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A Qualitative Study of Barriers to Dental Care Among Older Minority Adults Residing in Lower Income Communities

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A Qualitative Study of Barriers to Dental Care Among Older Minority Adults Residing in Lower Income Communities

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ABSTRACT

The purpose of this study was to explore factors that presented barriers to the use of dental care among low-income minority older adults. Participants were recruited from low-income senior housing in Hartford, CT. In-depth semi-structured interviews were conducted to obtain data on demographics, oral health status, oral health knowledge and factors that affected use of dental care including finances, perceived oral symptoms, cultural factors, and beliefs about dental care. Interviews were conducted with 17 participants. The major perceived barriers were ability to pay for care, transportation and fear/mistrust of the dentist. Participants may have had poor oral health as they associated seeking care with having pain or other symptoms. The main concerns of the participants were losing remaining teeth, appearance, ability to eat, and obtaining dental insurance. Participants recommended better access to dental care through on-site dental care and more convenient transportation to dental facilities. Participants seemed to have low literacy levels, which could have affected their understanding about maintaining their oral health. Community dwelling older adults experienced barriers similar to other low-income adults. However, older adults reported other barriers specific to their age group including physical disabilities, complex medical conditions and difficulty benefiting from information about their oral health. Participants would like to have dental care provided on-site in the housing complexes. Improving communication between dentists and their older patients would help reduce fear and mistrust. Other health care providers could help educate older

patients about oral health, conduct simple oral health screenings and refer for acute and/or comprehensive care.

BACKGROUND AND REVIEW

The United States population is aging as a result of people living longer and lower fertility rates. The aging population presents a challenge to the dental profession as older adults are more likely to have multiple chronic medical conditions requiring more complex treatment and dental management plans. While good oral health is essential to the general health and well-being of all adults, relatively few studies have investigated factors that influence use of dental care among older adults, particularly among those who are low income and ethnic minorities. Several studies have shown that many older adults have limited access to dental care because of financial barriers, perceptions about need, having a regular source of care, transportation or other special needs (1,2). The purpose of this study is conduct formative qualitative research to investigate the barriers to dental care among older low-income minority adults living in the community.

Magnitude of the Problem – Changing Demographics

Statistics: The United States population has gradually grown older over the past 60 years. In 1900, only 4% (3.1 million people) of the United States population was aged 65 years or older. Nevertheless, the percentage of older adults (aged 65 years and older) has increased from 8% in 1950 to 12.4% currently (3,4). In 2005, there were about 34,500,000 older adults in the United States - more than a ten-fold increase since the turn of the 20th century (3,5). In 1900, the life expectancy was 46 years whereas in 2010 the average life

expectancy at birth in the United States was 77.7 years (6). There were over 50,000 centenarians in the United States according to the 2000 Census report (6). By the year 2050, about one in five adults will be considered an older adult (4). By 2075, the older adult population is expected to triple to approximately 102,000,000 (7). Those aged 85 years and older are predicted to be the most rapidly growing group in the United States population over the next 100 years (8).

Socioeconomic Status: A disturbing trend is that many older adults have limited resources. One in five older Americans had family incomes that were below 150% of the federal poverty level in 2009 (8) compared to 13% of the population less than 65 years of age (7) in that year. For those living below the poverty level in 2009, the average income was $10,830 for an individual and $14,570 for a family of two (9). An additional 2.1 million (5.4%) of the older adult population were classified as 'near-poor', meaning their income fell between the poverty level and 125% of this level (10).

Race/Ethnicity: In addition to their increasing numbers, older adults are becoming more ethnically diverse. In 2006, African-American, Hispanic, Asian/Pacific Islander or American Indian adults comprised 30% of the older adult population, or 5.3 million. Over the next 50 years, the proportion of non-Hispanic white older adults will decline from 82% to 61% (6). African-American older adults are expected to increase from 8% to 12% and Hispanic older adults from 6% to 18% over the next 50 years (6).

Sex: There is a strong preponderance of women over men in later life. The average life expectancy for a woman in the United States in 2007 was an additional 20 years at age 65 and 17.2 years at age 75 (11). In 2000, there were over 4 million more women aged 64-84 compared to men (6). For those aged 85 and older, women outnumbered men 3 million to 1.2 million (6). At present, among people aged 65 years and older, the number of women for each man is at a ratio of 7:5, for people aged 85 years and older, the ratio of women to men increases to 5:2 (6). In 2009, older women were at greater risk of living in poverty at 10.7% compared to men at 6.6% (10). Older women are at greater risk of living in poverty because they were more likely to have experienced wage discrimination, lower rates of labor market participation and lower rates of employer-sponsored retirement plans.

Importance of Dental Care to Older Adults

Aging and Health: As people get older, general and oral health become more complex. Older adults are faced with challenges often not a problem for younger people such as decreased salivation due to medications for systemic conditions, limitations in self-care, missing teeth, failing restorations and periodontal disease (12). For older adults with cognitive impairment or limited mobility, maintaining oral health is beyond complex. This section presents an overview of the prevalence of oral health problems among older adults. The following section addresses the relationship between oral health and general health.

Oral Health of Older Adults

Dental Caries: Dental caries is the most common chronic health condition among children (13) and continues to affect people throughout their lifetime leading to pain, costly treatment and tooth loss. Figures 1-3 present data from the National Health and Nutrition Examination Survey (NHANES) 1999-2002. Figure 1 presents data on the caries experience among adults with the mean number of decayed, missing and filled teeth (DMFT). Caries experience increases with increasing age and although mean DMFT is similar among racial and ethnic minorities over the age of 60 (Figure 2), Figure 3 shows that Non-Hispanic Blacks and Mexican Americans have more decay compared to Non-Hispanic Whites over age 60. Figure 4 shows that untreated decay affects 18% of those over 65, and is more common among ethnic minorities compared to Whites and among those living in poverty. Prevalence of untreated decay is higher among those over 75 who are Black or Mexican American.

Root caries, that occur as the gums recede, is a particular problem for older adults. Figure 5 illustrates the increasing prevalence of root caries with age, from less than10% among those 20-39 years of age to greater than 30% among those over 60. Figure 6 shows the mean number of root surfaces with caries by age, race/ethnicity and poverty level. Ethnic minorities and those living in poverty are at the greatest risk of root caries.

Periodontal Disease: Figures 7 and 8 present data on two common indicators of periodontal disease - gingival bleeding and loss of attachment. Gingival bleeding increases with age as more than half the population over the

age of 50 in the 1988-94 NHANES study had gingival bleeding; Non-Hispanic whites had lower rates of gingival bleeding than minorities. The same pattern holds for loss of attachment (Figures 9 and 10).

Periodontal disease, which affects the gingiva and teeth, begins at the gingival tissue margins and can be more severe in older adult populations. Age-related changes in the periodontal tissues are of particular concern as they may be influenced by an aging individual's cell biology, which can consequently instigate an exaggerated host inflammatory/immune response. Older adults demonstrate reduced protein production by gingival fibroblasts, including the vital structural protein collagen, when compared to younger adults, and a change in keratinocyte behavior, which causes reduced cell division and interleukin-1β production (12). Certain pathogenic bacterial flora and cigarette smoking are key risk factors for the incidence and prevalence of periodontal disease in older adults as they continue to experience changes in the immune response (6).

