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Factors Associated with Accuracy of Self-Assessment Compared to Tested Non-English Language Proficiency Among Primary Care Providers

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Abstract

Background: There are no accepted best practices for clinicians to report their non-English language (NEL) fluencies. Language discordance between patients with limited English proficiency and their clinicians may contribute to suboptimal quality of care.

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Objectives: To compare self-assessed clinician NEL proficiency with a validated oral language proficiency test. To identify clinician characteristics associated with self-assessment accuracy.

Subjects: Primary care providers from California and Massachusetts.

Research Design: We surveyed 98 clinicians about demographics and their NEL self-assessment using an adapted version of the Interagency Language Roundtable (ILR) scale followed by an oral proficiency interview: The Clinician Cultural and Linguistic Assessment (CCLA). We compared the ILR to the CCLA and analyzed factors associated with accuracy of self-assessment.

Results: Ninety-eight PCPs participated: 75.5% were women, 62.2% were White and Spanish was the most common NEL reported (81.6%). The average CCLA score was 78/100 with a 70% passing-rate. There was a moderate correlation between the ILR and CCLA (.512; $p < .0001$). Participants whose self-reported levels were “fair” and “poor” had a 0% pass-rate and 100% who self-reported “excellent” passed the CCLA. Middle ILR levels showed wider variance. Clinicians who reported a NEL other than Spanish and whose first language was not English were more likely to accurately self-assess their abilities.

Conclusions: Self-assessment showed a moderate correlation with the validated CCLA test. Additional testing may be required for clinicians at the middle levels. Clinicians whose native languages were not English and those using languages other than Spanish with patients may be more accurate in their self-assessment.

Keywords

health disparities; language; doctor-patient interaction; primary care; provider behavior

Introduction

According to the latest report by the U.S Census Bureau, more than 25 million people in the U.S have limited English proficiency (LEP)(1). In health care settings, language barriers may predispose LEP patients to a suboptimal quality of care. Research shows that language barriers lead to more medical errors(2–4), lower patient satisfaction(5), health care adherence(6), and misunderstanding of diagnoses and treatment(7, 8). Ideally, when there is language discordance between physicians and their patients, interpreters are used.(9–11) Yet, recent studies have demonstrated that physicians underuse interpreter services when treating patients with LEP (12–15) despite evidence that, when used, it leads to improved quality of care, better outcomes (11) and reduced length of stay (16). Often, clinicians rely on their own non-English language skills to communicate with LEP patients (13, 15, 17–20). While some healthcare organizations have instituted language proficiency testing for bilingual staff (21), few have begun testing clinicians (22, 23).

There is a compelling unmet need to understand the degree of non-English language fluency required by clinicians to provide effective care to LEP patients. Current methods to evaluate language proficiency include self-assessment and oral proficiency tests (20, 24, 25). However, there is conflicting data about the accuracy of clinician language proficiency self-assessment tests. In one study, 20% of participants, who conducted medical interpretation in

their jobs, failed linguistic proficiency testing.(21) Three other studies, however, demonstrated that clinician's self-reported non-English language fluency was associated with successful linguistic proficiency testing via CCLA(23, 26) and positive patient-provider communication.(27) Moreover, no prior studies have explored the characteristics of clinicians whose self-reported ratings of language proficiency were different than their tested abilities.

We have previously published our preliminary data with a smaller dataset in which we sought to compare two non-English language proficiency assessments: a self-assessment scale and a validated oral proficiency test as a gold standard, the Interagency Language Roundtable (ILR) scale and the CCLA, respectively (25). This current study presents full data analysis that (1) evaluates the association between self-report language skills and tested proficiency with a larger sample size, (2) investigates clinicians' characteristics that were associated with accuracy of self-assessment of non-English language proficiency and to identifies the factors associated with over- and underestimation of self-assessed language proficiency, and (3) describes reported interpreter use among clinicians who passed vs. those who failed the CCLA. We hypothesized that while most clinicians would accurately rate their NEL skills, there would be those who under- and overestimated their language abilities. We predicted that there would be associated characteristics for each of these groups of clinicians.

