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Original Article

THE TEST OF FUNCTIONAL HEALTH LITERACY IN ADULT: PRELIMINARY PROCESS OF CROSS-CULTURAL ADAPTATION AND VALIDATION

TESTE DE LITERACIA FUNCIONAL EM SAÚDE NO ADULTO: PROCESSO PRELIMINAR DE ADAPTAÇÃO CULTURAL E VALIDAÇÃO

ALFABETIZACIÓN FUNCIONAL PRUEBA DE LA SALUD EN ADULTOS: PROCESO PRELIMINAR DE ADAPTACIÓN CULTURAL Y VALIDACIÓN

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Objective: to translate the cultural adaptation and validation of the test of functional health literacy in adults into Portuguese (Portugal). Methods: the original English version of the test was translated by applying standardized translation methods and cultural adaptations used in Portuguese health care settings. The 148 patients with chronic obstructive pulmonary disease completed the Portuguese version and participated in an interview. We applied statistical analysis. Results: the validation, internal consistency and item to scale pretest correlation as the final Portuguese version, were determined according to established criteria, between satisfactory and excellent. Conclusions: the adequate level of functional health literacy is the most representative in participants who lived longest with CODP and all level of education, except in 1st cycle). More research is needed in a large population with chronic disease and healthy with the Portuguese version.

Descriptors: Health Literacy; Test of Functional Health Literacy in Adults; Chronic Obstructive Pulmonary Disease; Validation and Cultural Adaptation.

Objectivo: proceder à tradução, adaptação cultural e validação da versão portuguesa (Portugal) do teste de literacia Funcional em saúde, nos adultos; e identificar o nível de literacia em saúde das pessoas com Doença Pulmonar Obstrutriva Crónica. Método: tradução e adaptação cultural da versão original para língua portuguesa utilizada pelas instituições de saúde segundo as orientações de Beaton. Aplicada a versão portuguesa do teste a 148 participantes com o diagnóstico de doença pulmonar obstrutiva crónica por meio da entrevista. Realizada a análise estatística. Resultados: a validação da consistência interna e da correlação dos itens da escala do pré-teste e do teste foi determinada de acordo com os critérios estabelecidos entre razoável e excelente. Conclusão: a experiência adquirida por meio do contacto prolongado com o sistema de cuidados de saúde, nomeadamente por uma doença crónica, como a DPOC, e com aptidões de literacia, pode contribuir para a compreensão e o conhecimento do próprio estado de saúde, bem como o desenvolvimento de competências para gerir, tomar decisões e utilizar adequadamente os cuidados de saúde.

Descritores: Literacia em Saúde; Teste de Literacia Funcional em Saúde no Adulto; Doença Pulmonar Obstrutiva Crónica; Validação e Adaptação Cultural.

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Objetivo: traducir a la adaptación cultural y validación de la versión en portugués (Portugal), de la prueba de alfabetización funcional de la salud, en adultos. Método: la traducción y adaptación cultural de la versión original en portugués utilizado por las instituciones de salud bajo la dirección de Beaton. Se aplica la versión en Inglés de la prueba a 148 participantes con un diagnóstico de enfermedad pulmonar obstructiva crónica a través de la entrevista. Realizó el análisis estadístico. Resultados: la validación de la consistencia interna y la correlación de los elementos anteriores a la prueba de escala y se determinó la prueba de acuerdo con los criterios de razonable y excelente. Conclusión: el nivel adecuado de alfabetización funcional en salud es el más representativo de estos participantes en todos los niveles educativos, excepto en el 1er ciclo. Se necesitan más estudios sobre una población más amplia con la enfermedad crónica y saludable en esta versión en portugués (Portugal).

Descriptores: Alfabetización en Salud; Prueba de Alfabetización Funcional de Salud en los Adultos; Enfermedad Pulmonar Obstructiva Crónica; Validación y Adaptación Cultural.

