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Research Article

Functional health literacy in users of family health units from Altamira (state of Pará, Brazil)

Letramento funcional em saúde de usuários da atenção primária de Altamira, Pará

Alfabetización funcional en salud de usuarios de la atención primaria de Altamira (PA)

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ABSTRACT

Introduction: Functional Health Literacy (FHL) is associated with patients' ability to understand and use their health knowledge in the context of self-care and health promotion. Therefore, it is essential to recognize the level of FHL and identify the factors that influence it. **Objective:** To analyze the FHL level in users of Family Health Units (FHU) in the urban area of Altamira (state of Pará, Brazil). **Methods:** Cross-sectional study. Data collections took place between August 2018 and December 2019 in 12 FHU of the urban area. The sample calculation was based on the urban population of Altamira as recorded by the 2010 Population Census of IBGE. A 95% confidence interval with a margin of error of 5% and a prevalence of findings of 50% in a similar population were used, thus reaching a value of 382. The participants were interviewed to collect information on sociodemographic data. Subsequently, a questionnaire based on the Brazilian version of the *Short Test of Functional Health Literacy* (S-TOFHLA) was applied, which is used as an instrument to measure FHL. Pearson's correlation coefficient, Chi-Square test, G-test, and odds ratio were used to verify the correlation between S-TOFHLA score and sociodemographic data. Furthermore, a multiple regression analysis was carried out to predict the factors that affect FHL. Finally, the ANOVA test has sought differences between the users' FHL level in the analyzed family health units. **Results:** The variables "education level," "age," and "income" were associated with FHL in the studied population, and predicted, respectively, 46, 26, and 17% of the performance in the S-TOFHLA test. Low education level and low income increase the risk of individuals having unsatisfactory FHL by five and four times, respectively. Finally, differences in FHL between users of the analyzed FHU were found. **Conclusions:** The population of the urban area of Altamira presented a high prevalence of unsatisfactory FHL. Therefore, seeking to increase the positive health results, healthcare professionals of the region must adapt their ways of communication and language to the needs of FHU users, observing that the team adequacy can improve the understanding of information and provide better conditions of recovery and self-care.

Keywords: Health literacy. Primary health care. Public health. Social determinants of health. Health education.

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RESUMO

Introdução: O Letramento Funcional em Saúde (LFS) está associado à capacidade dos pacientes em compreender e utilizar seus conhecimentos em saúde no âmbito do autocuidado e na promoção a saúde. Por isso, torna-se essencial reconhecer o nível de LFS e identificar os fatores que o influenciam. **Objetivo:** Analisar o nível de letramento funcional em saúde (LFS) de usuários de Unidades de Saúde da Família (USF) na área urbana de Altamira (PA). **Métodos:** Estudo transversal no qual a coleta de dados ocorreu entre agosto de 2018 e dezembro de 2019 em 12 USF da área urbana. O cálculo amostral foi realizado com base na população urbana de Altamira registrada pelo Censo de 2010. Utilizou-se intervalo de confiança de 95% com margem de erro de 5% e prevalência de achados de 50% em uma população semelhante, encontrando-se assim o valor de 382. Os participantes foram entrevistados a fim de se coletarem informações sobre dados sociodemográficos, e posteriormente foi aplicado um questionário baseado na versão brasileira do *Short Test of Functional Health Literacy* (S-TOFHLA), instrumento utilizado para a mensuração do LFS. O coeficiente de correlação de Pearson, o teste qui-quadrado, o teste G e a *odds ratio* foram utilizados para verificar a relação entre a pontuação do S-TOFHLA e os dados sociodemográficos. Além disso, uma análise de regressão múltipla foi realizada para predizer os fatores que interferem no LFS. Por fim, o teste ANOVA buscou diferenças entre os níveis de LFS dos usuários nas USF analisadas. **Resultados:** Foram incluídos no estudo 400 participantes, dos quais 59% apresentaram LFS adequado, 16,5% limítrofe e 24,5% inadequado. As variáveis, grau de escolaridade, idade e renda foram associadas ao LFS na população estudada, predizendo, respectivamente, em 46, 26 e 17% o desempenho no teste S-TOFHLA. Baixa escolaridade e baixa renda aumentam o risco de indivíduos possuírem LFS insatisfatório em cinco e quatro vezes, nessa ordem. Por fim, foram encontradas diferenças entre os níveis de LFS dos usuários das USF analisadas. **Conclusões:** A população da área urbana de Altamira apresentou alta prevalência de LFS insatisfatório. Sendo assim, no intuito de aumentar os resultados satisfatórios em saúde, os profissionais da região devem adequar as suas formas de comunicação e linguagem às necessidades dos usuários das USF, observando que a adequação da equipe pode trazer melhorias para o entendimento das informações e oportunizar melhores condições de recuperação e autocuidado em saúde.

