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# **The Association of Patient-Provider Language Concordance with Healthcare Comprehension Among Latino/as in Oregon**

by

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An Undergraduate honors thesis submitted in partial fulfillment of the

requirements for the degree of

Bachelor of Science

in

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and

Public Health Studies

Thesis Advisor

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## **Introduction**

### *Growth of Latino population in Oregon*

Over the last decade the Latino population in Oregon has been growing exponentially. According to the data from the 2020 census, the Oregon Latino population has grown 31%, and the overall population grew 11% (2). There were about 140,000 more Latinos in the state of Oregon than in the year 2010 (2). Data from this same census showed that nearly every other state in the United States showed the Latino population growth rate outpacing the overall population growth rate (2). It was also found through the data that 12% of Oregon residents speak a language other than English at home, and from this population 6% have difficulty with English (2).

### *Language Barriers in Healthcare*

Language barriers occur in health care when there is a barrier between communication within a provider and patient due to the inability to speak a common language. Studies have shown that the presence of language barriers between patients and providers hinders the ability to deliver high-quality care for patients, maintain patient safety, achieve high levels of patient comprehension and high levels of patient satisfaction with their care (1). Limited English proficient people are those who do not have English as their primary language and have difficulty communicating effectively in English. There are about twenty-five million people in the United States that have limited English proficiency (LEP)(5). Being LEP has shown through multiple studies (13) to obstruct access to care as well as limit the comprehension of patients in conversations with their provider if there is a language barrier.

### *Language Concordant Providers*

Language concordance between patients and providers happens in a healthcare setting when both parties speak the same preferred/native language of the patient (6). Language concordant providers have been shown to allow for a much stronger relationship and build trust in the patient-Doctor relationships, provide higher quality of care, and increase patient satisfaction and patient comprehension compared to translators used through in-person and telephone-based services (8). Language concordance between a physician and patient have been shown to improve care by allowing for there to be fewer medical errors, for the patient to have an increased understanding of the illness and treatment plan, improve adherence to the treatment plan, and result in higher satisfaction with the care received(8).

A physician who cannot communicate with a patient due to a language barrier is at high risk of delivering delayed, incorrect, or improper medical care. A study found that the use of interpreters contributes to an increase of cost for health care, increases length of visit times, and does not achieve the highest levels of patient comprehension (12). Through interviews conducted in this study it was found that patients/participants expressed a strong preference for bilingual providers over translators; some of the benefits from the presence of language concordant providers include greater privacy, greater sense of trust, greater patient satisfaction, and greater patient comprehension and accuracy of communication (12). In other words, the use of interpreters is not the most efficient and effective way to solve the issue and challenges of language barriers; it is at best a short-term solution.

### *Importance of Understanding the Provider*

Patients who LEP during their healthcare encounters rely on the availability and accuracy of a translator or use a second language to communicate with their provider. Language barriers may result in increased psychological stress and additionally significant communication errors which are not faced by patients with language concordant providers. It is crucial to communicate accurate details of diagnosis and/or treatment such as discussing the associated risk. Studies have found that the failure to communicate properly the seriousness of a diagnosis, risk factors, and treatment lead to patients not complying with instructions or opt on having life-saving procedures and treatments (4). There is additional evidence that miscommunication is more likely to occur among clinicians who use an inadequately mastered second language: this may lead to the inability to convey certain nuances of risk and certainty (10). When providers lack linguistic skills and interpreters are not available, patients may rely on inexperienced, bilingual relatives, or non medical staff which compromises quality of care and worsen health outcomes for Latino/as.

### *Study Objective*

Language barriers that are faced by patients with limited English proficiency, a large growing population of the Oregon population, create barriers to access to healthcare, achieving high patient satisfaction, and especially hinder the ability for patients to understand the conversation and directions given to them by their provider. It has been found through research that patients with LEP have a difficult time communicating with their providers, and are much less likely to understand medical situations, treatment plans, and given directions; which reflect the need for the presence of language concordant providers. Understanding whether there is a true

association of patient-provider language concordance with healthcare comprehension among Latinos in Oregon could help target, understand, and achieve the healthcare needs of their local Latino/a community and support the community in achieving equal access and quality of care.

