

Self-care Behaviors for Orofacial Pain Among Different Racial/Ethnic Groups: Influences of Acculturation and Socioeconomic Status

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ABSTRACT

AIM: The aim of this study was to test the influence of acculturation and socioeconomic status on orofacial pain self-care across race/ethnicity stratified by sex among South Florida residents, using a sample of residents of Miami-Dade and Broward counties in Florida.

METHODOLOGY: This study reports data on respondents who self-endorsed their race and ethnicity as Hispanic, non-Hispanic White, or non-Hispanic Black and reported tooth pain (n=1,767) or jaw joint/face pain (n=1,199). Acculturation was associated with self-care use for pain among Whites and Hispanics. Socioeconomic status (SES) was associated with several self-care behaviors and was most predictive among White women. Acculturation towards other ethnic groups led to differential self-care use dependent on the type of self-care, pain condition, and ethnicity.

RESULTS: Black and Hispanic women were greater users of self-care for orofacial pain than other sex/ethnicities.

CONCLUSION: The associations between SES and self-care were stronger in White women than in Black and Hispanic women.

Keywords: Orofacial pain, acculturation, socioeconomic status, gender, self-care.

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J Oral Health Comm Dent 2013;7(1)47-56

INTRODUCTION

Healthy People 2010 focused on two goals: increasing life expectancy and eliminating health disparities. Over 40 million Americans do not have adequate access to health care due to lack of insurance and financial difficulties, no primary health care provider, or personal barriers such as language differences, lack of knowledge of how to access care, and fear of discrimination (1). Two groups that experience health care disparities are women and ethnic minorities. In the United States, racial/ethnic minority groups such as African Americans and Hispanics experience these barriers to care disproportionately with Whites (2).

Pain is one of the leading symptoms that cause people to seek out health care. Studies have compared sex and race/ethnicity differences in laboratory, clinical, and community studies on pain and found sex and race/ethnicity differences in the perception and experience of pain, as well as the way in which pain is managed. For example, women report lower pain thresholds and tolerance than men in laboratory studies and minorities have lower pain tolerance than Whites in clinical heat/cold pain trials (3,4). Greater pain among minorities and women are also found in pain clinic samples (5,6). Community samples show that Hispanics reported more intense pain than Whites, while sex differences tend to vary depending on the pain condition (5,7).

Some studies have shown that there are racial/ethnic disparities in the treatment of both chronic and acute pain, with racial/ethnic minorities receiving less pain medication, having their pain assessed differently, and relying on emergency room care rather than a primary care provider to treat pain (6).

Kleinman delineates three different health care sectors: the folk sector, the professional sector, and the popular health care sector (8). The folk sector consists of non-professional specialists such as healers who may be sought out for help with pain. The professional sector consists of people with specialized training/knowledge such as doctors, dentists, chiropractors, and others who have undergone specialized training and licensure. The popular sector includes self-care for minor illness as well as other health problems. The majority of sickness episodes are handled in the popular health care sector within the household. When disparities exist in the access to professional health care, people are likely to turn to alternative forms of care (9). Many people use a combination of care from the three sectors to meet their health care needs (10).

An alternative to seeking health care from a professional or a folk healer is to self-treat illnesses and conditions such as general pain, arthritis, low back pain, and orofacial pain. One study reports that 73% of the community self-initiated activity to relieve pain (11). Self-care can be defined as a person providing primary care for him/herself, but can also be used to cover all types of care-influencing health maintenance and behavior, including accessing care in the professional and folk sectors (12). Various types of self-care exist for pain relief, such as over-the-counter medication, prescription drugs, heat/cold therapy, massage, relaxation, prayer, home remedies, and herbal supplements (13,14). Vallerand and others found that women were more likely than men to use non-opioid analgesics, herbs, and non-pharmacological treatments such as heat/cold therapy or relaxation to treat general pain (13). Another study found that ethnicities differed on types of alter-

native care used for arthritis pain (15). Orofacial pain, such as jaw joint/face pain and tooth pain, is one of the most common forms of pain (affecting 25% of the population) is associated with significant health disparities (16). Little is known about the use of self-care for orofacial pain conditions among minority populations (14,17,18).

The definition of self-care for the purposes of this study includes personal treatment decisions and self-initiated care including accessing health care outside of the popular sector, such as the use of doctor-prescribed medication to self-treat pain. The prescription drug category is used with the understanding that individuals may be reporting the use of prescription drugs that were prescribed for neither the particular pain condition in question, nor the individual themselves (17). More common forms of self-care in this study include heat/cold therapy, rest/relaxation, and home remedies (19).