Palavras-chave: Letramento em saúde. Atenção primária à saúde. Saúde pública. Determinantes sociais da saúde. Educação em saúde.

RESUMEN

Introducción: La de Alfabetización Funcional en Salud (AFS) se asocia con la capacidad de los pacientes para comprender y utilizar sus conocimientos sobre salud en el contexto del autocuidado y la promoción de la salud. Por lo tanto, se vuelve fundamental reconocer el nivel de LFS e identificar los factores que influyen en él. **Objetivo:** Analizar el nivel de alfabetización funcional en salud (AFS) de usuarios de Unidades Salud de la Familia (USF) en el área urbana de Altamira (PA). **Métodos:** Estudio transversal en el cual la recolección de datos se realizó entre agosto del 2018 y diciembre del 2019 en 12 USF del área urbana. El cálculo de la muestra se realizó a partir de la población urbana de Altamira registrada por el Censo de 2010. Se utilizó intervalo de confianza del 95% con un margen de error del 5% y una prevalencia de hallazgos del 50% en una población semejante, encontrando así el valor de 382. Los participantes fueron entrevistados a fin de recopilar informaciones sobre datos sociodemográficos, y posteriormente se aplicó un cuestionario basado en la versión brasileña del Short Test of Functional Health Literacy (S-TOFHLA), que es un instrumento utilizado para medir el AFS. Se utilizó el coeficiente de correlación de Pearson, la prueba de Chi-Cuadrado, la prueba G y los odds ratios fueron utilizados para verificar la relación entre la puntuación del S-TOFHLA y los datos sociodemográficos. Además, se realizó un análisis de regresión múltiple para predecir los factores que afectan el AFS. Finalmente, la prueba ANOVA buscó diferencias entre el nivel de ASF de los usuarios en las USF analizadas. **Resultados:** Se incluyeron 400 participantes en el estudio, de los cuales el 59% tenía un AFS adecuado, 16,5% limítrofe y el 24,5% inadecuado. Las variables nivel educativo, la edad y los recursos se asociaron con el AFS en la población estudiada, y predicen el 46%, 26% y el 17% del rendimiento en la prueba S-TOFHLA, respectivamente. La baja escolaridad y los bajos recursos aumentan el riesgo de que las personas tengan AFS insatisfactorio 5 y 4 veces, en ese orden. Finalmente, se encontraron diferencias entre los niveles de AFS de los usuarios de las USF analizadas. **Conclusiones:** La población del área urbana de Altamira mostró una alta prevalencia de AFS insatisfactorio. Entonces, para aumentar los resultados satisfactorios en salud, los profesionales de la región deben adecuar sus formas de comunicación y lenguaje a las necesidades de los usuarios de las USF, señalando que la educación del equipo puede aportar mejoras a la comprensión de la información y proporcionar mejores condiciones de recuperación y autocuidado en salud.

Palabras-clave: Alfabetización en salud. Atención primaria de salud. Salud pública. Determinantes sociales de la salud. Educación en salud.

