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The complexity of social intervention according to gender and education of chronic kidney disease patients

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Resumo

The high prevalence of chronic kidney disease and the social relevance of its treatment require a deeper knowledge concerning this sick population, taking into account its overall complexity. The study aimed to analyze the levels of complexity in the social intervention process with people with chronic kidney disease from a gender and educational perspective. The sample included 584 patients aged between 19 and 93 years, mostly male, married and with the 1st cycle of primary education completed. Participants, diagnosed with chronic kidney disease, were assessed using a protocol that includes a sociodemographic questionnaire and The Matrix of Complexity Associated with the Process of Social Intervention with Chronic Kidney Disease Patients (MCAPIS_DRC). A statistically significant association was found between the three levels of complexity assessed and the variables gender ($p=0.002$, phi=0.146) and education ($p>0.001$, phi=0.277). There was also an interaction between education and the complexity index according to sex (F (5, 572) =6.647 $p=<0.001$, ηp2=0.113). Women had higher scores on the index and people with higher levels of education scored less on the index. The evidence allows a different approach in the assessment and social intervention if this condition, prioritizing problematic groups and situations.

Palavras-chave: Gender, Education, Chronic Kidney Disease, Complexity, Social Work.

INTRODUÇÃO

Chronic kidney disease (CKD) has become a relevant public health problem, with marked multidimensional impacts on the quality of life of sick people[1]. Constituting CKD as a complex and debilitating condition[2] requires a deep understanding of the analytical spheres that intertwine and that demand social intervention, emphasizing gender relations and education. Despite the recognition of the relevant implications of these two variables, the integration of other relevant social determinants that refer to the social conditions of life and work that enhance risk factors and health problems cannot be overlooked in a complex mediation between macro and microfactors[3].

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In nephrology, differences in relation to sex and gender are pointed out in the epidemiology, evolution, and prognosis of chronic diseases, which in some cases contradict the general trends of the population, namely because there is no advantage for women in survival when in renal replacement therapy and because mortality rates are similar between genders[4]. The prevalence of CKD tends, in general, to be higher in women, although this prevalence is higher in men undergoing renal replacement treatment[5], assuming greater severity and higher mortality risk in this population[6].

There is also evidence to suggest behavioral differences in the way men and women deal with the disease and treatment[4], which underlines the relevance of the gender perspective in the approach to CKD. Women undergoing dialysis tend to experience greater depression and anxiety symptoms than men, who exhibit more compensatory behaviors (e.g., smoking, eating, and drinking excessively) as a way to deal with the stress associated with the disease, which increases associated risks[4].

Social relationships between genders are important factors of people's living and health conditions[7] since different social roles affect experiences and the relationship with the disease and health care[8]. Protective behavior concerning health or risks are associated with social attributes of masculinity and femininity that can become an advantage or disadvantage, depending on the context and age[9]. Women and men tend to show differences in health habits, life expectancy, ways of falling ill and dying, self-perception of their health, and use of health services[7].

However, gender inequalities in health are often not recognized, which results from concepts that differences are attributable to biological factors and not to social relationships of gender[10]. The need to identify the links between sex and gender is defended in order to clarify the relationship of both with the factors of health, which gives special relevance to adopting a gender perspective in health, distinguishing biogenetic characteristics and the impacts of gender inequalities, as well as other social dimensions[11].

On the other hand, education has a strong association with health and health care literacy, which varies with people's social and cultural contexts[12], conditioning the way people have access to, interpret, and understand the disease and the treatments.

It is known that 23% of the population in an advanced stage of chronic kidney disease demonstrate insufficient information about the disease and its treatment[13], which is associated with low socioeconomic levels, comorbidities, and mortality[14]. Adequate information in relation to disease management and health promotion is associated with behaviors that promote better adherence to the treatment[15,16].