The purpose of this study is to understand the local Latino community's preference for bilingual health care providers and understand the relationship between language concordant care and comprehension of a healthcare visit. We hypothesize that (1) Mexican origin Latinos in Oregon have a preference for language concordant care (2) the presence of a language concordant provider is associated with greater health care comprehension

## **Methods**

We conducted a cross-sectional survey study. Our bicultural, bilingual (English and Spanish) research team members recruited 505 Spanish- or English-speaking Latino/as who were at least 18 years old and who are waiting for processes and services (such as passports, legal assistance, and notary appointments) at the Consulate General of Mexico in Portland, Oregon. The Consulate serves both Mexican-born and U.S.-born individuals of Mexican origin; U.S.-born individuals of Mexican origin can, for example, apply for dual citizenship or request Mexican passports or birth certificates from the Consulate.

We recruited a convenience sample between December 2022 and April 2023. Respondents who met the screening criteria which includes; self-identified Latino/a, at least 18 years old, and having had a healthcare visit within the last 12 months, provided oral informed consent after reviewing an information sheet and chose their preferred language for the self-administered survey. Participants completed the survey on paper; responses were then entered into the REDCap (Research Electronic Data Capture) electronic database by trained study staff. The senior author resolved any questions about survey responses. The Oregon Health and Science University Institutional Review Board approved this study.

We developed our survey based on the previous literature, validated scales, and created our own questions. The Consulate General of Mexico participated in the development and translation of the survey to ensure that our questions and wording were culturally appropriate in Spanish and English. Finally, we worked with a colleague at the National Institute of Public Health in Cuernavaca, Mexico, to do a final check for grammar and spelling. Our survey contained a total of 20 questions and included questions about preferred/most used language (measure of acculturation), whether their

last health care provider spoke Spanish, preferences for language-concordant care, and overall understanding of the conversation (measure of comprehension). The survey also contained socio-demographic information.

### *Measures*

Our primary outcome for regression modeling was the respondent's level of comprehension of information communicated by the provider at the most recent healthcare visit. This item has been used in a previous study (3). We categorized comprehension as a binary variable: understanding everything the provider said versus understanding most, some, or only a little.

Our primary independent variable was experience with a language concordant provider at the respondent's most recent healthcare visit. We classified a Spanish-speaking provider as language concordant and an English-speaking provider as language discordant; no respondents reported a provider speaking another language. Our secondary independent variable was respondent acculturation using a validated scale (7). Respondents were classified as low acculturation, bicultural, or high acculturation based on language(s) spoken as a child, usually spoken at home, usually spoken with friends, and that they usually thought in. Respondents who only spoke Spanish or some other language as a child could report that other language. We combined bicultural (n = 28) and high acculturation (n = 6) respondents into a single group for analyses due to small sample sizes.

We included several other sociodemographic variables. We categorized respondent age, in years, as 18-24, 25-29, 30-39, 40-49, or 50 and above. Respondents reported their gender as male, female, or an open-ended option to self-identify. However, no respondents identified as a gender that was not male or female. We classified the number of years that the respondent had lived in the United States as less than five, five to ten, eleven or more, or "all of my life". In regression analyses, we collapsed eleven or more and "all of my life" into a single category. We categorized respondent education level as no formal schooling, currently in school, primary school, secondary/middle school, high school/GED, or at least an Associate's degree. We collapsed education into a binary variable for regression modeling: less than high school versus high school or more; respondents who were currently in school were placed in the latter category. We included respondent residence, relationship status, and income status as binary variables (yes versus no): residence within the Portland metropolitan area (vs outside of the metro area), married or cohabitating, and had a regular source of income, respectively.