INTRODUCTION

Functional health literacy (FHL) refers to the knowledge, motivation, and competence of patients to access, understand, evaluate, and apply health information, in such a way to judge and make daily decisions regarding self-care, disease prevention, and health promotion, seeking to maintain or improve quality of life.[1,2] From this perspective, people become protagonists of health information in all contexts of social interaction.[1,3]

Access to health information is significant and crucial to ensuring that people reach their maximum health potential. The roles of education and adequate FHL are part of this context.[1,2] The World Health Organization[4] defined literacy as one of the social determinants of health because it is an important element in the strategy to reduce inequality. The evaluation and determination of FHL levels are paramount because it allows, in the health system, the development of appropriate ways to share information to individuals with limited reading comprehension and numeracy skills.[5]

Inadequate FHL is associated with errors and low treatment adherence,[6-8] the higher frequency of hospitalizations, unfavorable control over diseases at higher risk of morbidity and mortality,[9-11] and decreased screening and quality of life in cancer patients.[12] Therefore, in the current context, in which everyone depends on the participation of all individuals for the containment of infectious diseases and the dissemination of erroneous information, the FHL becomes essential for the success of public policies implemented at the local, national, and/or global level.[1-3]

Studies on FHL in Brazil are still below ideal, and none have a population base.[5,9,13-19] In relation to the North region, which has peculiarities compared with other regions of the country, the authors observed only one study on the theme.[15]

In this scenario of regional particularities, there is Altamira, a municipality located in the Xingu mesoregion, which since 2011 is impacted by the construction of the Belo Monte hydroelectric power plant (HPP), the largest hydroelectric plant that is entirely Brazilian. The venture increased the migratory flow in the municipality, which caused an unplanned population explosion that directly impacted health services and the local economy.[20,21]

Therefore, measuring the FHL in this municipality is paramount to identify the difficulties of individuals and communities in accessing, understanding, and using health information, seeking to enable proposals for appropriate interventions to these needs. Thus, the aim of this study was to analyze the level of FHL of users of primary health care in the urban area of Altamira.

METHODS

Study type and ethical-legal aspects

This was a cross-sectional, quantitative study conducted in Family Health Units (FHU) in the urban region of Altamira, state of Pará, Brazil. The research was approved by the Ethics Committee on Research Involving Human Beings of the Center of Tropical Medicine – Universidade Federal do Pará, under Opinion No. 2.890.597. The participants received clarification about the objectives of the study, the optional nature of their participation, and the need to sign the Informed Consent Form, as recommended by Resolutions 466/2012 and 510/2016 of the National Health Council (Brazilian Ministry of Health). In addition, the authors who developed the Brazilian version of the test adopted for the FHL evaluation allowed the authors of the present study to use it.

Study location

The study was conducted in 12 FHU in the urban region of Altamira. The municipality is a reference for the entire Xingu region and had an estimated population of 114,594 inhabitants in 2019, of which approximately 75% lived in the urban area (85,945), according to the 2010 Population Census of the

Brazilian Institute of Geography and Statistics (IBGE).[22] The locality composes, together with Anapu, Brasil Novo, Medicilândia, Pacajá, Placas, Porto de Moz, Senador José Porfírio, Uruará, and Vitória do Xingu municipalities, the 10th Regional Health Center/State Health Department of Pará (*Centro Regional de Saúde/Secretaria Estadual de Saúde do Pará* – CRS/SESPA). In addition, it is strongly marked by the presence of Indigenous peoples and extractive communities.

FHU were selected by convenience sampling, excluding six FHU from the municipality. The criteria for the choices were based on guidance from the Municipal Health Department, which, in turn, indicated the FHU with the highest flow of care during the data collection period of the study. To do so, there was an analysis of the medical schedules, in which the number of users who had consulted the units in the previous three months was verified. For ethical reasons, in this article, the FHU will be listed from 1 to 12 for identification purposes.

