



Functional health literacy among hypertensive and diabetic elderly assisted by the Family Health Strategy

Letramento funcional em saúde de idosos hipertensos e diabéticos atendidos na Estratégia Saúde da Família

Alfabetización en la salud de ancianos hipertensos y diabéticos atendidos en la Estrategia Salud de la Familia

Helenice de Moura Scortegagna¹

Paulo Cassiano Simor dos Santos¹

Maria Izabel Penha de Oliveira Santos^{1,2}

Marilene Rodrigues Portella¹

1. Universidade de Passo Fundo, Instituto de Ciências Biológicas, Programa de Pós-Graduação em Envelhecimento Humano. Passo Fundo, RS, Brasil.

2. Universidade do Estado do Pará, Departamento de Enfermagem. Belém, PA, Brasil.

ABSTRACT

Objective: to assess functional health literacy among hypertensive and diabetic elderly individuals enrolled in the Family Health Strategy. **Method:** cross-sectional study conducted among 78 elderly individuals with type 2 Diabetes Mellitus and Systemic Arterial Hypertension, residing in a city in the interior of Rio Grande do Sul, Brazil. Data were collected using a questionnaire addressing sociodemographic and health information and the S-TOFHLA. Data analysis included Pearson's Chi-square, Central Tendency Measures (mean and median), and measures of dispersion, $\alpha=5\%$ and $p\leq 0.05$. **Results:** inadequate functional health literacy was found among 55.1% (N=43) of the participants, while 30.8% (N=24) presented marginal literacy skills. Hypertension was the most frequent disease with duration of more than 10 years. The results show an association between schooling and inadequate functional health literacy ($p<0.002$). **Conclusion and implications for practice:** inadequate health literacy among elderly individuals with chronic diseases who are often responsible for self-care may worsen this population's health conditions and diseases. Thus, identifying literacy levels among these individuals is vital to devise strategies and implement actions intended to promote care.

Keywords: Aging; Chronic Disease; Health of the Elderly; Information Literacy; Family Health Strategy.

RESUMO

Objetivo: avaliar o letramento funcional em saúde de idosos hipertensos e diabéticos adscritos a Estratégia Saúde da Família. **Método:** estudo transversal, desenvolvido com 78 idosos acometidos por Diabetes Mellitus tipo II e Hipertensão Arterial Sistêmica, residentes em município do interior do estado do Rio Grande do Sul. Para a coleta dos dados foi aplicado questionário com informações sociodemográficas e de saúde e o instrumento S-TOFHLA. Para análise dos dados foram utilizados os testes qui quadrado de Pearson; Medidas de Tendência Central (média e mediana) e dispersão, $\alpha=5\%$ e $p\leq 0,05$. **Resultados:** o nível de letramento funcional em saúde demonstrou-se inadequado em 55,1% (N=43) dos participantes, e limítrofe em 30,8% (N=24). Identificou-se o predomínio de hipertensão arterial e tempo de tratamento superior a 10 anos. Os resultados mostraram associação entre baixa escolaridade e inadequado letramento funcional em saúde ($p<0,002$). **Conclusão e implicações para a prática:** o letramento funcional em saúde inadequado em idosos portadores de doenças crônicas, muitas vezes responsáveis pelo seu autocuidado, pode contribuir para agravos na condição de saúde e doença dessa população, sendo relevante seu reconhecimento para o estabelecimento de estratégias e ações que visem melhores resultados na produção do cuidado.

Palavras-chave: Envelhecimento; Doença Crônica; Saúde do Idoso; Competência em Informação; Estratégia Saúde da Família.

RESUMEN

Objetivo: evaluar la alfabetización funcional en la salud de ancianos hipertensos y diabéticos inscritos en la Estrategia Salud de la Familia. **Método:** estudio transversal, desarrollado en 78 ancianos afectados por Diabetes Mellitus tipo II e Hipertensión Arterial Sistémica, residentes en un municipio del interior del estado de Rio Grande del Sur. Para la recolección de datos fue aplicado un cuestionario con informaciones sociodemográficas y de salud y el instrumento S-TOFHLA. Para el análisis de los datos fueron utilizadas, las pruebas Chi-cuadrado de Pearson, Medidas de Tendencia Central (media y mediana) y de dispersión; con $\alpha=5\%$ y $p\leq 0,05$. **Resultados:** el nivel de alfabetización funcional en salud se demostró inadecuado en 55,1% (N=43) de los participantes, y limítrofe en 30,8% (N=24). Se identificó el predominio de hipertensión arterial y del tiempo de tratamiento superior a 10 años. Los resultados mostraron asociación entre baja escolaridad e inadecuada alfabetización funcional en salud ($p<0,002$). **Conclusión e implicaciones para la práctica:** la alfabetización funcional en salud inadecuada en ancianos afectados por enfermedades crónicas, muchas veces responsables, por su propio autocuidado, puede contribuir para agravar la condición de la salud y de las enfermedades de esa población, siendo relevante su reconocimiento para el establecimiento de estrategias y acciones que tengan por objetivo obtener mejores resultados en la producción del cuidado.

