# Cogitare Enfermagem

ORIGINAL ARTICLE

# HEALTH LITERACY AND ASSOCIATED FACTORS IN THE ELDERLY*

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ABSTRACT

Objectives: To evaluate the Health Literacy degree of the elderly assisted in the Family Health Strategy and to identify its association with age, gender, years of study, chronic diseases, health habits and medications used.

Method: A quantitative cross-sectional study with exploratory-descriptive approach, conducted with 350 elderly individuals. An instrument was used to evaluate the Health Literacy and another of socio-demographic and health characterization. Data was collected from July to December 2017. The Chi-square and ANOVA tests were used.

Results: Of the 350 elderly individuals, 206 (58.9%) obtained inadequate literacy, 58 (16.6%) marginal and 86 (24.6%) adequate. There was an association between Health Literacy and age and years of schooling (p<0.001).

Conclusion: Knowing Health Literacy, health professionals can perform care in order to address the particularities of the elderly, even if the activities are performed for the collective.

DESCRIPTORS: Aged; Health Literacy; Primary Health Care; Family Health Strategy; Nursing.

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# ARTIGO ORIGINAL / ARTÍCULO ORIGINAL

## LETRAMENTO FUNCIONAL EM SAÚDE E FATORES ASSOCIADOS EM PESSOAS IDOSAS

**RESUMO**

*Objetivos: avaliar o grau de Letramento Funcional em Saúde das pessoas idosas atendidas na Estratégia Saúde da Família e identificar a sua associação com idade, sexo, anos de estudo, doenças crônicas, hábitos de saúde e medicamentos utilizados.*

*Método: estudo quantitativo transversal com abordagem exploratório-descritiva, realizado com 350 idosos. Utilizou-se um instrumento que avaliou o Letramento Funcional em Saúde e outro de caracterização sociodemográfica e de saúde. Os dados foram coletados de julho a dezembro de 2017. Foram utilizados os testes Qui-quadrado e ANOVA.*

*Resultados: dos 350 idosos, 206 (58,9%) obtiveram letramento inadequado, 58 (16,6%) marginal e 86 (24,6%) adequado. Houve associação entre Letramento Funcional em Saúde e idade e anos de estudo (p<0,001).*

*Conclusão: Conhecendo o Letramento Funcional em Saúde, os profissionais da saúde podem realizar cuidados de forma a contemplar as particularidades das pessoas idosas, mesmo que as atividades sejam realizadas para o coletivo.*

*DESCRITORES: Idoso; Alfabetização em Saúde; Atenção Primária à Saúde; Estratégia Saúde da Família; Enfermagem.*

## ALFABETISMO FUNCIONAL EN SALUD Y FACTORES ASOCIADOS EN ANCIANOS

**RESUMEN**

*Objetivos: evaluar el grado de Alfabetismo Funcional en Salud de los ancianos atendidos en la Estrategia Salud de la Familia e identificar su asociación con la edad, el sexo, los años de estudio, las enfermedades crónicas, los hábitos de salud y los medicamentos utilizados.*

*Método: estudio cuantitativo y transversal con enfoque exploratorio-descriptivo, realizado con 350 ancianos. Se utilizó un instrumento que evaluó el Alfabetismo Funcional en Salud y otro de caracterización sociodemográfica y de salud. Los datos se recolectaron de julio a diciembre de 2017. Se utilizaron las pruebas de Chi-cuadrado y ANOVA.*

*Resultados: de los 350 ancianos, 206 (58,9%) obtuvieron un alfabetismo inadecuado, 58 (16,6%) marginal y 86 (24,6%) adecuado. Se registró una asociación entre el Alfabetismo Funcional en Salud y los años de estudio (p<0,001).*

*Conclusión: al conocer el nivel de Alfabetismo Funcional en Salud, los profesionales del área pueden realizar cuidados de modo de contemplar las particularidades de los ancianos, al igual que las actividades se efectuasen para el colectivo poblacional.*

*DESCRIPTORES: Anciano; Alfabetización en salud; Atención Primaria de la Salud; Estrategia Salud de la Familia; Enfermería.*

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# INTRODUCTION

With the aging of the population resulting from the worldwide advance of the demographic and epidemiological transition, there is an increase in the prevalence of Chronic Non-Communicable Diseases (CNCDs) in the population[1]. In a study of elderly people in a municipality of Rio Grande do Sul, the most prevalent chronic diseases were hypertension, hypercholesterolemia or elevated triglycerides, and diabetes[2].