We included several variables related to the respondent's experience with healthcare. First, we included whether the respondent had a regular source of health care (yes versus no) (13) and their preference for a healthcare provider who speaks their native language (agree, neutral, or disagree)(3). We also included multiple variables about the respondent's most recent healthcare visit (13,14): who the visit was for (the respondent or a family member,) whether they needed help to understand what the provider said (yes versus no), who helped them understand the provider (minor child, adult family member/friend, non-medical staff, medical staff (including provider), professional interpreter, other, or no one).

### *Analysis*

We compared respondent sociodemographic variables and acculturation level by receipt of language concordant care at the most recent healthcare visit, using Pearson's chi-squared test. We used overlaid bar graphs to graphically assess respondent's preference for and receipt of language concordant care, by acculturation level. We compared respondent's healthcare experiences by receipt of language concordant care at the most recent healthcare visit, using Pearson's chi-squared or Fisher's exact test. We developed crude and adjusted logistic regression models using respondent's comprehension of information communicated by the provider at the most recent healthcare visit as the outcome and receipt of language concordant care as the primary independent variable. The adjusted model also included respondent age, gender, acculturation, and years in the United States. We plotted the crude and adjusted odds ratios for receipt of language concordant care, with 95% confidence intervals.

### **Results**

Our survey sample included 505 respondents, all of whom took the survey in Spanish. Table 1 describes our sample by receipt of language concordant care. The majority of our sample was between the ages of 30-29 (33.7%) and 40-49 (28.9%), there were no significant differences between those who received discordant and concordant care. The sample was overall equally split when it came to gender, female (47.3%) and male (52.5%). The overall majority of our sample resided in the Portland Metro area (85.9%), have been living in the United States >10 years (60.2%), and are married or co-inhabiting (85.9%). As for education levels, the majority of our sample reported having completed middle school (40.6%) and high school (34.9%) and 88.7% of our sample reported a regular source of income. In addition, the majority of our sample had low levels of acculturation (93.3%). The two different groups, those with a

concordant provider and those with a discordant provider did not show any significant differences when comparing one another on the respondent characteristics.

Figure one was divided by acculturation level and was measuring the preference and receipt for a language concordant provider (Figure 1). For those with low acculturation levels (left bar), the majority indicated a preference for a language concordant provider (98.7%) and 33.8% reported receipt for a language concordant provider. For those among the high acculturation group, the majority indicated a preference for a concordant provider (88.2%) and 20.6% reported receipt of a concordant provider. There were differences in preference and receipt by acculturation levels (low and bicultural/high).

Table two analyzed the healthcare experiences of the respondents by experience of a language concordant provider. Those with a discordant provider, the majority reported themselves as the reason for their last healthcare visit and only 20.1% reported going for a family member. Those with a concordant provider, the majority reported themselves as the person that was seen in their last healthcare visit (65.7%) and 33.7% reported attending a healthcare visit for a family member. It was found that those with a discordant provider had higher levels for attending a healthcare visit for themselves compared to those with a concordant provider, and those with a concordant provider had higher levels for attending a healthcare visit for a family member compared to those with a discordant provider. Those with a discordant provider had higher levels of reporting a lack of regular source of care (49.9%) when compared to those with a concordant provider which had a small portion who reported no regular source of care (12%). When asked if the respondent needed someone to help them understand the provider, those with a discordant provider reported higher levels of need of assistance (80.8%) compared to those with a concordant provider (21.7%). When analyzing who helped the respondent with understanding their provider, those among the group with discordant providers for the most part had higher levels for needing a minor child, family member or friend, medical staff, professional interpreter, or others with the exception of medical staff when compared to those with a concordant provider. Those with a discordant provide, 35.1% reported not having someone help them with the understanding and 74.1% among those with a concordant provide reported not having someone. When analyzing the level of understanding of what the provider said to the respondent, among those with a discordant provider a lower percentage reported understanding everything the provider said (23.3%) compared to those with a concordant provider that had a greater percentage of understanding everything their provider said (68.1%). All these differences between those with a discordant and concordant provider were statistically significant.