Palabras clave: Envejecimiento; Enfermedad Crónica; Salud del Anciano; Alfabetización Informativa; Estrategia de Salud Familiar.

Corresponding author:

Helenice de Moura Scortegagna.
E-mail: helenice@upf.br

Submitted on 06/12/2020.
Accepted on 03/31/2021.

DOI:<https://doi.org/10.1590/2177-9465-EAN-2020-0199>

INTRODUCTION

Human longevity has significantly changed the demographic profile of populations worldwide and reflected on the epidemiological behavior of diseases, with a significant increase in chronic pathological conditions. Even though longevity is an important achievement of humankind, extended human life can only be praised when there is quality of life, and older individuals can independently manage their lives and health.¹ Otherwise, the aging process may negatively impact individuals, with diverse implications for aging individuals, their families, and society.

Brazil has witnessed an accelerated demographic transition; the number of people over 60 has surpassed the group of individuals aged between 0 and nine. By 2040, the first group is estimated to represent 23.4% of the Brazilian population while the latter, 10.1%.² Regarding the epidemiological transition, the heterogeneity of the elderly population, represents a challenge for health services because these individuals are more likely to experience pathological events, vulnerability, and weaknesses. According to the Strategic Action Plan 2011-2022, tackling non-communicable chronic diseases in Brazil is a public priority, considering that non-communicable chronic diseases such as high blood pressure, diabetes, heart attack, stroke, cancer, and chronic respiratory diseases, which mainly affect the elderly, account for approximately 70% of deaths.³ According to the Strategic Action Plan, the stratum more severely impacted is the one with low income and low education levels. Note that a prominent factor that might reflect on the quality of life and health of the elderly refers to low education levels. Data from the Brazilian Institute of Geography and Statistics reveal a worrying context, as illiteracy rates are higher among older individuals; in 2015, 22.3% of the individuals over 60 were illiterate.⁴

Another critical educational indicator, assessed by the Paulo Montenegro Institution and *Associação Civil Ação Educativa* [Civil Association on Educational Action], refers to Functional Illiteracy, a condition in which even though individuals have basic reading and writing skills, are not competent to manage daily living or professional tasks. These organizations measured this indicator in the Brazilian population and reported that the percentage of individuals classified as functional illiterate increased in 2018 (29%) compared to 2009-2015 (27%). Most of these individuals (53%) were aged between 50 and 64. Note that years of schooling and educational attainment are significantly related to functional literacy, though this relationship is not uniform or linear. An expressive number of individuals with high school or a college degree did not achieve the highest functional literacy level.⁵

The expanded concept of functional literacy, basic reading, writing, and mathematical skills applied in the health context, is known as functional health literacy and involves social and individual factors, including cultural and conceptual knowledge, ability to listen, speak, write, and read.⁵ The cognitive and social skills described by this construct are essential tools for individuals affected by a disease to play an active role in planning and implementing therapeutic regimens, and playing an active role is crucial to obtain a successful outcome.⁶ In this direction, the

competencies needed to access, process, and act according to instructions and health knowledge may be compromised in the face of reading and writing deficits.⁷

When people lack basic functional health literacy competencies, they may have difficulties understanding instructions, reading labels, prescriptions, and package inserts, which are necessary skills for treatment adherence and implementing preventive actions and health promotion.⁸⁻¹⁰ Hence, low education levels and/or functional illiteracy may negatively affect the disease management of elderly individuals in a situation that requires prolonged health care; years of schooling appear as one of the main factors explaining literacy.⁷ Ten years ago, illiteracy was already a concern as the World Health Organization emphasized that low levels of education and illiteracy were associated with high risks of impairment and death in the aging process.¹¹ Therefore, an understanding that deficient literacy may affect the health of people, limit their personal, social and cultural development resulted in Functional Health Literacy being considered a social determinant of health.¹²