Introduction

The term "health literacy" (HL) is a relatively new and a complex phenomenon. Its concept and assessment have evolved during the past two decades, responding to society changes and the growing demand for healthcare services.

Different perspectives have emerged, depending on the context and desired aim[1], reflecting this way, the complexity of its construct, and stationary and dynamic character.

In 1990 the concepts arose from the interest between illiteracy and health conditions derived from clinical care and public health, with a major relevance on the latter, within the range of health promotion and education[2-3].

HL is closely related to literacy and numeracy, health promotion and education, informational communication, and sociocultural features, being considered among others, one of the HL crucial indicators.

One of the concepts set out in the literature report is that HL isn't clearly literacy, but the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions[4-6]. This includes a set of complex reading, listening, thinking, and critical analysis and decision-making abilities, as well as, the skill to apply them to health issues. These abilities are necessary to understand the content of a drug information leaflet, a prescription label, educational handouts, directions from health professionals, and informed consent forms. This HL stationary concept is confined to individual abilities, which are relatively stable over time, and may improve with educational programs or decline with aging or pathologic processes that impair cognitive function[7].

Others have reported a dynamic nature of HL, as "(…) the ability to function in the health care environment, it must depend upon characteristics of both the individual and the health care system."[8:878], and (…) a range of skills that individuals develop to seek, understand, assess and use information and health concepts, in order to make informed choices"[9:196], assume the individual's interaction with the setting or healthcare system, and the experiences related to health[1]. The association of health system contributions and resources, individual's skills and motivation to learn, resulting from the promotion and effort benefits of health education programs, fostering the appreciation and development of individual's, cognitive, social and communicative skills, are considered important factors to improve individual and community the HL, and from this point of view "an individual's health literacy may vary depending upon the medical problem being treated, the health care provider and the system providing the care"[8:878]; thus, assessment tools were developed and the HL validation was created for different populations, age groups, life stage, and social background[2].

HL can be measured at different levels, as functional (elementary), interactive (communicative), and critical[10]. It can evolve

from the practical application level of the literacy skills (reading, writing and numeracy) required and essential to perform efficiently in all daily situations, to the development of the ability to critically analyze information, control events and daily life situations, which promote greater autonomy, self-care and empowerment in health related decision-making[11].

There aren't many specific tools to assess and measure HL in medical and healthcare provision settings[12], such as numeracy, oral and written, reading comprehension skills, and the knowledge of issues usually found in a health context[13]. Nowadays, there are the following tools: The Test of Functional Health Literacy, in Adults (TOFHLA; S-TOFHLA); The Rapid Estimative Adult Literacy in Medicine (REALM; REALM-SF); The Wide Range Achievement Test (WRAT); and the Newest Vital Sign (NVS-E; NVS-S).

TOFHLA is considered a useful screening tool to determine the referred skills, essential tasks for a person to adequately function in healthcare systems[3,12,14], where patients' participation in planning and implementation of a therapeutic regimen is key for the success of illness management[14]. However, the test only assesses selective areas intended to be markers of an individual's comprehensive ability[8].

COPD is the most prevailing chronic pulmonary disease worldwide with a huge impact on society and daily life and with a great socioeconomic bearing[15]. The prevalence of COPD in mortality, morbidity, co-morbidities, and disability related to physical activity and activities of daily life is high[16-17], contributing to labor absenteeism, lower productivity and use of resources and costs in healthcare[15].

In Portugal, it is estimated the existence of 14.2% of people with COPD at several disease stages[18], and it is considered the second major cause of pulmonary disease morbidity[19]. The Burden of Obstructive Lung Disease (BOLD) study, carried out in Portugal, refers "a higher prevalence of COPD in the older population, over 70 years of age, and in the male gender, reaching figures of 47.2"[18:102].