Self-care for orofacial pain may be used in lieu of or in addition to seeking professional health care. Access to professional health care may also be impeded by barriers such as language or socioeconomic status; thus, self-care use may be different among the sexes and races/ethnicities (20). Socioeconomic status and acculturation may affect the types of self-care used by different groups for orofacial pain. Acculturation is the process by which individuals from one ethnic or culture group adopt the beliefs and behaviors of another group (21). Usually the minority group must adopt the beliefs and behaviors of the majority group, but acculturation is also reciprocal where the majority group begins to acculturate towards the minority group. This is especially true in areas with large populations of the minority group, such as Hispanics in South Florida. Because the Hispanic population in South Florida is so large, many Whites speak Spanish language and participate in cultural practices of the Hispanic groups.

Another potential influence on a health behavior such as self-care is gender. Women

are known to access health services, use more medication, and restrict activities due to health concerns more than men (22). Women experience more symptoms than men for non-fatal chronic conditions, such as temporomandibular joint disorder, and acute conditions, such as headache (23). Therefore, women may be participating in more self-care behaviors than men. It is also possible that economic issues or levels of acculturation may be more important for women.

The aim of this study was to measure differences in self-care behavior for orofacial pain, and to test the influence of acculturation and socioeconomic status on orofacial pain self-care across race/ethnicity stratified by sex among Blacks, Whites, and Hispanics in South Florida. This study is unique because it tested differences in self-care behaviors among six different groups created across sex but within race/ethnicity, focusing on the effects of socioeconomic status and acculturation.

METHODS

The data came from a sample of community-dwelling adults in Miami-Dade and Broward counties in Florida. The parent project was a longitudinal study that examined race- and ethnicity-related mechanisms underlying decisions to seek health care or self-manage orofacial pain. This project was approved by the Institutional Review Board at the University of Florida. The informed consent of all human subjects who participated in this study was obtained after the nature of the procedures had been explained fully.

Inclusion criteria included (1) residing in a household in either Miami-Dade or Broward counties in the state of Florida; (2) speaking English or Spanish as the first language; (3) being capable of engaging in a cogent telephone conversation; (4) meeting race and ethnicity criteria; (5) being 18 years or older; (6) experiencing tooth pain, jaw joint/face pain, painful oral sores, or arthritis-related pain twice or more in the past six months. Miami-Dade and Broward counties were selected because of high populations of targeted ethnic groups

and range of socioeconomic status levels within the target groups. This paper will report on two orofacial pain conditions: tooth pain and jaw joint/face pain.

Sampling methodology

The goal of the disproportionate stratified probability sampling design was to allow for valid comparisons among race and ethnicity subgroups rather than to make inferences about population parameters for larger geographic regions (*i.e.*, state or national estimates). The baseline sample for this study was selected by using GENESYS, a random digit dialing sampling database (Marketing Systems Group, Fort Washington, PA). This database, updated quarterly, contains telephone banks that have at least one residential number listed in the white pages. It also has the telephone banks geo-coded to census tracts, which permits linkages to the corresponding census and current population survey data for those census tracts. Eight strata were defined that considered race/ethnicity concentration (predominately Hispanic, non-Hispanic Black, non-Hispanic White, and Mixed) and income (above and below \$35,000 annual income). At the beginning of data collection, telephone numbers were generated that reflected the percentage of the total popula-

tion of each stratum. Each month, additional phone numbers were generated and released and adjustments were made to maintain a rate of completed interviews for each stratum consistent with the target goals. Using this strategy, a total of 70,068 telephone numbers were generated and 25,548 numbers were called, of which 5,847 connected to answering machines, FAX lines, or businesses, and 770 were households without an eligible person. The response rate was 53%, calculated as the total number of completed screenings (10,385) over the total completed + refusals (7,941) + incomplete screenings (445) + those who were unable to participate because of language, health, or other reasons (930).

Telephone survey

Trained interviewers employed by the University of Florida's Bureau of Economic and Business Research Survey Program contacted participants. Respondents were provided with the choice of an English or Spanish version of the survey instrument. Differences in Spanish dialects across the various Hispanic subcultures might introduce error into responses to a standardized interview through variability in the meaning associated with certain words. To minimize this, the translation process involved several people from differing His-

panic subgroups. There may be limitations to data collection using telephone interviews; however using the interviewee's native language may improve effectiveness of the interview process. Telephone surveys target participants with home telephone lines only; therefore, there is a bias against people with cellular telephone service only and people who do not have telephone service.