Edentulism: The rate of edentulism in the United States is relatively low at 9.6% of adults over the age of 20. However, as shown in Figure 11, the rate increases with age and reaches approximately 36% among those over the age of 70. Figure 12 presents data on rates of edentulism for ethnic minorities and a pattern somewhat different from the other dental indicators emerges. Mexican-Americans have the lowest rate of edentulism but as with other indicators, Non-Hispanic Blacks have the highest edentulism rates.

Oral and Pharyngeal Cancer: Although a relatively rare cancer, oral cancer among older adults is a major concern as risk increases with increasing

age. Ninety-five percent of all cases of oral and pharyngeal cancer occur in adults over 40 years of age; the average age of diagnosis is 60-65 years of age (14). Figures 13 and 14 present data on the incidence of oral cancer among Black and White men and women in 2004 as well as 5-year survival rates. Of significance is the marked increased risk of oral cancer among men, particularly among Black men, with an incidence of 61 per 100,000 in 2004. Survival rates for oral cancer have not changed much since the 1970s. In particular, Black men have relatively low survival rates. In 2004, only 35% of Black men survived five years.

Self-reported Health Status: Much emphasis has been placed on patient-reported outcomes. One such measure is self-reported health. The NHANES 1988-94 study shows that positive self-reported health status declines with age (Figure 15), with only about 22% of those over the age of 60 reporting excellent or very good oral health. Figure 16 shows, again, that ethnic minorities have the poorest perceptions of their oral health with only 7% of Non-Hispanic Blacks and Mexican Americans reporting their oral health as excellent or good.

A recent review of Oral Health-Related Quality of Life (OHRQoL) among older adults indicates that oral health problems significantly affect functioning and psychosocial well-being of older adults generally (15). Furthermore, disparities in OHRQoL parallel those observed among ethnic and racial minorities and low income populations in other areas of oral and general health. Studies show that oral health problems have a greater effect on quality of life among older African Americans compared to Whites in every dimension, but particularly in

psychological discomfort, pain and functional limitations associated with oral health problems including tooth loss, pain, dry mouth condition and other problems (16-18).

Makhija and colleagues (2006) assessed OHRQoL among both dentate and edentulous adults ages 65 years and older participating in the University of Alabama longitudinal Study on Aging (16). They found that African-Americans were more likely to report decrements in quality of life and were more dissatisfied with their teeth and mouths. Among dentate participants, low income and less education also were associated with poorer OHRQoL. Among the edentulous, African Americans were more likely to report problems eating and speaking. The only other variable related to poor OHRQoL among the edentulous was education; those with less education reported poorer oral health. This study demonstrates the importance of considering dentate status among older adults when assessing OHRQoL

Systemic Diseases and Oral Health

Certain medical conditions, like diabetes and cardiovascular disease are highly prevalent within the US along with pharmacologic effects of oral medications. Oral health problems, such as periodontal disease and dental caries influence or exacerbate these conditions. The following sections discuss the associations of oral health with selected systemic conditions.

Atherosclerotic Vascular Diseases

Cardiovascular Disease: A systematic review in 2003 by Scannapieco et al (24) reported that coronary artery and cerebrovascular disease were moderately associated with periodontal disease. Periodontal disease was an independent risk factor for heart attack and stroke. Oral bacteria can affect the heart when they enter the blood stream, attaching to fatty plaques in the coronary arteries (heart blood vessels), contributing to clot formation. The inflammation caused by periodontal disease increases plaque build-up, which may contribute to occlusion of the arteries. Periodontal disease can also exacerbate existing heart conditions (20). In 1999, the NHANES III conducted a study on individuals over age 40 with periodontal disease status and association with heart attacks (21). After adjusting for established cardiovascular risk factors and socio-demographic variables, they concluded that the odds of heart attack were 3.8 times higher in subjects with >67% of periodontal sites with attachment loss compared to those with no attachment loss (21). Another significant study in 2005 by Bretz et al., examined the extent of deep pockets ($\geq$6mm) and its association with the presence of periodontal pathogens and levels of plasma inflammatory mediators in 1,131 subjects with a mean age of 73 years (22). They concluded that plasma levels of inflammatory cytokines such as IL-6 and TNF-α were significantly higher in participants with more extensive periodontal disease (having deep pockets at $\geq$ 10% of their sites) and significantly higher C-reactive protein (CRP) plasma levels (22).

Cognitive Impairment: Cognitive disorders become more prevalent with age, are medically refractory, reduce life expectancy, and significantly impact

effective health interventions in the elderly (6). Alzheimer's disease along with other cognitive impairments and dementia will become more prevalent as the population ages in the coming years. Dementia is the most common cognitive disorder and it gives rise to social and occupational dysfunction. Dementia is a progressive neurologic disorder and is the fifth leading cause of death in the United States (6). Its characteristics include loss of cognitive abilities that impede the performance of normal daily activities, with memory loss being the most prevalent sign (6). The first feature of Alzheimer's disease is memory loss as well as gradual deterioration in personality and intellectual ability. Anxiety, problems with sleeping, depression and an aggressive or even an apathetic behavior are often present (6). In 1987, Somerman reported that patients diagnosed with Alzheimer's disease would eventually experience impaired ability to learn, abstract reasoning, judgment and language skills (23). As a result, patients lose the ability to care for themselves and eventually lose motor function with accompanying weakness and wasting from lack of food (23). Death as reported in 2006 by Friedlander et al., usually results from fatal pneumonia, via aspiration of food and oral microorganisms, facilitated by a developing salivary hypofunction and difficulty swallowing (24).

Those with dementia lose the ability to care for their teeth and caregivers often neglect oral hygiene. Inability to tolerate dental treatment also is characteristic of those with dementia. Thus, those with cognitive impairments generally have very poor oral health status. Older adults with cognitive impairment and other medically compromised conditions require being admitted to long-term care

facilities. However, admittance to long-term care (LTC) facilities creates a significant barrier to receipt of dental care. While federal law requires LTC facilities that receive Medicare or Medicaid funding to provide access to dental care, only 80 percent of facilities report doing so (25). Even when dental care is available, evidence indicates that many residents do not regularly receive dental care and many oral health problems go undetected (10). For example, according to a 1999 survey, only 13 percent of nursing home residents over age 65 received dental services in the billing year of their discharge (25). Multiple factors contribute to low access to oral health services for older adults. LTC facilities may underestimate the importance of oral health. For example, in a survey of Ohio nursing home executives, 49 percent rated their residents' oral health as fair or poor but 64 percent were still satisfied with the oral health care provided at their facilities (26). In addition, LTC facilities have difficulty finding dentists to care for their patients. One study showed that the perceived willingness of dentists to treat LTC residents either in the facility or in private offices was the greatest barrier to providing dental care in Michigan alternative LTC facilities (25). In the absence of dentists, nursing home staff must identify residents' oral health needs, but nurses and nursing assistants are not adequately trained to identify many oral health issues (25).