It is expected that, to maintain quality of life and the control of chronic diseases, the elderly will use multiple drugs. However, proper and cautious administration of these drugs is indispensable in order to avoid or minimize the risks arising from their use, thus ensuring an effective treatment[3].

Regarding the number of medications used by the elderly, a study conducted in a medium-sized municipality in the state of São Paulo identified a mean of 5.8 medications per elderly individual, the most used are those related to the cardiovascular and digestive system, and the main health problems are related to high blood pressure, rheumatism/arthrosis, dyslipidemia and diabetes[4].

The individuals attending the health services may have difficulty understanding the information they receive in this setting as the lack of knowledge and skills about their health status can be considered a barrier to the adoption of healthy behaviors and the prevention or management of acute and chronic diseases[5], as well as increasing the risk of complications and hospitalizations.

Thus, it is important to evaluate Health Literacy (HL), which is defined by the Institute of Medicine (IOM) as "the degree to which individuals have the ability to obtain, process and understand basic health information and services necessary for proper health decision making"[6:32].

HL levels in the elderly are usually lower than in the general population. In a study conducted in São Paulo-SP, in a government-funded outpatient geriatric clinic, with 129 elderly individuals with type 2 diabetes, 45% of the sample had an inadequate HL[7].

From the HL assessment, both nurses and other health professionals can have subsidies to perform health education activities, focused on the needs of the elderly, reducing negative impacts on health conditions and favoring active aging, a fact that justifies the need and relevance of this study.

Active aging can be understood as "the process of optimizing health, participation and safety opportunities aiming to improve the quality of life as people get older"[8:13]. It applies to both individuals and population groups, enabling people to realize their potential for physical, mental and social well-being, participating in society according to their wants, needs and capabilities, while providing protection, safety and care if it is necessary[8].

There are also few national and international studies on the HL degree and its associated factors with older people. Thus, the research questions were the following: What is the HL degree of the elderly assisted in the Family Health Strategy (FHS) in the city of Rio Grande-RS? Is there any association between the degree and age, gender, years of schooling, chronic diseases, health habits and medications used?

Thus, the objectives of this study were to evaluate the degree of Health Literacy of the elderly assisted in the Family Health Strategy and to identify its association with age, gender, years of study, chronic diseases, health habits and medications used.

# METHOD

This is an exploratory and descriptive study with a quantitative approach, of the cross-sectional type, conducted in 10 units of the FHS, totaling 17 teams in the city of Rio Grande-RS. This research is part of the macro-project entitled "Relationship between HL, medication adherence and functionality in the elderly in the family health strategy".

The selected population for the study consisted of the elderly enrolled in the FHS units who met the following inclusion criteria: making use of at least one drug for at least 15 days before the interview date and managing their own drug therapy regimen; having at least one year of self-reported schooling; being able to read the Jaeger Card at level 20/40, considered normal for peripheral vision, with or without corrective lenses or glasses; hearing the whisper on the right and left sides of the ear canal by the Whisper Test; and getting a proper score on the Mini Mental State Examination (MMSE).

The MMSE cutoff grades are the following: Illiterate = 19 points; 1 to 3 years of schooling = 23 points; 4 to 7 years of schooling = 24; > 7 years of schooling = 28[9]. The Jaeger Card, Whisper Test, and MMSE instruments were used as recommended by the HL evaluation studies[10-11].

The exclusion criteria were the following: being under chemotherapy or radiotherapy treatment; or undergoing surgery within 15 days prior to data collection, as there may be interference with adherence to health care.

The population of the city of Rio Grande-RS is about 197 thousand inhabitants, with an estimated 208 thousand in 2017, and with a percentage of elderly people of 13.89%[12]. From the population of the 17 teams included in the survey (68,000), the percentage of elderly (13.89%) was calculated, obtaining approximately 9,445 elderly individuals as the study population.

The calculation formula of samples for finite populations[13] was used, with a result of n=370. From that, the sample was for convenience and the selection of participants was by team: dividing n by 17 participating teams (370/17 = 21.76), 22 elderly individuals were obtained by team. Since not all teams had the same number of micro-areas, the number of elderly people interviewed in each micro area varied for each team.

The elderly individuals from each micro-area were selected from the Register of Community Health Agents (CHAs), who provided a list with the name and address of all non-illiterates. From the lists, home visits were made to the elderly and, as the number previously stipulated for that micro area was completed, the collections were finalized at that location. Therefore, the sample was for convenience.