Individuals with low levels of functional health literacy have less developed skills to work with information and lower sensitivity to health education, possibly assuming risk habits that affect their health or that of their families.¹³ There are many challenges when managing chronic diseases, considering the diseases' high level of complexity and necessary self-care, in addition to the need to understand diseases and respective treatments. Therefore, impaired ability to interpret and use health information may impact the management of chronic diseases.¹⁴ It is noteworthy that health literacy shapes people's behaviors and choices that lead to health and wellbeing,^{7,13} however, it is a complex construct that depends on an individual's ability to communicate and the demands imposed by the society and health system. Health literacy is a crucial strategy to empower the population to have control over health, the ability to seek information, and assume responsibility for health issues. In line with this understanding, the Institute of Medicine¹⁵ and the National Academy of Medicine¹⁶ highlight that health literacy is multidimensional and results from different demands and a complex convergence between education, social factors, and health services.

Regarding the development of functional health literacy, health education should focus on improving knowledge regarding health risks, health services, and adherence to health workers' recommendations, representing a connection between literacy skills, the health context, and individual competencies.¹⁷ Understanding that functional health literacy in a clinical setting is not restricted to a single literacy skill; instead, it refers to the application of various cognitive and non-cognitive competencies into daily living, we can say that assessing this indicator in the population is one way to improve actions to promote health and prevent non-communicable chronic diseases, in terms of planning, implementing and assessing actions.^{15,18} Therefore, understanding and correctly applying health information is essential for individuals to perform health actions necessary to maintain good health; otherwise, elderly individuals may experience a

significant impact on their health. In addition to cognitive and sensorial deficits and the low literacy levels of the Brazilian elderly population, poor functional health literacy may directly affect these individuals' possibility to promote life and health conditions, so that assessing these factors is essential to predict health risks. Thus, the following guiding question emerged: What is the functional health literacy level of hypertensive and diabetic elderly individuals enrolled in the Family Health Strategy? This study's objective was to assess the functional health literacy of hypertensive and diabetic elderly individuals enrolled in the Family Health Strategy.

METHOD

This cross-sectional, exploratory study with a quantitative approach addressed elderly individuals with type 2 Diabetes Mellitus or Systemic Arterial Hypertension, cared for the Family Health Strategy from two primary health care units linked to the Health Department of a city in the interior of Rio Grande do Sul, Brazil.

This study's population was composed of 78 elderly individuals, both sexes, enrolled in 2015 in the extinct HIPERDIA – Registration and Monitoring System for the Hypertension and/or Diabetes from the Unified Health System. The sample size formula for finite populations was used to establish the sample.¹⁹ Hence, based on a reference population (113 individuals), a sample of 88 elderly individuals was determined. The participants were selected according to the following inclusion criteria: 60-year-old or older individuals; receiving treatment for type 2 Diabetes Mellitus or Systemic Arterial Hypertension enrolled in the HIPERDIA/SUS; with a good score obtained in the Mini Cognitive Assessment, which included the clock drawing test, the whisper test (to assess hearing acuity), and the Jaeger chart to assess visual acuity.²⁰ Illiterate individuals with visual or hearing impairment, presenting fine hand motor difficulties that impeded the tests, were excluded (10 elderly individuals). Previously trained undergraduate nursing students collected data from May to June 2015 at the individuals' households, on day and time scheduled after contacting the nurses and community agents of the Family Health Strategy units.

The instruments used to collect data included a structured questionnaire addressing sociodemographic and health data and the Brazilian version of the Test of Functional Health Literacy in Adults – TOFHLA (short-version)^{21,22} The short TOFHLA version (S-TOFHLA) was devised to decrease the length of application. It is composed of 13 statements with 36 blank spaces. The respondents are supposed to choose one word, among four available words, to complete a statement. It also includes four questions to test numerical ability. Scores between zero and 53 classify individuals under inadequate functional literacy, 54 and 66 points refer to marginal literacy, and scores between 57 and 100 refer to adequate functional literacy. The answers provided to the questionnaire and the score obtained in the S-TOFHLA were analyzed through Statistical Package for Social Sciences (version 18.0) with Pearson's Chi-square test, Central Tendency Measures (mean and median), and measures of dispersion, with the significance level established at 5%.

This study followed the guidelines of the National Health Council Resolution No. 466/12 regulating research addressing human subjects, including free and informed consent forms ensuring the confidentiality of information and respect to the participants' values. The Institutional Review Board at the University of Passo Fundo (Opinion report 631.431; CAAE 30273514.1.0000.5342) and the Health Department of Passo Fundo approved the study project.

