Given the above, the study aimed to evaluate the factors associated with FHL of old people undergoing pre-dialysis treatment.

METHOD

Sectional study carried out at the Chronic Kidney Disease outpatient clinic of a public hospital in the city of Recife, Pernambuco, Brazil.

The sample, of the census type, included 213 individuals, aged 60 years or over, of both sexes, under conservative treatment and assisted at the clinic between February and July 2019. Old people without reading and writing skills were excluded (67); with cognitive deficit (<3) assessed by the Minicog (11), an instrument that assesses immediate memory using three words spoken to the old person, which they must remember after drawing a clock, worth one point for each word remembered and two points for drawing right; decreased visual acuity (21): below the 20/50 line, using the Snellen visual acuity rating scale; low auditory acuity (5): not being able to hear and understand what was said, measured by the Whisper test and individuals with neurodegenerative disease recorded in health records (9). Refusals and losses counted 40 individuals. In the end, the sample resulted in 60 old people undergoing pre-dialysis treatment.

Data were collected through an interview with a structured questionnaire composed of socioeconomic and demographic variables (gender, age, self-declared race, income, marital status, years of education, place of residence and number of people in the residence) and health conditions: outpatient treatment time, Body Mass Index (BMI) (calculated according to the Quetelet equation (BMI=weight/height^2)[11] and classified according to Lipschitz[12], as: underweight, with BMI<22kg/m^2; eutrophy, BMI between 22kg/m^2 and 27kg/m^2, and overweight BMI>27kg/m^2), comorbidities; difficulties in following the treatment; satisfaction with medical appointments; knowledge about CKD assessed by means of a questionnaire, consisting of 21 questions including the knowledge of the old person about kidney function, cause and principles of CKD, and conservative treatment, with 70% or more correct answers being considered sufficient knowledge[13].

The FHL level was assessed by TOFHLA, in its brief version. The translation and validation of this instrument for the Brazilian population is in the process of being published with excellent results, covering individuals over 18 years old and with old people, in their sample. The instrument was chosen based on the result of a literature review, in which TOFHLA and B-TOFHLA were two of the most used instruments to assess functional health literacy in the old people population[9].

This instrument allows to capture the numeracy and reading comprehension skills. It consists of two subtests: one, consisting of two text passages integrated by 36 items, counting 2 points for each item that gets a correct answer and four more numbering items, counting 7 points for each correct answer. When adding the points related to reading and understanding with the numbering score, the total FHL score is obtained, classified as Adequate (67-100 scores), Marginal (54-66 scores) or Inappropriate (0-53 scores)[14]. In line with other studies[15,16], the last two classifications were grouped, considering that individuals with Inadequate or Marginal FHL have limitations both in reading and in understanding the health information presented in written form.

The survey data were entered into an Excel for Windows® spreadsheet, in double entry, verified with Validate, module of the Epi-info program version 6.04 (WHO/CDC/Atlanta, GE, USA), to check the consistency and validation. Then, the data were transferred to statistical software, and the descriptive analysis was carried out through the characterization of the sample regarding the sociodemographic, clinical and knowledge variables about CKD. In the association between FHL and the investigated variables, Pearson's chi-square test or Fisher's exact test was used. For all analyzes, $p<0.05$ was considered statistically significant.

The project was approved by the Research Ethics Committee of the Health Sciences Center (CCS) of the Federal University of Pernambuco (UFPE) under CAAE 01234918.0.0000.5208. All respondents were previously informed of the research objectives and after consent, the Free and Informed Consent Form was signed.

RESULTS

Of the 60 old people with CKD interviewed, 43 (71.7%) had inadequate FHL and 17 (28.3%) adequate FHL. Of the total, 38 (63.3%) were men, 36 (60%)

aged between 60 and 69 years old, 37 (61.7%) declared themselves to be non-white (brown and black), 43 (71.7%) earned up to a minimum wage, 36 (60%) reported having partners, 35 (58.3%) studied for less than 4 years, 45 (75%) lived in the Metropolitan Region of Recife and 37 (61.7%) lived with three or more people in the residence. Regarding the factors associated with FHL, a statistically significant relationship was observed with race and years of education (Table 1).