Population and sample

The sample calculation was based on the urban population of Altamira as recorded by the 2010 Population Census of IBGE. A 95% confidence interval with a margin of error of 5% and a prevalence of findings of 50% in a similar population were used. It was verified that the sample of this research, considering the aforementioned criteria, should consist of at least 383 individuals.

The inclusion criteria of the study were:

1. Be a user of FHU in the urban region of Altamira;
2. Be 18 years or older;
3. Be literate.

The exclusion criteria were:

1. Have a neurodegenerative disease or psychiatric disorder; or
2. Be under treatment with medication that compromises cognition.

For the selection of participants, the authors invited the last user in the waiting list for receiving care in the service; in case this user did not accept to participate, the immediately previous user in the list was invited. This criterion was based on the time necessary for the participant to complete the proposed questionnaires without interruption, which would make the analysis unfeasible.

At the end of the collections, 400 individuals distributed among the 12 FHU participated in the study. The FHU with the highest number of patients seen in the service passed on by the Municipal Health Department had 40 participants included in the study (FHU 1, FHU 3, FHU 5, and FHU 12), while the others contributed with 30 users each.

Data collection and instruments

Data collection occurred between August 2018 and December 2019, in 12 FHU in the urban region, through the application of two instruments. The first instrument was applied after the initial approach of the participants, which had the purpose of collecting sociodemographic information. The variables “sex,” “ethnicity,” “age,” “education level,” and “gross family income” of the participants were collected.

The second instrument evaluated the FHL, adopting the Brazilian version of the *Short Test of Functional Health Literacy* (S-TOFHLA), translated and culturally adapted by Carthery-Goulart et al.[5] The test is composed of two stages: the first analyzes textual comprehension and reading; the second evaluates numeracy skills.

The FHL analysis questionnaire of the first stage consisted of two excerpts: excerpt A, which referred to the preparation for an x-ray exam of the upper gastrointestinal tract; and excerpt B, related to the rights and responsibilities of patients in relation to the health service. Each excerpt had, at each sixth or seventh term, a blank space in which the interviewee should select, from a list of four words, the one that best completed the sentence. There were 36 gaps and the total score of the reading comprehension texts was 72 points, that is, a correctly completed gap scored two points.[5]

The test for analysis of quantitative literacy in health (numeracy) comprised four cards with information on medication intake, date of consultation, and laboratory test results. Each card was separately handed out and then the researcher asked a question related to the respective item. The numeracy stage totaled 28 points and, for each right answer, seven points were awarded.[5]

The total test score was 100, and the literacy level was rated according to the obtained score:[5]

- Inadequate FHL (score 0–53);
- Marginal or limited FHL (score 54–66);
- Adequate FHL (score 67–100).

The reading comprehension stage should be performed in seven minutes, while the maximum time for the numeracy stage was five minutes. Items completed after the participants exceeded these periods were not analyzed.

Statistical analysis

Descriptive statistics were used to summarize quantitative information about the general sample. Initially, the chi-square test or the G-test of independence (when the prerequisites of the previous test were not met) were performed to verify the association between categorical or ordinal sociodemographic variables and the classification of the FHL level. For the continuous sociodemographic variable (age), its relationship with the S-TOFHLA score was verified according to Pearson's correlation coefficient. Subsequently, the variables that presented association in the general sample were submitted to the multiple linear regression test, having as dependent variable the score obtained in the literacy test (0–100).

Odds ratio was used to verify the degree of risk among the variables that were associated with performance in the S-TOFHLA. In this analysis, considering the prerequisites of the statistical test, the dependent variable was dichotomized in:

1. Satisfactory FHL for participants who obtained the "adequate" classification; and
2. Unsatisfactory FHL for participants who obtained the "inadequate" or "marginal" classification.

