



The Impact of Limited Language Proficiency in Screening for Breast Cancer

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Abstract

The national burden of limited English-language proficiency (LEP) in screening for breast cancer remains unknown. Therefore, utilizing a national interview survey database would allow for this to be explored. The results show women with limited English proficiency are less likely to undergo mammography in their lifetime. Particularly, Spanish speaking women. These results demonstrate the need to target interventions in vulnerable subgroups to bridge this gap.

Background: The prevalence of a culturally diverse population in the United States continues to grow. Nevertheless, the national impact of limited English proficiency (LEP) in breast cancer screening is still unknown. **Methods:** A retrospective review of the 2015 sample of the National Health Interview Survey database was performed. The cohort included women with and without LEP between 40 and 75 years. We evaluated differences in screening rates, baseline, socioeconomic, access to healthcare, and breast cancer risk factors with univariate and multivariate regression analyses. **Results:** The prevalence of LEP was 5.7% (N = 1825, weighted counts 3936,081). LEP women showed a statistically significant lower rate of overall screening mammograms (78% vs. 90%), fewer benign lumps removed (6.4% vs. 17%) and lower rates of access to healthcare variables. They showed a higher rate of nonprivate insurance and living below the poverty line, a lower rate of hormone replacement therapy (1.8% vs. 5.6%), older menarche (12.97 vs. 12.75) and a higher rate of current menstruation (36% vs. 24). LEP women were associated with a lower probability of having a screening mammogram in multivariate analysis (OR: 0.67, 95% CI: 0.51-0.87). When LEP was subdivided into Spanish and “other” languages, Spanish speakers were associated with a lower probability of a screening mammogram (OR 0.67, 95% CI 0.49-0.90) while controlling for the same covariates. **Conclusion:** The results from our study showed that LEP women are associated with a lower probability of having a screening mammogram. Particularly, the Spanish speakers were found as a vulnerable subgroup.

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Introduction

Breast cancer is the second leading cause of cancer related mortality in US women.¹ In recent years, screening mammography has led to earlier detection and decreased cancer related mortality among patients with breast cancer.^{2,3} In 2016, the United States Preventative Services Task Force updated their guidelines for breast cancer screening recommending biennial screening mammography

for women aged 50 to 74 years.⁴ However, the American Cancer Society (ACS) gives women the option to start as early as 40 years of age.⁵ Despite clear benefits from these guidelines, there are still disparities in compliance.

Numerous factors have been shown to contribute to disparities in screening for breast cancer including race, ethnicity, and socioeconomic status.⁶ However, language proficiency as a contributing factor to these disparities has been understudied.⁷⁻¹⁰ A recent systematic review on barriers to mammography among racial and ethnic minority women highlighted cultural/immigration-related barriers, such as language, may be the only limitations unique to minority women¹¹. In the United States, more than 25 million individuals, or 9% of the population are deemed to have Limited English Proficiency (LEP).¹² LEP individuals do not speak English as their primary language and have limited ability to read, speak, write, or understand English, which affects their ability to communicate effectively in English.¹³

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LEP in Breast Cancer Screening

In order to explore if women with limited English language proficiency are at risk for omitting breast cancer screening, we retrospectively reviewed the 2015 sample of the National Health Interview Survey (NHIS) database.

Methods

Objectives

We sought to elucidate if LEP affects rates of screening for breast cancer. Secondary aims included evaluating differences in baseline, socioeconomic, access to healthcare and breast cancer risk factors between women with LEP and English speakers.

Study Design and Population

This is a retrospective cohort review utilizing the NHIS database. This dataset is the principal source of information on the health of the civilian noninstitutionalized population in the 50 states and District of Columbia of the United States of America. It is one of the major data collection programs of the National Center for Health Statistics, part of the Centers for Disease Control and Prevention. This is cross-sectional household interview survey database covering over 40,000 households and 100,000 persons each year. The survey is conducted in a face-to-face interview format and uses geographically clustered sampling techniques to select the sample of dwelling units. The sample is designed in such a way that each month's sample is nationally representative. Approximately 750 trained interviewers by the US Census Bureau Regional Offices conduct these interviews.^{14,15} Surveys are performed in the language the subject generally speaks as seen in the variable "Language of interview". This analysis is exempt from Institutional Review Board review due to its de-identified and publicly available subject population.

