Research

Oral Health Knowledge, Acculturation and Utilization of Oral Health Services among a Hispanic and Latino Population

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Abstract

Purpose: Health disparities in the United States (US) are widespread, especially among racial and ethnic minorities populations. The purpose of this study was to assess whether oral health care knowledge and acculturation were associated with utilization of oral health services among the Latino and Hispanic population in Massachusetts.

Methods: A cross-sectional survey research design was used with a convenience sample of Hispanic or Latino adults (n=315) residing in Massachusetts. The survey consisted of three validated instruments: New Oral Health Literacy Instrument for Public Health, the American Dental Association's Health Policy Institute survey, and the Short Acculturation Scale for Hispanics survey (SASH). Oral health utilization was assessed using descriptive statistics, relationships between variables were assessed using t-tests.

Results: The survey had a completion rate of 73% (n=230). Participants with dental insurance had a higher mean number of correct oral health knowledge responses as compared to those without insurance (p=0.003). Females and participants who were married or in a civil union had a higher mean knowledge score. Participants with dental insurance were more likely to have visited the dentist in the last 12 months, and have a dental home compared to those without (p<0.001). These participants were also more likely to indicate they would visit the dentist in the next 12 months (97%, n=175). The mean SASH score was statistically significantly lower for participants without a dental home (p=0.03), without dental insurance (p=0.01), without a dental visit in the last 12 months (p=0.05), and for those not intending to visit the dentist in the next 12 months (p=0.01).

Conclusion: Improving access to affordable dental coverage, promoting the establishment of a dental home, encouraging cultural sensitivity among the dental team, and providing resources to those with limited English proficiency could improve utilization of oral health services among Latino and Hispanic populations.

Keywords: dental utilization, health disparities, minority health, oral health knowledge, access to care, population health

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Introduction

Health disparities in the United States (US) are widespread, especially among racial and ethnic minorities populations.[1] In 2017, the US Department of Health and Human Services (HHS) published the National Healthcare Quality and Disparities Report, in which various quality measures were examined, such as access and quality of health care, including processes of care, outcome of care, and patient perception of care. In nearly three-fourths (70%) of the measures examined, Hispanic populations experienced lower access to care when compared to non-Hispanic Whites. Hispanic populations were also more likely to be uninsured, with18.9% lacking health insurance as compared to 6.5% for non-Hispanic Whites.[2]

Evidence of disparity has been visible across several health care services, including oral health.[3] The Hispanic community is the largest ethnic/racial minority group in the US with a high burden of oral health disease.[4,5] Research has shown that Hispanic ethnicity is associated with poorer self-reported oral health quality of life (OHQOL).[6] Hispanic respondents in a study by Lugo et al. were more likely to have misperceptions

about oral health diseases and oral health in general than the general population.[4] Hispanics are more likely to schedule a dental visit as a result of pain, rather than on their own for routine preventive care.[7]

Oral health knowledge, an important component of health literacy is a potential factor in health disparities among the Hispanic and Latino population. Health literacy is defined as the ability to articulate, comprehend, and use information in order to make well-informed health-related decisions as they apply to oral health care.[8,9] In a landmark report, the Institute of Medicine affirmed that "health literacy remains a neglected, final pathway to high-quality health care."[10] Health literacy is more than being able read health related material, it is a complex combination of skills that includes writing, numeracy, listening, speaking, and conceptual knowledge of the specific health topic.[10] Groups that are more likely to have limited health literacy include non-White racial and ethnic groups, recent refugees and immigrants, people with less than a high school degree or GED, those with incomes at or below the poverty level and non-native English speakers.[11] Participants with limited oral health literacy levels have been shown to have poorer oral health.[12] If oral health disparities among the Hispanic and Latino population are to be addressed, it is important to examine factors that impact oral health knowledge and health literacy.