Limited literacy reduces patients' skills to understand their disease and treatment, making informed consent difficult, conditioning their abilities, and moving them away from more effective participation in the process at various levels. The risk of falling ill increases with the lack of education, especially when there is a situation of poverty. In 2014, in Portugal, people without an education had a six-fold higher risk of having poor health when compared to those with more education, persisting and worsening inequalities that tend to disadvantage those with lower educational levels, regardless of gender and age[17].

Low levels of health literacy are related to difficulties in understanding the disease processes, the prognosis, the evolution of the disease and its treatment, as well as the late detection of diseases, problems with adherence and therapeutic adequacy, the misuse of health services, and a higher rate of morbidity and hospitalization[15].

Therefore, the present study aimed to analyze the levels of complexity associated with the process of social intervention with people with CKD, from a gender and educational perspective, discussing its implications.

MATERIALS AND METHOD

Study Type

The study is a cross-sectional analytical study, using a non-probabilistic or intentional sample.

Participants

584 people with chronic kidney disease living in Portugal participated in the study. The sample consisted mainly of males (63.4% vs. 36.6%), aged between 19 and 93 years old (M = 67.5; SD = 14.8), married (n = 363; 60.4%), and, for the most part, they had completed their primary education (n = 276; 47.3%).

Table 1 – Sociodemographic Characteristics of Participants, Diaverum, Portugal, 2020

	N 584	% 100
Sex		
Female	214	36.6
Male	370	63.4
Age (M = 67.5; SD = 14.8; Min = 19; Max = 93)		
<45 years	54	9.2
45 - 64 years	149	25.5
65 - 74 years	182	31.2
75 - 84 years	140	24.0
> = 85 years	59	10.1
Marital status		
Single	71	12.2
Married or in a de facto union	353	60.4
Divorced or separated	55	9.4
Widowed	105	18.0
Literary abilities		
Without Education	62	10.6
1st Cycle (1-4th year)	276	47.3
2nd Cycle (5-6th year)	66	11.3
3rd Cycle (7-9th year)	70	12.0
High School/Professional Course (10-12th year)	51	8.7
Higher Education (Bachelor's, Licentiate, and Doctoral)	59	10.1
Region		
North	191	32.7
Center	75	12.8
Lisbon and Tagus Valley	318	54.5

Instrument

The Matrix of Complexity Associated with the Process of Social Intervention with Chronic Kidney Disease Patients (MCAPIS_DRC) instrument[18] was used. It is an instrument that allows the identification of the complexity associated with the process of social intervention in the field of Nephrology. MCAPIS_DRC is a hetero-administrated notation tool built for the management of social information for social workers, health teams, and health center management. The MCAPIS_DRC was developed based on 5 items of the Complexity Scale of Social Intervention with Adults in the Hospital Context (ECISACH)[24]. The version of the MCAPIS_DRC was modified after advice from a focus group of social workers who were experts in intervention with chronic kidney disease patients and health researchers, including a statistician. The final version of MCAPIS_DRC presents 15 items that together constitute an index in which each item intervenes with different weights. For the validation of the index, 100 chronic kidney disease patients were evaluated blindly by a group of 5 experts, based on data recorded from the patients' social processes, having classified them into three levels of complexity (low, moderate, high) to validate future cutoff points[18]. The metric properties of the matrix were assessed through sensitivity and specificity of each cutoff point. A Receiver Operating Characteristic (ROC) curve was used to define the best cutoff point, evaluating the efficiency of MCAPIS_DRC through the Area Under the ROC Curve (AUC), accuracy (ACC), and the Youden Index with a confidence interval of 95%, resulting in the cutoff points used in the present study. The complexity index (ICAPIS_DRC) generated by the matrix classifies situations into three levels of complexity according to the cutoff points: 1) Low $\leq$ 31.22; 2) Medium = 31.23 to 38.56; 3) High $\geq$ 38.56[17].