Data was collected from July to December 2017 using a sociodemographic and health characterization questionnaire. The following variables were selected for this study: gender, age, years of study and those related to health habits, use of medications and chronic diseases.

The short version of B-TOFLA (Brief Test of Functional Health Literacy in Adults)[10], which evaluates the HL, was also used. This instrument features a numbering test (which includes the ability to calculate the interval between doses of a drug and take fasting medication) comprising four cards, and a reading comprehension test consisting of two health-related passages with 36 items (blank gaps). The score of the reading comprehension texts is two points for each correctly filled blank, totaling 72 points. In numerical items, seven points are counted for each correct answer, totaling 28 points. The total test score is 100 points. Individuals scoring between zero and 53 points have inadequate HL; between 53 and 66 points, marginal HL, and between 67 and 100 points, adequate HL[10].

For data collection, a home visit was made to 376 elderly individuals, of whom 26 were not included in the study: 18 for failing to achieve the appropriate MMSE score, six for failing the vision test and two for failing the whisper test. In addition, due to the estimated time for collection in the research schedule, there was a sample loss of 5.4%, and it was not possible to reach the 370 individuals initially projected. Thus, the final sample

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was 350 elderly people.

For data analysis a database was developed in the Statistical Package for the Social Sciences (SPSS) program, version 20.0. Data collection was performed in June 2017 by three master's students and three undergraduate scholarship holders involved in the macro project, trained by the research coordinator.

Descriptive statistical analysis was performed, describing the absolute frequency and relative frequency for categorical variables, and the use of central tendency measures (mean) and dispersion measures (standard deviation) for numerical variables; and inferential statistical analysis, through statistical tests to verify the association between the variables.

To verify the association between the HL (adequate, marginal and inadequate) and other categorical variables, the Chi-square test was used. The correlation between the HL score and the age and years of study variables was analyzed using Pearson's correlation coefficient.

The ANOVA test was used to verify the mean difference of the numbering, comprehension and reading variables of the HL for the categorical variables that presented significance in the Chi-square test. A significance level of $p < 0.05$ was used.

After explaining the objectives and with the voluntary acceptance of the participants, they were requested to sign the Free and Informed Consent Form. The ethical precepts about research involving human beings were respected, according to Resolution 466/2012.

The project was approved by the Committee of Ethics and Research in the Health Area of the Federal University of Rio Grande, with opinion number 93/2017, and by the Municipal Center of Permanent Education in Collective Health of the Health Secretariat of Rio Grande-RS, with opinion number 013/2017.

## RESULTS

350 elderly individuals participated in this study. Of these, 206 (58.9%) obtained inadequate HL, 58 (16.6%) marginal HL and 86 (24.6%) adequate HL. Regarding item numbering, those with inadequate HL got 65.3%; those with marginal HL, 89.6%; and with adequate HL, 91.4%. In response to the reading comprehension item, those who had inadequate HL got 25.6%; those with marginal HL, 46.3%; and with adequate HL, 81.2%, according to Table 1.

Table 1 - Levels of Health Literacy. Rio Grande, RS, Brazil, 2017

| | n (%) | Numbering (±SD) | Understanding Reading (±SD) | Total (±SD) |
|---|---|---|---|---|
| Inadequate HL | 206 (58.9) | 18.3 (7.4) | 18.5 (7.7) | 36.7 (10) |
| Marginal HL | 58 (16.6) | 25.1 (4.7) | 33.4 (4.9) | 58.3 (4.1) |
| Adequate HL | 86 (24.6) | 25.6 (3.5) | 58.5 (10.3) | 84.3 (10.7) |

Female elderlies had higher percentages of adequate HL than males. However, there was no statistical association between gender and the degrees of HL. In the Pearson

correlation test, there was a correlation between the age variable and HL (Rho=-0.332 and p=0.000), indicating that as age increases, HL decreases. Regarding the years of study variable, there was also a correlation with HL (Rho=0.550 and p=0.000), showing that, as the years of study increase, the degree of HL increases, according to Table 2.