Acculturation, the process of adapting to new cultures and customs, is another factor in oral health disparities.[13,14] This relates to immigrants learning and incorporating the values, beliefs, language, customs and behaviors, including those that affect health, of the host country; the more that is incorporated, the more acculturated the individual becomes.[13,14] A review of literature from Betancourt et al., found that minorities, especially those with limited English proficiency, encountered sociocultural barriers at the organizational, structural and clinical level in health care, which contribute to racial and ethnic health disparities.[15] Cultural and linguistic barriers in the clinical encounter can negatively affect communication and trust, which impacts patient satisfaction, compliance and lead to poorer health outcomes.[15] When providers fail to take social and cultural factors into account, there is a risk of resorting to stereotyping, which may affect the providers behavior toward the patient and clinical decision-making.[15]

Many factors are known to contribute to or are associated with racial and ethnic disparities in health care.[3] Learning about the specific factors impacting Hispanic and Latino populations can help researchers develop solutions to meet their oral health needs.[4] Current research has found the lack of a dental home, low income, low education, and lack of insurance coverage were all barriers to dental utilization, [7,13,16] which has been defined as the percentage of the population who access dental services over a specified period of time.[17] The action of making practical and effective use of dental services is essential in maintaining overall health and well-being.[18] More specifically, a consistent pattern of routine dental visits is a necessary addition to an adequate self-care routine in the pursuit of good oral health.[18]

The state of Massachusetts has a health insurance mandate, stating residents must have minimum coverage to avoid paying a penalty to the Department of Revenue.[19] The Massachusetts Mandated Health Insurance Law states residents earning less than 300% of the federal poverty level (FPL) may access subsidized health insurance through the state Medicaid program, which may include dental coverage for individuals who qualify.[20] It is important to note that the state mandate does not explicitly require dental coverage for adults.[20] State residents who are ineligible for health insurance through their employer may also purchase low-cost insurance through the Health Connector.[21] Massachusetts leads other states in insurance coverage, with 96.3% of residents covered compared to 91.2% nationally.[22] However, with regard to the Hispanic population in the state, Massachusetts is failing to achieve benchmark quality measures in 15 out of 17 measures.[21] In a state where health insurance, one of the more common barriers for utilization, is removed for many residents, understanding what other factors impact oral health disparities among the Hispanic community could prove valuable to researchers, health care professionals, and policy makers as they work to manage the needs of this growing population. The purpose of this study was to assess whether oral health care knowledge and acculturation are associated with utilization of oral health services among the Latino and Hispanic population in Massachusetts.

Methods

A cross-sectional survey research design was used with a convenience sample of adults in Massachusetts who self-identified as Hispanic or Latino. This research was approved and awarded exempt status by the MCPHS University Institutional Review Board (protocol # IRB110519B). The survey was open to the entire state, however recruiting focused in and around three major cities in Massachusetts. Boston has a population 694,583 with 134,749 identifying as Hispanic or Latino.[23] The second largest city is Worcester, with a population of 185,877, with 38,848 identifying as Hispanic or Latinos.[24] The third largest city is Springfield, with a population of 155,032, with 67,904 identifying as Hispanic or Latino.[25] Inclusion criteria for study participants was limited to adults, 18 years of age

or older, residing in Massachusetts and self-identifying as Hispanic or Latino. Participation was voluntary and there were no monetary incentives or promises of goods or services for completing the survey.

A power analysis (G*Power)[26-27] for the most conservative planned statistical test (one-way ANOVA, two-tailed, four groups) using a medium effect size (f=0.25), α=.05, and 80% power suggested a minimum sample size of n=180.[26,27] Adjusting for expected attrition of 30% the final recommended sample size was n=257.

Instruments

The survey was a combination of three validated surveys, the New Oral Health Literacy Instrument for Public Health,[28] the American Dental Association's Health Policy Institute survey,[29] and the Short Acculturation Scale for Hispanics.[14] The New Oral Health Literacy Instrument for Public Health by Naghibi et al.,[28] consisted of fifteen questions that evaluated oral health knowledge and was used to correlate with data obtained about utilization. For purposes of this study certain questions were edited to improve clarity for the participant and consistency throughout the survey. Namely, items regarding time of day were changed to conventional time notation, as opposed to military time. Additionally, a dental term, calculus, was replaced with the lay term tartar in one instance. The original New Oral Health Literacy Instrument for Public Health has been validated by six oral public health specialists, a methodologist, and a health education expert, scoring relevancy, clarity, simplicity, and necessity of the items to calculate the content validity index (0.90) and content validity ratio (0.85).[28]