The 2015 sample of the NHIS database consists of 103,776 subjects representing 315,915,004 of the US population through weighted counts (WC). Weighted counts or sampling weights are constructed for each subject in the database so that each person interviewed can be inflated or expanded to represent the total population of the United States.¹⁶ The inclusion criteria for our cohort were female patients between 40 and 75 years of age with availability of language variables. The subpopulation of interest is illustrated in a flow diagram shown in [Figure 1](#). The study population was grouped into LEP and English Speakers. The variable "LEP" was defined by those who reported on "Language of interview" the answer "only Spanish," "English and Spanish" or "other language". Subgroup analysis with "only Spanish" and "English and Spanish" were used to create the Spanish speaking group. Additionally, we chose this as it is the second most common language spoken in the United States and the only other individual language available to analyze. The variable of "previous screening mammogram" was defined if the individuals answered affirmatively to "ever had a mammogram" and "part of routine physical exam/screening" during the survey. To further verify if results are not confounded by ethnicity, we explored Hispanic ethnicity with and without LEP. Baseline, socioeconomic, breast cancer risk factors and screening mammogram variables were defined *a priori* and were compared in the aforementioned groups. We conducted a subgroup analyses to compare overall rates of screening stratified by different screening

ages described in ACS and United States Preventative Services Task Force guidelines. These groups were divided into 45 to 75, and 50 to 75 years of age. Additionally, we looked into 40 to 45 years to evaluate the early-starter group mentioned by the ACS recommendations.

Statistical Analysis

The database was setup following instructions provided by the IPUMS NHIS webpage to adjust for sample weights, primary sampling units and multi-level strata to create WC that is, a national representation. Continuous variables are described as means with standard deviations and groups were subsequently compared with linear regressions. Categorical variables are described as frequencies and compared with Chi-squared test. There was no statistical technique utilized for imputation in missing data and the analysis was carried out exclusively with the available data. Stepwise multivariate regression analysis was performed to evaluate risk factors and their effect size with "previous screening mammogram" as the dependent variable. The models included variables with *P*-value under .1 and were chosen based on abovementioned risk factors. LEP was established a priori to be included as an independent variable in the initial model as its effect is the main objective from this study. White race was used as the reference group for the available race given that it had the highest rate of screening mammogram from all groups (White 89%, Black 88%, Asian 85%, Hispanic 83%). A second model with Spanish and "other" languages was performed to evaluate their individual effect on our main outcome. This model controlled for the same covariates as the initial LEP model. Statistical analysis was performed with Stata v14.1 (*Stata-Corp. College Station, TX*).

Results

A total of 22,825 subjects or 68,984,016 WC were included. Prevalence of LEP was 5.7% (N = 1825, WC 3,936,081). Baseline characteristics showed younger patients (54.1y vs. 56.1y), similar BMI (31.6 vs. 31.7), higher rate of Asian race (12% vs. 5.6%), Hispanic ethnicity (83% vs. 8.4%), Diabetes mellitus (19% vs. 13%), and never smokers in the LEP population (82% vs. 58%) ([Table 1](#)). Socioeconomic variables demonstrated higher rates of nonprivate insurance (Public: LEP 32% vs. 11%; No insurance: LEP 23% vs. 5.9%), living below the poverty line (30% vs. 9.2), lower family income, and lower rates of having usual place for medical care (88% vs. 94%) and visiting the PCP in the past year (68% vs. 80%) ([Table 2](#)). Risk factors for breast cancer showed the LEP population with a negligible older menarche (13y vs. 12.8y), lower frequency of current or previous use of hormone replacement therapy and higher rates of current menstruation (36% vs. 24%) ([Table 3](#)). Genetic testing was performed in 0.01% of the cohort. No statistically significant difference was seen between the groups (LEP 0.002% vs. English speakers 0.005%, *P* = .06)

Breast cancer screening in LEP patients showed lower overall rates of having a previous screening mammogram (78% vs. 90%, *P* < .001) and less benign lumps removed (6.4% vs. 17%, *P* < .001). Interestingly, no difference was found in the frequency of mammograms performed in the past 12 months (55% vs. 58%). In addition, LEP women that have undergone a mammogram, showed a higher

Figure 1 Flow diagram of study population.

