

Assessment of the health literacy level of Primary Health Care users in a municipality in the semi-arid region of northeastern Brazil

Avaliação do nível de letramento em saúde dos usuários da Atenção Primária à Saúde em município do semiárido nordestino

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Metadata

ABSTRACT

Introduction: Health literacy (HL) is the ability to access, understand, evaluate, and apply health information for health promotion. Inadequate HL levels are associated with health-risk behaviors, poor treatment adherence, increased hospitalizations, and inappropriate use of services. **Objectives:** To assess the HL level of Primary Health Care (PHC) users in Paulo Afonso, Bahia, and to analyze the association between sociodemographic variables and health-related comprehension and decision-making skills. **Methodology:** This observational, analytical, cross-sectional study included 205 literate adults. Data collection employed a sociodemographic questionnaire and two measurement instruments: the Short Assessment of Health Literacy for Portuguese-speaking Adults (SAHLPA-18) and the Short Test of Functional Health Literacy in Adults (S-TOFHLA). **Results:** Findings showed that 57.1% of participants exhibited inadequate HL according to the SAHLPA-18. The S-TOFHLA indicated inadequate literacy in 28.3% of participants and marginal literacy in 10.2%. Analysis revealed a strong statistical correlation between the two instruments. Lower socioeconomic status and low educational attainment ($p < 0.0001$) were associated with lower HL levels. **Conclusion:** The low level of HL highlights a scenario requiring greater attention from health managers and professionals, emphasizing the relationship between patients' health, education, and income.

KEYWORDS: Health Education. Health Promotion. Public Health. Unified Health System.

RESUMO

Introdução: O letramento em saúde (LS) é a habilidade de acessar, compreender, avaliar e aplicar informações de saúde para a promoção da saúde. Níveis inadequados de LS relacionam-se a comportamentos de risco à saúde, baixa adesão aos tratamentos, aumento de hospitalizações e uso indevido dos serviços. **Objetivos:** Avaliar o nível de LS de usuários da Atenção Primária à Saúde (APS) em Paulo Afonso, Bahia, e analisar a associação entre as variáveis sociodemográficas e as habilidades de compreensão e decisão em saúde. **Metodologia:** Trata-se de um delineamento observacional, analítico e transversal com 205 adultos alfabetizados. A coleta de dados utilizou um questionário sociodemográfico e os instrumentos de mensuração *Short Assessment of Health Literacy for Portuguese-speaking Adults* (SAHLPA-18) e *Short Test of Functional Health Literacy in Adults* (S-TOFHLA). **Resultados:** Evidenciou-se que 57,1% dos participantes apresentaram LS inadequado no SAHLPA-18. O questionário S-TOFHLA indicou 28,3% de letramento inadequado e 10,2% limítrofe. A análise revelou forte correlação estatística entre os dois instrumentos. A menor classificação econômica e a baixa escolaridade ($p < 0,0001$) foram associadas a um nível menor de LS. **Conclusão:** O baixo nível de LS evidencia um cenário que requer maior atenção dos gestores e profissionais de saúde, com ênfase na relação entre a saúde, a escolaridade e a renda dos pacientes.

PALAVRAS-CHAVE: Educação em Saúde. Promoção à Saúde. Saúde Pública. Sistema Único de Saúde.

INTRODUCTION

The term health literacy is described by the World Health Organization (WHO) as the personal knowledge and skills that are accumulated through daily activities, social interactions, and across generations, mediated by organizational structures and the availability of resources that enable people to access, understand, evaluate, and use information and services in ways to promote and maintain good health and well-being for themselves and those around them^{1,2}.

Sørensen et al. (2012) proposed an integrated model for defining health literacy, viewing it as a process linking clinical aspects and public health. In this model, health outcomes, social determinants of health, health actions, and health literacy are mutually and intrinsically connected³.

Understanding the concepts and dimensions of health literacy matters because it has been recognized as a significant social determinant of health. Inadequate levels remain an ongoing public health issue that compromises patient autonomy in self-care and in managing non-communicable chronic diseases^{5,6}. Insufficient health literacy levels are related to risky health behaviors, lower active participation in clinical decision-making, poor adherence to medication treatments, misuse of health services, and consequently, increased hospitalization rates⁴⁻⁷.

