

English-Language Competency of Self-Declared English-Speaking Hispanic Patients Using Written Tests of Health Literacy

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Introduction: Hispanic patients comprise the largest minority population in the United States. The federal government mandates that healthcare providers be able to communicate with those patients who have limited English ability. The primary purpose of this study was to assess the English-language proficiency of self-declared English-speaking Hispanic patients in the emergency department (ED). The secondary purpose was to determine concordance between patients' tested English proficiency and perceived proficiency by nurses and physicians. We hypothesized that many patients who state that they are able to speak English do not in fact possess sufficient ability to communicate in English.

Methods: A convenience study was conducted in an urban level-1 pediatrics and adult trauma center with 45,000 annual visits. Participants included adult patients and parents of pediatric patients, all of which spoke Spanish as their first language. Since there were no verbal tests of English-language ability used in medicine, two written tests were used as surrogates—the Rapid Estimate of Adult Literacy in Medicine (REALM) and the Short Test of Functional Health Literacy in Adults (STOFHLA). Research assistants administered these tests to patients with Hispanic surnames to assess the English comprehension of patients who stated that they spoke English. Score of seventh grade or better on the REALM and ≥ 23 on the STOFHLA was considered a level of English competency. Data was entered into SPSS and analyzed for correlations. This study was approved by the institutional review board as exempt.

Results: Three-hundred-fifty-four patients with Hispanic names were approached and asked if they spoke English, Spanish or both. One-hundred-five patients, all self-proclaimed English speakers, were enrolled in the study. Patients ranged from 18–89 years of age, with 37.1% (39/105) male and 62.9% (66/105) female; 49% (50/102) patients had only completed grade school. Sixty-five of 98 (66.3%) of self-proclaimed English speakers scored at or above a seventh grade reading level on the REALM, and 72.0% (67/93) scored in the category of adequate or better on the STOFHLA. There was a significant

difference between patients' tested level of English competency and the physicians' and nurses' assessments of the patients' language competency ($p=0.002$).

Conclusion: This study demonstrated that a significant number of patients who report English proficiency have an inadequate level of English health literacy and therefore English-language ability. Furthermore, there was a discrepancy between level of English competency found in the study and in the perceived English competency of the patients in the judgment of the physicians and nurses in the ED. This study demonstrated that there was significant lack of English-language ability of self-declared Hispanic patients, suggesting that a more liberal use of interpreters may be indicated.

Key words: English-language competency ■ interpreters

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INTRODUCTION

Hispanics are the fastest-growing minority in America.¹ The rise in minority populations, many of whom do not speak English, demands that healthcare institutions be able to communicate with these persons. The Office of Health and Human Services (HHS), Office of Civil Rights defines people with limited English proficiency (LEP) as those who cannot speak, read, write or understand English at a level that permits them to interact effectively with healthcare providers. HHS believes that LEP persons are often excluded from programs and experience delay or denial of healthcare services based on inaccurate or incomplete information.²

The clinical consequences of inadequate communication by LEP persons include impairment of the exchange of information from patient to physician, communication from physician to patient, and ethi-

cal concerns.³ The physician has a duty to perform a proper medical examination; his failure to do so can constitute negligence if the patient suffers some harm attributable to this failure, including the inaccuracy or incompleteness of a history obtained across a language barrier.³ In a study of the impact of barriers in an emergency department (ED), Carrasquillo found that non-English speakers were less satisfied with their care and less likely to return to the same ED.⁴ Rosen, Sanford and Scott found that the most commonly perceived problem in caring for Spanish-speaking patients in the ED was a failure on the part of the medical staff to fully appreciate the presenting complaints.⁵

Physicians frequently and informally determine a Hispanic patient's ability and willingness to speak English. It is just as often questionable whether self-declared English-speaking patients possess the ability necessary to communicate in English. The primary purpose of this study was to test English-language competency of self-declared English-speaking Hispanic patients in the ED. The secondary purpose was to determine the concordance of the testing to the healthcare providers' assessment of the patients' English-language ability.