Table 2 - Relationship between Health Literacy and sociodemographic variables. Rio Grande, RS, Brazil, 2017

| Variables | Adequate HL | Marginal HL | Inadequate HL | Q square test | p value |
|---|---|---|---|---|---|
| Gender | n (%) | n (%) | n (%) | | |
| Female | 62(26) | 43(18) | 131(56) | 3.421 | 0.181 |
| Male | 24(21) | 15(13) | 75(66) | | |
| | (±SD) | (±SD) | (±SD) | RHO | |
| Age | 65.6(4.1) | 66.9 (5.6) | 69.8 (6.4) | 0 | <0.001* |
| Years of study | 7.4(3.1) | 5.8 (2.6) | 3.8 (2.1) | 0.550 | <0.001* |

* Value with statistical significance

The elderly individuals who reported performing some type of regular physical activity obtained a higher percentage of adequate HL and those who reported not performing any type of physical activity obtained a higher percentage of inadequate HL. The elderly individuals who reported following a specific diet had a higher percentage of inadequate HL, as shown in Table 3. However, there was no statistical association between health habits and HL degrees.

Table 3 – Relationship between Health Literacy and health habits. Rio Grande, RS, Brazil, 2017

| Variables | Adequate HL | Marginal HL | Inadequate HL | Chi square test | p value |
|---|---|---|---|---|---|
| Physical activity | | | | 3.401 | 0.183 |
| Yes | 36(29.5) | 22(18.0) | 64(52.4) | | |
| No | 50(21.9) | 36(15.7) | 142(62.2) | | |
| Follows a specific diet | | | | 2.237 | 0.327 |
| Yes | 36(24.8) | 19(13.1) | 90(62.0) | | |
| No | 50(24.3) | 39(19.0) | 116(56.5) | | |

The most prevalent diseases among the elderly were hypertension (n=264), diabetes (n=117), heart disease (n=47) and musculoskeletal diseases (n=44). There was no statistical association between diseases and the degree of HL, as shown in Table 4.

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Table 4 – Relationship between Health Literacy and chronic diseases. Rio Grande, RS, Brazil, 2017

| Variables | Adequate FHL | Marginal FHL | Inadequate FHL | Chi square test | p value |
|---|---|---|---|---|---|
| Hypertension | | | | 0.852 | 0.653 |
| Yes | 66(25.0) | 41(15.5) | 157(59.4) | | |
| No | 20(23.2) | 17(19.7) | 49(56.9) | | |
| Diabetes | | | | 2.826 | 0.243 |
| Yes | 24(21.3) | 24(21.3) | 69(61.0) | | |
| No | 62(26.6) | 34(14.5) | 137(58.7) | | |
| Heart diseases | | | | 0.560 | 0.756 |
| Yes | 10(21.2) | 7(14.8) | 30(63.8) | | |
| No | 76(25.0) | 51(16.8) | 176(58.8) | | |
| Musculoskeletal diseases | | | | 2.598 | 0.273 |
| Yes | 10 (22.7) | 11 (25) | 23 (52.2) | | |
| No | 76 (24.8) | 47 (15.3) | 183 (59.8) | | |

The mean number of medications used per elderly person was 4.82 (SD±2.7) a day, the most used being those for the cardiovascular (n=308), digestive and metabolism (n=202), and nervous (n=141) systems. There was no statistical association between medications and the degrees of HL (Table 5).

Table 5 – Relationship between Health Literacy and medications used. Rio Grande, RS, Brazil, 2017

| Variables | Adequate HL | Marginal HL | Inadequate HL | Chi square test | p value |
|---|---|---|---|---|---|
| Cardiovascular system medication | | | | 0.015 | 0.992 |
| Yes | 76(24.6) | 51(16.5) | 181(58.7) | | |
| No | 10(23.8) | 7(16.6) | 25(59.5) | | |
| Digestive and metabolism system medication | | | | 1.282 | 0.527 |
| Yes | 47(23.2) | 31(15.3) | 124(61.3) | | |
| No | 39(26.3) | 27(18.2) | 82(55.4) | | |
| Nervous system medication | | | | 0.197 | 0.906 |
| Yes | 36(25.5) | 24(17.0) | 81(57.4) | | |
| No | 50(23.9) | 34(16.2) | 125(59.8) | | |

## DISCUSSION

In other countries, such as Germany, a study showed that the inadequate HL rate among the elderly was 4%[14]. In Denmark, another study with elderly people found that the inadequate HL rate was 20-40%[15]. These figures are much lower than the one found in the present study, which may be related to the fact that those countries are more developed, have better income and higher levels of population education, variables that influence HL.