Methods

Research methods for setting, recruitment, non-English language assessment for this study have been previously described in detail elsewhere.(25) In brief, primary care providers (PCPs) surveyed in our study belonged to two different organizations both with large LEP patient populations, one in northern California (Site A) and another in Massachusetts (Site B) serving diverse Asian and Latino populations through non-Academic, community-based care. One hundred and fifty-eight PCP were invited to participate in this study, of which 98 clinicians completed the study (16 from Site A and 82 from Site B). Our response rate was 62%. Thirty-one additional clinicians were recruited since our previous report.(25) Non-English language self-assessment was made using the ILR scale, which has been published previously (20). Self-assessment was followed by the oral proficiency test (CCLA) used as the gold standard (23).

Survey

A survey was administered to all participants; it included questions regarding demographics such as gender, race, age, type of clinician (i.e. physician, nurse practitioner, physician assistant), clinical department, % of clinical time, and native language. If clinicians reported that they used non-English language skills to communicate with LEP patients, follow-up questions included how the non-English language ability was acquired, self-assessment of fluency using the ILR scale, and frequency of non-English language use and interpreter use. Participants were given the option to report on skills in up to 4 non-English languages they used with LEP patients. Clinicians were also asked whether they would use an interpreter or their own non-English language skills in different hypothetical clinical scenarios such as in

conversations involving healthcare maintenance, a minor patient complaint, a major patient complaint, an end of life discussion and an informed consent. Following, the survey, clinicians were sent information on and access to the CCLA.(25)

Analysis

The methods for the analysis comparing clinicians' self-reported non-English language proficiency levels using the ILR scale and their tested proficiency from the CCLA were assessed using Spearman's rank correlation coefficient and are described in detail elsewhere. (25) We estimated the point-biserial correlation between the continuous variable of ILR self-ratings and the dichotomous variable of passing the CCLA (assuming a latent continuous distribution).

We also identified factors associated with accurate, over-, and underestimation of language ability. The participants were categorized as 'overestimators', 'underestimators', or 'accurate', based on the association between their ILR level and CCLA result. Participants were considered accurate estimators if they reported their ILR level as 'Excellent' or 'Very Good', and passed (i.e. 80 or above in 0-100 scale) the CCLA test. Those who reported an ILR level of 'Good', 'Fair', or 'Poor', and failed the CCLA test were also considered as accurate estimators. PCPs who reported ILR levels of 'Excellent' or 'Very Good', but failed the CCLA test were categorized as overestimators. Finally, participants who reported ILR levels of 'Good', 'Fair', or 'Poor', but passed the CCLA test were categorized as 'underestimators'.

To test for factors associated with accuracy of language ability, we used Fisher's exact test for categorical variables, and the Kruskal Wallis test for continuous variables. We tested factors including test language (Spanish vs. other), gender, race, clinician type, clinical department, English first language, age, and percentage of time doing clinical work, against the level of accuracy in self-assessment: being an accurate, over- or underestimator of non-English language ability. The analysis on interpreter use from the scenarios was conducted using descriptive statistics and a generalized estimated equation (GEE) model.

Results

Ninety-eight PCPs participated in this study. The majority were women (75.5%), identified as White/Caucasian (62.2%), with Spanish (81.6%) as their non-English language, other languages included Mandarin (7.1%), Portuguese (5.1%), French (2%), Hindi (2%), Vietnamese (1%) and Arabic (1%). The average CCLA score was 78/100 and 69 (70%) participants passed the CCLA (Table 1).