Health literacy is not limited to a single cognitive skill; it encompasses an individual's abilities within their context and meaningfully relates to the effectiveness of actions related to health promotion and disease prevention⁸. From this perspective, Primary Health Care (APS) is highlighted as the primary entry point of the Unified Health System (SUS) and a central component of continuity of care within the Health Care Network (RAS)⁹.

The APS is established as the coordinator of care and the promoter, preventive, and protective agent of health, as well as preventing diseases and harms; it brings together actions, individual or collective, that encompass diagnosis, treatment, rehabilitation, palliative care, and health surveillance¹⁰. Based on the principles of the SUS and with the Family Health Strategy (ESF) as a pillar for coordinating the population's health actions, APS represents one of the most significant advances of the SUS as a public policy in the country^{10,11}. Thus, among the various functions of APS, its role in health education stands out as essential in the team's work process, whose scope of action is influenced by the social determinants of health and, therefore, is intrinsically related to the health literacy level of SUS users¹².

Recent research shows that human-context variables, especially socioeconomic and demographic factors, strongly influence these skills^{13,14}. In vulnerable populations, such as SUS users with below-average income and incomplete elementary education, inequalities are observed in access to and processing of knowledge, which highlights greater difficulties in understanding health information¹⁴.

Because health literacy is essential for understanding health data and evidence on the association between sociodemographic determinants and health literacy in Brazil remains limited, this analysis is relevant. Measuring health literacy provides useful information, allowing primary care professionals to understand the reality of the population they serve, improve patient reception and communication skills, and develop more effective health education actions and care adapted to users' actual needs¹⁵.

This study aimed to assess the health literacy level of primary care users in the municipality of Paulo Afonso, Bahia, to analyze the relationship between sociodemographic variables and skills in understanding and making health decisions.

METHODS

Design

This study used a cross-sectional observational and analytical design. It was conducted in the municipality of Paulo Afonso-BA from 2017 to 2023, among literate adults of both sexes registered at the municipality's Basic Health Units (UBS).

The sample size was based on an estimated prevalence of health literacy levels. For the calculation, a 95% confidence level ($Z=1.96$), a conservative estimated prevalence of 50% ($p=0.50$), and a maximum tolerable sampling error of 7% were used. Based on the formula for estimating population proportions, the calculation determined a minimum required sample size of 196 individuals.

Context

Paulo Afonso is located in the Bahia hinterland, in the Northeast region of Brazil, and has an estimated population of 119,213 inhabitants as of 2021. Of these, 43.6% have a per capita income of up to half a minimum wage. The literacy rate for children aged 6 to 14 is 96.4%, with primary healthcare services provided through 28 Basic Health Units (UBS) distributed throughout the area^{16,17}.

Participants

Inclusion criteria were being 18 years of age or older, being literate, and being a registered user in the Primary Care Service (APS) of the municipality of Paulo Afonso-BA. Exclusion criteria included self-reported drug use that affects cognition, inadequate visual or auditory acuity to perform the tests, and neurological and/or cognitive disturbances, verified by the researchers through simple questions about attention, orientation, and temporality.

The recruitment was carried out in a non-probabilistic manner, using a consecutive approach of patients in the waiting room or in an individual room, after explaining the research objectives and methods.

Variables

The outcome consisted of health literacy. The independent variables were gender, age, education level, marital status, economic classification (according to the Brazilian economic classification criterion)¹⁸, health insurance plan, previous illness(es), and type of previous illness(es), if any.

Data source and measurement

The data were collected at Basic Health Units in the municipality, through interviews and the administration of four questionnaires in the waiting room for service or in the individual room. The level of health literacy was measured using the *Short Assessment of Health Literacy for Portuguese-speaking Adults* (SAHLPA-18) and the *Short Test of Functional Health Literacy in Adults* (S-TOFHLA). The individual's clinical and social context was collected through the socioeconomic and economic classification questionnaires.

The first test administered was the SAHLPA-18, which aims to estimate adults' health literacy level through the assessment of their understanding of 18 (eighteen) commonly known medical terms. For this, 18 cards were used, each with a medical term highlighted at the top and two response options at the bottom (one correct association word and one distractor word), along with the 'I don't know' option. The response was considered correct if the pronunciation and association were coherent with the presented medical term. The health literacy level was deemed adequate with a score of 15 (fifteen) or higher¹⁹.