METHODS

Study Design and Setting

The convenience study was performed in the ED of an inner-city, level-1 pediatric and adult trauma ED with 45,000 patient visits per year in a community teaching hospital with affiliated emergency medicine residencies. The ED serves a patient population of approximately 40% Hispanics and 50% African Americans. A research assistant approached patients or parents (if the patient was a minor) with Hispanic surnames in order to determine their self-declared ability to speak English and their interest in participating in the study. Basic demographic information (i.e., age and gender) was obtained from both English and non-English speakers.

Methods of Measurement

The best means to determine a patient's proficiency with the English language would be to perform a verbal test of competency. However, a Medline literature search for verbal tests of English language competency in the last 20 years could not be found using the key words: "verbal tests," "English language competency," and "tests for language." Therefore, two written language tests were used as surrogate for oral competency testing: the Rapid Estimate of Adult Literacy in Medicine (REALM) and the Short Test of Functional Health Literacy in Adults (STOFHLA).⁶⁻¹⁰ The REALM and the Eng-

lish version of the STOFHLA tests were chosen for this study because of their reliability and ease of use. The REALM scores are based on the correct, dictionary pronunciation of 66 medically related words and correlated with grade estimates. The REALM measures health literacy but not understanding.⁸ STOFHLA is scored by the number of correct responses to a fill-in-the-blank exercise with a medically related passage. This test has two scales: numeracy and reading comprehension.⁹ It is used to measure health literacy and is associated with poor physical and mental health.¹⁰

Outcome Measures

The scores for the STOFHLA and the REALM were on a continuum, but the study used the recommended cutoffs for each scale.^{6,7} The STOFHLA exam is scored from 0–36, with level >22 considered adequate functional health literacy.⁷ Adequate functional health literacy is defined as the ability to read and interpret most health texts.⁷ The REALM exam is scored from 0–66. Competency in reading medical information, seventh grade and higher equivalent reading level, has a cut-off of >45.⁶

The research assistant asked each patient the following statement: "Habla usted inglés___, español___ o los dos idiomas___?" Those patients that said that they spoke both languages were given the REALM and STOFHLA interviews. Following each interview, a research assistant questioned the attending physician and the primary nurse caring for the patient regarding the care provider's perception of the patient's English-language competency and satisfaction with the communication using a "yes"-or-"no" format. Physicians and nurses were asked eight questions concerning their perception of the patient's ability to communicate in English. These questions included whether they thought the patient spoke and understood English and whether the patient needed an interpreter. This information was documented on the data collection sheet. The 11 physicians working in the ED are all board certified or prepared. All but one was residency trained in emergency medicine with 1–19 years of experience. Forty-five nurses working in the ED were trained in the Trauma Nurse Specialist and Certified Emergency Nurse programs and had varying years of experience.

Selection of Participants

An N of 100 was calculated based on achieving a power of 80% with an alpha of 0.05, and f of 0.25, for a minimum of 50 subjects per group. The criteria for participation included adult patients or parents of children being seen in the ED who were medically stable, able to communicate and willing to answer a questionnaire. The exclusion criteria eliminated those patients who were unable to speak, unwilling to participate or

unstable. Patients were enrolled in this study when the research fellows were available to enroll patients in the ED, usually daytime hours during the summer months of 2003. Hispanic patients who did not admit to speaking English were enrolled in the database but had no further assessment performed. The study was considered exempt from consent requirements for enrollment by the institutional review board.

Primary Data Analysis

The data was input into SPSS® (version 10, Chicago, IL). We planned to approach as many Hispanic patients as needed to enroll 100 patients into the study group. Care providers perceived patients' English competency was compared to the scores from both the REALM and the STOFHLA. ANOVA testing was used to distinguish differences between and within groups.

RESULTS

A total of 354 patients with Hispanic surnames were approached and asked if they spoke English, Spanish or both, in a convenience sample. Two-hundred-forty-nine patients were Spanish-only speakers, and 105 patients were self-declared bilingual. To ensure that the groups were not substantially different, a demographic comparison of the English speakers and non-English speakers was performed. It demonstrated that there was no significant difference found in the gender or age groups ($p \geq 0.05$) but a significant difference for patients with family members in the Spanish-only group ($p < 0.001$) (Table 1).