Figure 1 shows a positive correlation (0.512; $p < .0001$) between self-reported ILR proficiency and CCLA score. All clinicians at the extreme ends of the ILR scale were 100% accurate in self-reporting language proficiency skills. Clinicians' who reported to have "excellent" language skills passed the CCLA test with an average score of 87% and those who rated their abilities as "poor" had an average score of 33.5%. Of those who reported "very good" language skills, most ($n=19$; 79%) passed the CCLA test. While the majority of clinicians in the "good" ILR category passed the CCLA test, the average score for these

clinicians was 78.1 (i.e. a non-passing score). The greatest variance was in CCLA scores was found in the low and middle ILR categories: good, fair, and poor. Overall, 35 clinicians underestimated, 58 were accurate and 5-overestimated their language proficiency skills.

Several factors were assessed to identify characteristics of PCPs associated with under- and overestimating language proficiency skills (Table 2). Clinicians who spoke a non-English language other than Spanish were more likely to accurately estimate their language proficiency abilities. All overestimators reported speaking Spanish and rated it at the “very good” level of the ILR (n = 5). Accuracy of self-assessed non-English language proficiency was greater for clinicians whose primary language was not English (85.7% accurate) than clinicians who reported English as their first language (54.7% accurate). There were no significant differences in accuracy of self-report by clinicians’ race, gender, age, % of clinical time, or clinician type (MD vs Nurse Practitioner).

We also looked at clinicians’ responses to the scenario-based questions on interpreter use. Among respondents (n=34), 26 (76%) passed the CCLA and 8 (24%) failed the test. Table 3 describes the interpreter use across five clinical scenarios. Overall, clinicians who failed the test were more likely to report the use of professional interpreters, however there were no statistically significant differences in interpreter use between PCPs who passed and those who failed.

Discussion

We aimed to analyze how well clinicians with varying language proficiencies self-assessed their non-English language skills using the ILR instrument, compared with the results using a validated oral proficiency assessment test (CCLA) as a gold standard. Our findings support the results from our earlier study (25) in that there was a positive correlation between self-report using the ILR scale and the CCLA test at both ends of the proficiency spectrum, with the middle ILR categories showing more variance between self-assessment and oral proficiency scores. Further analysis showed that clinicians who spoke a language other than Spanish were more likely to either accurately assess or underestimate their language proficiency skills. This may be because Spanish was the most common non-English language spoken by the clinicians in our study, as well as the most common language spoken in the U.S. (28), giving more opportunity for variance in the levels of fluency.

Unsurprisingly, clinicians whose first language was not English were more accurate at assessing their language skills, likely because they were reporting on their own primary language. As expected, physicians who did not pass the CCLA test reported using professional interpreters, as they may have considered their non-English language abilities to be insufficient to communicate effectively with LEP patients. Still, some clinicians overestimated their non-English language skills as they considered their non-English language skills to be sufficient to communicate directly with LEP patients but failed the CCLA, which is potentially concerning from a patient safety and quality of care perspective. Future studies are needed to evaluate how clinicians use their NEL skills and language services in the clinical setting.

Policy makers have issued strong mandates for using appropriate language services, which may include language concordant clinicians, to provide culturally and linguistically appropriate services for LEP patients. Our study found only a moderate association between clinician self-reported language fluency and language proficiency testing. The Department of Health and Human Services (HHS) issued The National Standards for Culturally and Linguistically Appropriate Services in Health Care (CLAS standards)(29). This document provides guidance for health care organizations to implement culturally and linguistically appropriate services to patients with diverse cultural beliefs, preferred languages, and communication requirements. Moreover, the HHS also has required all covered healthcare programs to provide meaningful access to individuals with LEP, published in the Nondiscrimination in Health Programs and Activities guidance as dictated by the Affordable Care Act. This included a description of the characteristics of “qualified” medical interpreters that must be used (30). However, multiple studies have demonstrated that physicians may be under-using professional medical interpreters (13, 31) and instead relying on ad-hoc interpreters (e.g., untrained staff, family members) (9, 10, 19), or using their own non-English language skills that have not been appropriately assessed (13, 17, 18, 32). Ideally, care to LEP patients should be given by language concordant health care providers. One study found that 73% of physicians serving at community health centers that serve a large immigrant and refugee population, reported to speak at least one non-English language at a self-assessed level sufficient to conduct a patient history and physical exam. Of these physicians, 82% rated their skills to talk clearly and accurately to LEP patients as ‘good’ to ‘excellent’ and 68% reported that they use an interpreter in less than 25% of patient encounters (33). Health care centers such as the ones described above, with high levels LEP patients and with a high number of primary care providers (PCPs) reporting to speak and treat their patients in another language other than English, may be particularly interested in implementing ways to accurately assess non-English language proficiency to assure the best quality of care given to LEP patients.

