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### Review

# Tools to measure health literacy among Spanish speakers: An integrative review of the literature

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#### ABSTRACT

*Objective:* Health literacy measurement can help inform healthcare service delivery. The objective of this study is to identify validated tools to measure health literacy among Spanish speakers and to summarize characteristics that are relevant when selecting tools for use in clinical or research settings. *Methods:* An English and Spanish search of 9 databases was conducted between October 2014 and May

2015. Inclusion criteria were peer-reviewed articles presenting initial validation and psychometric properties of a tool to measure health literacy among Spanish speaking patients. Characteristics relevant to tool selection were reviewed and presented.

*Results:* Twenty articles validating 19 instruments met inclusion criteria. Instruments were designed for use with Spanish speakers in numerous contexts and measured different health literacy skills such as reading comprehension or numeracy. Methods used to validate tools were inconsistent across instruments.

*Conclusion:* Although tools have inconsistencies and inefficiencies, many can be used for assessment of health literacy among Spanish speakers.

*Practice implications:* Healthcare providers, organizations, and researchers can use this review to select effective health literacy tools to indicate patient's ability to understand and use health information so that services and materials can be more appropriately tailored to Spanish speaking patients.

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#### 1. Introduction

Health literacy can be defined as, "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" [1]. This term was first used in 1974 [2], though many definitions of health literacy have since been used in practice and research [3–5]. The concept of health literacy is distinct from general literacy and includes skills such as problem solving, decision-making, information seeking, and other actions pertinent to health management [4,6].

Low health literacy levels among patients can increase health care costs, hinder informed consent, prevent timely screenings, and is a risk factor for numerous adverse health outcomes [6–13]. Negative health outcomes may be exacerbated in vulnerable populations and can contribute to health disparities, particularly among minority groups such as the elderly, immigrants and some cultural subgroups, especially when language barriers are present [12,14,15]. Improving health literacy among the medically underserved has the potential to lower healthcare costs, enhance access to healthcare, improve social conditions, and reduce health disparities [16–18]. The importance of health literacy has been acknowledged in reports by the Department of Health and Human Services, the Institute of Medicine, and the World Health Organization, which have all issued reports in the last decade that highlight health literacy as a priority and indicate the need for further research on the topic [4,19,20].

#### 1.1. Measuring health literacy among Spanish speakers

The Latino population is the largest and fastest growing subgroup in the United States and now comprises more than 17% of the U.S. population [21–23]. For the purpose of this review "Latino" refers to individuals whose origins are in Spanish speaking countries of Latin America [24,25]. Latinos as a group often have lower educational, general and health literacy levels than the general U.S. population [26,27]. Many Latinos speak Spanish as their primary language, which affects both their ability to access services as well as their interactions with providers in healthcare settings [28]. Lower health literacy combined with language differences can lead to additional problems such as hindered ability to navigate the healthcare system and difficulty accessing health insurance coverage [26,28,29]. Additionally, Latinos are disproportionately affected by many different health conditions such as higher rates of obesity, type 2 diabetes, and human immunodeficiency virus in comparison to their white counterparts because of numerous social and genetic factors [25,30]. Therefore, understanding the health literacy levels of Latino patients is necessary to reduce health disparities and requires tools to measure health literacy that are valid for use among Spanish speakers.

Although health literacy is considered a critical area of research, and about one in every six people in the U.S. are Spanish speakers, most health literacy measures have been developed in English [31,32]. This is a limitation to health literacy measurement because some of the methods that have been used to measure health literacy in English are less effective amongst Spanish speakers. One example is the cloze procedure which asks participants to read a list of words out loud. Scoring is then based on the ability to correctly pronounce the word, as literacy has been closely associated with this ability in English [33,34]. This method is less effective among Spanish speakers because the Spanish language has a more phoneme–grapheme correspondence than English, meaning that each letter has one corresponding phonetic sound so Spanish speakers are more likely to pronounce words correctly even if they do not know or understand the word that they are

reading [35]. In addition, English tools must either be translated or newly developed in Spanish so that they are understandable among the populations in which they are intended for use. Verbatim translation of an English tool into any foreign language, and specifically Spanish, may not account for linguistic and cultural differences of different patient populations [36,37]. As a result, tools that have been directly translated from English to Spanish, without cultural and contextual considerations, may be asking patients about words or terms that have no meaning or significance to them based on their country of origin or specific cultural subgroup. In order to effectively measure a person's understanding of medical terms and information, tools that measure health literacy must be linguistically, culturally, and contextually relevant to the population in which they are administered [32,38]. Tools that have been developed to target a specific subpopulation of interest may be the most informative of patient's actual understanding of health materials [39].

Numeracy is a critical health literacy skill that refers to an individual's ability to use and understand numbers to achieve tasks such medication dosing, nutrition labels, physiological measures such as blood sugar, and may also directly influences an individual's ability to rate their health status [40,41]. Tools that assess skills such as reading comprehension and numeracy may be the most informative to providers as they represent a patient's ability to comprehend and use the health information provided to them. Potential limitations, including preferred language, of patients must be considered when testing health literacy in a clinical setting. If a patient has poor eyesight or diminished hearing capacity, as is frequently the case in the elderly, they may score poorly on a reading or listening comprehension test respectively regardless of the language of administration [42].

Because the U.S. has such a large Latino population, it is important to provide healthcare services and health information to patients in Spanish. To do that effectively, health literacy measurement in Spanish is warranted. Although tools to measure health literacy are available in Spanish, they have not yet been comprehensively identified and reviewed. The purpose of this review is to identify validated tools to measure health literacy among Spanish speakers and to summarize characteristics that are relevant when selecting tools for use in clinical or research settings.

#### 2. Methods

Using Whittemore and Knafl's updated integrative review methodology [43], a comprehensive literature search was conducted, then pertinent article information was reviewed and summarized. The search was conducted in October and November 2014 and was confirmed in May 2015 in both English and in Spanish. Searched databases included: MEDLINE, PubMed, Embase, PsycINFO, CINAHL, Scopus, Cochrane Library, HAPI, and ERIC. No beginning date parameter was specified for articles for the search and the review included papers published and available online through May 10th, 2015. The English search consisted of the combined terms run as both MeSH headings and keywords, "health literacy", "Spanish", "tool," "instrument," "assessment," "measurement," and "questionnaire." For the Spanish search, the term "health literacy" was applied while using the Spanish language filters for each of the above listed databases. Additionally, the phrase health literacy was translated as "alfabetismo de salud," confirmed in the literature as an applicable translation of the concept [44,45] and other possible translations such as, "conocimiento sobre salud," "educación para la salud," "formación sanitaria," and "conocimiento de la salud" were combined with the following translations of keywords: "herramienta," "instrumento," "medir," "la medida," "la medición," "cuestionario," and

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