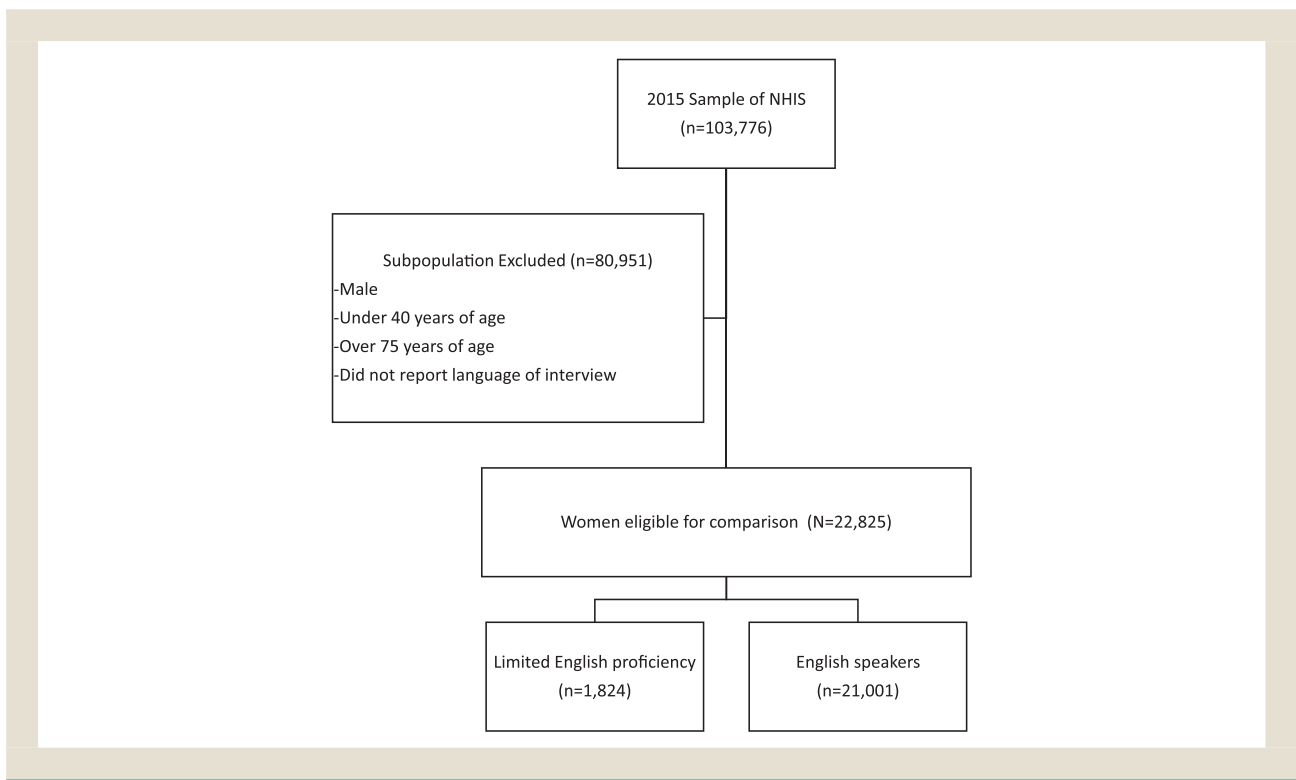


Table 1 Baseline Characteristics.

	Missing N	English		LEP	
		N = 21,001 N	Total WC: 65,047,935 WC (%)	N = 1824 N	Total WC: 3,939,081 WC (%)
Age, mean (SD)	0	21,001	56.1 (9.7)	1824	54.1 (11.8)
Race	454				
White		16,019	52,006,457 (81)	1500	3,232,838 (85)
Black		3237	8,546,935 (13)	54	109,544 (2.9)
Asian		1373	3,600,265 (5.6)	207	472,078 (12)
Hispanic	0	2260	5,460,629 (8.4)	1586	3,285,141 (83)
Born in the US	301	17,636	55,328,499 (86)	118	253,446 (6.8)
BMI, mean (SD)	9,121	12,910	31.7 (15.5)	794	31.6 (18.6)
Hyperlipidemia	12,457	3554	11,002,135 (37)	272	601,698 (36)
Diabetes Mellitus	12,660	1304	3,769,405 (13)	151	314,296 (19)
Coronary artery disease	12,448	971	2,894,618 (9.8)	37	81,454 (4.8)
Hypertension	12,449	4056	12,167,133 (41)	287	640,362 (38)
Smoking	12,484				
Current		1568	4,676,269 (16)	62	131,413 (7.8)
Former		2367	7,582,350 (26)	69	165,985 (9.9)
Never		5627	17,094,508 (58)	648	1,382,988 (82)

