

Health Literacy of Patients from a Screening Service for Breast Cancer of Brazilian Public Health System

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Abstract:

Aim: To assess the functional health literacy of Brazilian women assisted by the public system of breast cancer prevention and treatment.

Material and Methods: 156 patients, in between 20-59 years old, from a public service located in Fortaleza, Ceará, Brazil, were interviewed, regarding age, education and Newest Vital Sign (NVS) application in the translated version into Portuguese. The literacy categories and the percentage of correct questions were faced with education years and age, and performance time of the instrument. Chi-square test and Spearman correlation were used, adopting $p < 0.05$ as significant. The SPSS software, version 20.0, was used as operational tool for these analyzes.

Results: Low prevalence of adequate literacy (28.2%) was observed. The average application time of the instrument was 4.7 (1.6) minutes. In relation to percentage of NVS's correct answers, the questions 4 and 5 obtained lower (18.6%) and higher (87.2%) percentage, respectively. There was no association between health literacy, years of education ($\chi^2 = 2,724$; $p = 0,099$) and age ($\chi^2 = 0,000$; $p = 0,992$).

Conclusion: The high prevalence of inadequate literacy in the evaluated group shows the need to increased involvement of health services in the orientation process, allowing the clientele's empowerment to the self-management of their health. The findings point that the Newest Vital Sign is a fast and easy application instrument, making it, therefore, recommended for use in the routine care of public services from prevention and treatment breast cancer.

Keywords: health; health literacy; breast cancer.

INTRODUCTION

Breast malignant neoplasm is the second most common cancer in the adult population with a prevalence of 10.9%, and has being equally presented between the developed and developing countries¹. In Brazil, the data relating to incidence records in 2008 showed that in both sexes, the breast tumor was responsible for 13.3% of all types of cancers. Among women is the most common, representing 23% of all malignant tumors in females. In worldwide occurrence, it was observed 1.4 million of breast cancer new cases in 2008¹.

It is a condition that demands high population awareness, both to the adoption of diseases preventive behaviors as also to adequate adherence of the recommended antineoplastic therapy. Such awareness involves an appropriate education² because people need to be able to understand verbal and textual instructions about your medical conditions, to follow

treatment guidelines, expose conditions and therapies and resolve issues that we may appear during treatment³.

The empowerment as to the health informations requires, however, skills that go beyond simple schooling, including in these the concept of health literacy, which is the ability to use and apply such information⁴.

Health literacy is a relatively new concept, with greater intensification of studies from the mid-1980s⁵, and corresponds to the knowledge, motivation and competences that individuals have to access, understand, evaluate and apply health information to judge and make decisions in day by day with respect to health care, disease prevention and health promotion, for keeping or improving quality of life⁶.

The concept of health literacy is related to social and individual factors and involves indispensable skills to dialogue and discussion, such as interpretation and use of texts, documents, and numbers effectively in the health

system, which is directly linked to health promotion and disease prevention⁴. The low health literacy, therefore, is inevitably connected to the challenges in care's self-management, making it necessary to adequate the planning and implementation processes ensuring an efficient and collaborative communication between everyone, patients, health professionals and health system itself⁷. In female breast cancer is important that the guidelines consider the individual health literacy to assure that occurs, e.g., an adequate realization of breast self-examination, an adequate time seeking for breast ultrasound and mammography, an immediate searching for therapeutic care as soon as indicated, an adherence to this, a results interpretation and/or side effects, a dialogue with staff to each new situation arisen, among other behaviors^{1,8}.

However, although this theme has been discussed in US since the 90s, when a adult literacy study was realized, *The National Adult Literacy Survey* (NALS)⁹, in many countries, including Brazil, there are few studies on this subject.

Among the several tools already developed for health literacy assessment, one that seems useful and easily applicable is the *Newest Vital Sign* (NVS). The NVS was developed by Weiss and collaborators¹⁰, having as reference standard the *Test of Functional Health Literacy in Adults*–TOFHLA³. This instrument consists in a test of six items relating to information contained in an ice cream's nutrition label. It is considered highly sensitive to detection of persons with inadequate health literacy¹⁰.

Thus, considering the relevance about this topic and the identification of another influential potential factor in the prevention and control of chronic noncommunicable diseases (NCDs), specifically of breast cancer, the present study was outlined in a way that proposes to assess how the Brazilian women health literacy assisted by public system for breast cancer prevention and treatment is.

MATERIAL AND METHODS

This is a cross-sectional study with a quantitative approach, performed in a reference center for breast cancer prevention and treatment, in Fortaleza city, Ceará, Brazil. It was approved by Research Ethics Committee for human beings and all participants signed a free and informed consent.

