Orofacial Pain: Racial and Sex Differences Among Older Adults

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Abstract

Objectives: *This study investigated racial differences in orofacial pain symptoms in a sample of older adults. Orofacial pain prevalence, persistence, severity, and behavioral impact were assessed. We also tested whether sex and race interact, such that racial differences are only observed for a single sex, or whether sex differences only occur within a single racial group.* ***Methods:*** *Telephone interviews were conducted with a stratified random sample of 1,636 community-dwelling older (age 65+ years) north Floridians.* ***Results:*** *Racial differences were not found for 12-month prevalence or pain ratings for any painful oral symptom, or in the total number of symptoms. The most consistent racial differences were in behavioral impact associated with pain. Blacks reported greater behavioral impact as defined by pain having reduced their daily activities or motivating them to take some action in response to pain. For toothache pain, that action was more likely to have been some form of self-medication. These relationships persisted after controlling for socioeconomic status, approach to health care, and pain intensity in multivariable models.* ***Conclusion:*** *Although pain prevalence is an important public health variable, this study suggests that other pain-related variables, such as behavioral impacts, are useful when describing disparities associated with orofacial pain. [J Public Health Dent 2002;62(3):132-39].*

Key Words: pain, orofacial symptoms, race differences, sex differences, elderly, behavioral impact.

Several studies in the public health literature support the contention that pain is a significant component of the impact of oral disease. For example, dental pain is more strongly associated with perceived need for care than dental diseases or conditions (1). Kressin (2) found that the intensity of dental pain in the past three months was a more powerful predictor of dental care utilization than general life satisfaction or impact of oral conditions on daily functioning.

Evidence also suggests that the impact of oral disease may not be distributed equally across sociodemographic groups. Hunt, Slade, and Strauss (3) found that older blacks reported more frequent impact than older white participants, ranging from pain, physical disability, psychological disability, to social disability. Baseline data from the Florida Dental Care Study (FDCS) (4) indicated a higher prevalence of oral disease in blacks, which was associated with greater oral impact. The impact of orofacial pain, as a symptom of untreated dental and oral problems, and as a condition in and of itself, is a major source of diminished quality of life (5). For example, Locker and Grushka (6) found that of respondents with oral pain, 70 percent worried about their oral health, 44 percent consulted a doctor, 30 percent avoided eating certain foods, 29 percent took medications, and 14 percent experienced sleep difficulty.

Findings from the 1989 National Health Interview Survey (NHIS) (7) indicate that orofacial pain was experienced by over 21 percent of the US civilian, noninstitutionalized adult population in the previous 6 months. Data from the NHIS also have suggested inconsistent patterns of racial differences in the prevalence of orofacial pain symptoms. However, this and other epidemiologic studies of pain often focus on prevalence as the sole marker for a particular pain disorder. Von Korff et al. (8) argue that in epidemiologic evaluation of pain conditions, multiple dimensions of pain states should be assessed, including, for example, intensity and duration.

Evidence from clinical studies suggests racial differences may exist in the experience of orofacial pain. For example, Lipton and Marbach (9) found that black patients were most likely to describe their pain as "very severe, almost unbearable." A recent study of community-based adults experiencing orofacial pain has found that blacks were nearly twice as likely as white respondents to describe orofacial pain as severe enough to impact behavior (10). These racial differences in pain impact occurred only within males, such that blacks rated pain as more severe than whites. The importance of considering sex in race comparisons is supported by studies suggesting that women and men place different priorities on oral health. McGrath and Bedi (11) found that women perceived good oral health as having a greater positive impact on their lives than men, and perceived poor oral health as causing them more pain compared to men.

Knowledge about racial differences in how painful symptoms are managed has important implications for understanding disparities in pain. Arcury et al. (12) reported that among adults suffering from arthritis pain, whites made greater use of conventional treatments, while blacks used more alternative remedies. Women were found to be more likely to use prayer, rest, and less likely to use heat or drink alcohol. We were unable to

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find a published study documenting self-treatment behaviors among older adults suffering from orofacial pain.