One-hundred-five patients (29.7% of 354), all self-proclaimed English speakers, were enrolled in the study. Ninety-eight patients completed the REALM test, and 93 patients completed the STOFHLA test. There were various reasons for not completing both tests, including lack of understanding, left against medical advice, problems with understanding the test, illiteracy and refusal. The

enrolled patients' age ranged from 18–89 years, with the 18–30-age range the most common (48.6%). There were 37.1% males (39/105) and 62.9% females (66/105). The level of education was grade school in 49.0% (50/102) followed by high school in 38.2% (39/102); the rest had completed higher degrees. The only significant difference within the dropout and nonparticipant group was in the variable of whether the patient or their family member was the subject ($p=0.008$). Within that group who refused, 90% were from patients and 9.2% of refusals from family members. The correlation between REALM and STOFHLA tests was $t=7.497$, $df=3$, significance=0.001.

Sixteen of 93 (17.2%) were found to be inadequate on the STOFHLA test; 10.8% (10/93) were found marginal, and 72.0% (67/93) were found adequate. Of those 26 that did not pass, 7.7% (2/26) were deemed by the nurses as not competent, and the rest 92.3% (24 of 26) were deemed as competent. Of those 26 that did not pass the test, the nurses were satisfied with their overall communication at 88.5% (23/26). The physicians determined that 95.5% (64/67) who passed the STOFHLA test were assessed as competent, and 4.5% (3/67) that passed the test were not competent. Of those that did not pass the exam, 84.6% (22 of 26) were judged by the physicians to be competent, with only 7.7% (2/26) not passing both the test and the MD competence assessment.

Five of 98 (5.1%) patients tested at third-grade level or below on the REALM test, and 28/98 (28.6%) patients were at the fourth-to-sixth grade level. Of those 33 that did not pass, 12% (4/33) patients were deemed by the nurses as not competent. The physicians determined that 69% (63/98) who passed the test were competent and 2% (2/98) that passed were not competent. Of those that did not pass the exam, 34% (33/98) were judged by the physicians to be competent, and only 2% (2/98) that did not pass the REALM test also failed MD compe-

Table 1. Results

	Spanish-Speaking Only	English- and Spanish-Speaking	Significance
Gender			$P=0.018$, $df=1$, $p=0.893$
Male	86/249 (34.5%)	39/105 (37.1%)	
Female	163/249 (65.5%)	66/105 (62.9%)	
Age			$P=0.292$, $df=4$, $p=0.893$
18–30	123/249 (49.4%)	51/105 (48.6%)	
31–50	80/249 (32.1%)	41/105 (39.0%)	
51–70	34/249 (13.7%)	10/105 (9.5%)	
≥71	12/249 (4.8%)	1/105 (1.0%)	
Missing		2/105 (1.9%)	
Patient	226/249 (90.8%)	78/105 (74.3%)	$P=15.914$, $df=1$, $p=0.001$
Family member	23/249 (9.2%)	26/105 (24.8%)	
Missing		1/105 (1.0%)	

tence assessment. Also, the physicians rated the competency level higher than the test in 26/65 (40%) patients who scored above sixth-grade level. There was no correlation between passing either STOFHLA or REALM and gender, age, education level, parental education or primary language spoken at home ($p \geq 0.05$).

Both the nurses and the doctors rated patients similarly within each test. Using the ANOVA test, a significant difference was found between the nurses' rating of patients' ability and patients' actual competency using the STOFHLA test ($F=4.344$, $df=2$, $p=0.016$) and MD rating ($p=0.001$) (Table 2). This finding was also true using the REALM test, with the nurses showing a significant difference between patients testing competent and nurse assessment ($p=.001$) and for the MD rating ($p=0.001$). We did not have a significant number of patients on the lower levels, using both health and educational level tests; most were at the two highest categories within each test. The doctors' and nurses' assessments of the patients were concordant with respect to the majority of respondents who took part and had an adequate health and sixth-grade-plus level of understanding. A low level of physician and nurse assessment was not seen with either test; instead, there was a middle-to-high level of physician and nurse concordance that matched the assessment outcomes on both tests.

