

## Research

### **Predictors of Dental Care Service Utilization among Hispanics/Latinos in Mississippi, Louisiana and Alabama**

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### **Abstract**

The purpose of this research was to examine the potential factors of socio-economic status (SES), healthcare coverage and acculturation as barriers to dental healthcare service utilization in Hispanics/Latinos. A Hispanic/Latino Community Health Needs Assessment was administered to 411 participants by the bilingual interpreter. The descriptive, bivariate and multivariate logistic regression statistics were performed to predict dental care service utilization. Of all participants, non-Mexicans were more likely to utilize dental services compared to Mexicans (52% vs. 29%,  $p$ -value  $< 0.001$ ). With respect to gender, females were more likely to acquire dental services than males (53% vs. 31%,  $p$ -value  $< 0.001$ ). The level of education, income, acculturation and health insurance status were also significantly related to dental service utilization. However, in a multivariate logistic regression model that included Mexicans vs. non-Mexicans, gender, education, income, acculturation, health insurance coverage; female gender and health insurance coverage were significant independent predictors of dental service utilization. The odds of dental service utilization is 2.1 times higher in women than that of males (95% CI: 1.3-3.4); and 3.2 times higher in those who have health insurance than those who do not have health insurance (95% CI: 1.7-5.8). The results of this study underscore the need for health care coverage irrespective of their SES and acculturation characteristics.

**Public Health Implication:** Interventions and policies should be targeted to improve their access to dental care service.

### **Introduction**

Oral health such as dental caries and periodontal disease are common health problems in the United States (U.S.) population (CDC, 2016). Approximately, 47.2% U.S. adults ages 30 years or older have periodontal disease and 70.1% of people age 65 and older have periodontal disease. With respect to health disparities, men are more likely to have periodontal disease than

women and Mexican American adults are more likely to have periodontal disease than white adults (CDC, 2016). Healthy People 2020, a science-based, ten-year national framework has emphasized the prevalence of oral health disparities within the U.S. population and set up goals to eliminate oral health disparities for all Americans including Hispanics/Latinos.

Hispanics/Latinos are the new "majority-minority" and make up 16% of the U.S. population. Although Hispanics/Latinos are the largest and fastest growing population in the U.S., only 2.7-4.2% of Latinos live in Mississippi, Louisiana and Alabama (U.S. Bureau of Census, 2010). In 2014, approximately 39% of all uninsured persons in the U.S. were of foreign-born Hispanics/Latinos (Krogstad & Lopez, 2014). The Healthy People 2020 target for health insurance is 100%, and dental service utilization is 49% (Office of Disease Prevention and Health Promotion, 2017). In 2011, 47.5% of non-Hispanic Whites reported a dental visit in the past 12 months, whereas only 29.7% of Hispanics reported a dental visit (Office of Disease Prevention and Health Promotion, 2017). Hispanics/Latinos were two times as likely as non-Hispanic Whites to be living below the federal poverty level (20.2%, Hispanics vs. 9.9% Whites) (U.S. Bureau of the Census, 2014). Although efforts have been made to eliminate inequality in health and health care, disparities in access to oral health care continue to exist in the United States (Scott & Simile, 2005).

The health outcomes including oral health of U.S. Hispanics/Latinos present a pattern of substantial heterogeneity in several dimensions. Wide ranges of factors have been explored to explain this heterogeneity. These factors include more traditionally studied attributes such as socioeconomic status, educational level, and age, as well as other, less studied contextual factors such as language fluency and immigration status, including time and number of generations living in the United States. These factors are often described as part of the phenomenon of acculturation to U.S. mainstream culture (Wells, Golding & Hough, 1989). Utilization of dental healthcare services by Latino/Hispanic is usually linked with insurance status. While significant, the impact of additional factors/barriers on access to dental healthcare by Hispanics/Latinos within the tristate areas of Alabama, Louisiana, and Mississippi remains unclear. This study examines the potential factors of social economic status (SES), healthcare coverage and acculturation as barriers to dental healthcare service utilization in the Hispanics/Latinos.

## Methods

Initially in 2010, the Behavioral and Environmental Health Equity Project conducted a Latino/Hispanic Community Health Needs Assessment Pilot Study with 110 participants in Mississippi. After receiving feedback from community stakeholders in the Pilot Study, the survey questionnaire was modified and extended to Mississippi, Alabama and Louisiana from 2011 to 2012. The assessments were administered by bilingual interviewer using participants' preferred language (English/Spanish). All surveys were conducted after receiving approval from the Jackson State University Institutional Review Board. Four hundred and eleven (411) Latino/Hispanic community members and leaders  $\geq 18$  years of age participated in the Latino Hispanic Community Health Needs Assessment survey. Because of the small percentage of

Latinos residing in these states, convenience sampling was used to capture the views of Hispanics/Latinos through faith-based, community service, and health care organizations.