This paper describes findings on racial differences in the subjective report of orofacial pain symptoms in a stratified sample of community-dwelling older adults. We have adopted the strategy suggested by Von Korff et al. (8) for epidemiologic pain research by evaluating three axes of pain: persistence, severity, and behavioral impact. In addition, we tested whether sex and race interact, such that racial differences are only observed for a single sex, or whether sex differences only occur within a single racial group. Overall orofacial pain prevalence and rates across sex have been reported in an earlier publication (13,14).

Methods

Telephone Sampling Methodology. Telephone interviews were conducted following a stratified random sampling strategy with a sample of community-dwelling older (aged 65+ years) adults living in 10 north Florida counties. A computer-generated random selection process was used within the lists of the telephone numbers of households with a high probability of containing a resident aged 65 years or older. Telephone lists were purchased from a commercial marketing firm. The rural and urban listings were divided into two sets: telephone numbers from census tracts where at least 50 percent of the households had African-American occupants in 1990, and numbers from all other eligible census tracts. This strategy allowed for an efficient and productive search for African-American respondents, yet did not increase bias in the white sample by limiting white respondents to only those who lived in areas densely populated by African Americans.

A total of 5,860 households were contacted, of whom 75.3 percent (n=4,412) were willing to participate in the study. Nine hundred ninety-seven of these households contained no individuals aged 65 years or older, or contained an adult who was ill or who was away from his or her residence for an extended period of time. An additional 1,779 households were determined to contain only individuals for whom sampling quotas had already been met (e.g., primarily whites). The remaining 1,636 households completed the interview. No participant dropped out of the study once the interview had begun.

Older adults were eligible if they (1) were at least 65 years old; (2) resided in a household, in contrast to a nursing home, adult congregate living facility, adult foster home, hospice, etc.; (3) spoke English and were able to engage in a coherent telephone conversation; (4) and reported race as African American or non-Hispanic white. Respondents were selected from the household using the "next birthday" method, wherein the respondent selected was the one with the next birthday. Only one individual was interviewed in each household. All respondents who cooperated with the survey were asked their age, race, and county and/or ZIP code of residence. Respondents who met residence, age, and race criteria were then questioned about the presence of several oral and nonoral symptoms. Respondents who had at least one of four orofacial symptoms (jaw joint pain, face pain, oral sores, burning mouth) were queried for the remainder of the instrument, which included the question about toothache.

Measures

Pain-related Variables

—Jaw joint pain: During the past 12 months, did you have pain in the jaw joint or in front of the ear more than once?

—Face pain: During the past 12 months, did you have a dull aching pain across your face or cheek more than once?

—Oral sores: During the past 12 months, did you have painful sores or irritations around the lips or on the tongue, cheeks, or gums more than once?

—Burning mouth: During the past 12 months, did you have a prolonged, unexplained burning sensation in your tongue or any part of your mouth more than once?

—Temperature sensitivity: During the past 12 months, did you have a tooth that was sensitive to hot or cold fluids?

—Toothache pain: During the past 12 months, did you have a toothache?

—Pain rating: On a scale of 1 to 10, where 1 is mild and 10 is as bad as you can imagine, how would you rate this (symptom) at its worst?

—Duration: How long have you had this (symptom)? The ordinal response choices were: less than 1 year, 1–5 years, more than 5 years.

—Symptom continuity was measured using the question: When you had this (symptom), did it come and go, or was it continuous and uninterrupted? The response choices were: comes/goes or continuous.

—Months with pain: How many different months out of the past 12 did you have (symptom)?

Behavioral Impact and Self-care Variables. The behavioral impact variables were measured by the response to the following self-statements. "Now I have some statements regarding what you may have done for this (symptom) during the past 12 months. I want you to respond with always, frequently, sometimes, or never.

—Activity reduction: "I limited my daily activities or just stayed at home."

—Taken any action: "When I had this (symptom), I didn't take any action or just waited for it to go away."

—Self-medication was assessed with the following forced-choice statement: "I took medications not recommended by my doctor." Respondents with a positive response (always, frequently, or sometimes) were then queried about the following specific behaviors: "How often did you take a folk or home remedy?" "How often did you take over-the-counter or nonprescription drugs?" "How often did you drink alcohol (wine, beer, or liquor)?" "How often did you take a prescription drug obtained at an earlier time?" "How often did you take medications prescribed for someone else?" "How often did you take a combination of prescription and nonprescription medications?"