Diabetes: The relationship between diabetes and periodontal disease is bi-directional: diabetes is a risk factor for periodontitis and periodontitis is a possible severity factor for diabetes (6). Periodontal disease is a serious complication of diabetics as it is associated with poor glycemic control. Glycemic

control is obtained by measuring Hemoglobin A1c (HbA1c) levels. The American Geriatrics Society recommends older adults maintain an HbA1c at 7% or lower. Taylor et al. reported that among diabetics with good to moderate glycemic control, patients with severe periodontal disease at baseline were six times more likely to have poor glycemic control at follow-up than those with a better periodontal status (27). Additionally, in a recent longitudinal study by Shulitis et al., in 2007, periodontitis was found to be a significant predictor of the development of overt neuropathy and end-stage renal disease in individuals with type II diabetes (28). At the same time, Janket, et al., coordinated a meta-analysis of intervention studies assessing whether non-surgical periodontal treatment improved glycemic control in diabetic patients. Ten intervention studies with a total of 456 patients were included in the analysis, which suggested a decrease in HbA1c levels resulted from periodontal therapy, with an overall weighted average decrease of 0.38% (29). However, when restricted to type 2 diabetes, the HbA1c levels decreased 0.66% and 0.71% when adjunctive antibiotics were used (29).

Pharmacologic Effects of Oral Medications (Xerostomia): As age increases, salivary gland function remains normal, however there is a reduction in acinar cells in the major salivary glands (the parotid, submandibular and sublingual). Saliva function is imperative for healthy oral mucosa, teeth, normal periodontium, and preparation for deglutition and taste facilitation (6). Saliva has a major influence on general health and well-being (6). Xerostomia or dry mouth is highly prevalent among older adults affecting roughly 30% of those over the

age of 65. Most studies indicate that dry mouth is not necessarily due to aging but is related to medications or symptoms of chronic health problems (14). Table 1 lists the common medications known to be associated with dry mouth. The common classes of drugs associated with high risk of dry mouth in older adults are: analgesics, NSAIDs, narcotic analgesics, muscle relaxants and antispasmodics, benzodiazepines (long and short-acting), and anticholinergics/antihistamines (6).

Xerostomia increases the incidence of periodontal disease and caries in the older adult population (6) and can also affect the use of dentures via irritation and denture-related sores (6). Older adults who present with a chief complain of dry mouth may be experiencing difficulties and alterations in taste, swallowing, and speaking. Older adult patients may also complain of pain, with observable soft tissue lesions and burning mouth (6). Dryness of the oral cavity can cause irritation of the cheek and lateral tongue surfaces via rubbing against the dentition during everyday oral movements related to eating, speaking, and swallowing (6). Lesions in these areas can develop from xerostomia and appear as distinctive, well-delineated, benign ulcers with a beige, white and/or red surface and are intensely painful (6). Candidiasis can also manifest as sequelae to xerostomia.

Alzheimer's disease and Sjögren's syndrome are medical conditions associated with salivary gland dysfunction. Radiation therapy for head and neck cancer also is a major risk factor for destruction of the salivary glands and subsequent xerostomia (6).

Factors That Affect Access to Dental Care

Older Adult Utilization of Dental Services: Dental health care professionals can provide preventive services and early diagnosis and treatment of caries, periodontal disease and oral cancer if older adults have regular dental visits. The U.S. Public Health Service states that all adults should have annual oral examinations (10). The American Cancer Society recommends annual oral examinations for all adults at least 40 years of age, and the U.S. Preventative Services Task Force recommends regular dental visits for all adults aged 65 and older (10). However, older adults do not utilize dental services on a regular basis. "According to the National health Interview Survey (NHIS) from 1957-58, only 16.2% of older adults aged 65 years and older reported a dental visit in the previous year" (10). This percentage continued to increase over time as 25.8% reported a visit in 1970, 34.6% in 1981, 47.2% in 1991 and 54% in 2002 (10). However, these percentages do not report whether or not visits were routine or emergency dental visits as older adult utilization rates, especially for minorities, are low especially if they are edentulous.

The Institute of Medicine recently published a report on improving access to oral health care for vulnerable and underserved populations (30). One section addresses utilization of dental services among older adults and states that use of dental services is low among older adults even though they are at greater risk of oral health problems because of functional limitations, more chronic health conditions and higher use of medications.

Figure 17 presents data on having a dental visit in the past year among those over 65 from 1997-2009 by race/ethnicity. It appears that African Americans and Hispanics have much lower use of dental services. Several factors may contribute to this health disparity. Low income older adults are less likely to have dental insurance coverage or report a dental visit than dentate, wealthier younger adults (31). African Americans, poorer individuals and those living in a rural area hold more negative attitudes toward oral health and are less likely to regularly utilize dental services (32).

The perception of not needing dental treatment may be the reason many older adults utilize dental services irregularly or not at all (32). According to Abrams et al., 39% of adults aged 55 years and younger stated that cost and fear were the reasons for irregular dental utilization, while “no need” was reported by 90% of older adults (32). The desire to have an attractive appearance and self-concept are factors that can play a critical role in the willingness of older adults to seek dental care (32). The perception of importance of oral health and the value of dental care are significantly associated with utilization as well as educational status, income and being dentate (36). Older adults who place importance and value in oral health and perceived it as a need were more likely to seek dental care services on a regular basis (32).

Cultural Beliefs and Knowledge: A limited number of studies suggest that the most critical of these barriers may be knowledge and attitudes pertaining to the need for oral care, especially in the absence of pain (7). Many older adults grew up at a time when dental services were considered luxuries and dentures

as a part of the normal aging process (33). A significant proportion of the individuals over the age of 65 do not view oral health care as an important part of their overall health and well-being (10). Health beliefs, cultural practices, language barriers, social networks and contacts, and availability of care in older adult communities are also key reasons older adults lack dental care (34). The 2001 Behavioral Risk Factor Surveillance Survey found that “no reason or no teeth” to be the most common reason cited for not visiting the dentist among those over 65 (70%).

Economic Barriers: Disparities in oral health status, treatment access and quality of life of the older adults in low socioeconomic environments are significant. Retirement has had a significant impact on the older adults receiving dental care. After retirement, older adults lose employer-sponsored dental insurance plans. Older adults who have dental insurance are more likely to have a dental visit yet less than 25% of older adults have private dental insurance leading to out-of-pocket dental expenses (7). Most adults over 65 years of age have medical insurance coverage though Medicare, but Medicare does not cover routine dental care. Federal guidelines require Medicaid to include coverage for dental care for children, but only a few states include comprehensive care under Medicaid for low income adults.

Income among older adults is the lowest in any age group. In 2003, the average household income for older adults was $20,000 below the overall median household income in the U.S. (15). Figure 18 shows that living in poverty for those over the age of 65 have a significant impact on having a dental visit.

Those living in poverty are the least likely to have a dental visit in the past year. In 2009, only 38% of those below the Federal poverty level had a dental visit while twice the number of those with greater than or equal to an income at 400% of the poverty level had a dental visit.

Studies that discuss barriers to access to dental care within the low-income minority older adult community are lacking. In an attempt to address this problem, a cross-sectional, qualitative study, utilizing in-depth interviews will be completed with older adults with the aim of generating hypotheses. This study investigated the following questions: 1) What are the barriers to access to dental care that can be reduced to improve the oral health of older adults; 2) What are the perceptions, attitudes and beliefs of older adults of low socioeconomic status about access to dental care; 3) What are the opinions of older adults pertaining to how the fields of dentistry and public health can effectively contribute to decreasing barriers to access to dental care?