Next, the S-TOFHLA instrument was administered to assess the patient's reading comprehension and numerical ability. This questionnaire was expected to take twelve minutes to complete: seven minutes for the comprehension and reading assessment, consisting of 36 multiple-choice items, and five minutes for the numerical ability assessment, which included four cards requiring correct interpretation of everyday health situations¹⁹. The individual's health literacy level was classified as inadequate for scores from 0 to 53; borderline for scores from 54 to 66; and adequate for scores from 67 to 100¹³.

Statistical methods

The Kruskal-Wallis test compared independent samples. The Spearman correlation coefficient assessed the relationship between test scores and respondents' age and education

level. A p-value of less than 0.05 was considered statistically significant.

Ethical aspects

The project was submitted and approved by the Ethics and Research Committee (CEP) of the Universidade Federal do Vale do São Francisco – UNIVASF (Opinion No. 2,228,427; CAAE n.º 67710317.9.0000.5196). Before each interview, the patient signed the Free and Informed Consent Form (TCLE), confirming voluntary participation in the study.

The study also sought approval and collaboration from the Health Department and the municipality's Basic Health Units (UBS). Only the researchers involved in the study had access to the collected data and signed a confidentiality agreement regarding the information.

RESULTS

Researchers interviewed 205 users from UBS clinics in the municipality of Paulo Afonso. Among respondents, 84.9% were female, 52.2% were 40 years of age or younger, and 52.2% had completed high school. It was also noted that 37.6% were married, and 42.9% and 30.2% belonged to economic classes C and B, respectively. Additionally, 84.6% did not have health insurance (Table 1).

Table 1 – Sociodemographic characteristics of Basic Health Units (UBS) users
(Continued)

Variables	Frequency - n (%)
Sex	
Female	174 (84.9)
Male	31 (15.1)
Age (years)	
≤ 40	107 (52.2)
41 - 60	82 (40.0)
≥ 60	16 (7.8)
Education	
Elementary/Middle school (incomplete/complete)	44 (21.5) / 15 (7.3)
High school (incomplete/complete)	17 (8.3) / 90 (43.9)
Higher education (incomplete/complete)	12 (5.8) / 27 (13.2)
Marital status	
Married	77 (37.6)
Single	59 (28.8)
Stable union	40 (19.5)
Divorced	21 (10.2)
Widowed	8 (3.9)

(conclusion)

Variables	Frequency - n (%)
Economic classification	
A	7 (3.4)
B1	14 (6.8)
B2	48 (23.4)
C1	31 (15.1)
C2	57 (27.8)
D - E	48 (23.4)
Health insurance plan	
Yes	32 (15.6)
No	173 (84.6)
Total	205 (100.0)

Source: Prepared by the authors

It was observed that 43.4% of respondents had a diagnosed comorbidity. Among them, the most prevalent were hypertension (30.7%) and diabetes mellitus (8.8%; Table 2).

