ORIGINAL ARTICLE

HEALTH LITERACY AND ITS INFLUENCE ON ADHERENCE TO TREATMENT FOR HYPERTENSIVE AND DIABETIC PATIENTS

Literacia em saúde e sua influência na adesão ao tratamento de hipertensos e diabéticos

Alfabetización em salud y su influencia en la adherencia al tratamiento de hipertensos e diabéticos

Naiara Claudia Schlindwein[1] **Elaine Fátima Giardini[1]** **Fabiana Meneghetti Dallacosta[1]**

[1]Universidade do Oeste de Santa Catarina
Corresponding author: Fabiana Meneghetti Dallacosta - fabiana.dallacosta@unoesc.edu.br

ABSTRACT
Introduction: literacy can interfere with an individual's ability to understand and use health information for self-care, impacting treatment adherence. **Objective:** to analyze the relationship between health literacy and treatment adherence for hypertensive and diabetic individuals, and the research question was: does the level of literacy interfere with treatment adherence? **Method:** cross-sectional study using the Brief Medication Questionnaire and the Short Assessment of Health Literacy for Portuguese-speaking Adults for literacy analysis. **Results:** 301 individuals participated, 65.8% adherent to treatment and 75.4% with inadequate literacy. Those with diabetes and using multiple doses of medication were the least adherent. Inadequate literacy was related to low adherence. Those who reported missing days/doses or omitting medication were the least adherent and had inadequate literacy. **Conclusion:** inadequate literacy is related to low treatment adherence.

Keywords: Health literacy; Hypertension; Diabetes; Medication Adherence.

RESUMO
Introdução: a literacia pode interferir na capacidade do indivíduo de entender e usar as informações de saúde para o seu autocuidado, impactando na adesão ao tratamento. **Objetivo:** analisar a relação da literacia em saúde com a adesão ao tratamento de hipertensos e diabéticos e teve como pergunta de pesquisa: o nível de literacia interfere na adesão ao tratamento? **Método:** estudo transversal, utilizando os instrumentos *Brief Medication Questionnaire*, e para análise da literacia, o *Short Assessment of Health Literacy for Portuguese-speaking Adults*. **Resultados:** participaram 301 indivíduos, 65,8% aderentes ao tratamento, 75,4% com literacia inadequada. Aqueles portadores de diabetes e com uso de múltiplas doses de medicação foram os menos aderentes. A literacia inadequada teve relação com a baixa adesão. Aqueles que referiram falhas de dias/doses ou omissão de medicação foram os menos aderentes e apresentaram literacia inadequada. **Conclusão:** a literacia inadequada possui relação com a baixa adesão ao tratamento.

Palavras-chave: Letramento em saúde; Hipertensão; Diabetes; Adesão à medicação.

RESUMEN
Introducción: la alfabetización puede interferir con la capacidad de una persona para comprender y utilizar información de salud para el autocuidado, impactando la adherencia al tratamiento. **Objetivo:** analizar la relación entre alfabetización en salud y adherencia al tratamiento en pacientes hipertensos y diabéticos y la pregunta de investigación fue: ¿el nivel de alfabetización afecta la adherencia al tratamiento? **Método:** estudio transversal, utilizando los instrumentos del Cuestionario Breve de Medicación y para el análisis de alfabetización el *Short Assessment of Health Literacy for Portuguese-speaking Adults*. **Resultados:** Participaron 301 personas, 65,8% adherentes al tratamiento, 75,4% con alfabetización inadecuada. Aquellos con diabetes y que usaban múltiples dosis de medicación fueron los que menos cumplieron. La alfabetización inadecuada se relacionó con una baja adherencia. Aquellos que informaron días/dosis omitidos u omitieron medicación fueron los menos adherentes y tenían un nivel de alfabetización inadecuado. **Conclusión:** la alfabetización inadecuada se relaciona con la baja adherencia al tratamiento.

Palabra Clave: Alfabetización en salud; Hipertensión; Diabetes; Cumplimiento de la medicación.

INTRODUCTION

The term health literacy (HL) refers to the individual's cognitive and social capacity to obtain, understand and use basic health information to make appropriate decisions about their own health.[1] The concept of HL goes beyond the ability to read, write and numerate, linked to health literacy, and involves other skills, such as the ability to understand information about your own health and qualify jthe decision-making[2].

Literacy is relevant in the health field, as it concerns the ability of patients to identify risks to their health, as well as to their family and community, and to have the necessary knowledge to seek help from a health professional and, in the same way, assimilate the prescribed care and apply it in their daily lives.[3-4] An inadequate level of literacy has been associated with poorer self-management of your own health, and worse health outcomes in general.[5]

Skills such as writing, speaking, reading and performing basic mathematical calculations are necessary for the care and improvement of the health conditions of individuals with chronic conditions, and literacy has been used as an instrument to measure these skills.[6]

Health literacy is especially important for those with chronic non-communicable diseases, such as systemic arterial hypertension (SAH) and Diabetes Mellitus (DM). Both are highly prevalent diseases that require daily care with diet and use of medications. Therefore, it is essential that diabetics/hypertensive patients have high literacy levels so they can understand the effects of their medications and interpret multidisciplinary recommendations correctly, thus carrying out continuous and effective treatment and self-care.[7] High levels of literacy in patients with hypertension and diabetes can contribute to reducing hospitalizations and health costs, as well as improving quality of life. [4-7]

The objective of this research was to analyze the relationship between health literacy and adherence to treatment in hypertensive and diabetic patients, and the research question was: does the level of literacy interfere with adherence to treatment?