The variables "education level" and "income" were also dichotomized, being classified as:

1. Satisfactory education level — participants with high school or college degree/some college; and
2. Unsatisfactory education level — participants who did not complete high school; and
3. Participants with a family income greater than two minimum wages; and
4. Participants with a family income equal to or less than two minimum wages.

The variables “age” and “ethnicity” were not dichotomized in this study, even when they were associated with the S-TOFHLA scores.

Finally, aiming to verify the difference in S-TOFHLA scores between the analyzed FHU, data were submitted to one-way analysis of variance (ANOVA), followed by Tukey’s post-test when significant differences were found. The results of continuous variables were expressed as mean±standard error, and for all tests a value of $p \leq 0.05$ was adopted as indicative of statistically significant difference.

RESULTS

A total of 400 individuals participated in the study; they were divided into 12 FHU in the urban region of Altamira, with a mean age of 33.5 years and standard deviation of 11.85. The sample mostly consisted of women (79.5%), mixed-race individuals (67.25%), with high school degree (29.75%), and with reported gross family income of one to two minimum wages (27.25%). The sociodemographic analysis showed worrying data regarding users of the FHU of Altamira. There was little demand for care services on the part of men (20.5%), a considerable proportion of individuals with some high school (16%), and equally important percentage of respondents (16%) with family income below one minimum wage (Table 1).

Table 1. Distribution of sociodemographic characteristics of the participants associated with the level of functional health literacy.

Variables	Functional health literacy N (%)			Total N (%)	Chi-Square or G-test	p-value
	Inadequate	Marginal	Adequate			
S-TOFHLA Score	98 (24.5)	66 (16.5)	236 (59)	400 (100)	–	–
Sex						
Men	27 (6.75)	9 (2.25)	46 (11.5)	82 (20.5)	5.045	0.08
Women	71 (17.75)	57 (14.25)	190 (47.5)	318 (79.5)		
Ethnicity						
Mixed-race	57 (14.25)	44 (11.0)	168 (42.0)	269 (67.25)		
Black	20 (5.0)	13 (3.25)	33 (8.25)	66 (16.5)		
White	12 (3.0)	3 (0.75)	24 (6.0)	3 (0.75)	14.412	0.07
Asian	5 (1.25)	1 (0.25)	8 (2.0)	14 (3.5)		
Indigenous	4 (1.0)	5 (1.25)	3 (0.75)	12 (3.0)		
Education level						
Some elementary school	44 (11.0)	21 (5.25)	16 (4.0)	81		
Elementary school	17 (4.25)	13 (3.25)	19 (4.25)	49		
Some high school	11 (2.75)	7 (1.75)	31 (7.75)	49	114.568	<0.01
High school	25 (6.25)	22 (5.5)	119 (29.75)	166		
Some college	0 (0.0)	3 (0.75)	27 (6.75)	30		
College degree	1 (0.25)	0 (0.0)	24 (6.0)	25		
Gross family income						
Less than or equal to one minimum wage	47 (11.75)	30 (7.5)	64 (16.0)	141		
From one to two minimum wages	3 (0.75)	34 (8.5)	109 (27.25)	182		
From two to three minimum wages	10 (2.5)	1 (0.25)	49 (12.25)	60	38.349	<0.01
From three to four minimum wages	1 (0.25)	0 (0.0)	10 (2.5)	11		
Over four minimum wages	1 (0.25)	1 (0.25)	4 (1.0)	6		

S-TOFHLA: *Short Test of Functional Health Literacy*

The research demonstrated the mean S-TOFHLA score of 70.97±1.13; in addition, more than half of this sample presented adequate FHL level (59%). However, considering that 16.5% achieved limited literacy and 24.5% had an inadequate level, it was verified that for every ten patients seen by health professionals in a FHU of Altamira, four could leave the appointment with doubts or misconceptions regarding their health-disease process (Table 1).