Previous study findings have been inconsistent regarding clinicians’ abilities to self-assess their own non-English language Skills.(21, 23, 26) Our study results suggest that the ILR scale can be used as a screening test but an additional oral proficiency exam may be need. Research has shown that clinicians with limited non-English language proficiency still use their language skills with patients.(21) We recommend that clinicians who self-assess at the low end should always work with professional medical interpreters. Clinicians who self-assess at the high end could use their own non-English language skills to communicate with LEP patients. Other studies have demonstrated that clinicians who reported high non-English language proficiency correlates with passing oral proficiency tests.(26, 27) Finally, we suggest that clinicians in the middle ILR categories should be required by health organizations to be evaluated using validated assessments (i.e. oral proficiency tests). The competence of bilingual clinicians could thus be assured presumably, improving communication with LEP patients. This type of policy would limit clinicians from using their own limited non-English language skills, which may adversely affect the quality of care provided to LEP patients.(12–15)

Our study has important limitations to consider. First, our study sample size may have been too small to capture other significant differences in clinician characteristics (e.g. race, age,

specialty, or % of clinical time) associated with accuracy of self-assessment of their non-English language proficiency. This limited sample size also influenced the small number of non-Spanish speaking clinicians that were evaluated. Second, as noted in our preliminary analysis, the ILR scale (while validated in non-medical settings) has been adapted for the medical setting and used in previous studies.(20, 32) Currently, there are no existing validated self-reported measures to assess clinician non-English language proficiency. Third, the response rate was low for the hypothetical scenarios in the survey, which were to provide data on interpreter use and habits of clinicians, limiting the analysis of these data and the association strength of the variables. While the hypothetical scenarios allow us to look at clinicians' behaviors with using their non-English language skills or accessing interpreter services, it does not fully capture the experience of needing language assistance in real time with a patient. Issues of access to reputable language services and professional interpreters can influence a provider's usage of their non-English language skills.

Language discordance between patients and clinicians plays an important role in the quality of care for LEP patients. The lack of standardized ways to report non-English language fluency in clinicians impedes the development of strategies aimed at eliminating healthcare disparities experienced by patients with LEP. This study demonstrates that some clinicians who are communicating directly with LEP patients using their non-English language skills have an inaccurate sense of their proficiency skills. Healthcare organizations could implement policies that require the use of validated self-reporting tools and/or oral proficiency interviews to evaluate clinicians' non-English language skills. Our results may aid healthcare organizations and policy-makers in determining the minimum thresholds of clinicians' non-English language abilities that are appropriate for the care of LEP patients and below which professional interpreters must be used. Establishment of such policies in health care settings have the potential to mitigate some of the health care disparities associated with LEP patient-clinician language discordance and could improve the quality of care for this population.

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Figure 1. Relationship between CCLA scores and ILR level

Each point represents clinician's self-assessed language skills using the ILR scale and their score on the CCLA. CCLA: Clinician Cultural and Linguistic Assessment; ILR: Interagency Language Roundtable