As for clinical conditions, all 60 (100%) old people were in advanced stages of CKD (three, four or five), 25 (41.7%) had been in outpatient treatment for more than five years, 34 (56.7%) were overweight, 33 (55%) had more than three comorbidities, 33 (55%) reported difficulties to follow the treatment, due to the distance to the health service and the use of medication, 34 (56.7%) understood the information shared during medical and/or nursing consultations. As for knowledge about the disease and treatment, for 38 (63.3%) it was insufficient and, of these, 27 (71%) had inadequate FHL (Table 2).

Table 1. Functional health literacy according to socioeconomic and demographic factors of individuals assisted at the CKD clinic undergoing pre-dialysis treatment. Recife-PE, Brazil, 2019.

Characteristics	Total	Functional Health Literacy		*p*-value
	n (%)	Inadequate 43(71.7%)	Adequate 17(28.3%)	
Sex				
Female	22 (36.7)	19(86.4%)	3(13.6%)	0.055[b]
Male	38 (63.3)	24(63.2%)	14(36.8%)	
Age (years)				
60-69	36(60.0)	14 (39%)	22(61%)	0.162[a]
70-79	21(35.0)	9(43%)	12(57%)	
80 and over	3(5.0)	3(100%)	0(0%)	
Self-declared race				
Non-white*	37 (61.7)	30(81.1%)	7(18.9%)	0.040[b]
White	23 (38.3)	13(56.5%)	10(43.5%)	
Income (MW)**				
≤ 1	43(71.7)	33(76.7%)	10(23.3%)	0.209[a]
> 1	17(28.3)	10(58.8%)	7(41.2%)	
Marital status				
With companion	36(60%)	13(36%)	23(64%)	0.264[b]
No companion	24(40%)	13(54.2%)	11(45.8%)	
Years of education				
≤ 4	35(58.3)	32(91.4%)	3(8.6%)	0.000[b]
>4	25(41.7)	11(44%)	14(56%)	
Place of residence				
Metropolitan region	45(75.0)	32(71.1%)	13(12.8%)	1.000[a]
Another location	15(25.0)	11(73.3%)	4(26.7%)	
Number of people in the residence				
≤ 2	23(38.3)	16(69.6%)	7(30.4%)	0.776[b]
≥ 3	37(61.7)	27(73%)	10(27%)	

*Non-white (old people who declared themselves black or brown);**minimum wage in force in 2019; [a]Pearson's Chi-Square Test; [b]Fisher's exact test. Source: Research data, 2020.

Table 2. Functional health literacy according to the health conditions of individuals assisted at the CKD clinic and undergoing pre-dialysis treatment. Recife, PE, Brazil, 2019.

Characteristics	Total	Functional Health Literacy		p-value
	n (%)	Inadequate 43(71.7%)	Adequate 17(28.3%)	
Outpatient treatment time (years)				
≤ 2	19(31.7)	12(63.2%)	7(36.8%)	0.608[b]
3-4	16(26.7)	12(75%)	4(25%)	
≥ 5 and over	25(41.7)	19(76%)	6(24%)	
Body Mass Index				
Low weight	3(5)	0(0%)	3(100%)	0.310[a]
Normal	23(38.3)	9(39%)	14(61%)	
Overweight	34(56.7)	17(50%)	17(50%)	
Comorbidities				
None	8(13.3)	3(37.5%)	5(62.5%)	0.126[b]
< 3	19(31.7)	5(26.3%)	14(73.7%)	
≥ 3	33(55)	18(54.5%)	15(45.5%)	
Difficulties in following treatment				
Distance to health service and medication use	33(55.0)	26(78.8%)	7(21.2%)	0.176[b]
Diet	27(45.0)	17(63%)	10(37%)	
Satisfaction with consultations				
Satisfied	34(56.7)	22(64.7)	12(35.3%)	0.171[b]
Partially satisfied/Not satisfied	26(43.3)	21(80.8)	5(19.2%)	
Knowledge in DRC				
Sufficient	22(36.7)	16 (72.7%)	6(27.3%)	1.000[a]
Insufficient	38(63.3)	27(71%)	11(29%)	

[a]Pearson's Chi-Square Test; [b]Fisher's exact test. Source: Research data, 2020.