As breathing impairment exacerbates in this population, due to the presence of hypoxemia and hypercapnia, as well as depression and anxiety situations, it contributes to difficulties in abstract thinking, memorization, and motor concentration and coordination to handle basic tasks[20-21]. In face of such complex and long term therapeutic regimen, these patients are required to have cognitive and instrumental skills to control their disease, adapt to their disabilities and properly handle the necessary equipment. Consequently, this compromise may influence the ability to understand verbal information (oral and written), learn and make decisions making[22] it difficult to adhere and benefit from therapeutic regimen.

Some studies refer that patients with COPD present a low level of HL associated to disease severity, disease management difficulty, and worse life quality, turn more to healthcare and show lower results related to COPD [23-24].

For these reasons, we propose for this study the following objectives: undertake the translation, cultural adaptation and validation of the Portuguese version (Portugal) test of functional health literacy in adults; identify the level of health literacy of people with Chronic Obstructive Pulmonary Disease

Methods

In Portugal there isn't an instrument to assess health functional literacy that meets the reading and numeracy skills related to a therapeutic regimen prescription, patient's rights and responsibilities and information for better disease management in a health context. After careful appreciation of the several English assessment tools, we chose the full-format version of the functional health literacy assessment, in adult's test (TOFHLA), which "is considered to be the gold standard of health literacy test and one will find it extensively in research on health literacy"[1]. So far, the number of validations and adaptations of this test into several languages is quite small, there are Spanish versions (in 1995 during the original version study)[14], English (in

2009 for the Australian population)[25], Serbian (in 2009 for the Serbian population)[26], Spanish (in 2010 for the Porto Rican population)[27], and Danish (in 2015 for the Danish population)[28]. Conversely, the TOFHLA version with a short format and rapid application, the Short-TOFHLA (S-TOFHLA), has been widely used and adapted to different languages; it is a test of reading comprehension that might prove useful as a screening instrument to identify limited reading ability, since the ability and validity for the numeracy sections are diminished[12].

The first step was to ask for the authorization of TOFHLA authors to reproduce and apply the test in research work. Later, we researched, as other researchers previously had done, the process of assessment and cultural adaptation, by choosing the international guideline process of the cross-cultural adaptation[29], to translate and adapt the original American version of TOFHLA, as well as, the adequacy to the Health National system, and to language semantics and syntax. The methodology suggested, consists of 5 sequential stages and a subsequent sixth stage; in case a screening system is to be included, which comprises the individual adaptation of items, questionnaire's instructions and answer options, which are the following:

Stage I – translation of the original English test by two Portuguese independent translators, who produced two Portuguese versions, namely T1 and T2. These versions were selected according to the suggested criteria[29].

Stage II – overview of the two Portuguese versions discussed by the translators and summarized in a consensual version, T12, to solve discrepancies not in terms of content essence, but in nomenclature, type of aid and access to healthcare associated to the Portuguese healthcare political system.

Stage III – translation of the Portuguese consensual version into English, T12, by two Portuguese independent translators without their knowledge of the original tool, and theme of the two versions, into English, namely R1 and R2. These versions were selected according to the established criteria[29].

Stage IV – the appreciation commission/"power of appraisal" was composed of 4 elements, 2 translators (bilingual translators), 1 medical doctor and 1 researcher to elaborate the final version. The alteration proposals were related to the specificity of our National Health system, as far as it concerns the National Health Service, from which all of the Portuguese population is beneficiary, and to equal access to healthcare, vocabulary, semantics and syntax, prescription labels, mainly in the prescription cards presented in the original version, and cultural customs.

Stage V – the pretest was administrated to 40 patients with COPD diagnosis, in two outpatient pulmonary units, in one of Lisbon's public hospitals – Centro Hospitalar Lisboa Norte (CHLN).

Stage VI – in our study, we interviewed each patient at the end of every pretest completion, to allow him to share his opinion and difficulties in completing the test. It was also estimated a a Cronbach coefficient to analyze internal consistency and reliability, and the correlations of all 67 items by Pearson's correlation coefficient of the Portuguese version based on the data collected in the pretest.