## Outcome Variable

The phrase "Dental Service Utilization" is the outcome variable in this study. Participants, who replied "yes" to the question, "During the past 12 months, have you seen a dentist?" were considered to have utilized dental service during the previous 12 months, and those who replied "no" were considered not to have used dental service during the past 12 months.

## Explanatory Variables

The primary independent variable is "acculturation." Language preference, duration of stay in the U.S., and U.S.-born are used as proxy measures of acculturation in this study. An individual was said to be "acculturated" if, he/she was either born in the U.S., or preferred speaking English, or had been living in the U.S. for more than ten years. If an individual did not meet any of these criteria he/she was "not acculturated." Other covariates include age, gender, socioeconomic status, health care coverage, and country of origin. SES was measured by the level of education and yearly income. Age was separated into three groups: 18-24; 25-64;  $\geq 65$ . Education level was divided into four groups: no education/elementary, high school /GED, vocational school/college, university degree. Income level was categorized into three groups:  $< \$20,000$ ,  $\$20,000-\$39,999$ , and  $\geq \$40,000$ . Insurance status was assessed by asking whether they had health insurance for previous 12 months or never had health insurance. Participants were divided into two ethnic groups. An individual who reported Mexico as their country of origin was considered Mexican. All others were considered non-Mexican that included most of them from Puerto Rican, Cuban, Honduras, Guatemala, Nicaragua, Peru, El-Salvador and Colombia.

## Data Analysis

The Statistical Package for the Social Sciences (SPSS), Version 22, was used for analysis. Descriptive statistics for univariate analysis and chi-square test for bivariate and multivariate logistic regression analysis for predicting dental care coverage were performed. Three models were constructed separately for predicting dental care service utilization. Model 1 included demographics and SES. Model 2 included demographic, SES, acculturation and its components. Model 3 included demographic, SES, acculturation and its components plus health insurance.

## Results

Table 1 displays the dental service utilization by demographic and SES status. Non-Mexicans were more likely to utilize dental services compared to Mexicans (52% vs. 29%,  $p$ -value  $< 0.001$ ). With respect to gender, females were more likely to acquire dental services than males (53% vs. 31%,  $p$ -value  $< 0.001$ ). The level of education and income were significantly related to dental service utilization ( $p$ -value  $< 0.001$  and 0.008 respectively). Table 2 indicates

that insurance status and acculturation (its components: U.S. citizenship, length of stay, language preference) were significantly related to dental service utilization.

Table 3 displays the predictors of dental service utilization. The odds of dental service utilization in females were 2.1 times higher than in males (95% CI: 1.3-3.4). The odds of dental service utilization by people who have health insurance was 3.2 times higher than those who did not have health insurance (95% CI: 1.7-5.8).

Table 1

*Dental Service Utilization by Demographic and SES*

Variables	Dental Service Utilization		P- value
	No (%)	Yes (%)	
<b>Ethnic group</b>	-----	---	
Mexicans Hispanic	101 (70)	42 (29)	<0.001
Non-Mexicans Hispanic <sup>a</sup>	121 (48)	133 (52)	
<b>Gender</b>	-----	-----	----
Male	118 (69)	52 (31)	<0.001
Female	109 (47)	125 (53)	
<b>Age Category</b>	----	---	---
18-24	36 (58)	26 (41)	.304
25-64	178 (57)	133 (43)	
≥ 65	10 (39)	16 (62)	
<b>Education Completed</b>	-----	---	-----
No education/elementary	85 (72)	33 (28)	<0.001
High School/GED	82 (54)	70 (46)	
Vocational School/College	40 (51)	38 (49)	
University degree	15 (30)	35 (70)	
<b>Household income</b>	----	----	-----
Less than 20,000	120 (63)	70 (37)	0.008
20,000-39,999	64 (54)	54 (46)	
40,000-above	27 (42)	38 (59)	

<sup>a</sup>Puerto Rican, Cuban, Honduras, Guatemala, Nicaragua, Peru, Columbia, El Salvador



Table 2

*Dental Service Utilization by Health Insurance and Acculturation*

Variables	Dental Service Utilization		P-value
	No (%)	Yes (%)	
<b>Health insurance</b>	-----	-----	-----
Health insurance for past 12 months	25 (25)	74 (75)	<0.001
Had health insurance	26 (58)	19 (42)	
Never had health insurance	172 (68)	82 (32)	
<b>U.S. born</b>	19 (42)	26 (58)	0.04
<b>Length of stay (10 yrs. or more)</b>	105 (48)	113 (52)	<0.001
<b>Language Preference</b>	-----	----	----
Spanish	180 (59)	124 (41)	0.05
English	24 (42)	33 (58)	
Both	13 (50)	13 (50)	
<b>Acculturation</b>	-----	-----	----
Not acculturated	115 (65)	63 (35)	0.002
Acculturated	111 (49)	115 (51)	