Limitations

The major limitation of this study was the inability to directly assess a person's verbal English. The use of a written test instead of an oral language test probably overestimated the number of patients who speak English, because verbal comprehension precedes written abilities. Although neither language

competency test had been validated in the ED, the REALM and the STOFHLA were chosen because of the brevity and ease of administration. Davis and others had found that the REALM takes 1–5 minutes to perform by personnel with minimal training and could be used to estimate patient literacy for use in primary care patient education and medical research.⁶ In another study, the same authors found that the REALM provides a good estimate of a patient's reading ability, with concurrent validity when measured against standardized reading tests.⁷ STOFHLA was found to be a valid and reliable indicator of a patient's ability to read health-related information.⁷ We did not use a comparative group in this study, limiting its applicability. The study was also limited by the testing time and number of questions. However, we felt it was best to perform validated tests, whatever their length, for the study.

A sixth-grade reading level was used as the cutoff for English-language competency based on studies of minimal competency in English speakers for understanding healthcare-related communication. Powers found that 40% of the ED patients could not read at the eighth-grade level, and 20% were considered functionally illiterate. This is unfortunate, since ED patient-directed materials were found to range from eighth-to-13th grade on the Fry index.¹¹ In a review of the readability of consent forms, Mader and Player found that the mean readability level for informed consent was 10th grade in the 88 informed consents that were examined.¹² Discharge instructions were found by Spandorfer to be written at the 11th-grade reading level, although most patients were found to have a mean reading ability of sixth grade.¹³

We used Hispanic surnames as the means to identify Hispanic patients. However, it would be more

Table 2. Results

	ANOVA				
	Sum of Squares	df	Mean Square	F	Significance
Nurse What language does the patient speak	2.658	3	0.886	1.667	0.180
RN Determination of patient competency	2.810E-02	3	9.368E-03	0.162	0.921
RN What language did you speak with patient	3.626	3	1.209	1.834	0.148
RN How well do you feel patient understood history	7.366	3	2.455	8.375	0.000
RN How well do you feel patient understood tests	3.208	3	1.069	2.968	0.037
RN How well do you feel patient understood diagnosis	3.573	3	1.191	2.968	0.037
RN How well do you feel patient understood treatment	3.330	3	1.110	2.800	0.045
RN Were you satisfied with the overall communication	5.795	3	1.932	13.121	0.000
MD Determination of patient competency	0.234	3	7.803E-02	1.479	0.226
MD determinate of patient language	3.702	3	1.234	2.029	0.116
MD What language did you speak to patient	11.196	3	3.732	4.058	0.010
MD How well did the patient understand history	7.167	3	2.389	4.646	0.005
MD How well did you feel patient understood test	4.976	3	1.659	3.094	0.031
MD How well did you feel patient understood diagnosis	7.384	3	2.461	3.939	0.011
MD How well did you feel patient understood treatment	3.366	3	1.122	2.189	0.096
MD were you satisfied with the overall communication	4.896	3	1.632	9.656	0.000

exact to ask all patients about their language background. We did not differentiate the patient's country of origin, a fact that may have influenced their abilities. The study was also limited by the inner-city sample used in the study. The study was limited by the convenience enrollment method, rather than the use of a consecutive sample. Those participants who did not complete the test limited the study. It is uncertain whether this study has broader applicability to other populations or subsets of Hispanic patients. The study used the physicians' and nurses' interpretation of the patients' ability to speak English, and no training in the process was performed; no formal tests were offered the physicians and nurses to make this determination.

We were not able to determine if some patients refused to take the test because of its length or concern about giving proper information about themselves. There was no attempt to coerce any patient who stated they did not speak English or refused to participate. The study did not attempt to confirm the legal status of any of the participants or question rationale for nonenrollment. There was no change in care or delay in care for those that participated in the study.