Table 1.**Sample Characteristics**

	Frequency (%)
Non-English Language	
Spanish	80 (81.6%)
Other	18 (18.4 %)
Female	74 (75.5%)
Race/Ethnicity	
Caucasian (non-Latino)	61 (62.2%)
Asian/South Asian	13 (13.3%)
Latino	7 (7.14%)
More than one race	6 (6.1%)
Black/African American	2 (2.0%)
Middle Eastern/North African	1 (1.0%)
Race/Ethnicity not reported	8 (8.2%)
Provider title	
MD or DO	27 (27.5%)
PA, NP, or CNM	59 (60.2%)
Age	53 ±9.8 (27-65)
Clinical Department	
Family medicine	62 (63.3%)
Internal Medicine	13 (13.3%)
Pediatric	6 (6.1%)
Urgent care	2 (2.0%)
OBGYN	2 (2.0%)
Other	4 (4.1%)
Missing	9 (9.2%)
Clinical Time	
91-100%	34 (34.7%)
81-90%	15 (15.3%)
71-80%	10 (10.2%)
61-70%	8 (8.2%)
51-60%	6 (6.1%)
41-50%	6 (6.1%)
31-40%	4 (4.1%)
11-30%	6 (6.1%)
Missing	9 (9.2%)
Native Language	
English	74 (75.5%)
Other	15 (15.3%)
Native Language not Reported	9 (9.2%)
Average CCLA score	78%

	Frequency (%)
Passed CCLA Test	69 (70%)
ILR	
Excellent	3 (3.1%)
Very good	16 (16.3%)
Good	44 (44.9%)
Fair	24 (24.5%)
Poor	11 (11.2%)

PA=physician assistant; NP=nurse practitioner; CNM=certified nurse midwife

ILR=Interagency Language Roundtable; CCLA=Clinician Cultural and Linguistic Assessment

Table 2.

Factors Associated with Accurately, under- or over-estimating Language Ability

	Underestimators N=35	Accurate N=58	Overestimators N=5	P-value*
Test language				0.015
Other	2 (11.1%)	16 (88.9%)	0	
Spanish	33 (41.3%)	42 (52.5%)	5 (6.3%)	
Gender				0.342
Female	28 (37.8%)	41 (55.4%)	5 (6.8%)	
Male	7 (29.2%)	17 (70.8%)	0	
Race/Ethnicity				0.237
Non-Caucasian	8 (29.6%)	19 (70.4%)	0	
Caucasian (non-Latino)	23 (39.0%)	32 (54.2%)	4 (6.8%)	
Clinician type				0.829
Advance Practice Providers	8 (42.1%)	10 (52.6%)	1 (5.3%)	
Physician	27 (34.6%)	47 (60.3%)	4 (5.1%)	
Clinical Dept.				0.069
Family Med	26 (42.6%)	30 (49.2%)	5 (8.2%)	
Int. Med	2 (14.3%)	12 (85.7%)	0	
Other	3 (21.4%)	11 (78.6%)	0	
English first language				0.043
No	1 (7.1%)	12 (85.7%)	1 (7.1%)	
Yes	30 (4.0%)	41 (54.7%)	4 (5.3%)	
Age**	40.6 (7.4)	43.6 (9.7)	45 (8.0)	0.384
% Clinical work**	6.7 (2.6)	7.1 (2.3)	7 (2.4)	0.858

* P-value estimated using non-parametric tests (Fisher's for categorical and Kruskal Wallis test for continuous variables)

** Mean and standard deviation

Each point represents clinician's self-assessed language skills using the ILR scale and their score on the CCLA. CCLA: Clinician Cultural and Linguistic Assessment; ILR: Interagency Language Roundtable

Advance Practice Providers=physician assistants, nurse practitioners, and certified nurse midwives

Table 3.