Abbreviations: BMI = body mass index; LEP = limited english proficiency; SD = standard deviation; US = United States of America; WC = weighted counts.

LEP in Breast Cancer Screening

Table 2 Sociodemographic Characteristics. Sociodemographic and Access to Healthcare.

	Missing N	English		LEP		P-Value
		N = 21,001 N	Total WC: 65,047,935 WC (%)	N = 1824 N	Total WC: 3,939,081 WC (%)	
Live below poverty line	1970	1973	5,485,618 (9.2)	526	1,059,156 (30)	<.001
Total income by family	3623					<.001
\$0-34,999		5205	14,987,648 (28)	910	1,879,768 (59)	
\$35,000-49,999		2002	5,922,326 (11)	227	494,567 (15)	
\$50-74,999		3076	9,169,916 (17)	195	421,894 (13)	
\$75,000-100,000		2356	7,259,732 (13)	82	179,711 (5.6)	
> \$100,000		5074	17,068,153 (31)	92	237,149 (7.4)	
Delay in medical care due to cost	19	1897	5,714,300 (8.8)	206	428,301 (11)	<.001
No Insurance	234	1388	3,821,855 (5.9)	448	907,844 (23)	<.001
Public insurance	239	2515	6,941,672 (11)	587	1,252,293 (32)	<.001
Private Insurance	886	13,608	43,331,537 (69)	542	1,219,785 (33)	<.001
Visit to PCP in past year	12,592	7460	23,125,948 (80)	518	1,133,084 (68)	<.001
Has usual place for medical care	12,640	8836	27,149,756 (94)	661	1,450,338 (88)	<.001

Abbreviations: LEP = limited English proficiency; PCP = primary care physician; WC = Weighted counts.

Table 3 Breast Cancer Risk Factors

	Missing N	English		LEP		P-Value
		N = 21,001 N	Total WC: 65,047,935 WC (%)	N = 1824 N	Total WC: 3,939,081 WC (%)	
Age of first live birth, mean (SD)	15,092	7096	24.0 (5.8)	637	22.6 (6.5)	<.001
Used HRT	13,752	1343	4,208,087 (17)	25	51,711 (3.5)	<.001
Currently using HRT	13,251	482	1,504,022 (5.6)	10	27,265 (1.8)	<.001
Currently having menstruation	13,271	2107	6,508,235 (24)	263	538,938 (36)	<.001
Time since last menstruation	15,701					.03
1 y ago or less		282	891,871 (4.4)	32	68,801 (7.1)	
more than 1 y ago		454	1,333,053 (6.6)	25	49,375 (5.1)	
2 y or more		5946	18,071,516 (89)	385	846,696 (88)	
Menarche	13,683	8471	12.8 (1.9)	671	13.0 (2.0)	.01

Abbreviations: HRT = Hormone replacement therapy; LEP = limited English proficiency, SD = standard deviation; WC = weighted counts.

proportion of having their scheduled screening within 2 years as instructed by national guidelines (mammogram 1 year ago or less: LEP 19% vs. 13%; more than 1 year, not more than 2: LEP 29% vs. 20%) and they also reported higher physician recommendation for screening (23% vs. 10%) (Table 4). Looking into LEP Hispanics compared to English proficient patients, Spanish speakers showed lower frequency of screening mammograms as well (88 vs. 94%, $P = .005$). Subgroup analysis in different clinically relevant age groups, also showed statistically significant difference throughout the subgroups of 45 to 75 and 50 to 75. LEP subjects reported lower rates of mammography between 45 and 75 (85% vs. 93%, $P < .001$) and 50 to 75 years of age (87% vs. 94%, $P < .001$). Additionally, women with LEP showed no difference in rates for previous screening mammograms in the early-starter subgroups (40-45y: LEP 54% vs. 67%; 45-50y: 73% vs. 88%).