RESULTS

Regarding the participants' sociodemographic characteristics, of the 78 elderly individuals participating, 30.8% (N=24) were men, and 69.2% (N=54) were women. Age ranged from 60 to 87, but most were 60 to 69-year-old individuals (60.3%), followed by 70-79 years old (34.6%), while 5% were aged between 80 and 89; 78% (N=61) of the sample reported being married, 52% (N=41) were from the city of Passo Fundo, and 82% (N=64) reported a source of monthly income. Regarding years of schooling, half of the individuals (N=39) reported from one to four years of schooling, 39.7% (N=31) reported between four and eight years, and slightly above 10% (N=8) of the sample reported more than eight years of schooling. Regarding their primary diagnosis, 61.5% (N=48) of the individuals had Systemic Arterial Hypertension, 5.1% (N=4) Diabetes Mellitus, and 33.3% (N=26) of the individuals had both pathologies. The duration of treatment of the most frequently reported diseases was above 10 years for 37.2% (N=29), and from one to five years for 34.6% (N=27), followed by 28.2% (N=22) with a duration between five and 10 years. Regarding lifestyle, most reported being non-smokers and not consuming alcohol.

Regarding the level of comprehension of the information provided by health workers, approximately 71.8% (N=56) reported understanding, while 26.9% (N=21) reported a lack of understanding. A total of 47.4% (N=37) of the participants reported the habit of reading, while 24.4% (N=19) did not. In the test to assess functional health literacy, 55.1% (N=43) showed inadequate functional literacy, and the remaining were classified under marginal literacy 30.8% (N=24), and 14.1% (N=11) appropriate literacy, as shown in Table 1.

Statistically significant ($p < 0.002$) results were found regarding an association between functional health literacy and schooling, showing that the fewer the years of schooling, the lower the score obtained in functional health literacy (Table 2).

Table 1. Participants' Functional Health Literacy. Passo Fundo, Rio Grande do Sul, Brazil, 2015. (N=78)

Variables	F	%
Functional Health Literacy		
Inadequate	43	55.1
Marginal	24	30.8
Adequate	11	14.1

Table 2. Functional Health Literacy according to the participants' years of schooling. Passo Fundo, Rio Grande do Sul, Brazil, 2015. (N=78)

Schooling (in years)	Functional Health Literacy			Total
	Inadequate f(%)	Marginal f(%)	Adequate f(%)	
1 – 4	26 (60.5)	15 (34.9)	2 (4.7)	43
4 – 8	11 (45.8)	11 (45.8)	2 (8.3)	24
8+	2 (18.2)	5 (45.5)	4 (36.4)	11

*p value= 0.002. Pearson's Chi-square.

Table developed by the authors.

DISCUSSION

Regarding the sample's sociodemographic characterization, a predominance of women was found, corroborating a worldwide tendency reported by studies addressing human aging.^{18,22,23,24} These results are in line with IBGE data that there is a higher prevalence of women in the Brazilian demographic pyramid, with greater concentration among 60 years old or older individuals.⁴

This study focused on 60-year-old or older individuals, and most participants were aged between 60 and 69, differentiating this study from those conducted in Brazil with the TOFHLA.^{18,22} However, we should consider that the study in which the cross-cultural adaptation of the Canadian instrument assessing health literacy among the elderly²⁵ was performed notes that an individual's comprehension levels depend on major health problems causing cognitive, sensorial, or functional impairment. Therefore, a more attentive look is required when addressing health literacy in the context of aging.

Regarding the primary diagnosis, systemic arterial hypertension was the most prevalent in the sample, affecting more than half of the participants. This finding is in line with the presence of high blood pressures verified in the sample of households,⁴ with a prevalence of 24.2% among women, and 18.3% among men. Even though hypertension is not a natural consequence of aging; it is directly correlated with age.²⁰

Regarding the duration of treatment, most participants reported more than 10 years of treatment. This finding may suggest that the longer the treatment, the more knowledge one would have regarding the disease and therapeutic regimen. However, it may also suggest indolence toward complex and regular self-care inherent to chronic diseases. In this sense, one study conducted in a district primary health care unit located in Ribeirão Preto, SP, Brazil, interviewed 123 patients with type 2 Diabetes Mellitus to relate the participants' knowledge and behavior with schooling and duration of the disease, reporting that schooling and duration of disease were statistically significant for the acquisition of knowledge and readiness to perform self-care in the context of diabetes. Regarding behavior, treatment adherence was inversely related to diagnosis duration, suggesting a greater risk of complications due to inappropriate metabolic control.²⁶