The associations between categorical or ordinal sociodemographic variables and the FHL level were evaluated using the chi-square test for the variable "sex." For the other variables, the G-test of independence was used, as such variables presented an expected frequency below five in one of the groups and were organized in contingency tables *(l* x c), being at least *l or* c different from two (Table 1). This analysis showed that education level (χ^2=114.568, p<0.01) and family income (χ^2=38.349, p<0.01) are associated with FHL; however, the variables "sex" (χ^2=5.045, p=0.08) and "ethnicity" (χ^2=14.4120, p=0.07) do not show association (Table 1).

For the variable "age," the Pearson's correlation coefficient showed an association with the FHL score (r=-0.33; p<0.01). Thus, the variables "age," "education level," and "gross family income" were submitted to multiple linear regression analysis to verify their participation as predictors of the applied S-TOFHLA score. The analysis resulted in a statistically significant model [F(1.395)=16.296; p<0.01; R^2=0.391] and showed that education level (β=0.46; t=10.794; p<0.01), age (β=-0.26; t=6.495; p<0.01), and family income (β=0.17; t=4.037; p<0.01) are predictors of FHL; that is, 46, 26, and 17% of users' performance in the S-TOFHLA test are explained by the variables "education level," "age," and "income," respectively, and other factors not analyzed in this study work as predictors of 11% of performance.

Taking these results into consideration, the odds ratio evaluated the degree of risk between the variables "education level" and "income" with the performance classification in the S-TOFHLA. In this analysis, the variables were dichotomized, as described in the previous section. Thus, it was observed that the probability of an individual who completed high school having adequate FHL is about five times higher than that of those who did not. Similarly, the probability of individuals with a family income higher than two minimum wages with adequate FHL is almost four times higher than that of those with an income of less than or equal to two minimum wages (Table 2).

Table 2. Distribution of sociodemographic characteristics of the participants and risk regarding the level of functional health literacy.

Variables	Functional health literacy N (%)		Odds ratio	Confidence Interval (95%)
	Satisfactory literacy	Unsatisfactory literacy		
Education level				
Adequate education level	170 (42.5)	51 (12.75)	5.707	3.690<μ<8.826
Inadequate education level	66 (16.5)	113 (28.25)		
Gross family income				
Income higher than two minimum wages	63 (15.75)	14 (3.5)	3.902	2.101<μ<7.246
Income less than or equal to two minimum wages	173 (43.25)	150 (37.5)		

Table 3 summarizes the information regarding the score obtained by the S-TOFHLA and the difference between the analyzed FHU according to the ANOVA test (F=4,464; p<0.01). Tukey's post-test showed that users who seek care in the FHU 12 have FHL lower than four FHU from Altamira. In addition, the authors observed that users who seek care services in FHU 1 have the best level of FHL, with a statistical difference in relation to three FHU.

Table 3. Comparison of scores in the *Short Test of Functional Health Literacy* among Family Health Units in the urban area of Altamira.

FHU	Mean±standard error of S-TOFHLA score	Difference regarding FHU	p-value (ANOVA with Tukey's post-test)
		FHU 12	<0.01
FHU 1	82.81±2.65	FHU 11	=0.01
		FHU 10	=0.03
FHU 2	79.07±3.616	FHU 12	<0.01
FHU 3	78.35±3.088	FHU 12	<0.01
FHU 4	74.57±3.776	FHU 12	=0.02
FHU 5	72.68±3.623	FHU 12	=0.03
FHU 6	70.77±3.758	–	–
FHU 7	68.83±4.669	–	–
FHU 8	68.80±3.749	–	–
FHU 9	68.76±4.686	–	–
FHU 10	64.93±3.872	–	–
FHU 11	63.63±4.395	–	–
		FHU 1	<0.01
		FHU 2	<0.01
FHU 12	56.19±3.597	FHU 3	<0.01
		FHU 4	=0.02
		FHU 5	=0.03
Total sample	70.97±1.13	–	–

S-TOFHLA: *Short Test of Functional Health Literacy*; FHU: Family Health Units

DISCUSSION

This study shows, for the first time, an analysis of the FHL of a population that uses public health services in a municipality in northern Brazil. Altamira has felt several social, economic, and demographic impacts after the installation of the Belo Monte HPP, as it was not prepared for the intense migratory flow during the implementation period of the venture, in such a way that several problems remained as a consequence.[20,21] In this context, it is essential to know its population characteristics to offer adequate health education services and activities to its inhabitants. In addition, this research points out that, after major sociodemographic changes in a region, it is necessary to recognize the new implemented scenario.