To further elucidate the similar rates of mammograms in the past 12 months between our groups, a subgroup analysis on this popula-

tion was performed. This showed similar socioeconomic differences with higher rates of living below the poverty line (39% vs. 9.2%) and nonprivate insurance in the LEP population (Appendix A). However, the rate difference in access to healthcare was much narrower between the LEP population and the English-speaking women that have undergone a mammogram in the past 12 months (visit to PCP in the past 12 months LEP 82% vs. 87%; usual place for medical care: LEP 95% vs. 97%).

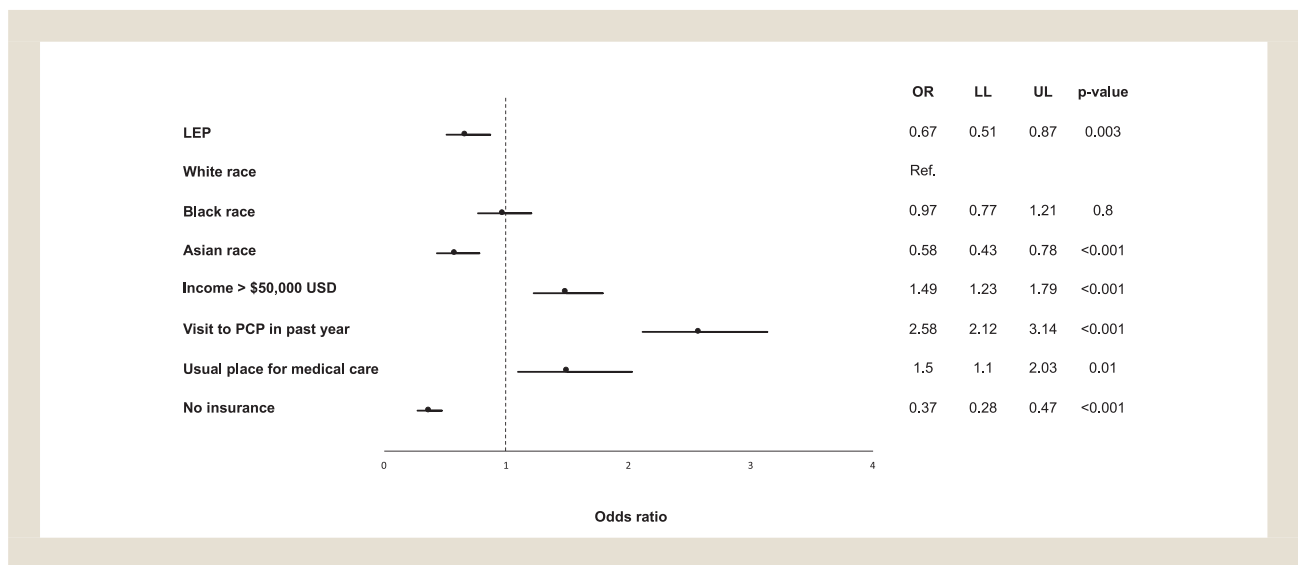
Stepwise multivariate regression analysis showed that LEP women were associated with a lower probability of having overall screening mammography (OR: 0.67, 95% CI: 0.51-0.87; $P = .003$) when controlling for race, income, insurance and access to healthcare covariates (Figure 2). The strongest predictor within this model increasing the likelihood for a mammogram was visit to the PCP in the previous year (OR 2.58 95% CI 2.12-3.14; $P < .001$). The second regression model with LEP subdivided into overall Spanish and "other" languages showed that Spanish speakers had a lower

Table 4 Screening for Breast Cancer.

	Missing N	English		LEP		P-Value
		N = 21,001 N	Total WC: 65,047,935 WC (%)	N = 1824 N	Total WC: 3,939,081 WC (%)	
Ever had a mammogram	13,797	7393	22,729,564 (90)	526	1,130,108 (78)	< .001
Mammogram past 12 mo	12,700	5331	16,636,746 (58)	409	896,254 (55)	.12
Noncancerous lump removed	14,480	1352	4,182,884 (17)	39	76,737 (6.4)	<.001
Dr Rec. for mammogram past 12 mo	19,302	3523	971,945 (10)	69	147,409 (23)	<.001
Estimate of most recent mammogram	20352					.001
A year ago or less		291	928,876 (13)	35	75,458 (19)	
more than 1 y, not more than 2		464	1,401,131 (20)	49	111,468 (29)	
more than 2 y, not more than 3		505	1,481,535 (21)	44	83,824 (22)	
more than 3 y, not more than 5		359	1,162,316 (17)	25	51,649 (13)	
Over 5 years ago		672	2,050,424 (29)	29	67,294 (17)	

Abbreviations: LEP = limited English proficiency; Rec = recommendation; WC = weighted counts.