Seventeen questions from the American Dental Association's Health Policy Institute survey were selected to capture demographic information, socioeconomic data and self-reported utilization data.[29] Oral health utilization was determined by recent dental visits, established dental home and intent to have a dental visit within the next twelve months. Input and validation for the American Dental Association's Health Policy survey was provided by six international experts that have published on matters defining and measuring oral health based on self-reported indicators.[29]

The Short Acculturation Scale for Hispanics survey (SASH), consisting of four questions, assessed acculturation and was used to correlate with data obtained from the American Dental Association survey.[14] SASH is a language based, five-point bipolar scale and was validated by researchers in a large sample of patients with breast cancer.[30] The score categories were validated by examining the distribution of other variables related to acculturation, including education and literacy level, country of origin, number of years in the U.S., and parental birthplace.[14] In recent years the SASH scale was tested in an independent study and was found to have a high degree of correlation with variables commonly used as proxies for acculturation, which strengthens its validation.[14]

All survey questions were translated into Spanish and back translated into English by independent translators to ensure accuracy. The survey, in English and Spanish, was uploaded to an online survey platform (Qualtrics; Provo, UT, USA) for distribution. The final survey included 35 items, with three of the knowledge questions having more than one answer per question.

Procedures

Participants were recruited in Massachusetts from Spanish-speaking churches of various denominations, community centers that served the Hispanic and Latino community, Hispanic and Latino social and professional groups and through social media. Interested individuals were able to access the survey via a link to the electronic platform. The link was sent either via email, text, messenger, or was made accessible on social media. The opening page was set to default to either "English" or "Español (America Latina)" depending on the audience or group being addressed but was able to be changed by the participant via a drop-down menu on the upper hand corner of the survey. If the participant met the inclusion criteria and consented to the survey by clicking on 'Yes', they gained access to the complete survey in their desired language.

Data analysis

Continuous variables were analyzed using the median for central tendency and the inner quartile range (IQR) as a measure of variance. Categorical demographic variables and survey response categories were summed (count) and then divided by *n* to determine category percentage. Relationships between acculturation and oral health care utilization were analyzed using independent sample t-tests with α=0.05. The relationship between acculturation and oral health knowledge was examined using Pearson's correlation and α=0.05. The data gained from this survey were analyzed using a statistical software program (SPSS version23; IBM Corp., Armonk, NY, USA).

Results

Of 315 individuals accessing the survey link, a total of 230 participants completed the survey for a completion rate of 73% (n=230). Seventy percent (n=160) of the participants were females with an average age of 42 years. Over half (54%, n=123) stated they were married or in a civil union and had at least one person 18 years old or younger living in the home

(55%, n=127). One half (51%, n=119) had completed at least an Associate degree and 60% (n=136) employed full time.

Responses to the 15 items regarding oral health knowledge (New Oral Health Literacy survey) are shown in Table I. Each question was coded as either correct (1 point) or incorrect (0 points). All accumulated points were calculated to create a total number of correct oral health questions. The average knowledge score was 11.3 (SD=2.8) out of 15 possible points (75.3% score). One third of participants (32%, n=75) correctly answered 10 or fewer items (equating to a score lower than 70%).

To assess the relationship between demographic variables and knowledge, a t-test of independent groups was used with demographic categories as independent and total number of correct responses as a dependent variable. Participants with dental insurance had a higher mean number of correct responses (M=12.9, SD=3.2) as compared to those without (M=10.6, SD=3.7), p=0.003. Females had a higher mean knowledge score (M=13.2, SD=3.7) than males (M=11.6, SD=3.1), p=0.001. Participants who were married or in a civil union had a higher mean knowledge score (M=13.2, SD=2.9) as compared to all other relationship status (M=12.0, SD=2.9), p=0.02. All other comparisons of demographic variables and utilizations variables were nonsignificant (p>.05) or had an insufficient number of participants to conduct the test.