In order to develop FHL assessment instruments, several tests were developed in different countries, with emphasis on the *Test of Functional Health Literacy in Adults* (TOFHLA), which classifies the degree of FHL based on the assessment of reading comprehension and numeracy skills.[23] To reduce the application

time, an abbreviated version of the test was developed, which was adapted for Brazilian Portuguese by Carthery-Goulart et al.[5] The authors classified the test as an adequate tool for evaluating the FHL in the Brazilian population, considering it is easy to apply and adaptable to the context of the Brazilian Unified Health System (SUS).

The results of the present study indicated that 40% of users of FHU in Altamira presented unsatisfactory FHL (inadequate or marginal), an outcome slightly higher than that found in hospitals in São Paulo (state of São Paulo, Brazil).[5] When compared with research from other countries, the prevalence of limited health literacy is 26% of the population in the United States of America[24] and between 29 and 62% of populations in eight European countries.[25] However, these studies used different research instruments to measure FHL. Therefore, the municipality of Altamira comprises a considerable portion of the population with a low FHL index.

In addition, this study demonstrated that age, education level, and income are predictive factors for FHL in the analyzed population, a fact evidenced by the association/correlation and regression analyses. Some Brazilian studies corroborate the relationship of the first factor.[9,13,19] This finding is justified in the literature, as older adults tend to have a low level of FHL due to aging and social vulnerability.[5,26]

The association of FHL and education level was observed in this study as well as in others conducted in different regions of Brazil.[5,9,13,15,16,18,19] In this context, education level is the main predictive factor for FHL level. Nevertheless, it is worth mentioning that data show that more than 12% of users have adequate education level and also unsatisfactory FHL. This fact highlights that years of formal education alone may not be a reliable indicator of reading comprehension skills, as literacy requires health contexts that are often more complex than those of everyday life.[27] Thus, it is also necessary to identify other factors that can predict this low FHL, such as socioeconomic factors, reading and writing habits, and the prevalence of functional illiteracy.[5]

The United Nations Educational, Scientific and Cultural Organization (UNESCO) definition of functional illiteracy includes individuals who, although knowing how to read and write or make basic calculations, are unable to interpret the application of these skills in everyday life.[28] Although research shows improvements in literacy levels in Brazil over the last few years, in 2018 the functional illiterate index still remained high, with 29% among individuals aged 15 to 64 years, according to the Functional Literacy Indicator research (*Indicador de Alfabetismo Funcional* – INAF).[29] This finding is similar to the percentage of interviewees in the present study — considering only individuals with adequate education level, 23% had unsatisfactory literacy.

However, the importance of completing high school is emphasized, considering that the probability of obtaining adequate FHL for an individual who has completed high school is about five times higher than that of those who did not. Therefore, measures to increase FHL levels should be directed both to encourage the completion of secondary education and to improve the capacity to interpret the socioeconomic context that these individuals experience.

According to INAF data from 2011, 36% of people belonging to families with income between one and two minimum wages are classified in the level of functional illiteracy.[29] Comparing this finding with data of the present study, analyzing only participants with gross family income less than or equal to two minimum wages, it was found that these individuals are four times more likely to have inadequate FHL than those with income higher than this range. Furthermore, almost half of the participants with low income also have inadequate FHL. This situation refers to the influence of socioeconomic status on FHL, because literacy does not depend exclusively on individual characteristics and skills, but also on its sociocultural

context.[1,30] Therefore, socioeconomic characteristics will reflect on conditions of housing, food, work, access to health, and quality education.[31] Thus, to reduce inequalities, it is necessary to combine social policies, investments in infrastructure, improvement in the economy, labor market, and remuneration, especially of poorest individuals.