Table 2 – Associated pre-existing conditions

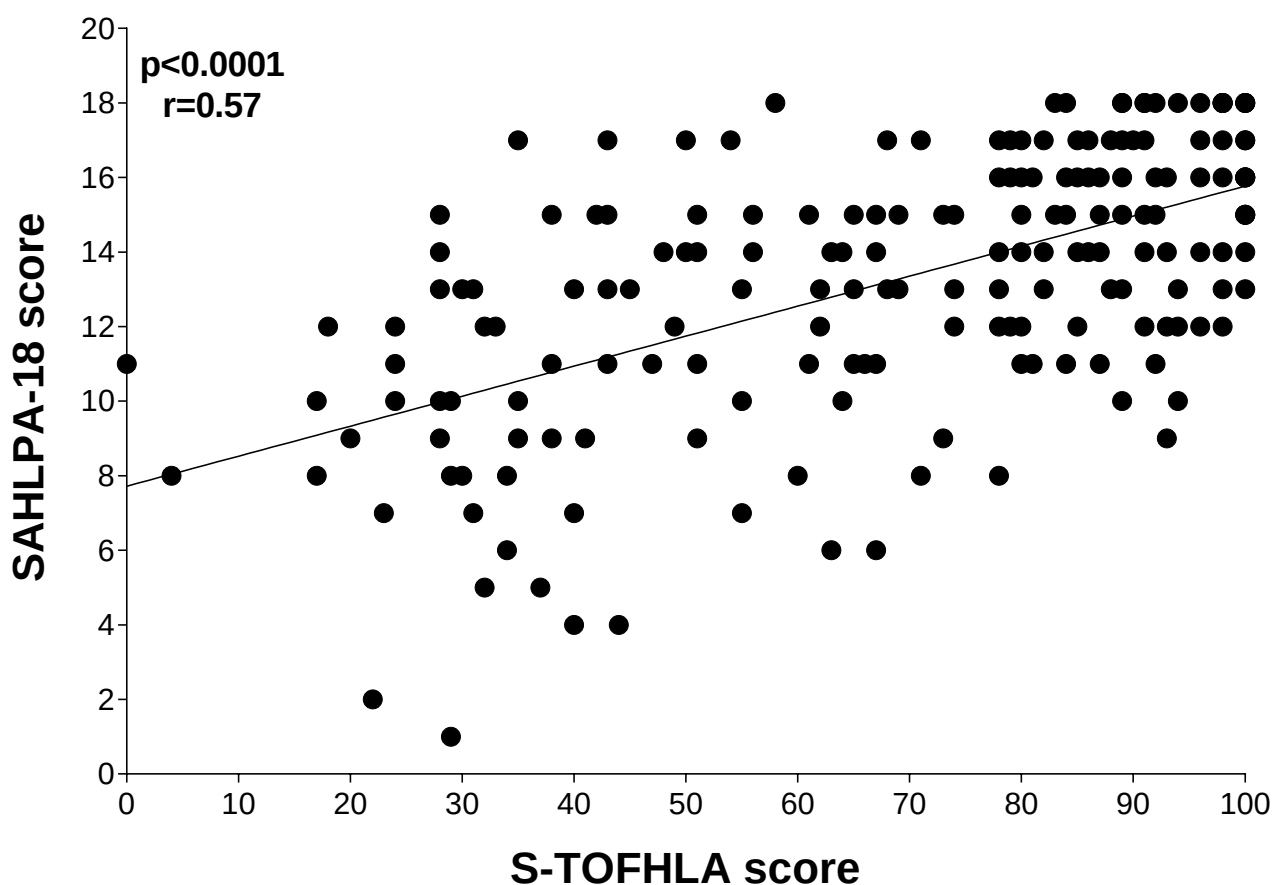
Variables	Frequency - n (%)
Pre-existing condition	
Yes	89 (43.4)
No	116 (56.6)
Main associated diseases	
Arterial hypertension	63 (30.7)
Diabetes mellitus	18 (8.8)
Hypercholesterolemia	5 (2.4)
Arthritis	5 (2.4)
Cancer	4 (2.0)
Hypothyroidism	3 (1.5)
Asthma	3 (1.5)
Others*	28 (13.7)
Total	205 (100.0)

*Other pre-existing conditions cited: anemia, cardiac arrhythmia, depression, back pain, endometriosis, hepatic steatosis, fibromyalgia, herniated disc, hypotension, labyrinthitis, kidney stones, uterine fibroids, osteoporosis, panic disorder, generalized anxiety disorder, and thrombosis.

Source: Prepared by the authors

According to SAHLPA-18, 57.1% of respondents demonstrated inadequate health literacy. In the S-TOFHLA analysis, 38.5% did not have adequate health literacy; of these, 28.3% had inadequate health literacy and 10.2% had borderline health literacy. The comparative analysis between the SAHLPA-18 and the S-TOFHLA showed a statistically strong correlation ($p < 0.0001$; $r = 0.57$), even though the assessment instruments have distinct intrinsic characteristics (Figure 1).