Oral health care utilization was assessed using descriptive statistics for three utilization and two insurance questions. The majority had a dental home (78%, n=180) and had visited the dentist in the last 12 months (77%, n=176). A majority of participants (90%, n=207) said they planned to visit the dentist in the next 12 months. Unsurprisingly, oral health utilization was related to whether a participant has dental insurance. Participants with dental insurance (79%, n=181) were more likely to have visited the dentist in the last 12 months (88%, n=159) than those without (35%, n=17), $\chi 2$=60.6, p<0.001, phi=0.51. Participants with dental insurance were also more likely to have a dental home (91%, n=165) compared to those without (31%, n=15)), $\chi 2$=83.1, p<0.001, phi=0.60. Participants with dental insurance were also more likely to indicate they would visit the dentist in the next 12 months (97%, n=175)) than those without dental insurance (65%, n=32), $\chi 2$=42.2, p<0.001, phi=0.43. The frequency of oral health utilization is shown in Table II.

The relationship between acculturation and utilization was assessed using independent sample t-tests. Utilization categories were used as independent groups and the mean SASH score was the dependent variable. The mean SASH score for the sample was 2.8 with a standard deviation of 1.2. When reviewing the SASH scores, the higher numerical values are interpreted as more acculturated, and lower numerical values are interpreted as less acculturated. Participants without a dental home had a lower SASH score (M=2.5. SD=1.3) than those with a dental home (M=2.9, SD=1.2), t(230)=2.2, p=0.03. By extension, participants who had not been to see the dentist in the last 12 months also had a lower SASH score (M=2.5, SD=1.2) than those who had (M=2.9, SD=1.2), t(230)=1.9, p=0.05. Participants who do not intend to visit the dentist in the next 12 months had a lower mean SASH score (M=2.2, SD=1.3) than those who intend to visit the dentist (M=2.9, SD=1.2), t(230)=2.5, p=0.01. Lastly, participants without dental insurance had a lower mean SASH score (M=2.4, SD=1.3) than those with dental insurance (M=2.9, SD=1.1), t(230)=2.6, p=0.01. The SASH scores for the sample are shown in Table III.

Chi-square test of independence was used to compare the demographic variables to utilization variables. Females were more likely to have a dental home (83%, n=133) than males (67%, n=47; $\chi 2$=7.3, p=0.007, phi=0.18). Females were also more likely to have visited the dentist in the last 12 months (81%, n=131) compared to males (46, 66%), $\chi 2$=6.5, p=0.01, phi=0.17. Females were also more likely to have dental insurance (93%, n=149) than males (81%, n=70; $\chi 2$=7.1, p=0.008, phi=0.17), but were not more likely to say they intended to see the dentist in the next 12 months (92%, n=147) compared to males (86%, n=60), $\chi 2$=2.1, p=0.15, phi=0.09. It is important to note that while chi-square tests did indicate relationships between gender and utilization the phi coefficients suggested the strength of these relationships were small. All other comparisons of demographic variables and utilizations variables were not significant (p>.05).

The relationship between acculturation and utilization was assessed with four independent group t-test using utilization categories as independent groups and SASH score as the dependent variable. The mean SASH score was lower for participants without a dental home (M=2.5, SD=1.3), without insurance (M=2.4, SD=1.3), without a dental visit in the last 12 months (M=2.5, SD=1.2), and for participants who were unsure or had no intent to visit the dentist in the next 12 months (M=2.2, SD=1.3) compared to their counterparts. All measures of central tendency and p-values are displayed in Table IV.

Discussion

In general, most of the participants in this study reported utilizing oral health services, however about 23% had not accessed any care. Of that group, 16% had not visited a dentist in the last 12 to 24 months, 4%, in the past three to five years

Table I. Oral health knowledge responses* (n=230).