Figure 2 Multivariate regression analysis for screening mammography. LEP = limited English proficiency; LL = lower limit; OR = odds ratio; PCP = primary care physician; UL = Upper limit; USD = United States dollar.



probability of having screening for breast cancer (OR 0.67, 95% CI 0.49-0.90 $P = .008$) while “other” language group showed no statistically significant association (Figure 3). Access to health-care variables were identically the strongest predictors increasing the likelihood for a screening mammogram.

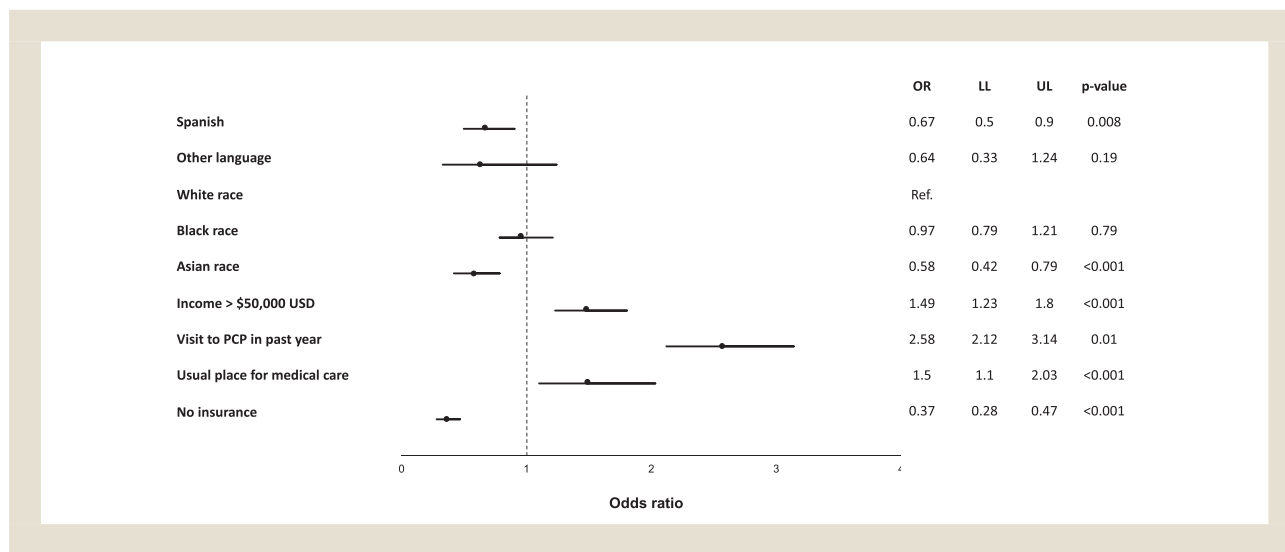
Discussion

The aforementioned findings are in line with other studies analyzing language barriers with preventive or early detection interventions. Jacobs et al showed that women who report a complete or partial limitation in reading or speaking English are less likely to receive breast and cervical cancer screening compared to women proficient on reading and speaking English of the same race/ethnicity. Furthermore, these differences were not explained by sociodemographic factors, contact with physician or hospital, US nativity, or number of years residing in the United States.⁹ Other

studies have looked at similar relationships, specifically analyzing cancer screening and speaking a language such as Spanish, French or Chinese and similar results have been found.¹⁷⁻¹⁹ Furthermore, literature findings suggest that this inequality extends beyond just cancer screening and expands to an overall worse medical care for LEP individuals.²⁰⁻²² Considering these findings, and the fact that approximately 17% of the US adult population, and a third of the adults 65 and over, have a “below basic” health literacy level, practices that enhance understanding among patients of all literacy levels are extremely important.^{23,24} It has been shown that poor utilization of screening is a major barrier to decreasing morbidity and mortality not only in breast and cervical cancer but also colorectal cancer.²⁵