This version is similar to the American version[14] and involves two subcategories: (1) a numeracy subcategory consisting of 17 items, led by the interviewer, who assesses patient's ability to comprehend directions for taking medicines, interpreting lab results, keeping clinic appointments, and applying for medical financial assistance. And a (2) reading comprehension subcategory, self-administrated, consisting of 3 readings with levels of increasing difficulty, a total of 50 items, done according to cloze procedure, in which some text words are randomly left out, and the participant must mark the most suitable word from a list of 4 possible words for each omission. The reading subjects were the instructions for preparation of a GI X-ray, the rights and responsibilities of patients with health insurance and informed consent forms.

The final result is the sum of each subcategory partial results, which determines the participants' functional HL level, in a range of 0-100.

In the TOFHLA's Portuguese version, and as suggested by literature, the score of functional HL was divided into 3 levels: inadequate (0-59), marginal (60-74) and adequate (75-100).

We applied TOFHLA's Portuguese final version to a convenient, sequential, non-probabilistic sample, bound by previously established criteria, to 154 adult participants, over 18 years of age, both genders, with the clinical diagnosis of COPD. Seven participants were excluded, 3 for quitting, and 4 for not ending in due time. The final sample consisted of 148 participants.

The one-on-one interview was conducted by the researcher. Each participant was informed about the study goal, how sociodemographic data was to be collected, the test of functional HL assessment, the request for consent participation (in the test) and assurance of anonymity and confidentially. The privacy conditions were assured during the whole data collecting process. In order to achieve this, a small room, near the waiting room was given to us. To avoid participants' anxiety and answer constraints, the researcher decided not to tell them that the time to answer the questions related to TOFHLA assessment was only 22 minutes, after which the text would be collected, whether it was completed or not. For this reason, the researcher did the time control using a wrist watch and not a timer.

The *Snellen* eye chart was used to assess participants' visual acuity, which was assessed between 20/20 and 20/50. We started by collecting sociodemographic data including health literacy (HL) predictors as age, education, income, presence of chronic disease/CODP status and also sex, marital status, occupation, knowledge, the pursue and use of health information means, followed by the administration of TOFHLA's Portuguese version.

The average response time of the 148 participants for TOFHLA's Portuguese version was 19.03 minutes, the mode and median was 20 minutes, and the minimum and maximum response time was respectively 10 and 23 minutes. The average time in the subcategory numeracy test was 8.73 minutes, the median 9 minutes, the mode 10 minutes, and the minimum and maximum response time was respectively 5 and 10 minutes. The average time in the subcategory comprehension test was 10.27 minutes, the median 10 minutes, the mode 12 minutes, and the minimum and maximum response time was between respectively 5 and 13 minutes. It must be referred that 10 participants exceeded by one (1) minute in the total time set for the subcategory of the comprehension test, increasing total response time. This fact was due to not having deducted the specific stops that occurred during the test completion caused by the participants' need to cough, blow their noses and spit.

The results of the 148 participants were collected in two public and private health hospitals, i.e. Centro Hospitalar Lisboa Norte (CHLN) and British Hospital of Lisbon (BHL), in Lisbon, in outpatient hospital units, namely Hospital de Dia Pneumológico; Respiratory Therapy Department, General Pneumology Appointments and follow up, during February 2014 and March 2015.

The participants' selection was achieved in the following way: (1) weekly check of appointments or respiratory rehabilitation treatments performed Friday afternoon, (2) reading of medical records of scheduled patients and selecting them according to the diagnosis, inclusion and exclusion study defined criteria, (3) requesting for consent to participate, informing about its purpose, cooperation importance, and anonymity assurance, (4) validating some aspects relevant to the participation, not mentioned in clinical pathways, namely having reading and writing knowledge and visual acuity, within the range recommended by the test application criteria. Previously, health caregivers of respective units, nurses and attending physician were informed about the study's goals and patients' selection criteria, and were asked to help with the first contact regarding patients' participation in the study and the interviewer introduction (researcher).