—Applied heat: "How often did you apply heat?"

When the behavioral data were examined for violation of the assumptions of the planned statistical tests, it was found that the expected frequency in more than 20 percent of the contingency table cells in analyses involving the pain rating variable was less than five. Consequently, the response categories of always, frequently, and sometimes were collapsed into a single category.

Socioeconomic Status and Health Care Variables

—Ability to pay an unexpected $500 medical bill. The ordinal response choices were: able to pay comfortably, able to pay but with difficulty, not able to pay the bill.

—Ability to pay an unexpected $500 dental bill. The ordinal response choices were: able to pay comfortably, able to pay but with difficulty, not able to pay the bill.

—Present financial status. The ordinal response choices were: can't make ends meet, I 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.

—Approach to medical care. The ordinal response choices were: I never go to a medical doctor, I go to a medical doctor only when I have a problem, I go to a medical doctor occasionally, whether or not I have a problem, I go to a medical doctor regularly.

—Approach to dental care. The ordinal response choices were: I never go to a dentist, I go to a dentist only when I have a problem, I go to a dentist occasionally, whether or not I have a problem, I go to a dentist regularly.

Data Analysis. Differences in oral health are known to be associated with socioeconomic status (15-18) and approach to health care (4). Consequently, we examined race differences in behavioral impact that emerged from bivariate analyses using a multivariate approach to determine whether race or race by sex differences persisted after accounting for SES and approach to health care.

Using a series of logistic regression models, sociodemographic status, health care variables, and pain intensity (proxy for disease severity) were entered to adjust for group differences. The groups at least risk for behavioral impact in bivariate comparisons were coded as zero and used as reference categories.

Results

Demographic Data. This sample of 1,634 respondents consisted of 572 males (34.4%) and 1,062 females (65.6%), with a mean age of 73.0 (SD=6.1) and an age range of 65–100 years. The breakdown by race was 915 (55.9%) whites and 719 (44.1%) blacks, with 53 percent living in urban areas and 47 percent living in rural settings. Sixty-six percent of the white respondents and 73 percent of the black respondents reported their annual income as below $20,000. This difference was not significant at $P<.05$.

Multiple Orofacial Pain Symptoms. There was no difference in the number of orofacial pain symptoms reported by black or white respondents. However, sex differences were found among both black [chi-square (2)=6.70, $P<.05$] and white [chi-square (2)=10.45, $P<.01$] respondents, suggesting that females were more likely to report multiple symptoms.

TABLE 1
Pain Characteristics for Jaw Joint Pain

Jaw Joint Pain	Males	Females	Totals for Race
Prevalence			
Black	4.1%	10.6%	8.6%
White	5.0%	8.1%	6.9%
Totals across sex	4.7%	9.3%	
Pain rating			
Black	5.5	4.9	5.2
White	3.9	5.1	4.5
Totals across sex	4.7	5.0	
Duration			
Black			
<1 year	11.1%	41.2%	
1–5 years	44.4%	29.4%	
>5 years	44.4%	29.4%	
White			
<1 year	12.5%	40.9%	
1–5 years	31.3%	27.3%	
>5 years	56.3%	31.8%	
Months in the past 12			
Black	6.8	5.4	6.2
White	7.5	5.1	5.3
Totals across sex	7.2	5.3	
Continuous symptoms			
Black	33.3%	11.3%	14.5%
White	18.8%	25.0%	23.3%
Totals across sex	24.0%	17.5%	
Reduced activity			
Black	66.7%	28.3%	33.9%
White	29.4%	34.1%	32.8%
Totals across sex	42.3%	30.9%	
Took some action			
Black	79.8%	85.0%	82.3%
White	64.7%	68.2%	67.2%
Totals across sex	70.2%	76.3%	