These findings go on to support other studies showing that LEP is associated with poor health outcomes.²⁶⁻³⁰ Kim et al found in their study that LEP patients were associated with an increased

Figure 3 Multivariate regression analysis for screening mammography. Independent variable LEP ungrouped to Spanish and “other” languages. LL = lower limit; OR = odds ratio; PCP = primary care physician; UL = upper limit; USD = United States Dollar.



likelihood of having elevated blood pressure after adjusting for confounding factors such as socioeconomic variables or acculturation.²⁶ These findings further demonstrate the cracks in the system when it comes to LEP patients not only in terms of preventative medicine but also medical management for chronic conditions. A salient finding in our results was that speaking Spanish, regardless of race/ethnicity, was associated with a lower probability of getting a screening mammography. Similar findings have been reported among Dominican Latinas and nonborder Hispanic Texas women where language has been associated with decreased age-appropriate cancer examination.^{31,32} Interestingly, the Spanish speaking subjects in other races (Asian 1.5% and Black race 5.8%) did not show a statistically significant difference of undergoing a screening mammogram. However, there was a lower rate seen in both races compared to the English and other language spoken counterparts (Spanish speaking Asians 39% vs. non-Spanish speaking Asian 54%, $P = .24$; Spanish speaking Black 56%, non-Spanish speaking Black 63%. $P = .32$).

A crucial finding to highlight is women, regardless of language proficiency, appear to have similar rates of screening mammograms in the previous year. (Table 3) Additionally, there were a higher proportion of mammograms within 2 years in women with LEP. This differed from our main objective variable that analyzed women undergoing a screening mammogram in their lifetime. The results clearly showed that fewer LEP patients have a screening mammogram. We can see the stark difference that once LEP women undergo a first screening mammogram they have a similar tendency to continue getting mammograms compared to the English-speaking counterpart. We attempted to further explain this by looking specifically into certain socioeconomic variables that could be associated with these results solely in the subgroup that reported a previous mammogram. Interestingly, we noticed that within the variables that allude to access to healthcare the LEP women without a previous mammogram showed a noticeable difference compared to the

LEP women that had undergone a mammogram. The LEP women without a mammogram had fewer visits with their primary care physician and showed lower rates of not having usual place to get medical care. The frequency seen in LEP women without a visit to the PCP was 68% compared to 82% in LEP women with a screening mammogram. A similar trend was seen in the variable looking into having usual place for medical care. Similarly, previous studies have found lack of having a regular medical visit in the previous year may lower the probability of undergoing a cancer screening test.³³ Though this finding is relevant, the multifactorial etiology behind less screening rates may be related to deeper cultural and structural factors within the minority LEP women. Fatalism, religious attendance, perceived costs and susceptibility are associated cultural factors impacting compliance in pap smear tests in Latina women.³⁴ Additionally, embarrassment and acculturation are additional factors found to impact cervical and breast cancer screening in other races.³⁵ Subtle but impactful factors, such as language and other cultural factors in minority groups may play a pivotal role in the results shown here. Focused research efforts at a national level are needed to help bridge the gap in disparities for breast cancer screening in the population with language barriers.

Strategies to increase breast cancer screening in patients with language barriers is crucial. Besides improving access to health-care as mentioned above, other limitations have to be tackled. For instance, language barriers have been shown to have a detrimental effect in quality of care.³⁶ This has been correlated to a decrease in question asking behaviors, lack of comprehension regarding instructions, and decreased satisfaction.³⁶ Evidence has shown the effectiveness and utility of using professional interpreter services and bilingual health care providers.^{36,37} We believe these 2 are pivotal as they have the ability to effectively bridge the language gap along with adding cultural competence in their care. Other possible solutions previously recommended are training volunteer interpreters in the community and developing a pool of bilingual volunteers with

Appendix A Insurance and Access to Healthcare Variables in Patients Having a Mammogram in the Past 12 Months.