Concerning years of schooling among this study's participants, half of the sample reported low education levels, i.e., between one and four years. The remaining reported from four to eight years, and a small portion reported more than eight years of schooling. The low education level found here corroborates studies reporting a significant portion of participants with less than eight years of schooling.^{18,27-29}

Regarding functional health literacy assessment, many elderly individuals, more than 55% of the sample, presented inadequate functional health literacy, followed by individuals with marginal literacy, which is in line with the literature.^{22,30,31} One study addressing 312 healthy participants in São Paulo, SP, Brazil, aged between 18 and 65+ (mean 47.3± 16.8) reports that 32.4% of the participants presented inadequate functional literacy. Among those aged 65+, 38.3% presented functional literacy deficits, classified under inadequate or marginal literacy. A total of 13.3% of the sample obtained scores corresponding to marginal literacy, confirming that half of the sample did not obtain adequate scores in the functional literacy test.²² Note that elderly individuals classified under marginal literacy, approximately one-third, could present scores close to inadequate.

In this study, an association was found between functional health literacy and schooling, according to Pearson's Chi-square ($p < 0.002$). The results showed that the fewer the years of schooling, the lower the score obtained in functional health literacy, suggesting more significant difficulties to understand the information provided in the context of health. This finding is in line with other studies reporting that the older the individuals, the larger the number of individuals with limited functional health literacy.^{32,33} However, education by itself is not a reliable indicator of comprehension or reading skills; thus, it cannot be used as a criterion to infer health literacy levels.^{5,34}

Researchers in the field of health literacy continue to discuss instruments, such as a direct association between these and the reading and writing skills of patients in health services; thus, discussing these instruments and their applicability is not the objective of this study.³⁵ Nonetheless, the Brazilian version of S-TOFHLA proved to be a practical tool for screening individuals with functional illiteracy in the health context, being a useful instrument focused on identifying individuals with the greatest need of special care.^{31,34}

Considering the need for proper self-care management, one study addressed elderly individuals admitted to the emergency department of the Hospital das Clínicas in Porto Alegre, RS, Brazil. The authors argue that identifying these individuals' profiles would support health interventions devised by primary health care and hospital workers, promote integral care, and enable the development and combination of different types of knowledge to meet the specific needs of the elderly population.³⁶ From this perspective, health workers play an essential role in strengthening functional health literacy as a tool to screen for individuals with comprehension deficits and difficulties to apply health recommendations by constantly assessing and training those involved in the care provided to the elderly, especially individuals affected by chronic diseases.^{25,37}

Therefore, there is an urgent need for health workers to be attentive to recognize and assess elderly individuals, considering functional health literacy when performing multidimensional assessments. Such assessments are essential because health workers have a limited understanding of the patients' functional health literacy, and its identification can facilitate recommendations and referral to services that meet the individuals' actual needs.³⁸ From this perspective, it is important for workers to be prepared to understand that some patients do not have the same knowledge as those more familiar with texts and papers from the health field and ensure they understand information and recommendations at the time of consultations.³⁹ Therefore, the training provided to health workers requires attention as the educational system plays a vital role in developing courses to improve the communication established between providers-patients and promote a more active role towards health issues.⁴⁰ Training should take into account that health literacy is not only a particular competence of people but one of the determinants that impact the quality of life of populations.³⁴

This understanding reveals the importance of individuals actively seek tools that improve and maintain the ideal conditions to promote quality of life and health, with greater participation of patients in controlling this process. However, not only individual but also collective efforts, including Health Services, are needed to connect health promotion actions and self-management of care.

CONCLUSIONS AND IMPLICATIONS FOR PRACTICE

Most of the sample was composed of women with a low educational level and more than 10 years of chronic diseases. Most participants reported having a reading habit and understand the information provided by health workers. However, inadequate functional health literacy was found among most elderly participants with chronic diseases, followed by marginal literacy. Low educational level was associated with poor performance in the S-TOFHLA.

Inadequate functional health literacy among the elderly participants, who are often responsible for self-care, may worsen health conditions and illnesses. This context draws attention to the need to devise strategies to train elderly individuals and their

families to manage self-care, addressing the requirements for promoting health and prevent diseases. Thus, identifying this determinant to plan actions intended to promote better outcomes is essential. Therefore, future studies are needed to address larger samples and adapt instruments designed to assess functional health literacy among the Brazilian elderly population.

FINANCIAL SUPPORT

This study was financially supported by the Coordination for the Improvement of Higher Education Personnel (CAPES) – Financing Code 001, Masters scholarship granted to Paulo Cassiano Simor dos Santos.