Figure two presents the crude and adjusted regression model results. The model outcome is comprehension at the last healthcare visit comparing those with Spanish-speaking providers (concordant) with those with an English-speaking provider (discordant) (Figure 2). The adjusted model controls for age, gender, acculturation, and years in the United States. Both crude and adjusted estimates are above one, meaning



that patients who had a Spanish speaking provider had higher odds of understanding everything the provider said at their visit. The crude association was OR = 7.02 (95% CI: 4.65-10.60), the adjusted estimate was aOR = 10.53 (95% CI: 6.60-16.81).

## **Discussion**

### *Results, Interpretations and Takeaways*

In our sample of Mexican-origin Latino/as (Mexican and Mexican American) recruited in the Portland, Oregon consulate, overall only 32.9% of the respondents reported having a language concordant provider and overall had high levels of preference to be cared for by a language concordant provider. This showed a lack of receipt for the preferred type of healthcare received. Our study was able to highlight the difference in receipt of concordant care and preference for it and advocate for the increase in Spanish-speaking providers to better serve the health needs of the Latino community. Comparing people who reported having a language concordant provider vs. those who did not have a language concordant provider there were statistically significant differences found in regular sources of care, need for help understanding the provider, and level of understanding of what the provider said.

Previous literature regarding language concordance and the difference between receipt and preference. For example, a study found that among Spanish-speaking participants in Oregon, a larger percentage (56.1%) reported needing interpreting services and 17.4% not receiving these services (9). Although this study does focus on receipt of interpreting services compared to our study that focuses on language concordant providers, both found a lack of receipt of a language concordant or Spanish speaking personnel when compared to the high preference respondents had for one. It is important to note that during the time this specific study (9) was being conducted there was an estimated 8% of Latinos, during the time our study was collecting data there was an estimate of 14% of Latinos in Oregon (2). This may account for the difference of percentage in receipt and preference between both this study and ours. In today's day there is a larger Latino population to serve compared to previous centuries; therefore a larger number of Spanish speaking providers are needed to keep up with the health needs of the Latino community in Oregon.

Our study found statistically significant differences regarding regular sources of care when comparing those with a language concordant provider to those without one. Our study found that a higher percentage of those with a language concordant provider (87.4) reported having a regular source of care and only half of those with a discordant provider reported having a regular source of care. A similar study conducted in

California utilized a survey conducted in 11 different languages and found differences in regular sources of care between LEP and English proficient respondent (13). There was a higher percentage (18%) among LEP respondents who reported not having a usual source of care compared to a smaller percentage (13.9%) of those who are English proficient.

### *Overall Understanding*

Our study highlighted the great differences between those with a concordant provider and those with a discordant provider and their understanding level of what the provider said. Healthcare diagnosis and treatment plans are crucial to understand fully in order to ensure great health outcomes as well as maintain patient safety. Our study found that those with a discordant provider had lower levels of understanding everything their provider said compared to those with a concordant provider which had triple the percentage of understanding everything their provider said. A similar study found an improved understanding of the information of the visit with the presence of a language concordant provider compared to when participants had a discordant provider or translator (3). The presence of a language concordant provider is the key to improve and optimize levels of understanding and overall improve health well-being among the Latino community in Oregon.

### *Key Takeaways and Implications*

This study was able to identify that there is a preference for language concordant providers among Latinos in Oregon. There is a gap between the preference for language concordant providers and the receipt for this type of health care. In addition, there is an association between language concordant care and overall comprehension of a healthcare visit. Our status results can help understand the need for Spanish-speaking providers in Oregon, to advocate for an increase in access to language concordant care in Oregon, and contribute to improving health equity and outcomes for Latinos in Oregon.