Aims and Objectives

Most studies and data from the NHANES series demonstrate that older adults have poor oral health status and do not seek dental care. Low income and ethnic minority adults are at even greater risk of having untreated dental caries, gingival bleeding, edentulism and oral cancer. Increasing access to dental care among vulnerable older adults would help improve their oral health status. While studies have identified barriers to dental care among adults generally, including financial barriers, perceived need, knowledge and cultural norms, few studies have included community dwelling, low income minority adults – those with the poorest health status and lowest rates of dental care utilization.

The aims and objectives of this study are to explore factors that motivate and/or discourage use of dental care among low income older adults who are ethnic minorities and to find solutions to reduce or eliminate barriers to improve their oral health.

Methods and Materials

Study Design: This is a qualitative study based on a grounded theory approach developed by Glaser and Strauss (35). This methodology relies on developing theory from investigation rather than conducting a study based on previous assumptions. This type of design is recommended when relatively little is known about a topic and when a more in-depth understanding of behavior is desired. In-depth semi-structured interviews were used to collect data on barriers and facilitators of dental care. An interview guide, described below (shown in the Appendix) was created to assure that participants were asked the same questions and that all relevant areas were covered consistently. A structured questionnaire also was administered to obtain data on the characteristics of the participants.

Sample Size: For qualitative studies, sample size is determined by when the process comes to saturation or when no new themes or ideas are emerging. Usually this occurs with 10 or 15 interviews. The target sample size was 20. If saturation did not occur, additional interviews would be conducted. If saturation occurred early, fewer interviews would be conducted.

Participants: Participants were recruited from three low income housing locations in Hartford, Connecticut. Participants were offered $15 as an incentive. To be included in this study, participants were required to meet the following inclusion criteria: 1) at least 65 years of age; 2) residents of low-income housing; 3) English speaking. Participants were excluded from the study if they had a physical or mental condition that prevented them from attending or participating

in an interview, less than 65 years of age, Non-English speaking. Interviews were conducted at the housing site at a time convenient for the participants.

Data Collection: Notes were taken during the in-depth interviews and later transcribed into an Excel spreadsheet. The interviews were audiotaped, as well, and the recordings were used to supplement notes taken during the interview. The investigator administered the structured questionnaire and responses were recorded on the questionnaire forms. The data from the questionnaires were entered into an Excel spreadsheet

Once entered, the files were reviewed for out of range values and checked against the hard copies for errors. The analytic strategy for the questionnaire data was primarily summarization and description in order to characterize the sample. A content analysis was conducted to identify major themes and the data from the interviews were coded according to these themes.

Questionnaire Variables:

Demographics: age, race, ethnicity, marital status, education, personal income and family/household income, insurance status, employment status, primary language and place of birth.

Family Characteristics: number of people living in the household, responsibility for dependent care

Oral Health: Participants were asked to rate their oral health as excellent, good, fair, or poor; the time since last dental visit, services received and whether they have a regular source of dental care, last time they experienced pain, care received for dental pain.

Dental Knowledge: We used a modification of a culturally sensitive six-item knowledge scale used with a sample of 111 African Americans recruited from senior centers in an inner-city (68).

Coding: Emergent themes were compiled to characterize core issues regarding participant experiences of dental care, beliefs about dental care, barriers and enablers to care, family structure, and potential interventions that would be acceptable to the participants. Illustrative and supportive quotations will be presented for each major theme.

This study was approved by the University of Connecticut Health Center Humans Subjects Committee (IRB #: 12-021-3).

Results

Building Descriptions

Participants were interviewed at one of the following low-income housing complexes, housing over 90% of residents that are at least aged 50: Building A, Building B, and Building C. At Building A, men were 46% of the residential population whereas women were 54%. The composition of residents was African-American/Caribbean (93%), Latino (5%) and Caucasian (2%). At Building B, females made up 85% of the residents whereas only 15% were males; 89% were African-Americans and 11% Latinos. Finally, in Building C 93% were Latino and 7% African-Americans. There were no data available on the ratio of men and women at this complex.

Resident Participation or Refusal

Men and women, aged 65 years and older, were recruited through University of Connecticut Institutional Review Board (IRB) approved flyers and at oral health presentations at the residences. Interested participants contacted the investigator to set up a time to complete an interview. Seventeen participants volunteered and successfully completed the questionnaire and in-depth interview. Two individuals who initially expressed interest in the study later refused participation.

Participant Demographics

Table 2 shows the demographic characteristics of the participants that participated in the study. The age range was 66-86 years. There were 13 women and four men who participated in this study. Of the 17 participants interviewed, three had a high school education and the majority of the participants had an income of less than $1,000 per month. Most were African-Americans (n=13), followed by two West Indies/Caribbean and two Latinos. All participants were recipients of Medicare Benefits whereas eight received Medicaid. Participants with Medicaid benefits also had dental benefits provided by the State of Connecticut. One participant had private dental insurance. All participants except one had a primary care physician and had a medical visit within the past year. Only four participants stated that their primary care physician asked about or checked their teeth and/or gums and two stated their physician referred them to a dentist.

Oral Health Behaviors

Oral health behaviors are reported in Table 3. Self-reported use of professional dental care varied drastically as the time since last dental visit ranged from less than one year to 40 years, although most people had seen the dentist within the past 5 years. Appearance and the ability to chew were the deciding factors affecting how the participants felt about the look of their teeth and/or mouth. The main reason the participants visited the dentist was concerning complete or removable partial dentures, followed by dental cleaning and soft tissue treatment. Seven of the participants had a dentist who they visited regularly. Six of the

participants did not remove their complete dentures before bedtime whereas 11 reported that they soaked their dentures overnight. Nine older adults brushed at least once per day and six cleaned between their teeth.

Perceptions about the Dentist and Staff

Table 4 presents the participants' perceptions of the dentist. Five participants stated that they distrusted their dentist and five were afraid of the dentist. However, the majority reported they were satisfied with the dental staff.

Normal Dental Behavior as Perceived by Older Adults

Dental norms of the older adults in this study are presented in Table 5. The majority agreed that they should receive regular dental treatment but five of the participants only sought dental care for perceived need or pain. Participants revealed they were taught to seek regular dental care mainly by a teacher or friend followed by a sibling or other relative. Seven of the participants stated they were taught initially as younger children by their mother to care for their teeth followed by someone in their immediate family, other relatives or the school they attended, whereas one-third of them were never taught to care for their teeth.

Major Themes

After completion of the interviews, major themes were coded as shown in Table 6. The major barriers based on the code counts reported by the older adults in this study were: 1) Lack of dental insurance and Cost of care; 2) Fear/Anxiety

and 3) Transportation. Although the aforementioned barriers were the most frequently reported barriers in this study, medical conditions, lack of interest and lack of education were also important barriers stated by the participants. Table 7 presents specific quotes detailing certain thoughts pertaining to the categorized themes as reported by older adults.