Jaw Joint Pain. Sixty-two (8.6%) of the black respondents and 63 (6.9%) of the white respondents reported jaw joint pain in the past 12 months (Table 1). No overall race difference was found in the 12-month prevalence of jaw joint pain. However, black females (10.6%) were more likely to report jaw joint pain than black males [4.1%, chi-square (1)=8.36, $P<.01$, risk ratio (RR)=2.39] or white males [5.0%, chi-square (1)=8.22, $P<.01$, RR=2.12]. Statistical trends for symptom continuity were found with black females (33.3%) reporting jaw joint pain as continuous, compared to white females [18.8%, chi-square (1)=3.11, $P=.06$, RR=2.21] and black males [11.3%, chi-square (1)=3.60, $P=.06$, RR=2.95]. No differences were found for pain ratings, duration, or months in the past 12 with pain.

Regarding behavioral impacts of pain, significant sex by race effects were found with more black males (66.7%) reporting a reduction in activity as the result of jaw joint pain compared to black females [28.3%, chi-square (1)=6.92, $P<.01$, RR=2.4], white males [29.4%, chi-square (1)=5.87, $P<.05$, RR=2.3], and white females [34.1%, chi-square (1)=3.88, $P<.05$, RR=2.0]. Significant race differences

TABLE 2
Pain Characteristics for Face Pain

Face Pain	Males	Females	Totals for Race
Prevalence			
Black	5.4%	6.0%	5.8%
White	4.4%	9.8%	7.8%
Totals across sex	4.8%	8.0%	
Pain rating			
Black	5.0	5.0	5.0
White	5.2	4.9	5.0
Totals across sex	5.1	5.0	
Duration			
Black			
<1 year	25.0%	14.3%	
1–5 years	16.7%	32.1%	
>5 years	58.3%	53.6%	
White			
<1 year	40.0%	25.9%	
1–5 years	20.0%	27.8%	
>5 years	40.0%	46.3%	
Months in the past 12			
Black	6.0	5.1	5.5
White	4.7	4.7	4.7
Totals across sex	5.1	5.0	
Continuous symptoms			
Black	16.7%	10.0%	11.9%
White	26.7%	12.7%	15.7%
Totals across sex	29.6%	11.8%	
Reduced activity			
Black	41.7%	46.7%	45.2%
White	20.0%	48.2%	42.3%
Totals across sex	22.2%	47.7%	
Took some action			
Black	66.7%	70.0%	69.0%
White	60.0%	76.8%	73.2%
Totals across sex	63.0%	74.4%	

were also found for taking some action in the past 12 months [chi-square (1)=3.89, $P<.05$, RR=1.2], with 82.3 percent of black respondents reporting taking some action, compared to 67.2 percent of the white respondents.

Face Pain. Forty-two (5.8%) of the black respondents and 71 (7.8%) of the white respondents reported face pain in the past 12 months (Table 2). White females (9.8%) were more likely to report face pain compared with white males [4.4%, chi-square (1)=8.57, $P<.01$, RR=2.2], black males [5.4%, chi-square (1)=3.89, $P<.05$, RR=1.8], or white females [6.0%, chi-square (1)=5.15, $P<.05$, RR=1.6]. No differences were found for any of the symptom characteristics or behavioral impacts of pain.

Oral Sores. Forty (6.9%) of the black respondents and 63 (5.6%) of the white respondents reported painful oral sores in the past 12 months (Table 3). Of the pain characteristics, sex differences were found in duration within black respondents [chi-square (2)=6.17, $P<.05$], with black males experiencing oral sores for a longer duration than black females. No differences were found for pain ratings, pain continuity, or months in the past 12 months with pain. No differences were found for either of the behavioral impacts of pain.

Burning Mouth. Thirteen (1.6%) of the black respondents and 15 (1.8%) of the white respondents reported burning mouth in the past 12 months. No race difference was found in the 12-month prevalence of burning mouth. Statistical tests were not performed on the pain characteristics or behavioral variables because of the small sample size. However, descriptive statistics are reported in Table 4.