Hence, this study defined that education level, age, and income predict the performance of FHU users from Altamira in the S-TOFHLA test, in 46, 26, and 17%, respectively (Table 2). Taking this into consideration, FHL can be improved through access to better socioeconomic conditions, education, and stimulation of the interpretation of daily life. Improving FHL involves both the transmission of health information and the promotion of protagonism in the health-disease process, an objective achieved through efficient ways of communication and educational actions based on each community.[3]

Within this context of individualized actions in different locations, it is possible to compare the S-TOFHLA scores between the FHU in the urban area of Altamira (Table 3). As it can be observed in Table 3, users of FHU 12 presented a lower level of FHL among the FHU, significantly lower compared with four of them. Its lowest score can be related to the socioeconomic and cultural situation of the population assisted by this unit. The FHU 12 is located in one of the Collective Urban Resettlements (*Reassentamentos Urbanos Coletivos* – RUC) of the municipality, built to house families in the areas flooded by the construction of the Belo Monte HPP — that is, one of the poorest and most marginalized populations in the municipality[20,21] and that, therefore, has limited opportunities for study, which is directly reflected in its level of FHL and its health conditions.[31] Thus, the recognition of this fragility is extremely useful to adapt the services and care of FHU 12 to the needs of this population. All in all, it is crucial to recognize the individual characteristics of users of different FHU in the same territory, identifying their weaknesses and particularities in such way to make appropriate interventions.[3]

The FHL, besides being an active instrument in the health-disease process, is an essential tool for the effectiveness of social participation in public policies of SUS. This is because it provides the user with the right to information about self-care and health services, in such a way users can participate in decisions involving public policies and perform their role as supervisors of the system.[1,2,16]

When a society allows the creation and accessibility of appropriate information to people's informational needs, the assimilation of transmitted knowledge provides the understanding and productive application of individual and social decisions.[30] In this circumstance, there is a need for an increasing effort to adjust health systems to the population's FHL to identify and adapt access to services and information for vulnerable populations.[23]

CONCLUSION

This study showed that the population of the urban area of Altamira presented a high prevalence of inadequate FHL. Therefore, in order to increase positive health outcomes, health professionals in the region should adapt their ways of communication and language to the needs of FHU users, as it improves the understanding of information and provides better recovery and self-care conditions. In this context, it is important to conduct research with this bias, which can individually diagnose users of FHU with regard to FHL.

This study has the limitation of not being able to cover all urban FHU in the municipality, besides not performing a regionalized evaluation in each included area. This analysis could provide more specific information of the territories such as the variables that most influence FHL in the population covered

by each Family Health Strategy team. However, its importance is noteworthy, as it raises possibilities by suggesting new research on the subject of FHL, both in small areas and in the population of the municipality and other localities.

Thus, with the data from this study and others that may gather more information, it will be possible to improve primary care within the context of SUS and other health systems, through strategies that offer adequate subsidies and instruments to reduce health disparities attributed to the low level of FHL.

CONFLICT OF INTERESTS

Nothing to declare.

AUTHORS' CONTRIBUTIONS

RIML: Writing – original draft, Investigation, Methodology. MAP: Writing – original draft, Investigation, Methodology. TISPF: Writing – original draft, Investigation, Methodology. AASC: Writing – original draft, Investigation, Methodology. EVSL: Writing – original draft, Investigation, Methodology. TMB: Writing – original draft, Investigation, Methodology. SBL: Writing – original draft, Investigation, Methodology. OCD: Conceptualization, Writing – review & editing, Supervision, Resources. FBT: Project administration, Conceptualization, Writing – review & editing, Data Curation, Supervision, Resources.

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