#1: Lack of Dental Insurance and Cost

'You don't really have money to afford to pay a dentist if you don't have some type of good insurance, which makes people reluctant about going because they cannot afford to pay and then they have to use their savings….'

'Money…everyone is concerned that they need new teeth, but insurance doesn't cover it…there should be easier access to get dentures without out of pocket expenses'

The most frequent barrier discussed with older adults in this study was lack of dental insurance and the cost of dental services. Dental care was accessible for those with state dental insurance however many dentists did not accept their insurance. Out-of-pocket expenses were also an important barrier, as patients would have to use money from their savings and/or monthly budget to pay for services. However, those who earned between $1000 and $2000 per month stated they would be able to pay for dental services but would need to be placed on a payment plan. For older adults with no dental insurance, access to dental care was limited although in some instances, a dental clinic was within walking distance.

#2 Fear/Anxiety and Mistrust

'He had a time trying to kill the nerve…I was screaming and it was hurting…it was a bad experience…he could not get me numb.'…'I'm scared of needles'…'I'm scared of the drilling, that noise makes you feel like they trying to take your head off'

Many participants expressed fear, anxiety and mistrust of the dentist. Older adults stated that pain, upkeep of the office, quality of dental work provided by the dentist, and lack of ability to locate a dentist were the main reasons they did not go to the dentist. Pain had a reciprocal effect; it influenced many participants to seek dental care, while others avoided the dentist and anticipated the pain would subside on its own. Instruments used in the dental office also influenced whether or not the participants sought dental care. The sound of the dental handpiece and the sharpness of some of the dental instruments overwhelmingly encouraged anxiety and fear in the participants. Participants said they experienced delivery of inadequate dental work, non-knowledgeable dentists and unprofessionalism in dental offices. As a result, participants developed insurmountable distrust in their dental health care providers. Participants admitted to a lack of understanding of procedures that were explained to them. However, lack of compassion, impatience, rudeness of dental providers and staff and those who were judgmental fostered anger, hurt and tense feelings in participants, often leading to distrust.

#3 Transportation

"I dread going to the dentist because it's hard to get transportation that will take me in my scooter. There needs to be more of a convenient way for the handicapped to get there and back"

'I have Narcolepsy so it is hard to take the bus and I cannot drive because I always fall asleep'

Transportation was another major barrier discussed with participants. Participants stated they had to depend on a transportation service, relative or friend to transport them for everything including dental appointments. Participants frequently stated that in order to be transported, they were required to pay for transportation services, which reduced the monthly budget for their necessities. Participants stated they had to even pay their relatives and friends for transportation. Furthermore, participants in a special wheelchair or scooter experienced difficulty in arranging transportation that could accommodate their wheel chairs and therefore decide to go without dental treatment.

#4 Medical Conditions

'I have Muscular Dystrophy. The dentist hurt my feelings…he say 'get in the chair'…I said 'I can't get in the chair'...he said 'well we're not going to put you in it'

Participants stated that certain medical conditions made it difficult to access dental care. Although participants had State Dental Insurance, certain medical conditions prevented them from being able to get to the dental office even if it was as close as next door. Dentists and their staff were not always compassionate about their condition. Participants reported they felt some dental

professionals were not as knowledgeable about their medical conditions, as most of the participants had more than one medical condition. Furthermore, poor eyesight was another barrier to dental care access, therefore making it difficult to drive to the dental office. Participants also stated that having certain medical conditions prevented them from adequately cleaning their teeth and mouths.

#5 Lack of Interest

'Dental personnel came to this place to provide dental care but residents not willing to receive care, so the personnel stayed around all day and watched TV'…'some people are just not going anyway'

Participants reported that if dental personnel were to visit their place of residence most of the older adults would not have an interest in becoming more knowledgeable or learning about dental care. Participants reported that some older adults are just not interested in receiving dental care because they are not motivated. They also stated that "laziness" is a barrier to dental care. Participants believed that other older adults felt too much effort was required to seek dental care. Furthermore, as reported by the participants, there is a lack of importance about receiving dental care.

#6 No Need

'I don't have no problems, nothing hurts me'…'since I have dentures, I don't need to go'

Many participants expressed the lack of need for dental care as they have no pain or problems. They also stated having complete dentures eliminated their need to seek dental care until there was pain or other issues such as poor fit,

difficulty chewing, or problems with soft-tissues. Other symptoms participants reported indicating their need for seeking dental care included trouble eating, extractions, caries and to get their partial dentures tightened. For edentulous participants, soft tissue problems and management were the only indications for seeking dental care.

#7 Lack of Education

'If they are like me, they didn't know they were supposed to go to the dentist after you get dentures…I've learned a lot today…people need the information that you just gave me'

Participants voiced their lack of dental education especially if they had complete dentures. Many older adults stated they were unaware that dentures should be removed and soaked overnight to give their soft tissues a rest. The participants who used tobacco products or smoked and had complete dentures were not aware they needed annual oral cancer screenings and examinations of their soft tissues. The older adults in this study expressed their interest in receiving more education about dental care. Some participants indicated they learned to go to the dentist when pain was experienced and not on a regular basis.

#8 Dental Personnel Visiting Place of Residence

'What about care for those too sick to go to the dentist?'

The older adults in this study stated there should be dental care provided at facilities in which they live for individuals who are too sick to go to the dentist. They stated they were concerned about people who have dental problems but are unable to seek dental care because of illness and immobility.

Discussion

There are dental clinical issues that are more specific that significantly influence the oral health of an older adult, such as dental caries, periodontal disease and oral cancer. Oral health is important as it can affect the overall quality of life of an older adult. Furthermore, the lack of perception that oral health is as important as overall health and the attitudes and behaviors toward oral health have a major influence on older adults and in their residential communities. There are significant barriers and structural problems in our oral healthcare system limiting access to dental care for older adults. As demographics of the older adults and workforce trends continue to change, the public health infrastructure, the dental profession and government need to work together to reduce or eliminate barriers to improving oral health. A complete understanding of the barriers to care being experienced by any group under consideration must be achieved, and an improvement plan must be designed to address those specific barriers considering the demand for care, the dental work force and the economic environment (36). To expand the knowledge and understanding of poor oral health behavior, attitude and perception in the minority older adult population, this study investigated barriers to access to dental care among low-income minority older adults. We attempted to explore 1) perceptions about factors that prevent access to dental care among older adults of low socioeconomic status that go beyond income; 2) beliefs about oral hygiene behaviors and dentistry; and 3) the older adult assessment on how to remove the

disconnection between better oral health among oral adults of low socioeconomic status, dentistry and the public health community.

Perceptions about access to dental care: The most frequently stated barriers to care were cost/dental insurance, fear/mistrust and transportation.

Cost/Dental Insurance – The participants reported low income levels therefore, cost of care if they did not have insurance was a major barrier. These results agree with studies of low income adults that show cost is a significant barrier. Stakeholders, including dental professionals and the dental benefits industry, need to work together to develop innovative dental financing programs that will increase older Americans access to dental care (37). Yet, participants reported that even if they had Medicaid, many dentists did not accept Medicaid patients. Medicaid reimbursements are very limited even in states, such as Connecticut, that include dental coverage for adults. Interestingly, some participants indicated that they would be willing to obtain care if the dentist agreed to a payment plan. However, they could not find a dentist who was willing to develop payment plans. One approach to reducing financial barriers would be to expand Medicare to cover dental treatment. However, given the current fiscal climate, this is highly unlikely. Another option would be to train physicians or nurses to examine the oral cavity and refer for care. Currently, in Connecticut, pediatricians can be reimbursed through Medicaid for oral exams and fluoride varnish applications. Dental hygienists or therapists could provide

screening services on-site and refer to practicing dentists. These approaches are discussed in more detail below.