Question	Response	n	%
Research shows that there may be a link between oral diseases and other health problems such as _____.	Don't know	124	53.9
	Mental illness	13	5.7
	Muscular Dystrophy	2	0.9
	Myocardial infarction	69	30.0
	Skin disease	22	9.6
One of the most common oral diseases is tooth decay. Brushing with toothpaste that contains _____(a) at least twice a _____(b) with flossing and avoid foods with lots of _____ (c)_____ could prevent tooth decay.	(a)Detergents	2	0.9
	Don't know	25	10.9
	Flavors	11	4.8
	Fluoride	173	75.2
	Whitening	19	8.3
	(b) Day	196	85.2
	Don't know	17	7.4
	Meal	11	4.8
	Month	1	0.4
	Week	5	2.2
	(c)Don't know	19	8.3
	Fat	2	0.9
	Salt	8	3.5
	Spices	7	3.0
	Sugar	194	84.3
Every person has 32 _____ teeth	Deciduous	2	0.9
	Don't Know	43	18.7
	Incisors	8	3.5
	Molar	7	3.0
	Permanent	169	73.5
	Missing	1	0.4
which they get the _____ at six years old.	All of them	10	4.3
	Don't know	29	12.6
	First one	91	39.6
	Last one	19	8.3
	Most of them	80	34.8
	Missing	1	0.4

Question	Response	n	%
In this part you will see a prescription for antibiotic consumption. Please the best answer for each question. Rx Diagnosis: Infection and dental abscess Treatment: Amoxicillin (500 mg) capsules (21) Take one capsule by mouth three times (every 8 hours) a day for 7 days If you take the first capsule at 2 pm, when should you take the next one?	10:00 am	9	3.9
	10:00 pm	196	85.2
	11:00 pm	1	0.4
	12:00 am	2	0.9
	2:00 am	3	1.3
	2:00 pm	1	0.4
	3:00 am	1	0.4
	6:00 am	2	0.9
	6:00 pm	2	0.9
	7:00 am	1	0.4
	7:00 pm	1	0.4
	8:00 pm	1	0.4
	9:00 pm	4	1.7
	Don't know	4	1.7
	Missing	2	0.9
If your symptoms are gone by the 4th day of taking the medication, should you stop taking the medication?	Don't know	10	4.3
	No	188	81.7
	Yes	32	13.9
In this part you will see instructions from a bottle of mouth rinse. Choose the best answer for each question. Sodium fluoride mouth rinse 0.2 % Swish and spit 5cc for 1minute one time per week, then do not eat and drink anything for 30 minutes. With regard to this prescription can you swallow it?	Don't know	9	3.9
	No	209	90.9
	Yes	12	5.2

Question	Response	n	%
If you use it at 12 am, when can you eat or drink?	1:00 am	8	3.5
	12:00 am	2	0.9
	12:30 am	192	83.5
	2:00 am	2	0.9
	2:30 am	2	0.9
	3:00 am	1	0.4
	3:30 am	1	0.4
	4:00 am	1	0.4
	6:00 am	4	1.7
	7:00 am	2	0.9
	7:30 am	1	0.4
	8:00 am	1	0.4
	Don't know	3	1.3
	Missing	10	4.3
In this part you will read some sentences with instruction on care after getting a tooth pulled (extraction). Please select the best answer to each item. Bite down on a moist gauze pad for 30 minutes on the site of the extracted tooth Do not spit out for 12 hours Eat cold and soft foods, like ice cream or cold soup for 12 hours after the tooth extraction If your tooth was extracted at 8 am, when should you take gauze out of your mouth?	10:00 am	4	1.7
	10:30 am	1	0.4
	11:00 am	3	1.3
	12:00 pm	6	2.6
	8:00 am	4	1.7
	8:30 am	183	79.6
	9:00 am	11	4.8
	9:30 am	1	0.4
	Don't know	14	6.1
	Missing	3	1.3
If your tooth was extracted at 8 am, can you eat hot food at 2 P.M?	Don't know	7	3.0
	No	198	86.1
	Yes	25	10.9
What is the best decision if a little bleeding occurs after brushing or flossing?	Chewing gum instead of brushing or flossing	3	1.3
	Continue brushing and flossing daily	185	80.4
	Do not brush and floss daily	9	3.9
	Don't know	23	10.0
	Use toothpick instead of brushing and flossing	10	4.3