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Non-Mexicans (Puerto Rican, Cuba, Honduras, Nicaragua, Peru, Columbia, El Salvador)

Table 3

*Multivariate Logistic Regression Model for Predicting Dental Care Service*

Variables	Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI
Ethnic (Mexican)	Ref	Ref	Ref	Ref	Ref	Ref
Non Mexican*	2.1	1.3-3.4	2.1	1.3-3.4	1.6	1.0-2.8
Gender (females)	2.1	1.3-3.3	2.1	1.3-3.4	2.1	1.3-3.4
Education (Elementary) vs.	Ref	Ref	Ref	Ref	Ref	Ref
High School/GED	2.2	1.2-3.8	2.0	1.1-3.6	1.9	1.0-3.4
Vocational or college	1.6	0.8-3.2	1.5	0.7-3.0	1.3	0.7-2.8
University degree	3.4	1.5-7.6	2.9	1.3-6.7	2.2	0.9-5.3
Income (< 20,000) vs.	Ref	Ref	Ref	Ref	Ref	Ref
20,000-40, 0000	1.2	0.7-2.1	1.1	0.7-1.9	1.0	0.6-1.7
> 40.000	1.6	0.8-3.0	1.4	0.7-2.7	1.2	0.6-2.3
Acculturation	----	-----	1.5	0.9-2.5	1.3	0.8-2.1
Health Insurance	----	-----	-----	-----	3.2	1.7-5.8

Non- Mexicans (Puerto Rican, Cuba, Honduras, Nicaragua, Peru, Columbia, El Salvador);

OR=Odds ratio; CI=Confidence interval, NS=Non significant

Model 1 included: demographic and SES

Model 2 included: demographic, SES and acculturation

Model 3 included: model 2 plus health insurance

## Discussion

This study is unique as it estimates dental service utilization of Hispanics/Latinos within the tri-state region of Alabama, Mississippi and Louisiana. This study takes into account the major predictors of dental service utilization by the Latino/Hispanic population with the variables being demographics, SES, health insurance, acculturation and its components. Results portray the significant predictors of dental service utilization as being the ethnic origin, gender and health insurance. The dental service utilization for non-Mexican Hispanics is more than Hispanic groups after controlling for demographic, SES and acculturation. However, when adding health insurance coverage in the model, non-Mexican Hispanics ethnicity becomes nonsignificant for predicting dental service utilization. Women use more dental services than men. This finding is consistent with national data. Less use in men could either mean less prevalence of dental caries, reluctance to seek dental care or lack of awareness in comparison to women.

In our study, health insurance coverage appears as an important independent determinant of dental care service utilization. Participants having some form of insurance for the previous 12 months report a higher predilection of dental service utilization. Dental service use for adults are not a mandated benefit under Medicaid as it is for children. Studies show that Mississippi, Alabama and Texas have significantly large access gap with no dental benefit for Medicaid-insured adults. As of 2016, Alabama has no dental coverage; Mississippi has emergency-only benefits and Louisiana has limited benefits for Medicaid beneficiaries (Hinton & Paradise, 2016).

This study has several limitations. First, it does not take into account the other contributing barriers of dental service utilization such as the high cost of oral care, fear of the dentist, long waiting hours, transportation difficulties, language barriers, and the availability of facilities. A previous study indicated that the high cost of oral care was the primary reason for not seeking needed dental care among Hispanics or Latinos (Gould, 2012). Second, this study is based on self-reported data which could result in measurement bias and recall bias on behalf of the participants. Third, our study rests on the Hispanic/Latino population living in the tri-state area as a whole and has not been divided into sub-groups of Hispanic or Latino populations in the United States such as Mexican, Puerto-Rican, Cuban, Central or South American, and other Hispanic or Latino subgroups. The U.S. Hispanic or Latino population consists of individuals whose ancestors were originally from various countries in North America, Central or South America, the Caribbean, and Europe. Although the Hispanic or Latino population in the United States may share a common language, there is considerable variation among subgroups concerning dialects, cultural background, socioeconomic status, and care-seeking behaviors. A division by sub-group would provide deeper insight into their behaviors and dental service utilization.

## Summary

Gender and health insurance are major predictors of dental care service utilization among the Hispanics/Latinos within the tri-state area. An emphasis on catering to their needs in these categories will prove helpful in providing dental services in this majority-minority population. The results of this study underscore the need for health care coverage that includes preventative dental services and a wide range of dental treatment. Policies should be established to improve access to dental prevention and intervention services with a particular focus on Hispanics/Latinos.

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Dr. Azad Bhuiyan designed, analyzed and prepared the manuscript. Drs. Gerri Cannon-Smith and Sophia Leggett are the Principle Investigators of the funded project. Dr. Pamela D. McCoy was the study coordinator and Maria Georgie Barvié was responsible for data collection and bilingual interpreter. All authors contributed to the article.

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