Measures

Determination of race/ethnicity. Race/ethnicity was coded from responses to the following three questions: (1) *Are you of Hispanic or Latino origin (Yes, No)?* (2) *What race do you consider yourself?* For this question, subjects were given the option of choosing more than one race. If they selected more than one, they were asked (3) *With which one do you most closely identify?*

Although historically race has been viewed as a biological construct, racial and ethnic disparities in health often reflect social/cultural differences rather than biological ones (24). Indeed genetic differences within groups are small, (25) and race and ethnicity are now widely understood as being more accurately characterized as social categories (26). The combined term *race/ethnicity* will be used in the manuscript.

Health behaviors. The following questions about health behaviors were asked after this statement about pain self-management: *Now I have some statements regarding what you may have done for this (symptom) during the past six months.* Response choices were scored as *never, sometimes, often, always.* The questions then asked were:

- *When you had the [insert symptom] how often did you take a prescription medication?*
- *When you had the [insert symptom] how often did you take over-the-counter or non-prescription drugs?*
- *When you had the [insert symptom] how often did you take a folk or home remedy?*
- *When you had the [insert symptom] how often did you apply heat or cold?*
- *When you had the [insert symptom] how often did you rest or relax to reduce the pain?*

Pain symptoms and pain covariates are listed

Box 1: Pain measures

Pain symptoms

ªIn the past 6 months, did you have the following more than once?: This question was asked for tooth pain and face pain in the jaw muscles or in the jaw joint in front of the ear.

Pain covariates

How long ago did you first have this (insert symptom)?

Response choices were: less than 3 months; at least 3 months but less than 6 months; at least 6 months but less than 1 year; more than 1 year; five years or more.

When you had this (insert symptom) was it constant or did it come and go? Response choices were: constant or intermittent.

In the past 6 months, which choice best describes how often you have had this (insert symptom)? Response choices were: every day; at least once a week; at least once a month; less often than once a month.

On a scale of 1-10, where 1 is very mild and 10 is severe, how would you rate the intensity of this pain at its worst?

a The screening items for orofacial pain symptoms were taken from the National Health Interview Survey (16).

Box 2: Measures of Acculturation and Socioeconomic status

Acculturation

Language

^aWhat languages do you speak?

Which languages do you speak at home?

Response choices were: English only, Mostly English, some Spanish, Spanish and English about equally, Mostly Spanish, some English, Spanish only.

Ethnic Identification^b

I participate in cultural practices of my own group, such as special food, music, or customs.

I like meeting and getting to know people from ethnic groups other than my own.

I am not very clear about the role of my ethnicity in my life (reverse scored).

I have a strong sense of belonging to my own ethnic group.

Responses were: strongly agree, agree, disagree, and strongly disagree.

Socioeconomic status^c

Financial concerns have prevented me from seeking care for pain.

Responses were: strongly agree, agree, disagree or strongly disagree.

Discretionary income was measured using the following response choices: Can't make ends meet; manage to get by; I have enough to manage plus some extra; Money is not much of a problem....I can buy whatever I want.

Ability to pay an unexpected \$500 dental bill was measured using these response choices: Not able to pay the bill; Able to pay but with difficulty; Able to pay comfortably.

^aThe two language items are as used by CDC/HHANES (40). They were summed into a single variable that we have labelled "SLang" in which higher scores reflect greater use of the Spanish language.

^bThe ethnic identification items were selected from the 14-item Multi-Ethnic Identify Measure based on preliminary testing (41-43). The items were summed and we refer to this variable as "EthID." Lower scores are interpreted to represent greater identification and interaction within one's culture and higher scores greater assimilation of the other cultures.

^cDiscretionary income and the ability to pay variables were highly correlated and summed into a single variable labeled "SES" with higher scores inferring higher socioeconomic status. These items were taken from the Florida Dental Care Study (38).

in Box 1. Acculturation and socioeconomic status variables are listed in Box 2. The seven-day test-retest reliability of the Spanish and English versions of the survey instrument were pilot tested in 65 and 100 community dwelling adults, respectively. Reliability coefficients for the pain measures ranged from .92-.72, health behaviors from .94-.67, acculturation variables from .92-.68, and socioeconomic status. 78-.74.