METHODS

This research was developed during the scientific initiation of two students of the Nursing course at the Universidade do Oeste de Santa Catarina (Unoesc), one of whom received a Scientific Initiation scholarship. The study was conducted with hypertensive and diabetic patients registered in the Primary Care (PC) of a municipality in Santa Catarina. Data collection was carried out during home visits, in which the students went together with Community Health Agents to the homes of hypertensive and diabetic patients already registered with the PC. There are 2,862 hypertensive and 810 diabetic patients registered in the municipality. When calculating the sample size, the target population to be interviewed should consist of at least 231 participants.

The inclusion criteria were to have diabetes mellitus or high blood pressure and to be registered with the municipal health service and registered with some FHS (Family Health Strategy). The exclusion criteria were having a neurological disease or cognitive disorder that prevented participants from responding to the instruments or not being at home on the day of the home visit. The Brief Medication Questionnaire (BMQ)[8] was used to analyze adherence to treatment. The BMQ is divided into three domains that identify barriers to adherence, considering regimen, beliefs, and memories regarding medication treatment. A minimum of one positive response to any of these indicates potential nonadherence to treatment. There is also a total score at the end of the questionnaire, in which no positive response indicates adherence to treatment, and one, two, three or more positive responses indicate, respectively, probable adherence, probable low adherence, and low adherence. The questionnaire also assesses the difficulties reported in using medication.

The Short Assessment of Health Literacy for Portuguese-speaking Adults (SAHLPA) was used to analyze literacy. This is the validated Portuguese version of The Short Assessment of Health Literacy for Spanish-speaking Adults (SAHLSA)[9]. The SAHLPA contains 18 closed questions that evaluate medical terms with two word options, with respondents choosing the one that most closely matches the meaning of the term. The points were tallied to classify patients as having inadequate HL (0 to 14 points) and adequate HL (15-18 points).

The comparison of quantitative variables between groups was performed using the Student's t-test or ANOVA, and the association of quantitative variables with each other was performed using the Pearson or Spearman correlation coefficient. For cross-referencing of categorical data, the Chi-square test and Fisher's exact test were performed. The significance level adopted was $\alpha=0.05$. This study was approved by the Ethics and Research Committee of the Universidade do Oeste de Santa Catarina, under no. 3,406,703, and all participants signed the Informed Consent Form (ICF).

RESULTS AND DISCUSSION

A total of 301 individuals participated in the study, with a mean age of 64.3±11.9 years, 75.4% of whom were female. Regarding the profile of the interviewees, 180 (59.8%) were married or lived with a partner, 28 (9.3%) participated in health groups linked to the ESF, 129 (42.9%) reported consuming alcoholic beverages, 159 (52.8%) were sedentary, and 258 (85.7%) reported following a healthy diet. The other characteristics of the participants are described in Table 1.

Table 1- Distribution of characteristics of hypertensive and diabetic patients treated in Primary Care. Campos Novos, SC, 2024.

Variables	N=301	%
Sexo		
Male	74	24,6
Female	227	75,4
Chronic Health Condition		
Hypertension	294	97,7
Diabetes	91	30,2
Schooling		
0-8 years of study	227	75,9
≥ 9 years of study	65	21,5
Smoker		
Smoker	36	12,0
Ex-smoker	93	30,9
Not smoker	179	57,1

Source: the authors

A total of 198 (65.8%) individuals were considered adherent to treatment. Adherence was not related to gender (p=0.63); however, women were the majority among adherents. Table 2 shows the results of the association between adherence to treatment and health profile.

Table 2 - Adherence to treatment of hypertensive and diabetic patients treated in Primary Care in relation to health profile and education level. Campos Novos, SC, 2024.