Figure 1 – Correlation between the instruments S-TOFHLA and SAHLPA-18

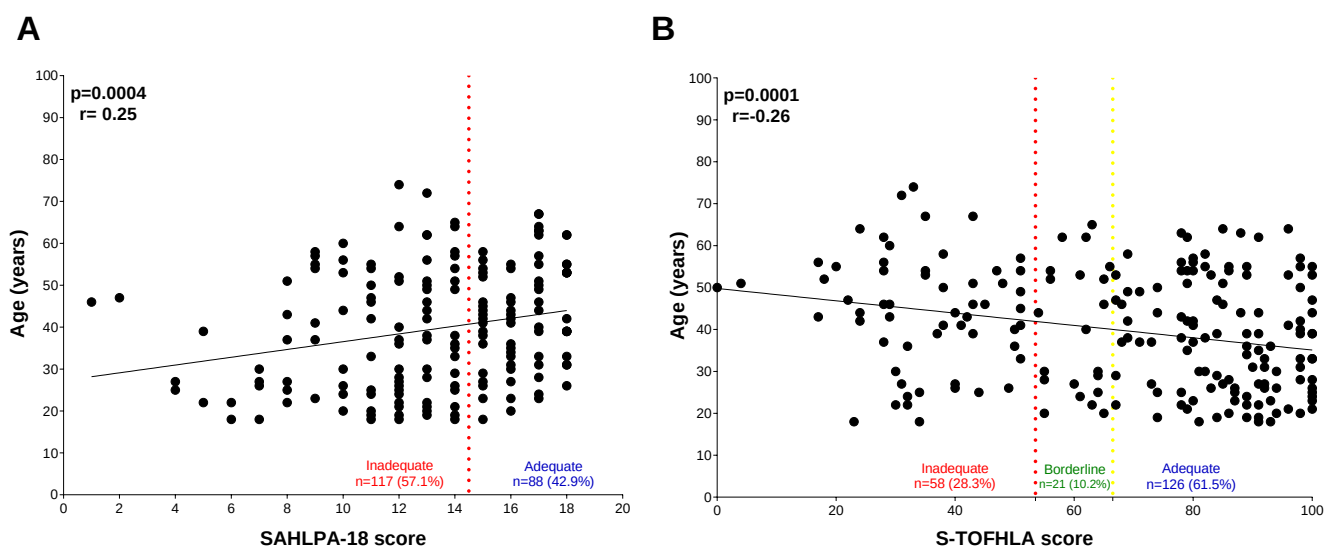


The 'x' axis represents the score obtained in each S-TOFHLA questionnaire, and the 'y' axis represents the score obtained in the SAHLPA-18. For the statistical analysis, the Spearman correlation test was used.

Source: Prepared by the authors

A directly proportional relationship was observed between respondents' age and their SAHLPA-18 score ($p < 0.0004$; $r = 0.25$; Figure 2A). Conversely, in the S-TOFHLA instrument, age and participants' scores showed an inversely proportional relationship ($p = 0.001$; $r = -0.26$; Figure 2B).

Figure 2 – Relationship between health literacy assessment tools and the age of the interviewees

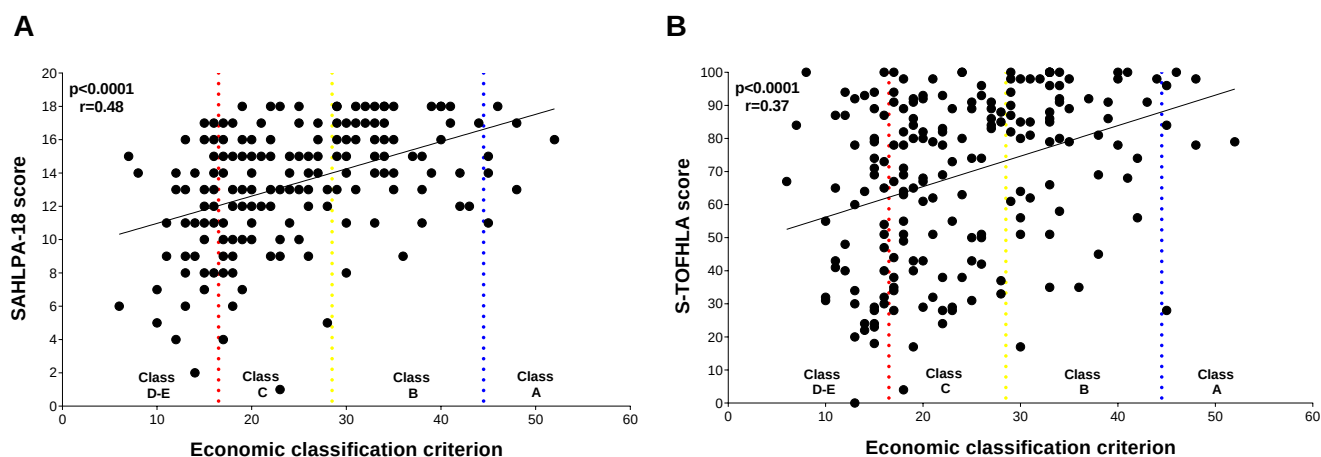


The 'x' axis represents the score obtained on the SAHLPA-18 (A) and the S-TOFHLA (B), and the 'y' axis represents the patients' age in years. For statistical analysis, the Spearman correlation test was used. The figure shows the p-value and the number of patients in each group.