STATISTICS

All results were weighted estimates that reflected the population of interest, rounded to the nearest whole number. Weights were developed using special tabulations provided by *Healthy People 2010* that

detailed the distribution of target populations provided by age, sex, race, and poverty status (27). Because of the distribution of self-care frequency, these variables were re-coded as dichotomous (*never* = 0, *sometimes*, *often*, or *always* = 1).

Crosstabulations of sex by race/ethnicity and each self-care behavior were performed to determine the percentage of users within each group. We specified a series of *a priori* contrasts to reduce type 1 error in which each individual race/sex grouping was compared with the aggregate of the other groups using logistic regression. In a second series of analyses, SES (socioeconomic status), Slang (Spanish language use), and

EthID (ethnic identity) were entered using a backwards stepwise entry for each sex/race group (*e.g.*, Black females) to test whether they had an independent effect on self-care in a logistic regression model. The two-way interaction terms (SES x SLang, SES x EthID, SLang x EthID) were also tested but none were significant. Pain intensity, duration, and frequency were entered in the first step as a proxy for disease severity. This series of analyses was performed for both tooth pain and jaw joint/face pain. The critical value of .05, two-tailed, was used.

RESULTS

This study reports data on respondents who self-endorsed their race and ethnicity as Hispanic, non-Hispanic White, or non-Hispanic Black and reported tooth pain (n=1,767) or jaw joint/face pain (n=1,199). All further reporting will use the terms Hispanic, Black, and White with the understanding that the Black and White categories preclude Hispanics. Sociodemographic, economic, and access to care data for the two samples appear in Table 1. Weighted data are reported from here on.

Prevalence of self-care for orofacial pain

The majority of the respondents used over-the-counter pain medication for tooth pain (69%) and jaw joint/face pain (65%). Rest and relaxation was also a frequently utilized self-care strategy for both tooth pain (67%) and jaw joint/face pain (74%). Alcohol was the least-often used remedy, with only 27% using it for tooth pain and 25% for jaw joint/face pain.

Self-care for tooth pain

When the sex/race groups were compared, White men and Black women were most likely to differ from the other groups in the likelihood of using self-care for tooth pain. (Table 2) White men used significantly less prescription and over-the-counter medication, and heat/cold therapy than other sex/ethnicities; however, they used more alcohol than any other group. Black women used significantly more prescription and over-the-counter medication,

home remedies, and rest and relaxation, and used less alcohol than any other group. White women were significantly less likely to use prescription medication, home remedies, and rest/relaxation than other comparison groups; Hispanic women were significantly more likely to use home remedy and less likely to use alcohol than the other groups. Black men were significantly more likely to use home remedies than any other

group. Hispanic men did not differ significantly from the other groups on any of the self-care behaviors.

Table 3 presents the odds ratios for the SES and acculturation variables for males and females of differing ethnicities. For White men, SLang was associated with less use of home remedy and heat/cold and EthID was associated with greater alcohol

use for tooth pain. Higher SES, however, was associated with using less alcohol for tooth pain. As SES increased for White women, they were less likely to use over-the-counter and prescription medications, and home remedies for tooth pain. Greater SLang use among White women was associated with less home remedy use, and EthID was associated with less alcohol use.

Higher SES was associated with less use of home remedy for Black women, and less use of heat/cold for Black men. EthID for black men was associated with less alcohol use for tooth pain.

SLang was associated with less use of home remedy for both male and female Hispanics, and less rest/relaxation for Hispanic men, however SLang was associated with greater use of alcohol for tooth pain among Hispanic women. EthID for Hispanic women was associated with the use of prescription medication for tooth pain.

Self-care for jaw joint/face pain

White men were most likely to differ in the use of self-care for jaw joint/face pain compared with all of the other sex/race groups. White men used significantly less over-the-counter medication and heat/cold therapy, and significantly more alcohol than the other groups. White women used significantly fewer home remedies and significantly more heat/cold therapy than other groups. Black women used significantly more prescription medication and significantly less alcohol than other groups. Hispanic women used significantly more home remedies and less alcohol than other groups for jaw joint/face pain. Neither Black nor Hispanic men differed significantly from the other groups for any self-care behaviors for jaw joint/face pain. (Table 4)

In the second set of analyses, acculturation and SES were associated with each of the jaw joint/face pain-related self-care behaviors for both White men and women. Higher SES was associated with use of less over-the-counter and prescription medication, and rest/relaxation for White men and less prescription medication for White women. However, higher

TABLE 1. Sociodemographic, economic, and access-to-care variables by pain symptom.