Procedures

The sample, not probabilistic or intentional, used strategic informants, social workers from 26 private hemodialysis clinics in Portugal. It was these professionals who selected the individuals and collected the information, having already been recorded in the social process and systematized in a database. The participants signed an informed consent form when they entered the clinic, agreeing to the use of the data for investigation, safeguarding confidentiality and anonymity in their treatment and disclosure, which included the data of the users collected by Social Work. Monitoring patients at the clinic implies clinical referral criteria, all of whom are chronic kidney disease patients. Those responsible for data collection were trained to use the collection instruments and are guided by the Code of Ethics for Social Workers in Portugal published in 2018 by the Association of Social Work Professionals.

Data were collected between January 1, 2019 and December 31, 2019. All patients who entered the clinics and were screened by Social Work during the year 2019 were included in the sample. Patients when referred to hemodialysis clinics brought the previous clinical diagnosis carried out by a doctor in the health units in their area of residence. Data collection was carried out within the scope of the evaluation and intervention process by Social Work.

Statistical analysis

The computer program used to perform the statistical analysis was the Statistical Package for Social Sciences® (SPSS - version 25.0 for Windows). In the analysis of the data, we used descriptive and inferential statistics. In the univariate description of the variables, we used measures of central tendency and dispersion (Table 1). The chi-squared test was used to verify the association between categorical variables (Table 2). Preliminary tests were carried out to verify the assumptions of normality and homogeneity of variances. The Kolmogorov-Smirnov test was used to verify the normality of the distribution of the scores of the Complexity index (0.043; gl = 584; p = 0.01). Based on the result indicating non-normality, asymmetry and kurtosis were evaluated and it was confirmed that there was no violation. Based on the result indicating non-normality, asymmetry and kurtosis were evaluated and it was confirmed that there was no violation on the assumption of normality in the distribution of scores, with standardized asymmetry values of less than 2.8 and less than 2.6 being found[19]. The homogeneity of the variances was assessed using the Levene test (1.340; gl1 = 11; gl2 = 572¸ p = 0.198). To determine differences in the Complexity index based on two categorical variables (educational qualifications and gender), the two-way ANOVA was used (Table 3). When there was a significant effect on any of the factors, Tukey's post-hoc test was performed to locate the differences. The partial squared Eta value (hp 2) is presented as a measure of the effect size. A significance level of 5% was defined for the study.

RESULTS

Table 2 shows the scores for the three levels of complexity by sex. The analysis of frequencies allows us to verify that there was an association between sex and levels of complexity. The chi-squared test for independence (with Yates continuity correction) indicated a significant association between the level of complexity and sex, X2 (1, n = 584) = 12.49, p = 0.002, phi = 0.146, as well as education (10, n = 584) = 44.723, p > 0.001, phi = 0.277.

Table 2 – Complexity Index according to "sex" and "education", Diaverum, Portugal, 2020.

	Low	Medium	High	Total
Sex				
Female	95 (16.3%)	98 (16.8%)	21 (3.6%)	214 (36.6%)
Male	202 (34.6%)	155 (26.5%)	13 (2.2%)	370 (63.4%)
Total	297 (50.9%)	253 (43.3%)	34 (5.8%)	584 (100%)
Education				
Without Education	20 (3.4%)	37 (6.3%)	5 (0.9%)	62 (10.6%)
1st Cycle (1-4th year)	116 (19.9%)	141 (24.1%)	19 (3.3%)	276 (47.3%)
2nd Cycle (5-6th year)	40 (6.8%)	24 (4.1%)	2 (0.3%)	66 (11.3%)
3rd Cycle (7-9th year)	43 (7.4%)	25 (4.3%)	2 (0.3%)	70 (12.0%)
High School/Professional Course (10-12th year)	32 (5.5%)	16 (2.7%)	3 (0.5%)	51 (8.7%)
Higher education	46 (7.9%)	10 (1.7%)	3 (0.5%)	59 (10.1%)
Total	297 (50.9%)	253 (43.3%)	34 (5.8%)	584 (100%)

A two-way ANOVA was carried out to explore the main effects of sex and academic qualification on the complexity index. The academic qualifications were categorized in five levels: “without schooling”; n = 62; 10.6%; “1st cycle”: n = 276, 47.3%; "2nd Cycle": n = 66, 11.3%; “3rd Cycle”: n = 70, 12.0%; "High school": n = 51, 8.7%; and “Higher Education”: n = 59, 10.1%.