Source: Prepared by the authors

The correlation between the health literacy assessment tests and the economic class of primary care users showed participants with lower economic classification scores obtained lower scores on both tests ($p < 0.0001$; Figure 3).

Figure 3 – Correlation between literacy assessment tools and the economic classification of the interviewees



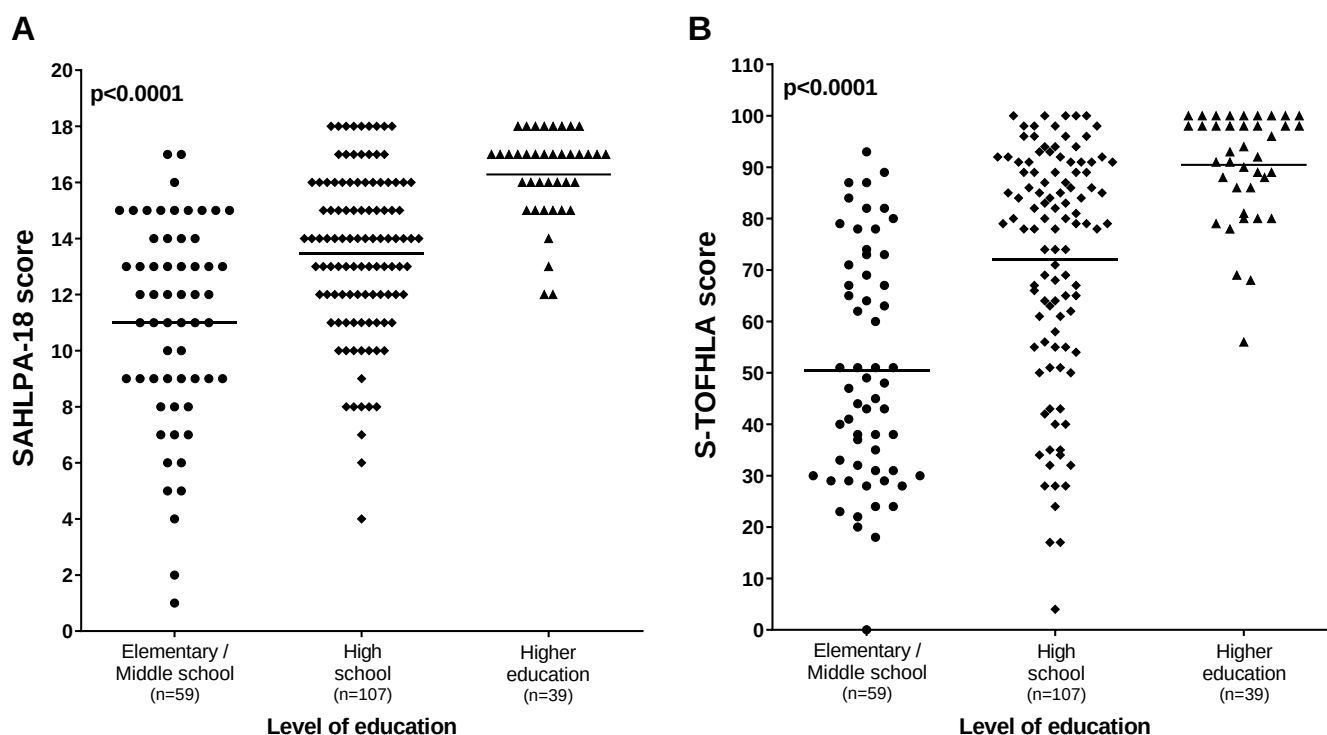
The 'x' axis represents the economic classification, and the 'y' axis represents the score obtained on the SAHLPA-18 (A) and the S-TOFHLA (B). For the statistical analysis, the Spearman correlation test was used.

Source: Prepared by the authors

The analysis of the relationship between the scores obtained on health literacy instruments and the participants' education level showed the highest literacy scores were observed in individuals with higher levels of education; that is, the higher the patient's formal education level,

the higher the health literacy index ($p<0.0001$; Figure 4).

Figure 4 - Relationship between patients' education level and the assessment tools for the literacy of the interviewees



The 'x' axis represents the level of education, and the 'y' axis shows the scores obtained on the SAHLPA-18 (A) and the S-TOFHLA (B). Education levels were divided based on the socioeconomic questionnaire completed by the interviewees. For the statistical analysis, the Kruskal-Wallis test was used.