Beliefs about oral hygiene behaviors and dentistry: Participants lacked the knowledge and skills needed to take care of their teeth/dentures. Bad breath and the appearance of their teeth were the main concerns rather than health concerns. Few knew about the relationship between oral and overall health. Many did not know that they should take out their dentures at night or that they still needed to visit the dentist if they had dentures. Although most participants had not visited the dentist in many years, it is the responsibility of the dentist to educate patients about caring for their own teeth and the need for follow-up care after dentures. According to Berkey et. al, 'To care for this ageing and racially/ethnically diverse population, health care professionals, especially dentists, must initiate changes in public policies, available resources and access to services. The dental profession especially must improve awareness among the general public and health care professionals of the link between oral health and general health. Immediate improvements should be made to increase the proportion of dentists who are willing and qualified to treat these patient groups. Increasing the reimbursement rates available through the Medicaid program and expanding the types of services Medicaid recipients can seek are critical. Dental education programs must continue to provide more training opportunities to prepare professionals to meet the needs of these patients' (38). Most participants had a physician who they saw on a regular basis for chronic health problems. Encouraging physicians and other health care providers to educate

patients about the importance of oral health to overall health and teaching basic skills would improve the oral health of these patients.

Participants expressed fear and mistrust of the dentist. For many, the only time they would visit the dentist was if they had pain. Participants then would associate pain with the dentist leading to fear and anxiety about dental treatment. Fear of pain also contributed to feelings of mistrust of the dentist. Mistrust also was based on a belief that the dentist was not qualified, particularly if the participant had complex medical problems and had negative experiences such as rudeness and insensitivity.

These findings agree with other studies that show fear is based on previous experience with a dentist being rushed, being uninformed, anticipating pain and having feelings ignored (39). Dental education has advanced considerably in recent years with more focus on training students in patient-centered care.

Assessment of how to remove the disconnection between better oral health among low socioeconomic older adults, dentistry and the public health community: Despite the importance of maintaining good oral health and the improvements in oral health among older adults in the US, there continues to be profound disparities by race/ethnicity, socioeconomic and dentate status (7). Furthermore, challenges, such as limitations in activities of daily living, poor wheelchair accessibility of dental clinics, poor geographic distribution of providers, difficulty navigating the oral health system and fiscal limitations make access to and utilization of dental services difficult for older adults (7). Participants in this study stated that oral health professionals may need to share

knowledge and expertise with those beyond the dental office, dental school and university. Dentists should work with primary care providers to establish methods to refer older adults for dental care.

Otherwise, limitations and inadequate knowledge and deficiencies about the assessment of oral health status of these patients can cause primary care providers to misdiagnose and miss detection of oral conditions. Primary Health Care Providers do not regularly assess the oral health status of their patients for the following reasons: (a) the oral cavity is not their responsibility; and (b) only dentists are responsible for oral health (6). Furthermore, minimal instruction is provided about oral health for primary health care providers. As previously mentioned, pediatricians in Connecticut are being trained to provide oral exams and fluoride varnish to high risk children in their practices. This approach could be effective in providing oral screening for high risk older adults.

Participants also stated that they wanted dental care where they lived because of their disabilities and transportation problems. Many older adults who are at high risk for oral disease may benefit by obtaining dental care from an on-site dental hygienist or therapist, which could be reimbursed by Medicaid. On-site dental hygienists/therapists could offer oral health assessments to promote good oral health care on site at these low income housing locations through oral hygiene instruction and referral for care. Oral assessments distinguish health from disease and are systematic oral screening examinations that include visual assessment and palpation of the head and neck, including peri-oral and intra-oral hard and soft tissues (6). This can provide a route for these dental caretakers to

refer those who need acute or comprehensive dental care to general dentists. Participants also frequently have home health aides and visiting nurses who also could provide hygiene instruction and oral exams. These kinds of programs are similar to school-based programs where free care is provided for children. Mobile dental vans also could visit low income housing and provide limited services including hygiene instruction, screening and referral.

Limitations of the Study

The sample consisted of 17 individuals from low income housing in Connecticut, therefore, the results have limited generalizability to the larger population. The study only collected self-reported data and no clinical exams were conducted. Important information on the clinical oral health of the participant is lacking. However, the goal was to explore the subjective feelings and beliefs about oral health and dental care among the participants. Some of the participants had limited literacy skills and had difficulty understanding some questions posed in the interviews. However, despite these limitations, the study has identified several points of intervention that could reduce barriers to dental care among low-income older adults.

Conclusions

1. The major barriers to dental care in this study were cost/dental insurance, fear/mistrust of the dentist, and transportation problems.
2. Participants would like to have dental care provided on-site in the housing complexes.
3. Improving communication between dentists and their older patients would help reduce fear and mistrust.
4. Other health care providers could help educate older patients about oral health, conduct simple oral health screenings and refer for acute and/or comprehensive care.

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Figures and Tables

Figure 1. Mean Number of Caries in Permanent Teeth, Decayed, Missing or Filled, Among Dentate Persons Only, by Selected Population Characteristics (Ages 20+), NHANES 1999-2002