	Tooth pain N=1,767	Jaw Joint Face pain N=1,199 ^a
Female	1,287 (72%)	923 (77%)
Age (mean years)	43.8 (SD=15.5) range 18-89	45.1 (SD=15.4) range 18-89
18-24 years	206 (12%)	123 (10%)
25-44 years	724 (41%)	444 (37%)
45-64 years	646 (37%)	490 (41%)
65+ years	191 (11%)	142 (12%)
Race/ethnicity		
Hispanic	747 (42%)	470 (39%)
NH Black	504 (28%)	350 (29%)
NH White	516 (29%)	379 (32%)
Social and economic		
Married	800 (45%)	523 (44%)
Employed ^b	1386 (78%)	920 (77%)
Median income (Census)		
Education		
8 th grade or less	69 (4%)	55 (5%)
Some high school	146 (8%)	92 (8%)
High school graduate	475 (26%)	322 (27%)
Some college	430 (24%)	300 (25%)
College graduate	647 (37%)	430 (36%)
Dental insurance	708 (40%)	482 (42%)
Ability to pay		
Not able to pay	414 (23%)	300 (25%)
Pay with difficulty	874 (50%)	571 (48%)
Pay comfortably	479 (27%)	328 (27%)
Health care visit for this symptom	736 (42%)	843 (70%)
Worst pain intensity rating (mean, 1-10 scale)	6.3 (SD=2.5)	6.3 (SD=2.5)
Duration of pain		
Less than 3 months	477 (30%)	322 (27%)
3-6 months	416 (26%)	241 (20%)
7-12 months	315 (20%)	204 (17%)
Greater than 1 year	386 (24%)	417 (35%)
Frequency		
Every day	334 (19%)	164 (15%)
At least once a week	515 (29%)	319 (29%)
At least once a month	429 (25%)	265 (25%)
Less than once a month	438 (26%)	345 (32%)

Note: Sample size reflects un-weighted n. ^a Jaw joint pain only, n=349 (31%); face pain only, n=428 (39%); both sites, n=334 (30%). ^bOne or more members of the household were employed fulltime.

Table 2: Self-care for tooth pain by sex-race/ethnicity

	Prescription 36%, n=622 %; OR	Over-the-counter 69%, n=1191 %; OR	Home remedy 37%, n=640 %; OR	Alcohol 27%, n=475 %; OR	Heat/cold 33%, n=577 %; OR	Rest/relax 67%, n=1163 %; OR
White men	31%; 0.7**	61%; 0.7**	33%; ns	48%; 3.1***	24%; 0.5***	69%; ns
White women	32%; 0.7**	70%; ns	29%; 0.6***	26%; ns	34%; ns	58%; 0.5***
Black men	39%; ns	69%; ns	49%; 1.5*	28%; ns	39%; ns	70%; ns
Black women	50%; 1.7**	79%; 1.6**	52%; 1.8***	12%; 0.3***	41%; ns	82%; 2.1***
Hispanic men	36%; ns	67%; ns	35%; ns	33%; ns	34%; ns	67%; ns
Hispanic women	41%; ns	71%; ns	44%; 1.5**	12%; 0.3***	36%; ns	71%; ns

*Adjusted for age and pain characteristics; Only statistically significant coefficients are shown. Key: * p<.05, ** p<.01, *** p<.001, ns p > .05 (all two-tailed)*

Table 3: Odds ratio for socioeconomic status and acculturation variables as predictors of ethnicities' tooth pain-related self-care

	Prescription	Over-the-counter	Home Remedy	Alcohol	Heat/cold	Rest/relax
White Men	—	—	SLang: 0.4***	SES: 0.8** EthID: 1.2*	SLang: 0.7**	—
White Women	SES: 0.8**	SES: 0.8**	SES: 0.8** SLang: 0.7**	EthID: 0.9*	—	—
Black Men	—	—	—	—	SES: 0.7*	—
Black Women	—	—	SES: 0.9*	—	—	—
Hispanic Men	—	—	SLang: 0.9*	—	—	SLang: 0.9*
Hispanic Women	EthID: 1.2**	—	SES: 0.8* SLang: 0.9*	SLang: 1.3**	—	—

*Note: Pain intensity, frequency, and duration were entered as covariates in each model. SLang = Spanish Language, SES = Socioeconomic Status, EthID = Ethnic identification, Only statistically significant coefficients are shown. Key: * p<.05, ** p<.01, *** p<.001, two-tailed.*