Variables	Adherent N	Not Adherent N	p
Multiple doses of medication			
Yes	100	85	**0,00***
No	98	18	
Hypertensive			
Yes	193	101	0,55

No	05	02	
Diabetics			
Yes	51	40	**0,01***
No	147	63	
Literay			
Adequated	59	15	**0,00***
Inadequated	139	88	
Report omitting medications			
Yes	0	10	**0,00***
No	198	93	
Report failure of days/doses			
Yes	09	48	**0,00***
No	189	55	
Schooling			
0-8 years of study	148	86	0,11
≥ 9 years of study	48	17	

*Qui square

Inadequate literacy was associated with low adherence to treatment, which highlights the patient's limitations in understanding health information and performing self-care. Prescription of multiple doses is a factor that interferes with adherence to treatment, as it makes it difficult for the patient to understand the care routines, which hinders adherence to treatment.[7-10]

In this study, we observed poorer adherence to treatment among diabetic patients and those who use multiple daily doses. Most of the diabetic patients interviewed reported needing help to understand the times and purposes of their medications. It is known that diabetes control is related to self-care actions developed by the individual and low adherence to drug treatment is one of the biggest problems for therapeutic effectiveness.[11-12]

Polypharmacy is characterized by the use of 5 or more medications by the patient. In primary health care, the inappropriate use of medications causes harm to health and goes against the therapy prescribed by medical professionals.[11] The use of multiple doses of medication has been pointed out in other studies as a factor that hinders adherence to treatment and strategies to simplify prescription should be considered in order to facilitate the use of medication by the patient.[10-14] The Body Mass Index (BMI) did not show a significant association with adherence to treatment, as did age (Table 3), but it was observed that non-adherents are slightly older and have a slightly higher BMI.

Table 3 - Adherence to treatment of hypertensive and diabetic patients treated in Primary Care in relation to age and Body Mass Index (BMI). Campos Novos, SC, 2024.

	Adherents	Not adherents	p
Age (mean±SD)	63,41±12,0	66,05	0,06*
BMI (mean±SD)	29,1±5,1	30,6±8,7	0,08*

*T Test

Regarding the difficulties reported in using prescribed medication, the difficulty in reading what is written on the packaging and obtaining the medication stands out. It was not considered very difficult to open and close the packaging and remember to take all the medication (Table 4). The patient's lack of autonomy reflects in low adherence to treatment, and it should be considered that hypertension and diabetes are common diseases in the elderly, who are sometimes widowed and live alone. This reality, combined with low education and low health literacy, creates a high risk scenario for complications and mortality related to chronic diseases.[15]

Table 4 - Difficulties reported by hypertensive and diabetic patients treated in Primary Care in the use of prescribed medication. Campos Novos, SC, 2024.

Activities	Very difficult N (%)	A little difficult N (%)	Not too difficult N (%)
Open/close the package	04(1,3)	20(6,6)	277(92,0)
Read the package	78(25,9)	62(20,6)	161(53,5)
Remember to take the medicine	09(3,0)	58(19,3)	234(77,7)
Get the medication	14(4,7)	74(24,6)	213(70,8)
Taking multiple pills at the same time	13 (4,3)	47(15,6)	241(80,1)

Source: the authors

Regarding literacy, 227 (75.4%) had inadequate literacy and 74 (24.6%) had adequate literacy. Literacy was not related to the presence of hypertension (0.54) and diabetes (p=0.48). Table 5 shows the analysis of literacy in relation to medication use and education.

Table 5 - Analysis of the literacy level of hypertensive and diabetic patients treated in Primary Care in relation to medication use and education. Campos Novos, SC, 2024.

Literacy	Adequated	Inadequated	p*
Schooling			
0-8 years of study	46	212	**0,00**
≥ 9 years of study	27	14	
Missed days/doses			
Yes	08	49	**0,04**
No	66	178	
Omited doses			
Yes	0	10	**0,05**
No	74	217	
Multiple doses of medication			
Yes	39	146	0,07
No	35	81	

*Qui-Square

Inadequate HL may manifest itself through irrational use of medications, as demonstrated in this study, where failure to take medication days or doses and omission of medications were observed in this group. Diabetics were the least adherent. These results are similar to other studies, which have already found 51.3% of diabetics with inadequate HL and 87.2% with adherence to treatment, and 41% of hypertensive patients with inadequate HL.[6]

As a limitation of the study, the need to prove adherence to treatment through other methods, such as checking medication withdrawn at the unit, since the method used was a self-reported instrument and the interviewees may have memory bias.

CONCLUSION

This study showed that inadequate literacy and low adherence to treatment are influencing the correct use of medications, compromising the prescribed treatment, especially in diabetics. Failures in understanding the information provided should be investigated by health professionals, with a focus on those with low levels of education.

HL and adherence to treatment are complex, multidimensional in nature and involve an interdisciplinary team. People with chronic diseases who have low literacy may have difficulty understanding the information provided by the health team, and should be the priority group for more direct monitoring by professionals. It should be considered that for those individuals classified as having inadequate literacy, the information and health education actions may not have the satisfactory and effective impact as planned. The main finding of this study is that inadequate literacy was related to low adherence to treatment. Adequate health literacy is crucial to successful treatment, influences self-care, improves adherence to medication and non-medication treatment, and consequently reduces the risk of complications and death resulting from hypertension and diabetes.

It is extremely important to create strategies to increase the knowledge of these patients, so that they are given the autonomy and empowerment necessary to face a chronic disease. Although lack of adherence to treatment is complex and involves more aspects than just the level of literacy, it is important that professionals act to strengthen patients' self-knowledge, working on health education in a constant and diversified way, as this is expected to improve literacy levels and, consequently, adherence to treatment.

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