Source: Prepared by the authors

DISCUSSION

The assessment of health literacy in the studied population indicated a prevalence of inadequate levels, pointing to vulnerability in primary care users' ability to access, understand, and use health information. The consistency of the results, confirmed by different measurement tools, reinforces this deficit in the sample. Additionally, the data highlight socioeconomic inequalities, reflected in low education levels and lower purchasing power, hinder the development of the cognitive and social skills necessary for self-care.

The survey initially found most respondents were female. The higher prevalence of this group in healthcare services is widely documented in scientific literature. Women are described as having greater concern for their own health and of their family members, as well as a higher survival rate than men; in other words, they have greater awareness of health issues and are more willing to discuss their complaints.

Furthermore, the construction of masculinity by men becomes one of the foundations of how this specific population tends to get sick and die. This group of patients generally tends to

complain less, deny pain and weakness, and hide physical and psycho-emotional fragility. These attitudes are also intensified by the influence of hegemonic masculine gender norms, which negatively affect the pursuit of help, the management of individual symptoms, and the response to treatments²⁰⁻²¹.

Most interviewees were aged 40 years of age or younger, which can be explained by the high prevalence of this population seeking and accessing primary care services to meet specific demands^{22,23}. At the same time, many diseases are increasingly affecting the youth population due to the structuring of their lifestyle habits, primarily based on sedentarism, high-sugar and high-fat diets, and excessive use of screens and social media accessible online. Among the diseases that are increasingly affecting young people today are anxiety and weight gain (overweight and obesity), precisely due to the lifestyle changes imposed by the COVID-19 pandemic scenario, which required social isolation and greater concern about the future—factors that are proportionally related to the emergence and/or worsening of anxiety and stress disorders²⁴⁻²⁶. The possible days for visiting the units, as well as how teams organize daily activities at the visited units, may also influence the higher presence of young people in the survey.

The high rate of inadequate health literacy indicates a local public health concern. Difficulty in understanding and applying medical and preventive guidance negatively affects patients' autonomy, leading to poor management of chronic diseases and improper use of the healthcare system. This information supports recent studies conducted within the SUS⁸ and other international public health systems¹³, which show a significant portion of the population has limited health literacy skills, compromising clinical outcomes and quality of life.

The strong correlation between the instruments indicates literacy deficits in this population are global, affecting both the recognition and pronunciation of medical terms and reading comprehension and numeracy. Although they have distinct constructs, the consistent results suggest a systemic communication barrier. The authors highlight that using complementary psychometric tools enriches clinical screening, allowing the healthcare team to identify patients who need tailored dialogic approaches more accurately¹⁹.

In this context, we observed differences in the relationship between health literacy scores and respondents' age. In the SAHLPA-18 test, age and points were directly proportional, meaning that the older the individual, the higher the level of health literacy. Conversely, in the S-TOFHLA instrument, this relationship was inverse, with younger individuals showing higher health literacy. Notably, this difference was significant only in the SAHLPA-18 instrument. This disparity may reflect the instruments assess different aspects of health literacy: the SAHLPA-18 focuses on word recognition, while the S-TOFHLA measures reading comprehension and numerical skills¹⁹. Age also influences health literacy in these tests because, with aging, significant changes in

cognition and the senses affect an individual's understanding and processing of information²⁷, which is essential for a good score on the instruments, especially the S-TOFHLA. Additionally, generational differences may affect how respondents interpret and perform on the tests, which could explain score differences across age groups²².

Meanwhile, the influence of economic classification on health literacy scores highlights social inequality in access and knowledge processing. Individuals in less privileged economic classes often face greater social vulnerability, reflected in reduced access to information technologies and less empowerment to question clinicians. The study found 80.4% of interviewed primary care users belonged to economic classes B and C, and 82.4% lacked health insurance. Contemporary international research confirms the social gradient of literacy, showing financial deprivation independently predicts difficulties in managing one's own health, which calls for intersectoral public policies aimed at equity^{13,28,29}.

This low level of health literacy aligns with the social context of a high burden of disease, as well as with the population's inability, especially those in economically vulnerable situations, to adequately access health services, including primary care. Furthermore, individuals with better financial conditions have greater access to health services and manage their health status more effectively. This raises the question of whether health literacy is a determinant of health in itself or if it interacts with other determinants¹³, according to the integrated health literacy model, which highlights the influence of social determinants on health and individuals' ability to understand and apply the health information they receive³. Although few studies in Brazil compare health literacy levels and income, the WHO reports a higher prevalence of inadequate health literacy in low-income populations^{30,31}.