DISCUSSION

The FHL assessment of old people with CKD is extremely important, to ensure health promotion through the reformulation of public policies and health interventions aimed at this public, the results of which can reduce health disparities attributed to low health literacy[17].

In this study, the FHL of the old person with CKD proved to be insufficient and its results corroborate with a previous Brazilian study, carried out with adults and old people with CKD and assisted on an outpatient basis, in the city in Goiás. Insufficient FHL interferes with the understanding of the information received about your health condition and can contribute to the evolution of renal replacement therapy, since, to follow the guidelines, cognitive reading and numeracy skills are needed[7].

In old people, the impact of insufficient FHL is even more significant, as these individuals are more susceptible to multiple health problems, more complex therapeutic regimens and frequent use of health services. The complexities associated with chronic disease management, low schooling and cognitive and sensory changes associated with aging aggravate communication challenges[18].

Several factors can influence the FHL. The results of this study are similar to the findings of a cohort investigated in the USA, with individuals with CKD undergoing hemodialysis and a median age of 62 (IQ 51.0; 72.0) years; where 32% of respondents

had inadequate FHL, which was associated with non-white race and less education[19].

Skin color is defined not only by biological factors, but also by geographic, cultural, economic, political and legal factors. Despite the SUS principles advocating equal, equitable and universal access to the entire population, racial inequalities are decisive for the access and use of health services. In this way, they can reflect on the illness process of non-white people and influence the level of FHL[20].

From the perspective of social determinants, it is observed that individuals belonging to ethnic groups who are victims of social adversity and with low schooling are more likely to have low levels of FHL and, consequently, are predisposed to worse health status[21]. In this sense, a study conducted with North American adults observed that non-white individuals were more likely to have low or limited FHL[22]. These results impose a reflection on health professionals, for a care practice adapted to the specificities of the assisted population, in order to minimize the barriers already imposed by society.

Low education is also frequent in the old people population with CKD and reverberates the precarious and less accessible educational situation of the 20th century, in which the priority for the population was work[23]. In this research, schooling was directly proportional to FHL, corroborating a study carried out with 72 old people, 31.94% said they had elementary school and had difficulty in understanding and textual interpretation and 37.25% had restricted conditions for reading[24].

In Brazil, despite the progress in accessibility to basic education, the heterogeneity of the population and the low level of education contribute for the FHL to remain practically untapped[25]. Thus, it is necessary to plan actions that seek to address the social inequalities perpetuated in the health system regarding FHL, through educational strategies aimed at old people with CKD[26,27], considering their characteristics and particularities, in order to minimize or exclude possible diseases[28].

Insufficient knowledge regarding the disease and treatment has also been shown in other studies[7,13]. Such results may contribute to unfavorable clinical outcomes, especially in CKD, and may be a reflection of inadequate FHL, constituting an obstacle to self-care management[15].

Literature review study on the FHL involving the old people population identified REALM and TOFHLA as the most used instruments for this audience, supporting the choice of TOFHLA in its brief version, for this research[9]. The use of an instrument for the evaluation of FHL in health can provide subsidies for planning health care for the old people population with CKD, with regard to the promotion of health education actions adapted to the needs and skills of this public[9,29].

As limitations, we point out the difficulty of understanding the issues addressed in the FHL assessment instrument, which was also highlighted in another study[7]. Thus, it is necessary to build specific instruments to evaluate FHL in the old people population, as well as multidisciplinary monitoring adapted to their particularities and the expansion of studies focused on this theme.