Toothache Pain. Forty-nine (9.8%) of the black respondents and 61 (11.4%) of the white respondents reported toothache pain in the past 12 months (Table 5). No overall race difference was found in the 12-month prevalence of toothache pain. There was a significant race by sex interaction [F (1, 97)=6.99, $P<.01$] for months with toothache pain. Post hoc tests indicated that black males reported the highest mean number of months with toothache pain (6.0), compared to black females (2.7) and white males (2.4). Race differences were found for reduction in activity [chi-square (1)=4.11, $P<.05$, RR=1.8], with 39.6 percent of blacks taking some action compared with 21.7 percent of white respondents. Race differences were also found for taking some action in the past 12 months [chi-square (1)=4.64, $P<.05$, RR=1.8], with 27.0 percent of the black respondents reporting taking any action compared to 14.7 percent of white respondents.

Self-care Behaviors. The percentage of participants who responded positively to each of the self-care questions is presented in Table 6. Differences were found in taking medication not recommended by a doctor across race for toothache pain (blacks=35%, whites=17; chi-square (1)=4.70, $P<.05$, RR=2.1), and across sex for face pain (females=57%, males=33%; chi-square (1)=3.91, $P<.05$, RR=1.7). Differences were not observed for the targeted self-medication behaviors, with the exception of using alcohol. Male respondents were significantly more likely to self-treat with alcohol than females for jaw joint pain [33% vs 7%, chi-square (1)=6.61, $P<.01$, RR=5.1], face pain [54% vs 11%; chi-square (1)=8.97, $P<.01$, RR=5.0], painful oral sores [44% vs 7%; chi-square (1)=6.98, $P<.01$, RR=6.3], and toothache pain [56% vs 6%; chi-square (1)=8.68, $P<.01$, RR=9.9].

Multivariable Models for Behavioral Impact. For jaw joint pain, black males (odds ratio [OR]=4.19) and white females (OR=2.07) were at increased risk for activity limitation, and blacks (OR=2.01) were more likely to report having taken some action. For

TABLE 3
Pain Characteristics for Painful Oral Sores

Oral Sores	Males	Females	Totals for Race
Prevalence			
Black	3.6%	6.4%	5.6%
White	5.9%	7.9%	6.9%
Totals across sex	5.0%	7.0%	
Pain rating			
Black	5.5	4.4	5.0
White	3.6	4.2	3.9
Totals across sex	5.5	4.3	
Duration			
Black			
<1 year	0.0%	41.4%	
1–5 years	37.5%	34.5%	
>5 years	62.5%	24.1%	
White			
<1 year	15.0%	40.0%	
1–5 years	25.0%	17.5%	
>5 years	60.0%	42.5%	
Months in the past 12			
Black	7.2	4.5	5.8
White	5.4	4.0	4.7
Totals across sex	6.3	4.3	
Continuous symptoms			
Black	0.0%	19.4%	15.8%
White	5.3%	18.6%	14.3%
Totals across sex	3.8%	18.9%	
Reduced activity			
Black	25.0%	19.4%	20.5%
White	30.0%	23.3%	25.4%
Totals across sex	28.6%	21.6%	
Took some action			
Black	62.5%	62.5%	62.5%
White	40.0%	51.2%	47.6%
Totals across sex	46.4%	56.0%	

toothache pain, blacks were at increased risk for activity limitation (OR=1.84) and reporting some action (OR=2.57).

Discussion

This study was the first to examine racial differences in the prevalence, persistence, severity, and behavioral impact of orofacial pain in older adults. We did not find racial differences for 12-month prevalence for any painful oral symptom, or in the total number of symptoms. However, when race was stratified by sex, interesting effects were found for jaw joint pain, with black females reporting higher prevalence compared to black males, white females, or white males, and with white females more likely to suffer from face pain than the other three race and sex groups. We did not find white respondents to be at increased risk for painful oral sores, whereas the NHIS data suggest that whites are twice as likely as blacks to experience this symptom (7). It is possible that race differences in painful oral sores occur in younger adults, but not among adults over 65 years of age.