AUTHORS' CONTRIBUTIONS

Study design. Helenice de Moura Scortegagna. Paulo Cassiano Simor dos Santos. Maria Izabel Penha de Oliveira Santos. Marilene Rodrigues Portella.

Data collection. Helenice de Moura Scortegagna. Paulo Cassiano Simor dos Santos. Maria Izabel Penha de Oliveira Santos. Marilene Rodrigues Portella.

Data analysis. Helenice de Moura Scortegagna. Paulo Cassiano Simor dos Santos. Maria Izabel Penha de Oliveira Santos. Marilene Rodrigues Portella.

Interpretation of results. Helenice de Moura Scortegagna. Paulo Cassiano Simor dos Santos. Maria Izabel Penha de Oliveira Santos. Marilene Rodrigues Portella.

Redaction and critical review. Helenice de Moura Scortegagna. Paulo Cassiano Simor dos Santos. Maria Izabel Penha de Oliveira Santos. Marilene Rodrigues Portella.

Approved the final version. Helenice de Moura Scortegagna. Paulo Cassiano Simor dos Santos. Maria Izabel Penha de Oliveira Santos. Marilene Rodrigues Portella.

Responsible for all the study's content and integrity. Helenice de Moura Scortegagna. Paulo Cassiano Simor dos Santos. Maria Izabel Penha de Oliveira Santos. Marilene Rodrigues Portella.

ASSOCIATE EDITOR

Sofia Sabina Lavado Huarcaya

REFERENCES

1. Banco Mundial. Envelhecendo em um Brasil mais velho: implicações do envelhecimento populacional para o crescimento econômico, a redução da pobreza, as finanças públicas e a prestação de serviços. [Internet]. Washington: The World Bank; 2011 [citado 2020 jun 12]. Disponível em: <https://pesquisa.bvsalud.org/bvsms/resource/pt/mis-31970>
2. Miranda GMD, Mendes ACG, Silva ALA. Public policies challenges on the background of demographic transition and social changes in Brazil. *Interface (Botucatu)*. 2017 jun;21(61):309-20. <http://dx.doi.org/10.1590/1807-57622016.0136>.
3. Ministério da Saúde (BR). Plano de ações estratégicas para o enfrentamento das doenças crônicas não transmissíveis (DCNT) no Brasil 2011-2022. [Internet]. Brasília (DF): Ministério da Saúde; 2011 [citado 2020 jun 12]. Disponível em: http://bvsms.saude.gov.br/bvs/publicacoes/plano_acoes_enfrent_dcnt_2011.pdf