Table 3 – Effects Tests Between Subjects, Diaverum, Portugal, 2020
Dependent variable: Complexity index

Source	Type III Sum of Squares	gl	Mean Squared	F	Sig.
Corrected model	1351.392[a]	11	122.854	6.647	.000
Intercept	353220.634	1	353220.634	19111.170	.000
Sex	103.835	1	103.835	5.618	.018
Qualifications	938.194	5	187.639	10.152	.000
Gender * Qualification	40.437	5	8.087	.438	.822
Mistake	10571.943	572	18.482		
Total	590455.239	584			
Total corrected	11923.336	583			

a. R Squared = .113 (Adjusted R Squared = .096)

The interaction between the groups was statistically significant, (F(5, 572) = 6.647 p = <0.001, $\eta p^2 = 0.113$). It is therefore important to report the main effects in relation to academic qualifications (F(5, 572) = 10.152 p > 0.001, $\eta p^2 = 0.082$ as well as sex (F(1, 572) = 5.618 p = 0.018, $\eta p^2 = 0.010$). Post-hoc comparisons, using the Tukey HSD test, revealed that the average scores of people “without education” (M = 32.60; SD = 4.01) were statistically different from those with a higher level of education (M = 28.49; SD = 4.43), as well as the average scores of people with the 1st cycle of basic education (M = 32.55; SD = 4.23) were statistically different from all other groups (without education: M = 32.60, SD = 4.01; 2nd cycle: M = 30.40, SD = 4.12; 3rd cycle: M = 30.45, SD = 4.28; High School/Professional Course: M = 30.55, SD = 5.29; and Higher Education: M = 28.49, SD = 4.43). Likewise, people with the 2nd cycle of primary education (M = 30.40, SD = 4.12) showed statistical differences in the mean scores when compared with people “without schooling” (M = 32.60, SD = 4.01) and with the 1st cycle (M = 32.55; SD = 4.23).

People with the 3rd cycle of primary education (M = 30.45, SD = 4.28) showed statistical differences when compared to people “without schooling” (M = 32.60, SD = 4.01) and with people who completed the 1st cycle (M = 32.55, SD = 4.23). People with High School/Professional education (M = 30.55, SD = 5.29) also had statistical differences with people “without schooling” (M = 32.60, SD = 4.01). Finally, it was found that people with “Higher Education” (M = 28.49, SD = 4.43) had statistically different scores when compared with people “without schooling” (M = 32.60, SD = 4.01) and with people with the 1st cycle completed (M = 32.55, SD = 4.23).