### *Limitations*

Our findings must be interpreted with the following limitations in mind. Our recruitment took place in the Mexican Consulate, therefore, our results may not be generalizable to all Latino/as in Oregon. We did not directly ask about insurance status which could indicate a potential barrier to obtaining a regular source of care. In addition our criteria included having a healthcare visit within the last 12 months and the inability

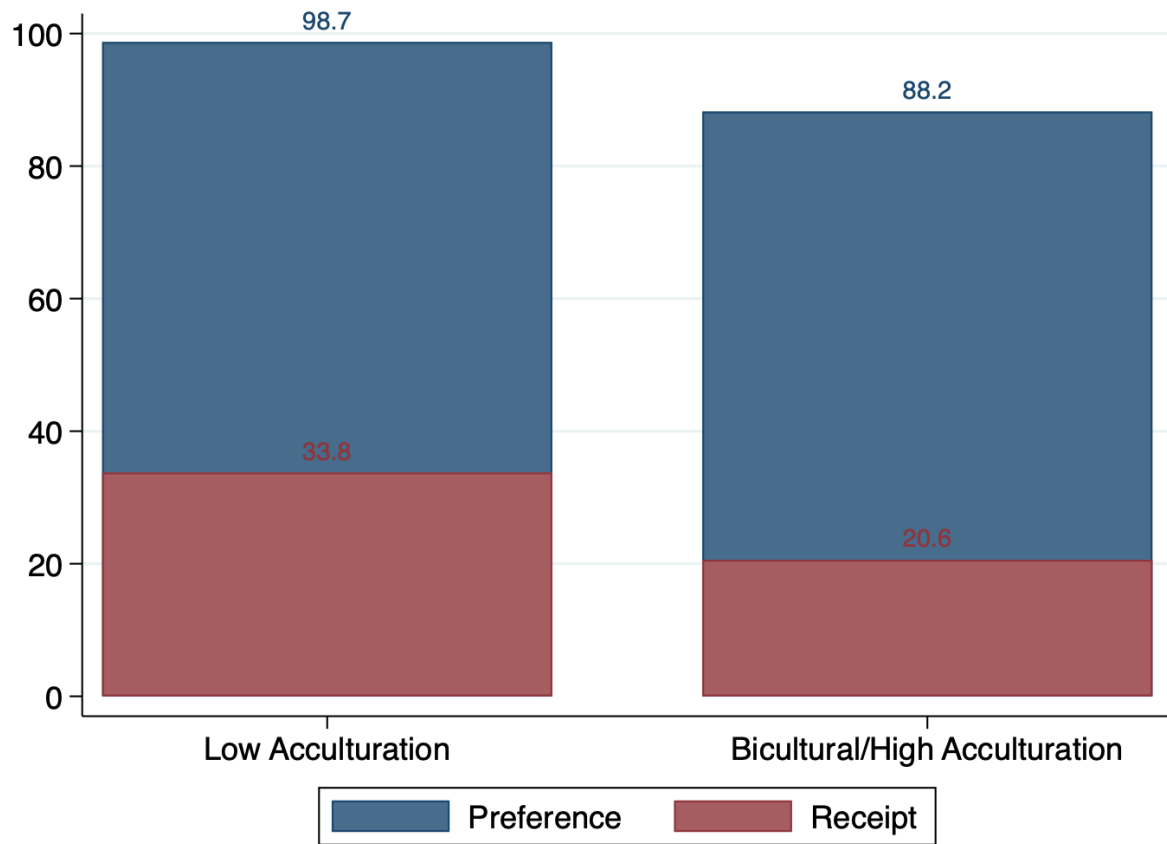
of people being able to remember exactly their last healthcare visit may induce recall bias, we had the criteria set in place in order to minimize this. We have missing data for barriers and facilitators and are not able to extrapolate to respondents who did not answer these items. However, we had minimal missing data.