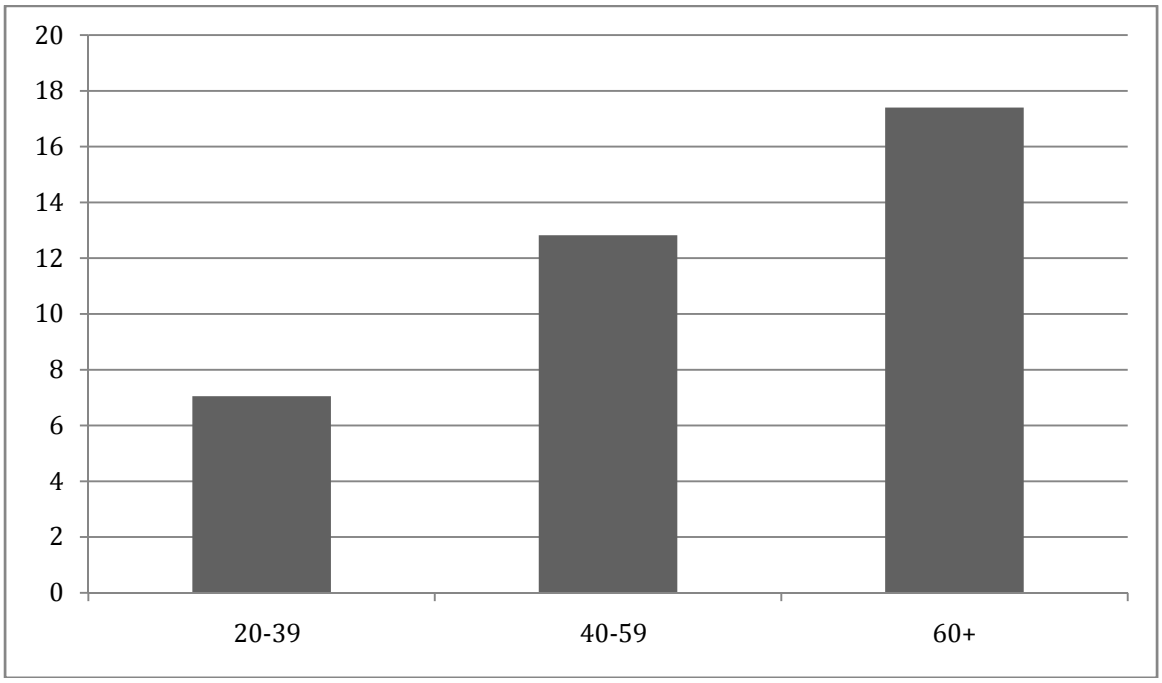


Figure 2. Mean Number of Decayed, Missing and Filled Teeth – Dentate adults only by Race/Ethnicity among older adults, NHANES 1999-2002

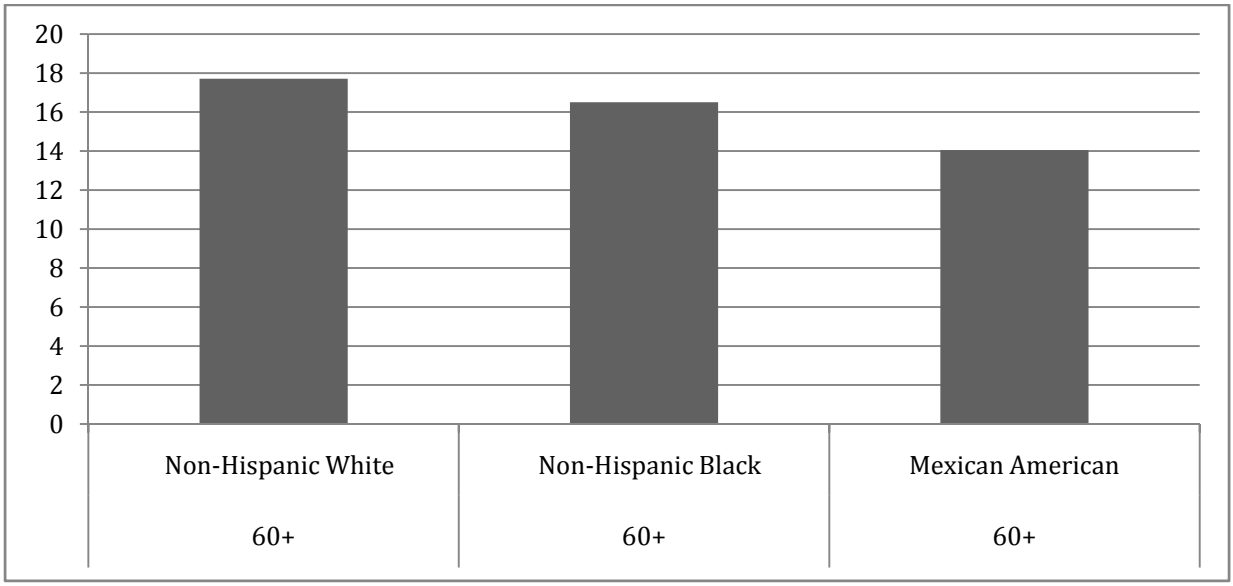


Figure 3. Mean Number of Caries in Permanent Teeth, among dentate persons only, by race/ethnicity, NHANES 1999-2002

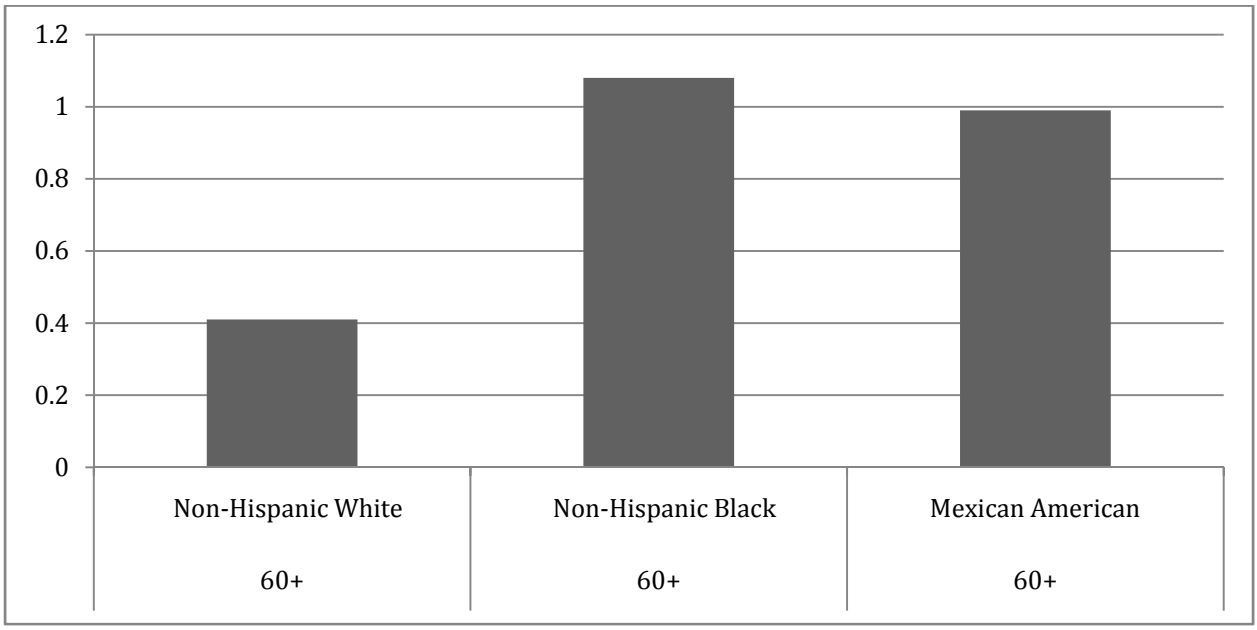
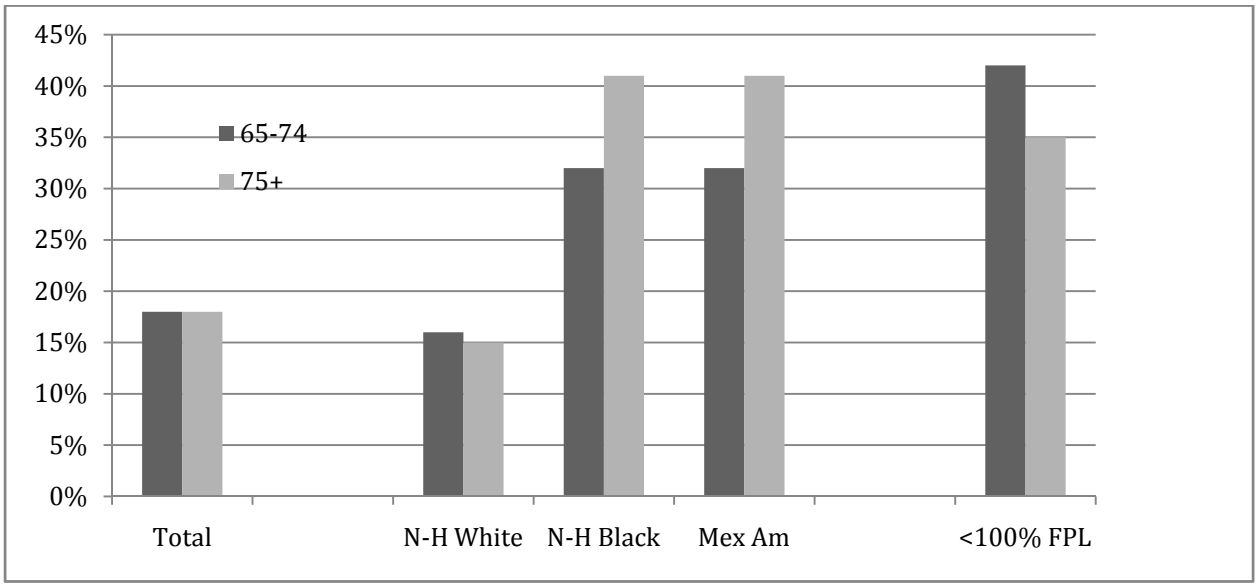