The strong association between low educational attainment and inadequate health literacy reinforces the role of formal education as a foundation for decoding health information. Patients with lower levels of education face greater cognitive barriers in interpreting prescriptions and instructions, which predisposes them to therapeutic errors. Low literacy levels generally mean greater difficulty identifying and recognizing disease signs and symptoms and knowing when to seek appropriate health services for treatment and follow-up. As a result, the treatment and prevention of diseases and health issues are hindered, increasing the demand on the local healthcare system^{4,5}.

It is important to emphasize that having a high level of education does not, by itself, guarantee an adequate level of health literacy^{8,19}. It does not make the individual immune to misinformation. In the contemporary landscape, driven by the advent of the internet and social media, the population experiences an overload of health information, a phenomenon of superabundance often described as an 'infodemic.' In this context, the rapid spread of scientifically unfounded guidance and false news (fake news) leads health users to frequently

consume and accept incorrect information. Consequently, the difficulty of making critical judgments and verifying the truth of facts amid this flood of data affects people of different education levels^{20,32}. This reinforces the need to address health literacy continuously, requiring primary care professionals to actively guide patients in critically evaluating information sources^{6,33}.

It was found hypertension, diabetes mellitus, and hypercholesterolemia were the main comorbidities among the interviewees. This profile aligns with data from the scientific literature and the current situation in Brazil regarding non-communicable chronic diseases, as these diseases, especially hypertension and diabetes, are the focus of the multidisciplinary team's actions in health units. These conditions are so significant that the Family Health Strategy (ESF) has a specific prevention and treatment program called Hiperdia. The 2019 Vigitel survey (Surveillance of Risk and Protective Factors for Chronic Diseases by Telephone Interview) showed that the most incident chronic diseases in Brazil were hypertension (24.5%), obesity (20.3%), and diabetes mellitus (7.4%)³⁴. Obesity often goes unnoticed by the population as a health problem and, therefore, interviewees did not mention it as a possible disease. However, hypercholesterolemia was reported, which is most often related to obesity.

Health literacy is an important tool in the health-illness process, as it can (and should) inform public policy and deepen social participation in this context, especially in primary health care (APS). Understanding how patients assimilate health information from the Family Health Strategy (ESF) team is highly relevant because, without this understanding, the consequences for the population and the health system are concerning. These implications include system overload; increased costs; non-adherence to treatment, which leads to a rise in disease cases and, at the same time, the worsening of existing conditions; and the failure to implement health promotion and disease prevention policies, which must necessarily be the structural foundation of primary health care activities⁴.

Therefore, it is important to invest in health education actions for the population, as well as in guidance for health professionals in the multidisciplinary team and the RAS, so they understand how to relay health information to the public. This is necessary because, without proper guidance, many patients still seek assistance at higher-complexity care levels for conditions that could be managed more appropriately at primary care units⁶.

Finally, this study has limitations. The cross-sectional design prevents establishing causal relationships between sociodemographic variables and health literacy. Additionally, non-probabilistic convenience sampling and restricting data collection to a subset of the municipality's health units may limit the external generalizability of the findings. Another inherent limitation was the exclusion of illiterate individuals; given the local context, the actual prevalence of inadequate literacy in the general population may be even higher. Despite these limitations, the study

provides robust evidence to guide the development of inclusive and health-promoting interventions within the scope of local primary health care.

FINAL CONSIDERATIONS

The study identified a prevalence of inadequate health literacy among primary care users in the municipality of Paulo Afonso, Bahia. Additionally, human-context variables were related to the use and development of health skills, as low education and lower economic status were associated with lower levels of health literacy. The instruments also showed correlations with each other, confirming the overall deficit in reading comprehension and numerical skills in this population.

These findings reveal significant implications for clinical practice and highlight the need to rethink patient care. Limitations in accessing and processing health information compromise patient autonomy, reduce treatment adherence, and hinder disease management, perpetuating a cycle of vulnerability. Therefore, public health professionals should recognize their patients' educational disparities and adapt their language and communication during consultations, replacing standardized approaches with dialogic strategies that are easy to understand.

This research is expected to help establish parameters for managing primary care services, focusing on population health education and continuous professional development. Thus, users can interact better with the multidisciplinary team, which can ensure higher-quality care, promote proper use of shared information, and prevent the emergence or worsening of health problems in the municipality.

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