Descriptive Statistics for Interpreter Use in Scenario-Based Questions

Scenario 1: You have received a new patient that speaks no English. The professional interpreter (telephone or certified staff interpreter) will be available within 15 minutes.				
	Interpreter <15 Minutes Away		Interpreter >15 Minutes Away	
	Pass (n=27)	Fail (n=8)	Pass (n=27)	Fail (n=8)
Health Maintenance	0 (%)	3 (37.5%)	0 (%)	2 (25.0%)
Minor complaint	0 (%)	1 (12.5%)	0 (%)	1 (12.5%)
Major Complaint	1 (3.57%)	3 (37.5%)	1 (3.57%)	2 (25.0%)
End of Life Discussion	10 (35.7%)	6 (75.0%)	8 (28.6%)	6 (75.0%)
Informed Consent	9 (32.1%)	5 (62.5%)	5 (17.9%)	5 (62.5%)
Scenario 2: You have an established patient that has no English skills. The professional interpreter (telephone or certified staff interpreter) will be available within 15 minutes.				
	Interpreter <15 Minutes Away		Interpreter >15 Minutes Away	
	Pass (n=27)	Fail (n=8)	Pass (n=27)	Fail (n=8)
Health Maintenance	0 (%)	2 (25.0%)	1 (3.57%)	2 (25.0%)
Minor complaint	0 (%)	1 (12.5%)	1 (3.57%)	1 (12.5%)
Major Complaint	0 (%)	2 (25.0%)	1 (3.57%)	3 (37.5%)
End of Life Discussion	9 (32.1%)	6 (75.0%)	11 (39.3%)	7 (87.5%)
Informed Consent	7 (25.0%)	5 (62.5%)	8 (28.6%)	6 (75.0%)
Scenario 3: You have a non-English speaking patient who brings a family member who speaks English. The professional interpreter (telephone or certified staff interpreter) will be available within 15 minutes.				
	Interpreter <15 Minutes Away		Interpreter >15 Minutes Away	
	Pass (n=27)	Fail (n=8)	Pass (n=27)	Fail (n=8)
Health Maintenance	0 (%)	2 (25.0%)	1 (3.57%)	2 (25.0%)
Minor complaint	0 (%)	1 (12.5%)	1 (3.57%)	1 (12.5%)
Major Complaint	0 (%)	3 (37.5%)	1 (3.57%)	3 (37.5%)
End of Life Discussion	8 (28.6%)	6 (75.0%)	10 (35.7%)	6 (75.0%)
Informed Consent	7 (25.0%)	5 (62.5%)	8 (28.6%)	5 (62.5%)
Scenario 4: You have a non-English speaking patient who brings a family member who speaks English. The professional interpreter (telephone or certified staff interpreter) will be available within 15 minutes.				

Scenario 1: You have received a new patient that speaks no English. The professional interpreter (telephone or certified staff interpreter) will be available within 15 minutes.				
	Interpreter <15 Minutes Away		Interpreter >15 Minutes Away	
	Pass (n=27)	Fail (n=8)	Pass (n=27)	Fail (n=8)
	Interpreter <15 Minutes Away		Interpreter >15 Minutes Away	
	Pass (n=27)	Fail (n=8)	Pass (n=27)	Fail (n=8)
Health Maintenance	1 (12.5%)	2 (25.0%)	1 (12.5%)	2 (25.0%)
Minor complaint	1 (12.5%)	0 (%)	1 (12.5%)	0 (%)
Major Complaint	1 (12.5%)	2 (25.0%)	1 (12.5%)	2 (25.0%)
End of Life Discussion	10 (35.7%)	5 (62.5%)	7 (25.0%)	5 (62.5%)
Informed Consent	8 (28.6%)	4 (50.0%)	6 (21.4%)	3 (37.5%)
Scenario 5: A non-English speaking patient has called and left you a message. You need to call him/her back and the professional interpreter (telephone or certified staff interpreter) will be available within 15 minutes.				
	Interpreter <15 Minutes Away		Interpreter >15 Minutes Away	
	Pass (n=27)	Fail (n=8)	Pass (n=27)	Fail (n=8)
	Interpreter <15 Minutes Away		Interpreter >15 Minutes Away	
	Pass (n=27)	Fail (n=8)	Pass (n=27)	Fail (n=8)
Health Maintenance	4 (14.3%)	3 (37.5%)	4 (14.3%)	3 (37.5%)
Minor complaint	4 (14.3%)	3 (37.5%)	4 (14.3%)	3 (37.5%)
Major Complaint	6 (21.4%)	4 (50.0%)	2 (7.14%)	4 (50.0%)