4. Instituto Brasileiro de Geografia e Estatística. Pesquisa nacional por amostra de domicílios: síntese de indicadores 2015/IBGE. [Internet]. Rio de Janeiro: IBGE; 2016 [citado 2020 jun 12]. Disponível em: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv94935.pdf>
5. Instituto Paulo Montenegro. Ação Educativa. INAF Brasil 2018: resultados preliminares. [Internet]. São Paulo: Ação Educativa/IPM; 2018 [citado 2020 jun 12]. Disponível em: http://acaoeducativa.org.br/wp-content/uploads/2018/08/Inaf2018_Relat%C3%B3rio-Resultados-Preliminares_v08Ago2018.pdf
6. Cavaco A, Santos AL. Avaliação da legibilidade de folhetos informativos e literacia em saúde. *Rev Saude Publica*. 2012 out;46(5):918-22. <http://dx.doi.org/10.1590/S0034-89102012000500019>. PMID:23128269.
7. World Health Communication Associates. Health literacy: "The Basics" Revised Edition [Internet]. United Kingdom: World Health Communication Associates Ltd; 2011 [citado 2020 jun 12]. Disponível em: <http://www.whcaonline.org/uploads/publications/HL-FINAL-14.7.2011-2.pdf>
8. Maragno CAD. Associação entre letramento em saúde e adesão ao tratamento medicamentoso [tese]. Porto Alegre (RS): Programa de Pós-graduação em Ciências Farmacêuticas, Universidade Federal do Rio Grande do Sul; 2009.
9. Martins NFF, Abreu DPG, Silva BTD, Semedo DSDRC, Pelzer MT, Ienczak FS. Functional health literacy and adherence to the medication in older adults: integrative review. *Rev Bras Enferm*. 2017 ago;70(4):868-74. <http://dx.doi.org/10.1590/0034-7167-2016-0625>. PMID:28793120.
10. Volpato LF, Martins LC, Mialhe FL. Bulas de medicamentos e profissionais de saúde: ajudam ou complicam a compreensão dos usuários? *Rev Cienc Farm Basica Apl*. 2009;30(3):309-14.
11. World Health Organization. A conceptual framework for action on the social determinants of health: social determinants of health discussion Paper 2 [Internet]. Geneva: WHO; 2010 [citado 2020 jun 12]. Disponível em: http://apps.who.int/iris/bitstream/10665/44489/1/9789241500852_eng.pdf
12. Commission on Social Determinants of Health. Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health [Internet]. Geneva: WHO; 2008 [citado 2020 jun 12]. Disponível em: https://apps.who.int/iris/bitstream/handle/10665/43943/9789241563703_eng.pdf;jsession
13. Liu YB, Liu L, Li YF, Chen YL. Relationship between Health Literacy, Health-Related Behaviors and Health Status: A survey of elderly Chinese. *Int J Environ Res Public Health*. 2015;12(8):9714-25. <http://dx.doi.org/10.3390/ijerph120809714>. PMID:26295246.
14. Poureslami I, Nimmon L, Rootman I, Fitzgerald MJ. Health literacy and chronic disease management: drawing from expert knowledge to set an agenda. *Health Promot Int*. 2017;32(4):743-54. <http://dx.doi.org/10.1093/heapro/daw003>. PMID:26873913.
15. Institute of Medicine. Health literacy: A prescription to end confusion. Washington, DC: The National Academies Press; 2004. <https://doi.org/10.17226/10883>.
16. Pleasant A, Rudd RE, O'Leary C, Paasche-Orlow MK, Allen MP, Alvarado-Little W et al. Considerations for a new definition of Health Literacy. Discussion Paper, National Academy of Medicine, Washington, DC: Academia Nacional de Medicina (NAM); 2016. <https://doi.org/10.31478/201604a>
17. Passamai MPB, Sampaio HAC, Lima JWO. Letramento funcional em adultos no contexto do sistema único de saúde [Internet]. Fortaleza: EdUECE; 2013. [citado 2020 jun 12]. Disponível em: <https://siduece.uece.br/siduece/trabalhoAcademicoPublico.jsf?id=74409>
18. Passamai MPB, Sampaio HAC, Dias AMI, Cabral LA. Letramento funcional em saúde: reflexões e conceitos sobre seu impacto na interação entre usuários, profissionais e sistema de saúde. *Interface (Botucatu)*. 2012 jun;16(41):301-14. <http://dx.doi.org/10.1590/S1414-32832012005000027>.
19. Fontenelles MJ. Bioestatística aplicada à pesquisa experimental. São Paulo: Livraria da Física; 2012.
20. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Envelhecimento e saúde da pessoa idosa [Internet]. Brasília: Ministério da Saúde; 2007 [citado 2020 jun 12]. Disponível em: <http://bvsm.s.saude.gov.br/bvs/publicacoes/abcad19.pdf>
21. Baker DW, Williams MV, Parker RM, Gazmararian JA, Nurss J. Development of a brief test to measure functional health literacy. *Patient Educ Couns*. 1999 set;38(1):33-42. [http://dx.doi.org/10.1016/S0738-3991\(98\)00116-5](http://dx.doi.org/10.1016/S0738-3991(98)00116-5). PMID:14528569.
22. Carthery-Goulart MT, Anghinah R, Areza-Fegyveres R, Bahia VS, Brucki SMD, Damin A et al. Performance of a Brazilian population on the test of functional health literacy in adults. *Rev Saude Publica*. 2009 ago;43(4):631-8. <http://dx.doi.org/10.1590/S0034-89102009005000031>. PMID:19488667.