CONCLUSION

The FHL of the old people assisted in a pre-dialysis treatment clinic was inadequate and was associated with low education and non-white race. Insufficient knowledge about the disease and treatment was also present, but did not interfere with FHL levels.

Knowing the factors associated with the FHL of the old person undergoing pre-dialysis treatment can support the development of educational strategies adapted to the individual characteristics of this population and thus instrumentalize them for the adoption of health care and postponement of dialysis treatment.

It is expected that studies like this will sensitize health professionals in relation to the need to evaluate FHL and the associated factors in old people undergoing pre-dialysis treatment and the adoption of educational practices aimed at improving knowledge, especially for old people with low FHL.

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REFERENCES

1. Pilger C, Rampari EM, Waidman MAP, Carreira L. Hemodiálise: seu significado e impacto para a vida do idoso. Esc Anna Nery. 2010;14(4):677-83.
2. Neves PDMM, Sesso RCC, Thomé FS, Lugon JR, Nascimento MM. Censo Brasileiro de Diálise: análise de dados da década 2009-2018. Braz J Nephrol. 2020;42(2):191-200.
3. 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.
4. Malloy-Weir L, Charles C, Gafni A. A review of health literacy: Definitions, interpretations, and implications for policy initiatives. J Public Health Policy. 2016;37:334-52.
5. World Health Organization. Health literacy: The solidfacts [Internet]. Copenhagen: WHO; 2013 [cited 2019 Mar. 26]. Available from: https://apps.who.int/iris/bitstream/handle/10665/326432/9789289000154-eng.pdf
6. Santos MIPO, Portella MR. Condições do letramento funcional em saúde de um grupo de idosos diabéticos. Rev Bras Enferm. 2016;69(1):156-64.
7. Moraes KL, Brail VV, de Oliveira GF, Cordeiro JABL, Silva AMTC, Boaventura RP, et al . Letramento funcional em saúde e conhecimento de doentes renais em tratamento pré-dialítico. Rev Bras Enferm. 2017;70(1):155-62.
8. Meira AS, Batista MA, Pereira RM, Rodrigues RA, Fhon JR, Kusumota L. Fragilidade em idosos com doença renal crônica em tratamento conservador. Rev Rene. 2016;17(3):386-92.
9. Lima MFG, Vasconcelos EMR, Borba AKOT. Instrumentos utilizados para avaliar o letramento funcional em saúde de idosos com doença renal crônica: revisão integrativa. Rev Bras Geriatr Gerontol. 2019;22(3):e180198. Available from: https://doi.org/10.1590/1981-22562019022.180198.
10. Martins NFF, Abreu DPG, Silva BT, Semedo DSRC, Pelzer MT, Lenczak FS. Functional health literacy and adherence to the medication in older adults: integrative review. Rev Bras Enferm. 2017;70(4):868-74.
11. Garrow JS, Webster J. Quetelet's index (W/H2) as a measure of fatness. In J Obes. 1985;9(2):147-53.
12. Lipschitz DA. Screening for nutritional status in the elderly. Prim Care. 1994;21(1):55-67.
13. Canhestro M, Oliveira E, Soares C, Marciano R, Assunção D, Gazzinelli A. Conhecimento de pacientes e familiares sobre a doença renal crônica e seu tratamento conservador. Rev Min Enferm. 2010;14(3):335-44.
14. Carthery-Goulart MT, Anghinah R, Areza-Fegyveres R, Bahia VS, Bruck SMD, Damin A, et al . Performance of a Brazilian population on the test of functional health literacy in adults. Rev Saúde Pública. 2009;43(4):631-8. Available from: https://doi.org/10.1590/S0034-89102009005000031
15. Bezerra JNM, Lessa SRO, do Ó MF, Luz GOA, Borba AKOT. Letramento em saúde dos indivíduos submetidos à terapia dialítica. Texto contexto Enferm. 2019; 28: e20170418.
16. Sampaio HAC, Carioca AAF, Sabry MOD, Santos PM, Coelho MAM, Passamai MPB. Letramento em saúde de diabéticos tipo 2: fatores associados e controle glicêmico. Ciênc Saúde Colet. 2015;20(3):865-74.
17. Romero SS, Scortegagna HM, Doring M. Nível de letramento funcional em saúde e comportamento em saúde de idosos. Texto contexto Enferm. 2018;27(4): e5230017. Available from: https://doi.org/10.1590/1980-265x-tce-2017-0418
18. Serbim A, Paskulin L, Nutbeam D. Improving health literacy among older people through primary health care units in Brazil: feasibility study. Health Promot Int. 2019:1-10.
19. Cavanaugh KL, Wingard RL, Hakim RM, Edem S, Shintani A, Wallston KA, et al. Low health literacy associates with increased mortality in ESRD. J Am Soc Nephrol. 2010 Nov;21(11):1979-85.
20. Campos AAL, Neves FS, Saldanha RF, Duque KCD, Guerra MR, Leite ICG, et al. Fatores associados ao letramento funcional em saúde de mulheres atendidas pela Estratégia de Saúde da Família. Cad Saúde Colet. Available from: https://doi.org/10.1590/1414-462x202000280295
21. Pinhati RR, Tavares PL, Marsicano EO, Fernandes NS, Colugnati FA, et al. Baixo letramento em saúde em pacientes idosos com pressão arterial não controlada em nível secundário de atenção à saúde. HU Rev. 2019; 45(1):13-21. Available from: https://doi.org/10.34019/1982-8047.2019.v45.16970
22. Kaphingst KA, Goodman M, Pyke O, Stafford J, Lachance C. Relationship between self-reported racial composition of high school and health literacy among community health center patients. Health Educ Behav. 2012;39:35-44.