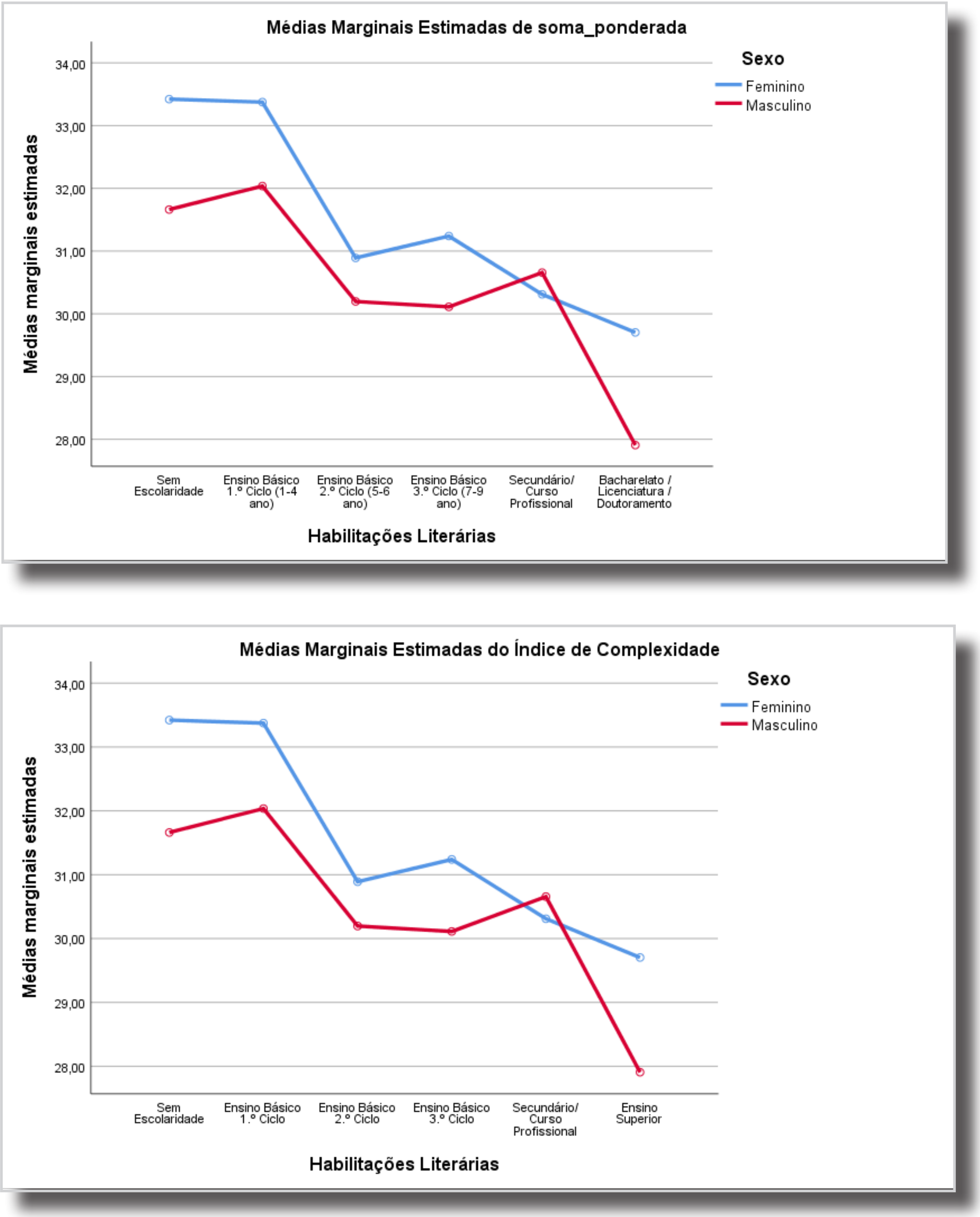

Figure 1 – Complexity Index According to Qualifications and Sex

DISCUSSION

The levels of complexity in social intervention with chronic kidney disease patients undergoing hemodialysis treatments were significantly associated with sex and education, these variables are relevant in dealing with CKD[4,6,15,16].

The assessed level of complexity reflects a multidimensional combination of social assessment indicators that have a high impact or interfere with social intervention for CKD patients, such as autonomy, individual and family adaptation to the disease, living conditions, skills, formal and informal social support, among others[18], and are indicators that are also socially conditioned by gender relations and access to education. Knowing that the quality of life and well-being of patients with CKD are enhanced by favorable combinations of multiple dimensions that improve adjustments and adaptations to the requirements of the disease and its treatments[20], the variables focused on in the present study cannot be ignored or put aside in social and clinical evaluations and interventions.

A review of social determinants of health in Portugal identified education and gender as the main social determinants of health inequalities, particularly with regard to the distribution of obesity, self-evaluated health, and mental health[21], which underlines the relevance of these variables in addressing chronic diseases.