Inclusion criteria: Adults, age ≥ 18 years, literate. Clinical diagnosis of COPD, stabilization stage until third stage, inclusively[30]; visual acuity of at least 20/50 (Snellen eye chart); Portuguese language, mother tongue.

Exclusion criteria: Age < 18 years; COPD, stage 4, and disease's instability phase; Visual acuity of at least ≥ 20/100 (Snellen eye chart); People with amblyopia and blindness; Incoherent speech; notified psychiatric disease and other diseases in an exacerbation stage; Cognitive inability or under the effect of alcohol or addictive substances; Inability to understand the informed consent and the procedure documents; Portuguese language as a second language.

HL, being an assessment test for adults, and as mentioned in it, only participants aged 18 or more and not limited to the age when the clinical diagnosis of COPD was established, usually from the 4th life decade[18] will be included, when manifestations praised by them, interfere with their activity level and evolve during the following decades.

The minimal time established for the stabilization stage of the clinical situation was one month, an assumed criterion, on the one hand, because periods of exacerbation may demand hospitalization, outpatient treatment and convalescence period, and on the other hand this situation has as a result on the interruption of daily life, by the need to rest, due to the presence of hypoxemia and hypercapnia, dyspnea, and fatigue, changing the individual's usual conditions in all dimensions, aspects that may contribute and hamper the performance of his/her cognitive and physical abilities[21].

People with COPD, in an advanced disease stage, stage 4 and in exacerbation periods were excluded from the study, an assumed criterion, because of the functional inabilities they present, i.e. shortness of breath, lack of concentration and communication, fatigue and the willingness to do the test in due time, could interfere with reading comprehension and thinking, factors that may contribute to bias the test.

The data was analyzed by the statistical software SPSS, version 21 (Statistical Package Social Science)[31]. The descriptive analysis of the sociodemographic interview was applied to the central tendency measure parameters (mean/average, mode, median and percentage) and to the dispersion value (standard deviation), with the objective of describing the characteristics of the data sample. The statistic treatment of the version adapted to the Portuguese language to TOFHLA, consisted of 40 participants in the pretest and 148 participants in the test.

This aimed to assess the psychometric abilities, namely: (1) the internal consistency α Cronbach, which consisted of an overall analysis and the analysis of two subcategories: reading comprehension and numeracy, following the criteria for reliability[32:149], "[…] which states an instrument is reliable if it exceeds a value of 0.7" and (2) in Pearson's (Point-Biserial) correlation coefficient, also an analysis of the item to scale the correlation of all 67 items; and the analysis of the two subcategories, following the criteria of the same authors, for values 0.6-0.7 considered to be a medium/average correlation and 0.7-1 a high correlation[32].

Results

In this section we will present the socio demographic characteristics and the results of numeracy tests and reading comprehension of the participants in this study.

Sociodemographic characteristics of the participants

The data collection occurred mainly in both a public hospital (85.1%) and a private hospital (14.9%). Our sample was composed of 148 Portuguese participants diagnosed with COPD, 81 of whom were male and 67 were female. The mean/average age was 63.2 years, with a standard deviation of 13.22, and a median and mode of 66 years. In the sample, 60.1% of the participants were married.

The majority lived in the municipality of Lisbon, specifically 60.1%, 31.8% in the district of Lisbon and 8.1% outside of it, in other parts

of the country, such as in the mainland and the islands, 90.5% of whom lived in urban areas. In the distribution completed by education levels, the basic (compulsory) education was the most representative one with 54.1% (9 years of schooling), with respectively 34.5% in the 1st cycle (4 years), 6.8% in the 2nd cycle (6 years) and 12.3% in the 3rd cycle (9 years). Of the remaining participants 25% were distributed in secondary education and 20.4% in higher education.