Question	Response	n	%
Which is the best decision if pain and swallowing occur in your month?	Consultation with family	1	0.4
	Don't know	6	2.6
	Go to the doctor or dentist	194	84.3
	Take an analgesic	10	4.3
	Take an antibiotic	19	8.3
Which of the following is the best way to remove stain and tartar from a person's teeth?	Don't know	21	9.1
	Eating hard foods like apples	2	0.9
	Getting a dental cleaning	169	73.5
	Rinsing with a mouthwash	10	4.3
	Use anti tartar and extra whitening toothpaste	28	12.2
What is the meaning of "I exonerate my dentist from unintentional complications of treatment" in your opinion?	I consent to my dentist proposed treatment	11	4.8
	I don't understand what that sentence means	34	14.8
	I give my permission to my dentist to do any treatment necessary	21	9.1
	My dentist is not responsible for unintentional complications of treatment	159	69.1
	My dentist is responsible for unintentional complications of treatment	5	2.2
What is the meaning of "I have a history of allergy to some drugs" in your opinion?	I don't understand what the sentence means	37	16.1
	I feel anxiety and dizziness after taking some drugs	8	3.5
	I feel inability to breath and redness in my skin after taking some drugs	161	70.0
	I feel problem in speaking and convulsing after taking some drugs	14	6.1
	I get severe chest pain after taking some drugs	6	2.6
	Missing	4	1.7

*New Oral Health Literacy survey

Table II. Frequency of oral health care utilization (n=230).

		n	%	95% Lower CL	95% Upper CL
Do you have a single dentist or dental office that is your usual source of dental care?	no	50	21.7	16.8	27.4
	yes	180	78.3	72.6	83.2
How long since you last had a dental visit?	<12 months	176	76.5	70.7	81.6
	1 to 2 years	37	16.1	11.8	21.2
	3 to 5 years	10	4.3	2.3	7.6
	> 5 years	7	3.0	1.4	5.9
Do you plan to visit the dentist in the next 12 months?	No or not sure	23	10.0	6.6	14.4
	Yes	207	90.0	85.6	93.4
Do you currently have health insurance for 2019?	No	24	10.4	7.0	14.9
	Yes	206	89.6	85.1	93.0
Do you currently have dental insurance for 2019?	No	49	21.3	16.4	26.9
	Yes	181	78.7	73.1	83.6

Table III. Short Acculturation Scale for Hispanics (SASH) mean response by item* (n=230)

	Mean	Standard Deviation
In general, what language(s) do you read and speak?	2.8	1.1
What language do you usually speak at home?	2.7	1.4
In what language do you usually think?	2.8	1.4
What language do you usually speak with your friends?	3.0	1.3
Acculturation**	2.8	1.2

*1=Only English, 2=English better than Spanish, 3=Both equally, 4=Spanish better than English, and 5=Only Spanish

**Average of all 4 items from the SASH

and 3%, in over five years. While utilization of oral health services can be affected by many variables this study sought to highlight the factors that impacted the use of oral health services for the Hispanic and Latino population of Massachusetts.

Dental insurance was associated with oral health knowledge and utilization of dental services. Overall, two-thirds of the participants (67%) had an average knowledge score, answering 73% or more of the questions correctly and higher oral health knowledge scores were achieved by participants that had dental insurance. Similar findings were reported by Edwards et al., where respondents with adequate health literacy were three times more likely to have had dental insurance than those with lower levels of health literacy.[31] Participants with dental insurance were more likely to utilize oral health services, including establishing a dental home and planning for a dental visit within the next 12 months. By having dental insurance, individuals may be more likely to actually utilize dental services and are also benefiting from the dental education and guidance provided to them during their care. This also supports existing data reported by Zivkovic et al., of associations between dental insurance, improved dental visiting behaviors and oral health status outcomes, especially among lower income populations.[32] Participants in this study who had not utilized oral health services in the last 12 months indicated that affordability was a factor. Respondents further specified that the necessary treatment was not covered by their insurance or Medicaid plan and the out-of-pocket expense was prohibitive. These findings highlight the importance of affordable comprehensive dental insurance as it relates to utilization. Policy makers should strive to improve access to affordable dental services and consider expanding dental coverage to the same extent that medical care is currently covered. Although Massachusetts has mandated health coverage, it does not require adult dental coverage.[20] There are some health insurances that provide basic coverage for certain preventive dental services, eligibility is often limited to children.[21,33] Additionally, many Hispanic and Latino immigrants may not be eligible to apply for any dental insurance because of their immigration status. Findings suggest that expanding comprehensive dental coverage in Massachusetts would increase use of oral health services among the Hispanic and Latino population and narrow the gap in oral health disparities.