However, sex and gender relations in the approach to CKD have been neglected in the literature, as shown by Cobo *et al.*[22], despite being crucial variables for a multidimensional understanding of this disease. Our results showed that women presented almost twice as many situations of high complexity in social interventions in relation to the men in the sample, while the relationship is reversed when we consider the medium and low levels of complexity, highlighting herein the proportion of men .

If in clinical follow-up the evidence suggests that they are considered to better understand the progression of the disease, the interaction between risk factors, or attitudes towards the disease and treatments[4], then in social care it also appears evident the relevance of considering that different profiles also emerge in patient care depending on whether they are men or women. This concern has been highlighted in our previous study, in which women showed a higher average in the number of social needs than men, even though there were no significant differences[23].

Social workers deal with complex social problems that involve multidimensional relationships that are expressed in an idiosyncratic way in each context and in each situation[24]. Such situations are marked in their trajectories by unequal gender relations, as well as by unequal conditions and opportunities to achieve high levels of education, constituting social determinants of potentially unequal health.

Among the study sample, it was those with low schooling who had the highest proportions of situations classified as medium and high complexity. Specifically, those with no schooling and those with the 1st cycle of primary education, together, comprised more than 70% of cases with high complexity and medium complexity. Low complexity cases were more heterogeneous, distributed with more similar proportions. The significant interaction between these variables certainly reflects the social disadvantage also associated with less education, which, combined, are factors that aggravate social inequalities, risk of disease, and worse health[17].

We cannot ignore that the sample consisted mainly of the elderly population, where the older population in Portugal is less educated and lives in conditions that reflect greater social vulnerability[25].

Health literacy reflects not only individual skills, which are part of heterogeneous trajectories, but also skills for interacting with health care, which requires a multidisciplinary and multisectoral approach to adapt health systems to cultural and social contexts and promote access to care, which further requires strategies that go beyond those of health education and that recognize complexity and inequalities[15].

Other authors share this idea, where the complexity of the clinical situation of CKD, the prolonged treatments, and the size of the health team that accompanies the patient over time require that strategies be devised to overcome the limited literacy that is often identified among users with CKD and which is reflected in the profile of service use, adherence to and adequacy of treatments, and even mortality[26]. These strategies can never ignore the social context of patients and should also involve caregivers and the informal support network, in addition to the health system[26].

The study has as limitations the use of proxy variables of the variables that we discussed indirectly, as they are closely associated in the literature; that is, we use sex to discuss gender relations and we use education to discuss health literacy. In future studies, these variables should be subject to specific and more in-depth assessments, recommending that the social assessment protocol for patients with CKD should include a specific instrument for assessing health literacy associated with CKD, in addition to the indicators already used for assessing the complexity of social intervention. Also, another limitation is the fact that we use a recent instrument with few published studies that we can discuss. The last limitation to consider is the fact that the participants are all chronic kidney disease patients, with an always significant incidence of arterial hypertension in these cases and with the possibility of developing vascular dementia; despite not having assessed the degree of dementia of the patients in the study, the respondents all responded in a conscious, oriented manner, and with a coherent and perceptible discourse.

CONCLUSION

The study produces evidence about a statistically significant association between the index and the levels of complexity associated with the social intervention process and the variables sex and education. Thus, there was an interaction between the variables under analysis. Women have higher scores on the index and people with higher levels of education have lower scores on the index. This evidence has implications for social intervention with chronic kidney disease patients, requiring the planning of a differentiating approach in specific population segments, namely according to sex and education, reinforcing social support as well as social advocacy and skill development strategies in order to reinforce the comprehension of health and social rights.

Based on the resulting evidence, it seems essential to invest in strategies that include gender perspectives and concerns with the promotion of health education in the context of holistic health care. Thus, it is important to invest in research concerning these variables to intervene in the field of nephrology, as mentioned in several studies[6,15,22] as the lack of evidence makes researchers responsible for deepening knowledge in order to think, together with multidisciplinary teams, of ways to better promote the well-being of patients.

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