Reading comprehension and numeracy scores

The overall results obtained in the pretest and the Portuguese TOFHLA version showed good and excellent consistency, the Cronbach's α pretest was respectively .901 (and) the test was .899. In the reading comprehension subcategory, the Cronbach's α pretest was .929 and the test was .940. In Cronbach's α numeracy subcategory the results weren't so satisfactory; they showed moderate and good internal consistency, i.e. pretest was .682 and test was .770 (Table 1).

Table 1 – Pretest and test of Portuguese version of TOHFLA, according to the categories of analysis and internal consistency. Portugal 2015

Tests / Categories	Pretest (40)		Test (148)	
	n Items	a Cronb.	N Items	a Cronb.
Numeracy (N)	17	.682	17	.770
Reading Comprehension (C)	50	.929	50	.940
Passage A (A1-A16)	16	.791	16	.821
Passage B (B16-B36)	20	.879	20	.871
Passage C (C37-C50)	14	.796	14	.843
Total (N+C+T)	3	.901	3	.899

Source: Created by the authors.

The coefficient results of the pretest and test items adapted the Portuguese TOFHLA version, using the correlation of Pearson (Point-Biserial). There was a high correlation between the numeracy subcategory and the total score obtained from pretest r=0.904 and test r=0.913, between the reading comprehension subcategory and the total score obtained from pretest r=0.925 and test r=0.907, and a moderate correlation between the numeracy and reading subcategories with pretest r=0.683 and test r=0.644 to a value of $p<0.01$[33] (Table 2).

Table 2 – Correlation of Pearson between the two dimensions of TOFHLA and the total score of the pretest (n=40) and the total score of the test scale (n=148). Portugal 2015

Pearson Correlation / Dimensions	Pretest (40)		Test (148)	
	R.Comprehension	Score TOFHLA	R.Comprehension	Score TOFHLA
Numeracy	.683*	.904*	.644*	.913*
R. Comprehension	1	.925*	1	.907*

Source: Created by the authors.

*. Correlation is significant at the 0.01 level (2-tailed).

In the assessment of the numeracy test, namely the comprehension and numeracy abilities, the total score of correct answers varied between 6 and 50, respectively 0.7% and 8.8%. The representative average was 36.6, the

standard deviation was 9.81, the median was 39 and the mode was 42.

The questions with lower percentage of correct answers were related to the "daily schedule of taking medicine", prompt 1 (N1, N2, and N3), respectively 49.3%, 43.2% and 34.5%, and with prompt 10 (N17) 50.7%, related to "payment of Health Center according to household and monthly net income". The higher percentages were verified in prompt 3 (N5 and N6) respectively 85.1% and 90.5%; prompt 4 (N7) 89.9% and prompt 5 (N8) 89.2%, which were related to "weekly schedule of taking medicine", "normal glucose level" and "directions concerning the next appointment".

The correct answers to prompts' 6 and 7 answers related to "how many of those pills should you take?" and "how many times can you refill that prescription?" were respectively 64.9% and 67.4%. This merits attention due to the fact that 35% of this population didn't understand the number of tablets they should take and how often could the same prescription be refilled (in Portugal many of the prescriptions for people with chronic diseases are triplicate prescriptions and have a 6-month validity period after prescription date).

The final score achieved by the sum of total test scores, i.e. numeracy and reading comprehension tests characterizes the profile of the functional health literacy level of the 148 study participants. The total score of TOFHLA's correct answers was between 28 and 99. The representative average was 75.1, the standard deviation was 17.73, the median was 80 and the mode was 86 (Table 3). These were distributed over three functional HL levels, respectively 19.6%, in inadequate level, 20.9%, in marginal level, and 59.5% in adequate level (Table 4).

Therefore, we can infer the participants had the ability to read and interpret subjects related to health, such as card/label prescriptions, guidelines to do a medical examination, making choices and decisions and knowing the rights and responsibilities of the healthcare system client.