The inclusion criteria were as follows: adults, female, literates, 20 to 59 years old, attended by the public health system for breast cancer prevention or treatment. Failure to comply any of these items was characterized as exclusion criteria.

The data collection was conducted from October 2010 to April 2011. The patients who were in the waiting room in these months were invited to participate. 156 patients attending the inclusion criteria agreed to participate in the study. The population presented a mean age of 42.9 (10.0) years.

The women were interviewed according to age and education by the *Newest Vital Sign* (NVS) in Portuguese version. The translation was made by the authors of this

study, with permission from Weiss et al. (2005), authors of the original instrument¹⁰.

The health literacy diagnosis was conducted by these authors according the number of questions with correct answers: 0-1 questions: high likelihood of limited literacy; 2-3 questions: possibility of limited literacy; and 4 or more questions: adequate literacy. The response time for the 6 questions was clocked.

The literacy categories and the percentage of correct questions were confronted with the years of study, age and response time of the instrument investigated. For such associations, the variables were stratified in some categories.

Thus, the health literacy was divided into two categories: literacy inappropriate (grouping the categories of high probability of limited literacy and possibility of limited literacy) and appropriate literacy; the years of schooling were classified into two categories, corresponding to primary education in Brazil: ≤ 8 years and > 8 years; the age was grouped into two categories, considering the age recommended for mammography examination in Brazil: < 49 years old and ≥ 50 years old.

Chi-square tests and Spearman correlations were used, adopting $p < 0.05$ as significant. The SPSS software, version 20.0, was used as operational tool for these analyzes.

RESULTS

The table 1 shows the findings for the health literacy diagnosis, according to the NVS. The prevalence of adequate literacy was low (28.2%).

The average time to instrument application was 4.7 (1.6) minutes. There was no correlation between time spent to respond and correct answers ($r = -0.022$; $p = 0.798$), years of schooling ($r = 0.111$; $p = 0.168$) and age ($r = -0.065$; $p = 0.417$).

Regarding the percentage of correct answers for each question of the NVS, can be seen in Table 2, that the question 4 ("If you usually eat 2,500 calories in a day, what percentage of your daily value of calories will you be eating if you eat one serving?") was less correctly answered (18.6%), while the question 5 ("Is it safe for you to eat this ice cream?") had the highest percentage of correct answers (87.2%).

There was no association between health literacy and years of schooling ($\chi^2 = 2.724$; $p = 0.099$) or age ($\chi^2 = 0.000$; $p = 0.992$), as shown in Table 3.

DISCUSSION

The adverse impacts of inadequate Health Literacy (HL) can be observed in several clinical outcomes, among which breast cancer. The high rates noted in our study relating to inappropriate HL are worrying. According to literature data, comparing individuals with appropriate HL to those with inappropriate HL, these show less medication adherence¹¹, irregular medical visits¹², lower self-care skills¹³, inadequate markers of disease clinical control¹⁴, late diagnosis¹⁵, poor

quality of life¹⁶⁻¹⁹, higher medical costs and consequently, less effective use of health services¹⁹, beyond higher rates of hospitalization²⁰⁻²¹ and mortality²¹⁻²².

Patients with inappropriate HL often report that doctors use many incomprehensible words, speak quickly, not providing sufficient information on their health status, beyond not ascertain whether there was understanding by the patient about their health problem²³⁻²⁴.

Hudonet *al.*²⁵ evaluated the association between "multimorbidity" and some variables, among them, the health literacy, using such instrument in 103 patients attended in the Canada health center. The prevalence of inappropriate literacy was 48%, inferior value than found in the present study, which may also be related to the higher level of education of the participants (30.1% of them have university degree). Moreover, it was verified only the relationship between health literacy and multimorbidity in the bivariate analysis, when considering the variables age and income.

The low prevalence of literacy adequate in patients of breast cancer screening service in this study evidences the importance of evaluating and implementing strategies to improve this situation. Breast Cancer is responsible for 27% of all cancer deaths worldwide and 6.6% in Brazil, regardless of sex. Among women, this percentage presents higher, being the breast malignant neoplasm responsible for 14% of deaths in Brazil¹.

The identification of patients with inadequate HL is not simple²⁶. The NVS strategy, of using nutrition label to assess health literacy, proves to be quite interesting considering they are familiar items and the knowledge of how people understand the messages may contribute to the orientation process for self-management of disease, specifically, of chronic diseases^{10,27}. Thus, understanding how the person interprets nutrition labels can be extended to understand how it interprets pharmaceutical inserts and other written materials.