Table 4: Self-care for jaw joint/face pain by sex-race/ethnicity

	Prescription 36%, n=423 %; OR	Over-the-counter 65%, n=768 %; OR	Home remedy 33%, n=387 %; OR	Alcohol 25%, n=291 %; OR	Heat/cold 43%, n=509 %; OR	Rest/relax 73%, n=851 %; OR
White men	34%; ns	54%; 0.6**	29%; ns	38%; 2.2***	35%; 0.5**	67%; ns
White women	34%; ns	70%; ns	25%; 0.5***	26%; ns	50%; 1.6**	71%; ns
Black men	44%; ns	69%; ns	46%; ns	28%; ns	46%; ns	80%; ns
Black women	46%; 1.8**	71%; ns	44%; ns	11%; 0.3***	52%; ns	86%; ns
Hispanic men	33%; ns	59%; ns	36%; ns	33%; ns	36%; ns	69%; ns
Hispanic women	37%; ns	67%; ns	42%; 1.5**	11%; 0.3***	39%; ns	77%; ns

*Adjusted for age and pain characteristics; Only statistically significant coefficients are shown. Key: * p<.05, ** p<.01, *** p<.001, ns p > .05, two-tailed*

Table 5: Odds ratio for socioeconomic status and acculturation variables as predictors of ethnicities' jaw joint/face pain-related self-care

	Prescription	Over-the-counter	Home Remedy	Alcohol	Heat/cold	Rest/relax
White Men	SES: 0.7** SpLang: 0.7**	SES: 0.7** SpLang: 0.5***	SLang: 0.7**	EthID: 1.2*	SLang: 0.7 *EthID: 1.4**	SES: 0.7 *EthID: 0.8*
White Women	SES: 0.7**	SLang: 1.4*	SES: 0.8**	Lang: 0.7*	SES: 1.3*	EthID: 1.2*
Hispanic Men	—	SLang: 1.5**	SES: 0.7**	—	EthID: 0.7**	—
Hispanic Women	—	—	SES: 0.7**	—	—	—

*Note: Pain intensity, frequency, and duration were entered as covariates in each model. SLang = Spanish Language, SES = Socioeconomic Status, EthID = Ethnic identification, Only statistically significant coefficients are shown. Key: * p<.05, ** p<.01, *** p<.001, two-tailed.*

SES was also associated with increased use of heat/cold therapy for jaw joint/face pain among White women. SLang was associated with less use of over-the-counter and prescription medication, home remedy, and heat/cold for White men. SLang was associated with greater use of over-the-counter medication and less use of alcohol for White women. EthID was associated with more alcohol and heat/cold use and less rest/relaxation for White men, while White women used more rest/relaxation for jaw joint/face pain. (Table 5)

Acculturation and SES did not significantly affect self-care behaviors for Black men or women. Higher SES was associated with less use of home remedies among Hispanic men and women. SLang was associated with more over-the-counter remedies for jaw joint/face pain for Hispanic men. EthID was associated with less heat/cold use among Hispanic men for jaw joint/face pain.

DISCUSSION

Orofacial pain affects people of all cultures. It has been suggested that pain may have a greater impact on ethnic minorities who may not have equal access to appropriate oral health care (14,28). This greater impact of pain is frequently attributed to the effects of lower SES. Those who lack access to formal health care may turn to other culturally appropriate alternative methods of pain management; our data support this assertion. Although several studies have tested for differences in the frequency of self-care to manage orofacial pain between ethno-cultural groups or gender, none have considered the influences of SES and acculturation (14,18). As part of this study, we tested several hypotheses about self-care, orofacial pain, SES, and acculturation in a large sample of community-dwelling adults across age groups that allowed for stratification of sex within race/ethnicity.

Prevalence

An important finding was that a greater percentage of people of Black and Hispanic ethnicities used self-care for orofacial pain than their White counterparts; the excep-

tion was that Whites were the most likely to self-medicate pain with alcohol. Black women were most likely to use the self-care modalities compared with the other sex/ethnicity groups. Other high users of self-care include Black men and Hispanics. White men used the least amount of self-care to manage orofacial pain among all of the groups. Our findings are consistent with previously reported data that minority groups may be using more self-care for pain.(28) Individuals reporting White race/ethnicity on average have better access to health care; consequently, as a group they have other options in care-seeking so there may be less need for them to use self-care for pain (29).