## **Acknowledgments**

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**Table 1: Respondent Characteristics, by experience with language concordant care and overall (n = 505). Data are n (%).**

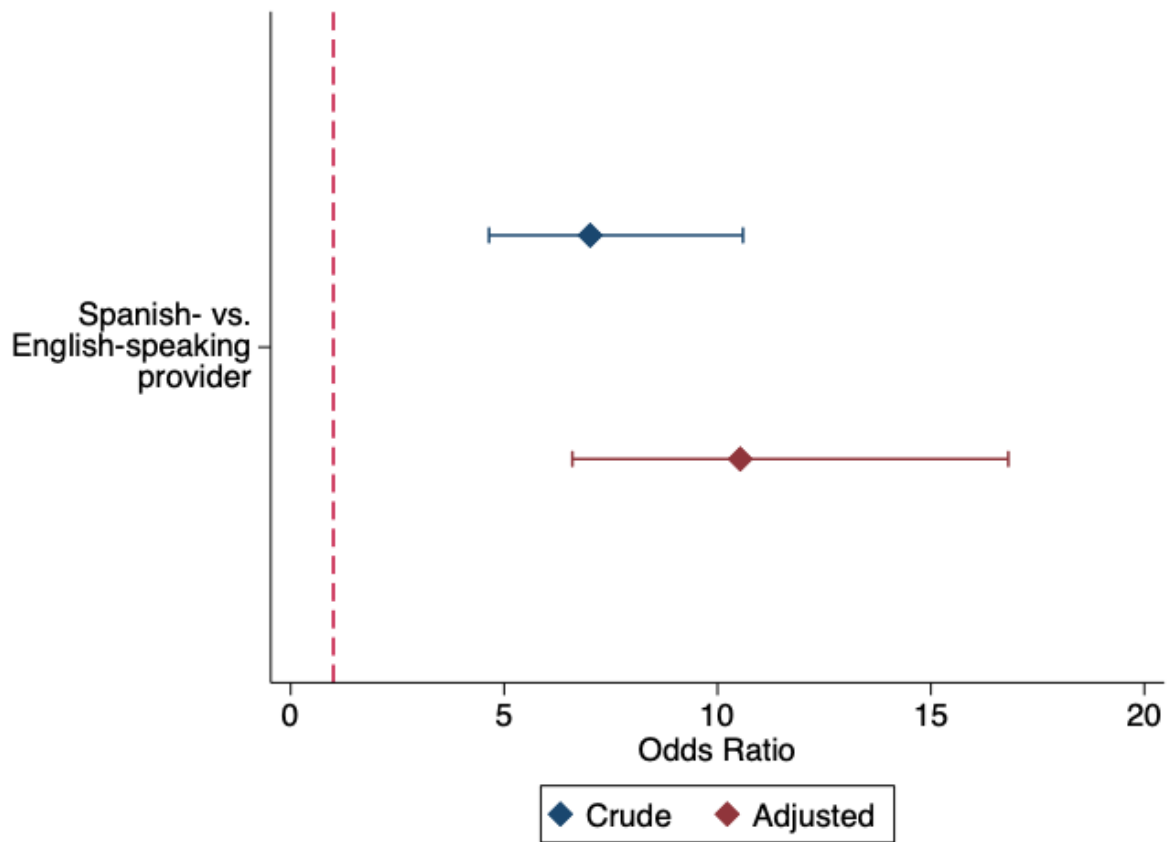
Characteristic		Discordant care	Concordant care	Overall	p-value
n		339	166	505	
Age (years)					0.232
	18-24	16 (4.7)	11 (6.6)	27 (5.4)	
	25-29	61 (18.0)	35 (21.1)	96 (19.0)	
	30-39	109 (32.2)	61 (36.8)	170 (33.7)	
	40-49	102 (30.1)	44 (26.5)	146 (28.9)	
	50+	51 (15.0)	15 (9.0)	66 (13.1)	
Gender					0.356
	Female	160 (47.2)	79 (47.6)	239 (47.3)	
	Male	179 (52.8)	86 (51.8)	265 (52.5)	
	Missing	0 (0.0)	1 (0.6)	1 (0.2)	
Lives in Portland metro area					0.128
	No	40 (11.8)	30 (18.1)	70 (13.9)	
	Yes	298 (87.9)	136 (81.9)	434 (85.9)	
	Missing	1 (0.3)	0 (0.0)	1 (0.2)	
Years in the United States					0.677
	< 5	28 (8.3)	15 (9.0)	43 (8.5)	
	5-10	88 (26.0)	48 (28.9)	136 (26.9)	
	≥ 11	206 (60.8)	98 (59.0)	304 (60.2)	
	All of my life	17 (5.0)	5 (3.0)	22 (4.4)	
Married or cohabitating		288 (85.0)	146 (88.0)	434 (85.9)	0.363
Education					0.399
	Didn't attend school	14 (4.1)	3 (1.8)	17 (3.4)	
	Currently in school	4 (1.2)	3 (1.8)	7 (1.4)	
	Primary school	52 (15.3)	31 (18.7)	83 (16.4)	
	Secondary/Middle school	134 (39.5)	71 (42.8)	205 (40.6)	
	High school/GED	121 (35.7)	55 (33.1)	176 (34.9)	
	Associate's degree or more	14 (4.1)	3 (1.8)	17 (3.4)	
Has regular source of income		306 (90.3)	142 (85.5)	448 (88.7)	0.115
Acculturation					0.114
	Low	312 (92.0)	159 (95.8)	471 (93.3)	
	Bicultural/High	27 (8.0)	7 (4.2)	34 (6.7)	