	N	English		LEP	
		WC (%)	N	WC (%)	P-value
Live below poverty line	514	1,453,472 (9.2)	148	329,067 (39)	<.001
No Insurance coverage	143	386,113 (2.3)	64	127,078 (14)	<.001
Public insurance coverage	619	1,676,041 (10)	173	385,296 (43)	<.001
Private Insurance	3634	11,654,973 (72)	113	256,586 (31)	<.001
Visit to PCP in past year	4574	14,407,817 (87)	337	734,178 (82)	.03
Has usual place for medical care	5144	16,053,943 (97)	380	837,679 (95)	.002

proper training in interpreting and confidentiality.³⁶ We believe building this practice in the community can significantly aid as the interventions are not only instituted in the hospital or outpatient center setting. Similarly, Barreto et al, stated that including more widely available bilingual clinical and community health workforce that provide clinical, cultural and linguistic competence, improved technology to distribute translated materials through patient portals and use of virtual video technology can improve rates of interpretation and better support the LEP population.³⁸

Limitations in our study include but are not limited to the following. As this database is entirely made from interviews, recall bias is potentially present. This directly affects the internal validity of the information reported. However, as current national guidelines suggest annual or biennial screening, this may not have a significant impact as with other screening modalities. Furthermore, the numbers reported from our sample size may appear small for a national database. However, due to the complex survey design from the NHIS, when taking into consideration weights, sampling units, and strata, the total weighted count translates into 3.9 million LEP women in the United States. Additionally, from those who answered if they have had a previous mammogram, 318,746 reported not having a screening mammogram in their lifetime despite being in the age-appropriate groups recommended to undergo screening. The population size and the nature of a complex survey dataset allows for adequate generalizability in the US population. Nevertheless, the database indirectly shows a national representation and does not directly reflect individual interviews to the entire US population and is ultimately an estimation. With a wide variety of languages spoken in the United States, it would have been paramount to discover other potential minority language speakers at risk for lower screening mammogram rates. This database is limited to reporting solely Spanish and English as specific languages. If another language was required to complete the interview it was grouped into the “other language” group. This impaired expanding our analysis into identifying other subgroups at risk. Additionally, at the time of our analysis, the NHIS database with the most recent information was from 2015. This may not reflect the current trends in the present population.

The LEP population is increasing in the United States at high rates, and people with LEP have lower access to care, higher nonprivate insurance rates and poorer health outcomes than people proficient in English.³⁹ The results from this study demonstrate in a

national level an understudied subgroup at risk for lower rates of screening for breast cancer.

In conclusion, having limited English proficiency, particularly speaking Spanish, appears to negatively affect getting a screening mammogram in the United States. Understanding and addressing key cultural and structural barriers present in minority groups is of paramount importance to achieve equal access to cancer prevention and early detection interventions.

Clinical Practice Guidelines

National data reports approximately 9% of the population in the United States have limited English language proficiency. However, the association between breast cancer screening and limited English proficiency (LEP) has been scanty studied. Previous regional reports have shown complete or partial limitation in reading or speaking English is associated with less likelihood to receive breast and cervical cancer screening compared to the English proficient cohort. To elucidate this in a larger scale, we utilized the National Health Interview Survey database. The results from our study show a prevalence of 5.7% of women between 40 and 75 years with limited English language proficiency. Patients with LEP were found to have higher rates of nonprivate insurance, living below the poverty line and lower median family income. Additionally, LEP patients demonstrate lower overall rates of screening mammogram, with fewer benign masses removed. Interestingly, physician recommendation appears to be higher in the LEP population in addition to no difference in rates of most recent mammography. When controlling for key baseline and socioeconomic variables, LEP women, particularly Spanish speakers, are associated with a lower probability of undergoing a screening mammogram. The LEP population is increasing in the United States at high rates and people with LEP have healthcare access limitations and poorer health outcomes than people proficient in English. Therefore, targeted efforts should be directed towards vulnerable subgroups to achieve equity in early detection for breast cancer.

Clinical Practice Points

- Limited English proficient women undergo fewer screening mammograms, particularly the Spanish speakers.
- Access to healthcare may play a pivotal role to increase breast cancer screening in the LEP population.

LEP in Breast Cancer Screening

- The prevalence of women between 40 and 75 years with limited English language proficiency is 5.7% in the United States of America.
- Effective strategies to decrease language barriers have to be further investigated and applied in the community and primary care settings.

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