Our findings are in conflict with those reported by three other investigations. Carey and others found that non-White ethnic groups used less self-care for low back pain and were more likely to seek professional care compared with Whites (30). The authors stated that the reasons for this might include the distressing nature of acute low back pain, or the fact that the individuals may need to seek professional care to obtain a work-release permit for injuries stemming from work-related incidents. Hastie and others found that Blacks used significantly less self-care than Hispanics and Whites, but their sample consisted of healthy college students, and the extent to which these health behaviors could be generalized to community-dwelling adults is unknown (31). Miklus and others found that Whites were significantly more likely to use an alternative therapy for arthritis pain but when modalities were examined individually, Blacks used more home remedies than Whites (15). All respondents in the Miklus study were 50 years of age or older. These studies included specific populations rather than a general community sample, which may explain the incongruence of our findings.

Women are known to use more self-care than men, but the extent to which ethnic groups differ within themselves by sex concerning the use of self-care has not been previously investigated (22). In our study, Black and Hispanic women were signifi-

cantly more likely to use home remedies compared with the other groups. These minority women may be using more self-care in lieu of using professional health care to treat their orofacial pain than corresponding men. Villarruel reported that among Mexican Americans interviewed, all reported using professional health care for pain or illness, but that financial and language barriers induced some to use home-based self-care (32). This is consistent with our findings.

Compared with the other modalities assessed, alcohol was the least used self-care behavior for orofacial pain. White men used significantly more alcohol to treat the orofacial pain conditions than the other ethnicities. White men may be using more alcohol to self-treat orofacial pain due to cultural and social influences (33,34). Men in each ethnic group were more likely to use alcohol than women for the pain conditions. Our finding is consistent with two other studies among older individuals that found men were more likely to use alcohol to treat pain conditions than women (18,35).

Acculturation

For the purpose of discussing the findings of this study, *acculturation* is defined as a two-way interaction between the majority ethnic group (Whites) and a minority group (Hispanic). In interpreting this study, we remind the reader that acculturation was measured using the two variables SLang and EthID. These two variables are a part of a complex construct used to elicit information on the level of intra-cultural identification regardless of their self-reported race/ethnicity. So as the SLang score increases, the respondent is using more English. Hispanics with high scores on the SLang variable speak English more; Whites with lower scores speak Spanish more. EthID measures the extent of cultural practices and identification with one's own and other ethnicities. The higher the EthID score, the more the respondent identified with other ethnic groups. This is true for both White and Hispanic groups due to the way the questions were worded. The effects of the acculturation variables for

Black respondents are less clear, as very few reported using Spanish and the EthID variable could mean that they were moving towards the White ethnicity or the Hispanic ethnicity. Acculturation variables were associated with changes in self-care among Whites and Hispanics for both pain conditions.

The Hispanic population in South Florida is large, especially in Miami-Dade County where Hispanics are the majority ethnic group at 61% of the population (1). Elements of Hispanic culture are ubiquitous in the community and Whites may be acculturating towards Hispanic culture due to the unique population dynamics in South Florida.

The effects of greater acculturation on use of self-care among Hispanics varied; using these modalities to manage pain increased with acculturation for Hispanics for some behaviors and decreased for other types of self-care. For instance, among Hispanic women, greater acculturation had a negative association with home remedy use but a positive association with prescription drug use. This increase may be due to a familiarization with the health care system and fewer language barriers to accessing professional health care and thus use of prescription medication. It is possible that some Hispanic women may use prescription drugs in lieu of home remedies as they acculturate more towards the White ethnicity. As the source of prescriptions was not asked, we do not know if the prescriptions used were written for the pain condition in question, or even if they were written to the respondent. Interaction with other laypersons who have access to professional health care may lead to the use of drugs that were prescribed to another person. Others reported that 8% of respondents had looked to others to obtain prescription drugs for pain relief (17,36). Overall, increased acculturation was associated with differential use of self-care among both genders and all racial/ethnic groups, but this finding was strongest among Whites. Interestingly, as White men became acculturated towards the Hispanic ethnic group, their use of alcohol for both

pain conditions increased. As White women acculturated more towards the Hispanic ethnic group, they used less alcohol for tooth pain. This may point to a shift in beliefs about sex differences in the acceptable use of alcohol. In Hispanic cultures, men partake in alcohol while the women abstain, yet in White culture alcohol consumption among women is accepted (37). This can also be seen in the findings that Hispanic women who have acculturated towards the White ethnicity use more alcohol for their tooth pain.

Socioeconomic status

Socioeconomic status (SES) was associated with several of the pain-related self-care behaviors and was most predictive among White women. Socioeconomic status also appears to have affected the use of home remedy for women and Hispanics. The pattern was consistent for most of the self-care modalities that we assessed in that as the SES of respondents decreased, the use of self-care increased.