Differences in Pain Characteristics. Our finding of no race differences on ratings of pain is in contrast to several other studies that suggested blacks suffer from higher levels of pain from various painful conditions, such as arthritis (19), myofascial pain (20), migraine (21), postoperative pain (22), AIDS (23), and chronic noncancer pain (24). Differences were found on several temporal variables associated with pain. Black males reported longer duration of painful oral sores than black females, and were more than twice as likely to have experienced this symptom for five years or longer. It is interesting to note that none of the black males described pain from oral sores as continuous. Black males also reported experiencing toothache pain more months in the past 12 than black females or white males. One possible explanation is that black males might be less likely to actively seek care for toothache pain, an oral condition usually considered to be an acute pain condition.

Differences in Behavioral Pain Impact. The most reliable findings were that blacks reported greater behavioral impact as defined by pain having reduced their daily activities or motivating them to take some action in response to pain. These relationships persist after controlling for socioeconomic status, approach to health care, and pain intensity in multivariable models. Why blacks would report greater reduction in physical functioning given similar ratings of pain at its worst is unknown. However, this finding is consistent with Lipton and Marbach (9), who found ethnic differences across measures of interference with daily functioning attributed to pain.

Self-care Behaviors. This study suggests that self-care for the control of orofacial pain is common among older adults. The most frequently used self-treatment was over-the-counter medications (89% to 72%), followed by folk remedies (66% to 55%). The percentage of respondents using over-the-counter medications is similar to those reported by Stoller, Forester, and Portugal (25) for headache (76%) and muscle/joint pain (49%). We also found that older blacks adults were more likely to self-medicate for toothache pain than were whites. Although no other studies have tested for race differences in self-medication for toothache pain in community-based studies, self-care has been shown to be a substitute for dental care (26).

Self-medication with Alcohol. The use of alcohol to self-medicate orofacial pain ranged from 12 percent to 25 percent, depending on the painful symptom. Arcury, Bernard, Jordan, and Cook (12) also reported that this behavior was common among adults suffering from arthritis pain. These

TABLE 4
Pain Characteristics for Burning Mouth

Burning Mouth	Black	White	Totals for Race
Prevalence			
Male	3.2%	1.5%	2.1%
Female	1.2%	1.6%	1.5%
Totals across race	1.8%	1.6%	
Pain rating			
Male	4.7	5.8	5.2
Female	5.8	6.1	6.0
Totals across race	5.2	5.9	
Duration			
Male			
<1 year	83.3%	0.0%	
1–5 years	16.7%	60.0%	
>5 years	0.0%	40.0%	
Female			
<1 year	40.0%	40.0%	
1–5 years	20.0%	20.0%	
>5 years	40.0%	40.0%	
Months in the past 12			
Male	1.8	10.4	6.1
Female	4.5	6.7	5.6
Totals across sex	3.2	8.6	
Continuous symptoms			
Male	14.3%	0.0%	8.3%
Female	20.0%	50.0%	40.0%
Totals across race	16.7%	33.3%	
Reduced activity			
Male	57.1%	40.0%	50.0%
Female	80.0%	30.0%	46.7%
Totals across race	66.7%	33.3%	
Took some action			
Male	57.1%	20.0%	41.7%
Female	83.3%	80.0%	81.3%
Totals across race	69.2%	60.0%	

findings are particularly relevant for older adults who have a decreased tolerance for alcohol and may be at increased risk for drug–alcohol interactions (27). Our findings suggest that self-medication with alcohol was more common among males, both black and white, in comparison with females. Population-bases studies have suggested that older males are at higher risk for drinking alcohol than older females, but no differences are typically found between whites and blacks (28,29). One study reported that white females consumed more alcohol than black females (30).

Burning Mouth. Burning mouth is a syndrome that is estimated to occur in less than 1 percent of the US adult population (5). It is thought to occur mostly in women (31), with no association with age (32). Unfortunately, little is known about race differences in burning mouth in older adults. Older black males were twice as likely to report the symptom of burning mouth than were the other three race and sex subgroups. The small sample precluded our testing for statistical significance.

Oral disease may account for some of these racial differences in orofacial pain, because several epidemiologic studies have indicated that blacks suffer from poorer oral health than whites (33-35). However, sociocultural factors also influence an individual's response to orofacial pain (i.e., disability, pain and pain coping, psychological adjustment and dysfunction, quality of life). For example, racial differences in the use of certain pain coping strategies have been reported (36). Bates, Edwards, and Anderson (37) found that the level of cultural affiliation was a unique predictor of pain. They speculated that the meaning of the pain experience was affected by cultural differences in attitudes, beliefs, and psychological states associated with different racial groups. This is particularly relevant to our findings, because behavioral impact is a function of the person, their environment, and premorbid activities.