Similar to the result found in this research, in a study conducted in the city of Juiz de Fora-MG, with patients whose mean age was 52 years old and who had cardiovascular disease, the sample obtained better results in the numbering section. This variable assesses, among other aspects, the ability to calculate the interval between the doses of a drug and taking medication while the person is fasting[16].

Both in this study and in others[16-17], age was also associated with HL, but in an inversely proportional manner, i.e., the higher the age, the lower the degree of HL. Moreover, this variable is considered as a personal conditioning factor of HL, being dynamic and non-modifiable, that is, it may vary over time, but even if there is a conditioning agent, it cannot be modified[18].

Low levels of HL may result in a decreased self-management capacity for care, thus affecting the health and well-being of elderly people[19]. A study conducted in Curitiba-PR showed that, regardless of elderly's schooling level, there is restricted use of the practices related to the written language, since both those with and without higher education had difficulty interpreting simple information texts. Thus, it is clear that the schooling level does not guarantee the literacy process[20].

The years of study variable influenced the performance in HL achieved by the elderly so that, as the years of study increase, so does the degree of HL. The elderly in this study were young in the last century, where the educational situation was precarious and less accessible, and the priority for the population was to work[21-22].

Although it is not a constant, men are commonly associated with a lower degree of FHL[16]. The gender variable is also considered as a personal conditioning factor of HL, i.e., it depends on the intrinsic characteristics of each individual. However, unlike age, this variable is stable and does not vary over time[18]. Both age and gender are predictors of low HL, so it is important to work out the other variables that are modifiable in order to improve HL levels.

Elderly people who reported performing some physical activity had a higher degree of HL. A study conducted with Chinese elderly individuals showed that there is an association between HL and health-related behaviors, such as physical activity, alcohol consumption, and smoking, so that the participants with higher HL scores were significantly less likely to have risk behaviors, and more willing to have regular checkups, to have a good health self-assessment, and to have sufficient access to health information from various sources[23].

Conversely, those individuals who have a chronic condition present worse health conditions and often need to follow a specific diet. In this study, those elderly individuals who follow a specific diet achieved lower degrees of HL. The presence of chronic diseases, both nationally and internationally, is linked to an inadequate HL[24-25]. The lack of health-related knowledge and skills can also be considered as a barrier to the adoption of healthy behaviors and to the prevention or management of acute and chronic diseases[5].

The most prevalent chronic diseases among the FHS-assisted elderly in the municipality of Teófilo Otoni-MG were hypertension and diabetes[1]. In addition, a study conducted with 840,319 elderly Germans who consulted with a general practitioner showed that the most common chronic disease in both genders was hypertension[26], corroborating the findings of this study.

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There was no association between the degrees of HL and the chronic diseases self-reported by the elderly. However, a study conducted with 2,923 elderly individuals in the United States found diabetes and heart failure as predictors of inadequate HL[27].

Although the drugs most used by the study population did not present a statistically significant relationship between the degrees of HL, it is noticeable that, similarly, in a study conducted with elderly people using supplementary health insurance in a medium-sized municipality of the state of São Paulo, the most used classes of drugs were for the cardiovascular system, digestive system and metabolism, with a mean of 5.8 drugs per elderly individual[28].

In a study conducted with Mexican elderly individuals, the most commonly used drug classes were for the feeding tract and metabolism, cardiovascular and nervous system, with a mean of 8.3 drugs per elderly individual[29]. Still, the most used drugs are in agreement with the most prevalent chronic diseases in the studied population.

Considering that in order to carry out health education activities, the professionals must take into account sociodemographic and health variables that are related to the population's HL since each individual seeks, understands and uses the information in his or her own way, this study is fundamental.

Thus, as these factors and the uniqueness of the subjects are considered, the work of nursing and other health professionals enables everyone to access and use this information, thus minimizing conditions of health problems and vulnerabilities of the population.

As limitations of the study, it is noteworthy that illiterate elderly people were not included in this research due to the criteria of the instruments used.

## CONCLUSION

Of the elderly people participating in the study, 58.6% had inadequate HL. There was a significant association between HL and the age and years of study variables. Elderly people who reported having at least one chronic disease, not engaging in any physical activity, following a specific diet, or continually taking any medication had higher percentages of inadequate HL. However, there was no statistical significance for these variables.

The study results may serve as subsidies for self-care promotion activities of the elderly in adherence to the treatment of CNCDs, as they show where these professionals can act to increase the degree of HL and thus contribute to a better health management by the elderly.

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