DISCUSSION

This study demonstrates that most self-declared English-speaking patients of Hispanic heritage have English-language competency using written tests of health literacy as a surrogate of English-language ability. However, a significant number of patients who state that they speak English do not possess sufficient English-language skills to communicate effectively with respect to their medical care. The study also demonstrates that physicians and nurses had a higher assessment of English-language com-

petency than the results of health literacy testing. This study would suggest that there is a need for the more liberal use of interpreters.

Our study had a much smaller number of Hispanic patients with limited or no healthcare literacy, compared to other studies of language competency in the ED. In a study of public hospital patients presenting for acute care, 61.6% of the Spanish-speaking patients had inadequate or marginal functional health literacy, as measured by the STOFHLA.¹⁴ In a systematic review of U.S. studies examining the prevalence of health literacy, overall, 26% had low health literacy and 20% had marginal health literacy using either the REALM or the STOFHLA.¹⁵ The results of this study found a higher level of health literacy on both tests as compared to this systematic review. Those patients in our study who stated they spoke English were a self-selected group that may have represented a more intelligent segment of this population.

The importance of adequate communication between the healthcare providers and non-English-speaking patients cannot be overemphasized. The lack of health literacy has been correlated with the provision of inferior healthcare and an additional burden on healthcare resources. The lack of health literacy was found to be associated with a higher rate of hospitalization (31.5% vs. 14.9%) in a study at Grady Memorial Hospital.¹⁶ Williams found that 40% of the ED asthma English-speaking patients read at or below the sixth-grade level and that this inadequate literacy level was strongly correlated with poor knowledge of asthma and improper metered dose inhaler use.¹⁷ Schillinger and others have also found that poor health literacy has been associated with worse diabetic control.¹⁸

This study supports the need for the expanded of

Appendix 1. English Proficiency in the Emergency Department questionnaire (sample questions)

For the Patient

Habla usted inglés_____, español_____, o los dos idiomas_____?

If the answer to this includes English or both, please administer the REALM and STOFHLA upon completing the questionnaire.

1. What brought you to the emergency department today?
2. What is the highest level of education you completed?
 - Grade school _____
 - High school _____
 - College _____
 - Postgraduate _____
 - Professional _____
3. What is the primary language spoken in your home?

For the Nurse and the Physician

1. Does the patient speak English_____, Spanish_____ or both_____?
2. Did you speak with the patient in English_____, Spanish_____ or both_____?
3. Is the patient competent to communicate with you in English? Yes___ No___

the use of interpreters in the ED. There are also many concerns about the proper use of interpreters in the ED. The developers of the STOFHLA exam recommended, but did not test, bringing someone along who can read and interpret health texts, using other media to communicate health information and having the staff assist patients with low functioning literacy. Untrained interpreters were often noted to be inaccurate and misleading, due to omissions, additions, condensation, substitution and role exchange.¹⁹ Also, the practice of having minority clients provide their own interpreters as an alternative to using qualified interpreters may violate Title VI of the Civil Rights Act of 1964.² A study of 530 ED patients found that 26% of Spanish-speaking patients used an interpreter. The most frequent interpreters were physicians and nurses (49%). In this study, professional interpreters were used for only 12% of the patients.²⁰ Putsch published a list of guidelines for use of interpreters, including avoiding the use of family members, learning basic words and sentences, using dictionaries, understanding special terminology and interpreter relations.²¹ The use of interpreters or interpreter phone services can be costly. Interpreters can range from \$25,000–\$32,000 per full-time equivalent plus benefits and phone services can range from \$1.50–\$2.50 per minute for an average of 10–15 minutes.

It is unreasonable to expect most healthcare providers to give patients such lengthy exams, as utilized in this study, to determine their English proficiency. Future studies would hinge on the development and validation of a short test of verbal English proficiency. These short verbal tests could be tested in various healthcare environments, languages and populations to determine when it is important to involve an interpreter in medical care provided to the patient.

This study found that a number of patients stated that they were competent in the English language but then failed to pass a test of English-language ability using tests of health literacy. It was concerning that both physicians and nurses tended to believe that patients with self-declared English-language ability that was not found by formal testing. This study did not determine the best means to determine English-language competence or how to decide which patients need to have their competency assessed.

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