This study also found an association between utilization and acculturation,

Table IV. Independent t-test results comparing acculturation scores and utilization (n=230).

		Acculturation			
		n	Mean	Standard Deviation	*p*
Do you have a single dentist or dental office that is your usual source of dental care?	No	50	2.5	1.3	0.03
	Yes	180	2.9	1.2	
How long since you last had a dental visit?	> 12 months	54	2.5	1.2	0.05
	< 12 months	176	2.9	1.2	
Do you plan to visit the dentist in the next 12 months?	No or not sure	23	2.2	1.3	0.01
	Yes	207	2.9	1.2	
Do you currently have dental insurance for 2019?	No	49	2.4	1.3	0.01
	Yes	181	2.9	1.1	

as measured by the SASH score. Participants with lower SASH scores, were considered less acculturated and vice versa. This study found participants that were more acculturated were more likely to have a dental home. When an individual has a dental home, they can establish an ongoing relationship with the dental team and benefit from comprehensive, coordinated, oral health care that is continuously accessible.[34] Establishment of a dental home also provides patients with anticipatory guidance to prevent and manage oral disease.[34] Having a dental home is an important way to encourage routine care and allows the dental team to establish a rapport with the patient. However, less acculturated individuals may find it difficult to establish a rapport when there is a language barrier and cultural divide which can in turn contribute to health disparities.[35] Participants who were less acculturated were not utilizing oral health services to the same degree as those that were more acculturated, possibly due to a lack of English proficiency, less comfortable navigating the new culture or the dental health system. These findings are consistent with the literature about sociocultural barriers to care.[15,35] Nearly one fourth of the respondents who did not utilize oral health services indicated that they did not know where to go for services or that they could not find a dentist to accept their insurance plan. This finding underscores an opportunity for improving dental outreach, promoting oral health services, and providing resources for people so they know where to go for help.

Research by Patino et al., showed that lower oral health knowledge was associated with low acculturation, specifically in those with low English proficiency and for those who preferred a Spanish-speaking oral health care provider.[35,36] This points to the importance of equitable health care, and the need for oral health care providers to be culturally competent and provide education and treatment options in the language the patient is most comfortable with.[35] Strategies to improve utilization of oral health services among the Hispanic and Latino population should include access to interpreter services at point of care, access to linguistically diverse printed materials such as post-op instructions and educational brochures and extensive training for the dental team on cultural awareness, diversity and inclusion. Such strategies should also include the expansion of dental insurance coverage or the addition of preventive oral health services within medical coverage. Further research could expand on acculturation and oral health; cultural diversity among the dental profession and impact on patient satisfaction and oral health outcomes; or patient perceptions of care in culturally diverse communities. In addition, a study to specifically explore the characteristics and needs of the uninsured Hispanic/Latino population would expand the body of knowledge.

There are limitations to this study. Although most participants completed the survey independently without an interviewer, as with any self-reported survey, there is the possibility of social desirability bias. The study was also conducted in a limited geographic area with a convenience sample, limiting generalizability. Additionally, the survey was electronic. While every effort was made to provide access to the survey to those who expressed interest, there may have been individuals that failed to take the survey because of technical difficulties or struggles with technology. Future studies might consider using various methods of disseminating the survey that does not hinder the participant's ability to respond. While the survey was accessible in English and Spanish, other languages that Latino participants might speak, such as Portuguese, were not available. Future studies might consider translating the survey to Portuguese or other native Latin American languages, to expand the pool of respondents.

Conclusion

Participants of this cross-sectional study provided valuable insight on the factors that are associated with utilization of oral health services among the Latino and Hispanic population. Although oral health knowledge was not directly associated with use

of oral health services, it was associated with dental insurance which was a predictor of utilization of oral health services. Acculturation was also found to be a predictor of utilization, those with less acculturation and less English proficiency had lower utilization of dental services. Improving access to affordable dental coverage, promoting the establishment of a dental home, encouraging cultural sensitivity among the dental team, and providing resources to those with limited English proficiency could improve utilization of oral health services among Latino and Hispanic populations where the patient will feel heard, understood and respected.

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