Another aspect to be emphasized is that this instrument evaluates both reading as mathematical abilities, which is very relevant to decision making that involves balancing the risks and benefits of interventions and cancer screening. In addition, the guidelines to the disease screening, based on age and time interval, require a working knowledge of basic numerical concepts²⁸.

The quick and easy implementation of this tool reveals potential for use in health care routine, mainly because of the frequent revaluations contributing to a more favorable direction in the patient-health professional communication process²⁹.

Patel *et al.*³⁰, in a comparative study of the NVS and TOFHLA tools to the assessment of health literacy in elderly patients, found 42% of adequate literacy through the NVS. Although another study²⁹ shows decline of health literacy with advancing age, the highest percentage of adequate literacy found by these authors can be attributed to

educational level, with an average of 12.3 ± 3.1 years of study.

Regarding the percentage of correct answers, the question 4 had the lowest percentage of right answers (18.6%), while the question 5 had the highest percentage (87.2%).

The fifth question was also the most correctly answered in the study of Ozdermiret *al.*³¹, with 73.7% of right answers, percentage lower than that found in the present study. Given the relationship of this question with the next, the sixth question obtained 71.1% of correct answers. In this present research was found a much lower percentage to that (28.9%), which may be linked to the fact that the interviewees have not actually understood the question, answering arbitrarily.

For these authors, the third question presented only 8.8% of right answers, lower value than that found in this research (33.3%). On the other hand, the first and second questions were correctly answered by, approximately, one-third of interviewees, percentage similar to found in this study (40.1% and 31.4%, respectively).

In relation to the fourth question, nothing was reported by Ozdermiret *al.*³¹. The low percentage obtained in this study might be related to the requirement of more complex mathematical skills, as the necessities to perform percentage calculations.

The study presents as limitations, the fact of the assessed group do not be representative of the population. However, the fact for being the first study, as previously mentioned, that use this tool by users of the public health system in Brazil, opens prospects for its continuity and expansion.

A second limitation concerns to the tool has not been validated for the Brazilian population. Recently this instrument was validated for the Brazilian population, having been developed NVS-BR³² specifically for basic education teachers from public schools in Londrina, Parana State, Brazil. As result, the tool in validation showed good cross-cultural adaptation, with Cronbach's alpha of 0.74.

The construct validity was evidenced based on population characteristics, so that the inappropriate HL was associated with older age, not observation of nutrition informations and worse self-reported health status. The author found adequate literacy in only 33.5% of interviewees³². The translation performed in our study is similar to that developed by the authors mentioned.

CONCLUSION

This study brings out two implications. First, there is a high prevalence of inappropriate literacy in the evaluated group, which was not associated with years of education and age. This situation requires an increased involvement of health services in the guidance process, enabling the empowerment of the clientele for self-management of their health.

Secondly, the findings indicate that the Newest Vital Sign is an easy and fast instrument, allowing identifying higher difficulties in numeracy skills, making it, therefore

recommended to application in routine care to users of services public of breast cancer prevention and treatment.

It is recommended that further studies on the theme should be developed using this tool, including testing the suitability of NVS-BR to other population segments.

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Table 1. Health literacy diagnosis of the women assessed, according to the *Newest Vital Sign*, with mean and standard deviation of correct answers by categories.

Health literacy diagnosis [#]	n	%	Mean (SD) ^{##}
Adequate	44	28.2	4.9 (0.8)
Possibility of limited	42	26.9	2.5 (0.5)
High probability of limited	70	44.9	0.8 (0.4)
Total	156	100.0	2.4 (1.8)

[#]Diagnosis performed by applying the *Newest Vital Sign* (NVS) developed by Weiss et al. (2005) in Portuguese version. ^{##}The results were shown by mean and standard deviation (SD).

Table 2. Distribution of women evaluated according to prevalence of correct answers for each question in the *Newest Vital Sign*[#].

Question	Percentage of correct answers
1	40.4%
2	31.4%
3	33.3%
4	18.6%
5	87.2%
6	28.9%

[#]According Weiss et al. (2005)

Table 3. Association between health literacy and years of schooling and age of the participants.

Variables	Health literacy – n (%)		Test [#]
	Appropriate	Inappropriate	
Years of schooling			$\chi^2 = 2.724$; p = 0.099
≤ 8 years	9 (20.5)	38 (33.9)	
> 8 years	35 (79.5)	74 (66.1)	
Age			$\chi^2 = 0.000$; p = 0.992
< 49 years	31 (70.5)	79 (70.5)	
≥ 50 years	13 (29.5)	33 (29.5)	
Total	44 (100.0)	112 (100.0)	

[#] Chi-square