23. Carollo S. Low health literacy in older women: The influence of patient-clinician relationships. *Geriatr Nurs*. 2015 mar-abr;36(2, Suppl.):38-42. <http://dx.doi.org/10.1016/j.gerinurse.2015.02.017>. PMID:25858518.
24. Grabowski CPR, Freitas JGA. Perfil e letramento funcional em saúde dos pacientes idosos hipertensos atendidos em unidade Escola Saúde da Família na região noroeste de Goiânia-Goiás. Resumo dos trabalhos publicados no II Congresso de Ciência e Tecnologia da PUC Goiás; 2016 out. 19-21; Goiânia (GO), Brasil. Goiânia, GO: PUC; 2016. Disponível em: http://pucgoias.edu.br/ucg/prope/pesquisa/anais/2016/PDF/XVII_JORNADA_INICIACAO_CIENTIFICA/anais-2congresso-ct2016-iniciencia.297.pdf
25. Paskulin LMG, Aires M, Valer DB, de Moraes EP, Freitas IBA. Adaptação de um instrumento que avalia alfabetização em saúde das pessoas idosas. *Acta Paul Enferm*. 2011;24(2):271-7. <http://dx.doi.org/10.1590/S0103-21002011000200018>.
26. Rodrigues FFL, Santos MA, Teixeira CRS, Gonela JT, Zanetti ML. Relationship between knowledge, attitude, education and duration of disease in individuals with diabetes mellitus. *Acta Paul Enferm*. 2012;25(2):284-90. <http://dx.doi.org/10.1590/S0103-21002012000200020>.
27. Federman AD, Wolf M, Sofianou A, Wilson EAH, Martynenko M, Halm EA et al. The association of health literacy with illness and medication beliefs among older adults with asthma. *Patient Educ Couns*. 2013 ago;92(2):273-8. <http://dx.doi.org/10.1016/j.pec.2013.02.013>. PMID:23523196.
28. Sarkar U, Karter AJ, Liu JY, Moffet HH, Adler NE, Schillinger D. Hypoglycemia is more common among type 2 diabetes patients with limited health literacy: the Diabetes Study of Northern California (DISTANCE). *J Gen Intern Med*. 2010;25(9):962-8. <http://dx.doi.org/10.1007/s11606-010-1389-7>. PMID:20480249.
29. Souza JG, Apolinario D, Magaldi RM, Busse AL, Campora F, Jacob-Filho W. Functional health literacy and glycaemic control in older adults with type 2 diabetes: a cross-sectional study. *BMJ Open*. 2014;4(2):e004180. <http://dx.doi.org/10.1136/bmjopen-2013-004180>. PMID:24525392.
30. Berkman ND, Sheridan SL, Donahue KE, Halpern DJ, Viera A, Crotty K et al. Health literacy interventions and outcomes: an updated systematic review. *Evid Rep Technol Assess (Full Rep)*. 2011 mar;(199):1-941. PMID:23126607.
31. Santos MIPO, Portella MR. Condições do letramento funcional em saúde de um grupo de idosos diabéticos. *Rev Bras Enferm*. 2016 fev;69(1):156-64. <http://dx.doi.org/10.1590/0034-7167.2016690121i>. PMID:26871229.
32. Chesser AK, Keene Woods N, Smothers K, Rogers N. Health Literacy and older adults: A Systematic Review. *Gerontol Geriatr Med*. 2016 jan-dez;2:2333721416630492. <http://dx.doi.org/10.1177/2333721416630492>. PMID:28138488.
33. Van Der Heide I, Rademakers J, Schipper M, Droomers M, Sørensen K, Uiters E. Health literacy of Dutch adults: a cross sectional survey. *BMC Public Health*. 2013 fev;13(179):1-11. <http://dx.doi.org/10.1186/1471-2458-13-179>. PMID:23445541.
34. Mialhe FL, Carthery-Goulart MT. Letramento em saúde e promoção da saúde. In: Pelicioni MCF, Mialhe FL, organizadores. Educação e promoção da saúde: teoria e prática. 2ª ed. São Paulo: Santos; 2019. p. 133-180.
35. Marques SRL, Lemos SMA. Instrumentos de avaliação do letramento em saúde: revisão de literatura. *Audiol Commun Res*. 2017;22(0):e1757. <http://dx.doi.org/10.1590/2317-6431-2016-1757>.
36. Silveira VC, Paskulin LMG. Perfil e rede de apoio de idosos internados na emergência do Hospital das Clínicas de Porto Alegre. *Estud interdiscipl envelhec*. 2014;19(2):377-396.

37. Coleman CA, Fromer A. A health literacy training intervention for physicians and other health professionals. *Fam Med*. 2015 maio;47(5):388-92. PMID:25905883.
38. Hadden KB. Health literacy training for health professions students. *Patient Educ Couns*. 2015;98(7):918-20. <http://dx.doi.org/10.1016/j.pec.2015.03.016>. PMID:25850755.
39. Lambert M, Luke J, Downey B, Crengle S, Kelaher M, Reid S et al. Health literacy: health professionals' understandings and their perceptions of barriers that Indigenous patients encounter. *BMC Health Serv Res*. 2014 nov;14(614):1-10. <http://dx.doi.org/10.1186/s12913-014-0614-1>. PMID:25471387.
40. Coleman CA, Hudson S, Maine LL. Health literacy practices and educational competencies for health professionals: a consensus study. *J Health Commun*. 2013;18(Suppl. 1):82-102. <http://dx.doi.org/10.1080/10810730.2013.829538>. PMID:24093348.