Limitations. Several methodological issues should be considered when interpreting these results. Although identifying respondents by telephone has the potential to introduce bias into the sample, recent estimates indicate that 95 percent of US households have at least one telephone access line (38) and that households that include elders are even more likely to contain a telephone (39).

The data analyzed are retrospective self-report, thus any relationship with future health behavior is conjectured. Because we view these data analyses as descriptive in nature, we have not taken a more conservative approach to the control of type I error, but have maintained an alpha level of 0.05 across all analyses. In addition, the limited number of older adults experiencing symptoms limited the power of statistical tests. However, the consistency of several of the findings across pain symptoms suggests the stability of the results.

No clinical examinations were performed and prevalence is based on self-report and subject to an individual's interpretation. Consequently, there was no control for the severity of pathology across respondents. However, Dworkin et al. (40) have suggested that the psychosocial manifestations of oral disease (i.e., behavioral impacts) do not always have identifiable biomedical components. Consequently, the progression to the behavioral and social aspects of health is not always a progression from identifiable biologic signs (41).

Conclusions

Although pain prevalence is an important public health variable, this study suggests that other pain-related variables, such as persistence, severity, and behavioral impact are useful

when describing disparities associated with orofacial pain. We did not find racial differences for 12-month prevalence for any of the orofacial pain symptoms. The most reliable findings were that blacks reported greater behavioral impact, as defined by pain having reduced their daily activities or motivating them to take some action in response to pain. We also found that older adults frequently engage in self-care for the control of orofacial pain, and that older blacks are more likely to self-medicate for toothache pain than whites.

TABLE 5
Pain Characteristics for Toothache Pain

Toothache	Males	Females	Totals for Race
Prevalence			
Black	11.3%	9.2%	9.8%
White	14.7%	9.7%	11.4%
Totals across sex	13.2%	9.4%	
Pain rating			
Black	6.0	5.3	5.5
White	4.3	4.9	4.7
Totals across sex	5.0	5.1	
Duration			
Black			
<1 year	80.0%	71.0%	
1–5 years	6.7%	25.8%	
>5 years	13.3%	3.2%	
White			
<1 year	88.9%	73.5%	
1–5 years	3.7%	17.6%	
>5 years	7.4%	8.8%	
Months in the past 12			
Black	6.0	2.7	3.6
White	2.4	3.8	3.2
Totals across sex	3.4	3.3	
Reduced activity			
Black	40.0%	39.4%	39.6%
White	15.4%	26.5%	21.7%
Totals across sex	24.4%	32.8%	
Took some action			
Black	29.4%	22.9%	27.0%
White	21.9%	11.3%	14.7%
Totals across sex	25.9%	17.3%	

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TABLE 6
Frequency of Older Adults Who Responded Positively to Specific Self-care Behaviors

Behaviors	Jaw Joint (%)	Face Pain (%)	Oral Sores (%)	Burning Mouth (%)	Toothache (%)
Took medications not prescribed by doctor	34	37	37	26	25
Folk remedy*	55	66	55	61	59
Used over-the-counter medications*	76	85	71	61	89
Drank alcohol	13	24	16	14	22
Obtained at an earlier time*	46	56	32	43	33
Prescribed for someone else*	14	10	18	14	15
Combined OTC and prescription meds	50	52	42	47	33
Applied heat	27	40	19	26	15

*Asked of those who endorsed taking medication not prescribed by a doctor.

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ERRATUM

Figure 1 (below) was inadvertently left off of page 97 in: Borrell LN, Burt BA, Gillespie BW, Lynch J, Neighbors H. Periodontitis in the United States: beyond black and white. J Public Health Dent 2002;62(2):92-101. We apologize for any inconvenience this may have caused.

FIGURE 1
Race and Periodontitis in the US Population: 15-year Trends