**Figure 1: Preference for (blue bar) and receipt of (red bar) a language concordant provider, by acculturation level.**

**Table 2: Healthcare experiences of respondents, overall and by experience with language concordant providers. Data are n (%).**

	Discordant provider	Concordant provider	Overall	p-value
n	339	166	505	
Who was seen at your last visit?				0.001
Myself	271 (79.9)	109 (65.7)	380 (75.2)	
Family member	68 (20.1)	56 (33.7)	124 (24.6)	
Missing	0 (0.0)	1 (0.6)	1 (0.2)	
Do you have a regular source of health care?				< 0.001
No	169 (49.9)	20 (12.0)	189 (37.4)	
Yes	170 (50.1)	145 (87.4)	315 (62.4)	
Missing	0 (0.0)	1 (0.6)	1 (0.2)	
Did you need someone to help you understand the provider?				< 0.001
No	63 (18.6)	130 (78.3)	193 (38.2)	
Yes	274 (80.8)	36 (21.7)	310 (61.4)	
Missing	2 (0.6)	0 (0.0)	2 (0.4)	
Who helped you understand the provider?				< 0.001
Minor child	29 (8.6)	8 (4.8)	37 (7.3)	
Adult family member or friend	55 (16.2)	3 (1.8)	58 (11.5)	
Non-medical staff	19 (5.6)	7 (4.2)	26 (5.1)	
Medical staff, including provider	7 (2.1)	7 (4.2)	14 (2.8)	
Professional interpreter	106 (31.3)	18 (10.8)	124 (24.6)	
Other	1 (0.3)	0 (0.0)	1 (0.2)	
Did not have someone	119 (35.1)	123 (74.1)	242 (47.9)	
Missing	3 (0.9)	0 (0.0)	3 (0.6)	
How much did you understand of what provider said?				< 0.001
Everything	79 (23.3)	113 (68.1)	192 (38.0)	
Most	169 (49.9)	44 (26.5)	213 (42.2)	
Some	63 (18.6)	5 (3.0)	68 (13.5)	
Little	22 (6.5)	3 (1.8)	25 (5.0)	
Missing	6 (1.8)	1 (0.6)	7 (1.4)	



**Figure 2: Crude (blue) and adjusted (red) odds ratios of understanding everything that the healthcare provider said at the most recent visit for respondents who had a Spanish-speaking provider compared to an English-speaking. Adjusted estimates are adjusted for age, gender, acculturation, and years in the United States. The red dashed line represents the null value (odds ratio = 1).**

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