23. de Lima JP, Abreu DPG, Bandeira EO, Brum NA, de Mello MCVA, Varela VS, et al. Letramento funcional em saúde e fatores associados em pessoas idosas. Cogitare Enferm. 2019;24: e63964. Available from: http://dx.doi.org/10.5380/ce.v24i0.63964

24. Souza Filho PP. Condições de letramento no processo de envelhecimento: uma análise junto a idosos com mais de 65 anos. Rev. Soc. Bras. Fonoaudiol. 2012;17(2):1-10.

25. Apolinario D, Braga RCOP, Magaldi RM, Busse AL, Campora F, Brucki S, et al . Short Assessment of Health Literacy for Portuguese-speaking Adults. Rev Saúde Pública. 2012;46(4):702-11. Available from: https://doi.org/10.1590/S0034-89102012005000047

26. Ingram RR, Ivanov LL. Examining the association of health literacy and health behaviors in African American older adults: does health literacy affect adherence to antihypertensive regimens? J Gerontol Nurs. 2013;39(3):22- 32.

27. Baker DW, Wolf MS, Feinglass J, Thompson JA, Gazmararian JÁ, Huang J. Health literacy and mortality among elderly persons. Arch Intern Med. 2007;167(14):1503-9.

28. Lima JP, Abreu DPG, Bandeira EO, Brum AN, Garlet BB, Martins NFF. Letramento funcional em saúde de idosos com hipertensão arterial na Estratégia de Saúde da Família. Rev Bras Enferm. 2020;73(Suppl 3): e20190848. Available from: https://doi.org/10.1590/0034-7167-2019-0848

29. Lima MFG, Carvalho JC, Vasconcelos EMR, Borba AKOT, Zimmermann R, Costa EF. A importância da avaliação do letramento funcional em saúde no idoso: revisão integrativa. Rev Enferm. Atual. 2019;90(28):1-10: Available from: https://doi.org/10.31011/reaid-2019-v.90-n.28-art.537