Table 3 – Mean (M), Standard Deviation (SD), Mode (M0), Maximum (Max) and Minimum (Min) of the dimensions of TOFHLA and the total score of scale (n=148). Portugal, 2015

Measures of central tendency / Dimensions	Sample	%	M	SD	M_0	Min-Max
Numeracy (N)	148	100	36.6	9.81	42	6-50
Comprehension (C)	148	100	39.2	9.67	47	10-50
Total Score (N+C)	148	100	75.1	17.73	86	28-99

Source: Created by the authors.

Table 4 – Distributions of the levels the functional health literacy (HL)

Measures of central tendency / Level of HL	Sample	%	M_0	Min-Max
Inadequate (0-59)	29	19,6	43	28-58
Marginal (60-74)	31	20,9	70	61-74
Adequate (75-100)	88	59,5	86	75-99

Source: Created by the authors.

Discussion

The TOFHLA is widely used to measure functional HL. The literature review showed different predictors using age, education, income and existence of chronic disease as main criteria for validation studies of HL. The aim of the present study was to translate and adapt the full-length American standardized version into the Portuguese (Portugal) language and to test it in patients with stabilized COPD, in outpatient healthcare settings. Firstly, we did the pretest with 40 participants, and next, the test with 148 participants. In both tests, we applied a descriptive statistical analysis to characterize the sociodemographics sample and assess the measures to determine the internal consistency and correlation among the items of the Portuguese version scale, with good results.

Some changes of linguistic and cultural words were made in the translation and adaptation to the Portuguese version. The healthcare system and its accessibility (prescription presentation and clinical terms) are very different from the American heath system. This process was discussed in the Appreciation Commission/"Power of Appraisal", established for this purpose.

This screening tools allowed reviewing the functional HL in adults with COPD, in healthcare context settings, being the adequate level of functional HL, the most representative of this study. It also demonstrated which questions had a greater difficulty of correct answers in very specific tasks related to therapeutic regimen, rights and responsibilities and health assistance.

Literature shows a prevalence of inadequate or low level of functional HL, particularly, in the elderly with physical or mental chronic disease[3,10,20,34], and only a small percentage of participants were in the adequate level. Thus, when there is a range of abilities and skills, such as the ones associated to reading, written language comprehension and numeracy, i.e. the person is literate and has already had health experiences, namely contact with care and health systems, and medical language, whether in health promotional situations, medical monitoring, or chronic or temporary disease, all this "personal history/background" contributes to an adequate level of HL[3].

Therefore, facing a chronic disease and having a long-term contact with the health system contributes to the comprehension and knowledge of the patient's health status and development, and also the competence to manage, make decisions and properly use healthcare settings. In addition, functional HL may be confused by the familiarity of people with the healthcare system, i.e., a person with a chronic disease and low functional capacity may have a higher level of functional HL than the expected based on his/her level of education[35].

Conclusions

In view of the above and by the appreciation of the results of this, we can deduce that the experiences acquired through long-term contact with the healthcare system, i.e. through chronic disease, such as COPD and with literacy skills, may contribute to the comprehension and knowledge of the patient's health status, and the development of skills to manage, make decisions and wisely use healthcare. On the other hand, as an assessment tool of HL, in healthcare settings, the use of terms or clinical references related to daily life, may draw the attention of health caregivers to comprehension difficulties regarding information or non-adherence to a therapeutic regimen.

Consequently, for a consistent validation and characterization of health literacy levels of the Portuguese TOFHLA version, it will be necessary to perform further testing with a more extended sample to healthy populations and people with chronic disease.

Colaborations:

1. conception, design, analysis and interpretation of data: Cristina Saraiva;

2. essay writing and critical review of intellectual content: Cristina Saraiva and Maria Deolinda da Luz;

3. Final approval of the version to be published: Cristina Saraiva and Maria Deolinda da Luz.

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