The strongest finding was that women of all ethnicities with lower SES reported more home remedy use than those with higher SES. Economic factors such as increased financial status may lift barriers so that these individuals quickly access the professional care sector to reduce or ameliorate their pain rather than relying on potentially lesser expensive self-care strategies. This is similar to the findings in several other studies stating that (1) people of low SES postponed going to the dentist for an initial consultation when in pain due to financial barriers and (2) people with low SES were using self-care and home remedies rather than going to the dentist because of financial reasons (14,17). Another factor may be related to the “culture of poverty” belief system that families are more accepting of self-treatment alternatives rather than immediately looking to the allopathic medical model. It is also possible that people of lower SES have less faith in the medical system as a whole and prefer to look elsewhere for methods of pain management. Our data indicate that among minority women, SES was not associated with other self-care modalities. This would be con-

sistent with the belief model in which people choose to self-treat rather than access the professional sector regardless of level of SES. What we did find was that White women with low SES were reporting using more over-the-counter and prescription drugs than those with high levels of SES. One can infer that this subset of low SES White women chose these medications because they were unable to afford professional health care. On the other hand, this increased use of more allopathic remedies such as prescription or over-the-counter drugs in White women may be due to their increased access or exposure to the professional health care sector through others in their social network even if they themselves have difficulty affording care. It is known that even among people of lower financial status, White people are more likely to report medical and dental expenditures and visits (30,38,39). The one exception to the inverse SES and self-care association again involved White women. We found that they used significantly more heat/cold therapy for jaw joint/face pain as their SES increased. Aspects of TMD include an increased prevalence among upper SES White women and because it is an inflammation of jaw joint and muscles, the heat/cold treatment would be more effective than other forms of self-care. The increase in heat/cold therapy for White women with jaw joint/face pain may be related to the amount of relief provided for this pain condition and the ease in use of the remedy. The patterns for alcohol use were also unique and suggest that when adjustments for acculturation are made for White men, SES had an inverse association with alcohol use to self-treat tooth pain.

Limitations and implications

Limitations for this study include self-reported data, as well as distinct geographic regions in South Florida that may not be representative of other areas with respect to ethnic composition. Also, the acculturation variables may not be appropriate measures for the Black ethnicity as analysis of whether the Black respondents are acculturating to the majority population of Whites, or the increasing population of

Hispanics is unclear. The Language variable could be difficult to interpret for Black respondents since very few reported speaking Spanish. Our SES variable is only a proxy for the true financial status of each respondent. It is acknowledged we sacrificed some precision because reliable income data is difficult to obtain in telephone-based surveys.

Implications of this study include future research considerations on topics of care for orofacial pain conditions in the popular and professional health care sectors, including intervention techniques which will allow underserved minorities to seek proper professional care for orofacial pain conditions. Dentists and other health care professionals treating orofacial pain conditions must be educated about the amount of self-care being used and possible confounding effects of self-treatment and professional treatment, such as the use of prescription drugs that have not been prescribed to the patients themselves. Although alcohol is the least used form of self-care in this study, health care professionals should question their patients about alcohol use due to potential problems that may occur if a patient is using alcohol along with other methods to relieve their pain.

CONCLUSIONS

One of the novel methods used in this analysis included comparisons within and between sex by race/ethnicity groups to determine that Black and Hispanic women were greater users of self-care for orofacial pain, and that unexpectedly the associations between SES and self-care were stronger in White women compared to Black and Hispanic women. Acculturation and SES were associated with self-care use for orofacial pain. Lower SES led to more self-care use as expected. Acculturation towards other ethnic groups led to differential self-care use dependent on the type of self-care, pain condition, and ethnicity of the person reporting use. White men were acculturating towards the Hispanic group; therefore their use of more self-care was a novel finding of this study and may be due to the heavy influence of the Hispanic culture in the

geographic area studied. Alcohol use for orofacial self-care was of particular interest since it was used mainly by White men. This study suggests, like others before it, that people of lower SES are more likely to use self-care than seek professional treatment for pain conditions. Every effort must be made to provide adequate health care access and opportunities for the underserved communities to reduce unnecessary suffering from orofacial and other pain conditions.

ACKNOWLEDGMENTS

This study was supported by the National Institutes of Health Grant RO1-DE015581, U54-DE019261 (JR) and T32-NS045551 (EG).

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