Figure 4. Prevalence of untreated decay by age, race/ethnicity and poverty level among those over 65 years of age, 2005-8



N-H: Non-Hispanic; Mex Am – Mexican American; FPL – Federal Poverty Level.
Source: Health, United States, 2010

Figure 5. Prevalence of root caries among dentate adults by age, NHANES,1999-2002

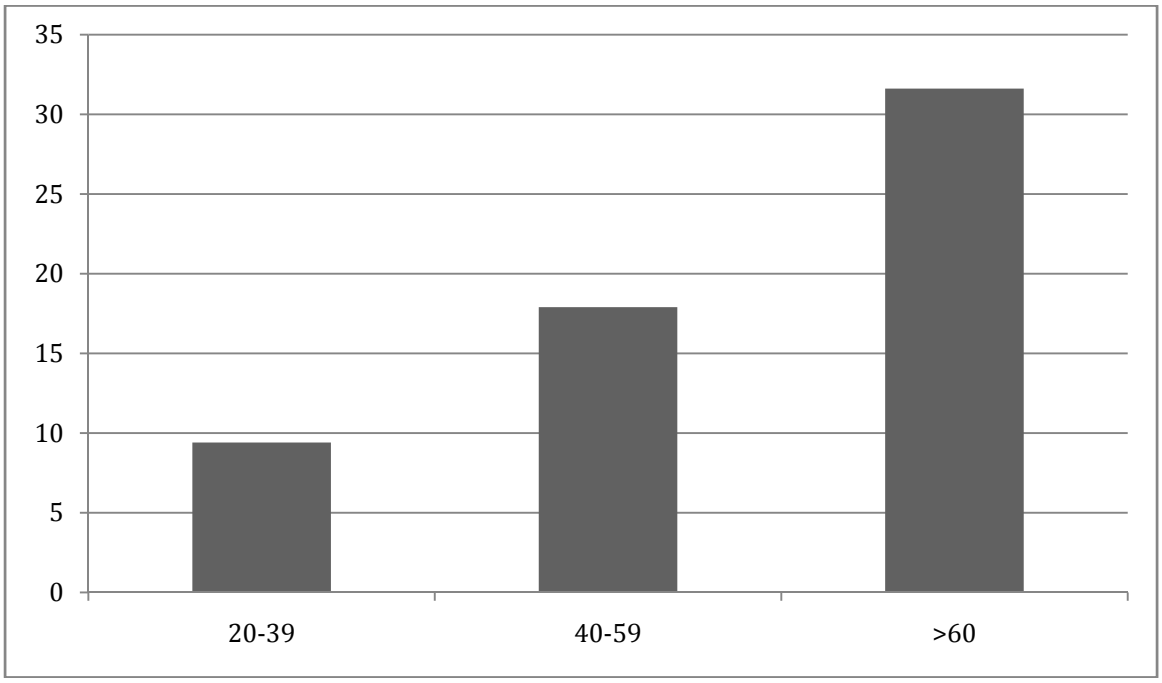


Figure 6. Mean Number Root Surfaces with Caries, Adults 60-70+ yrs by Race and Poverty Status, NHANES 1988-92

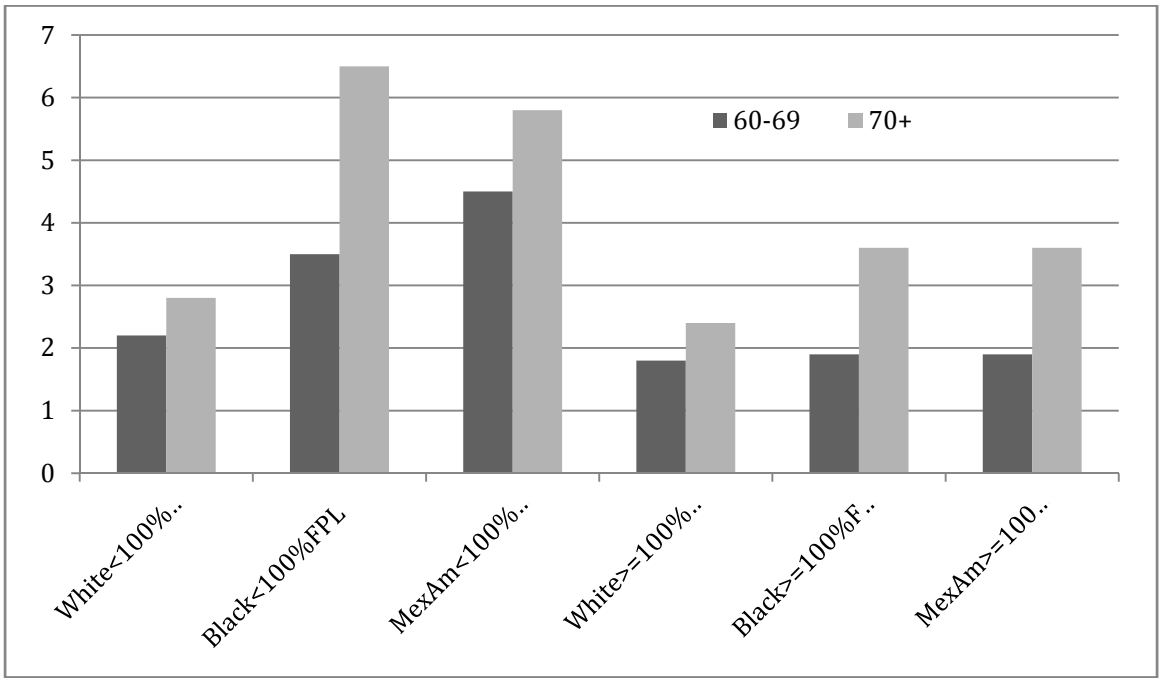


Figure 7. Percent with gingival bleeding by age, NHANES 1988-94

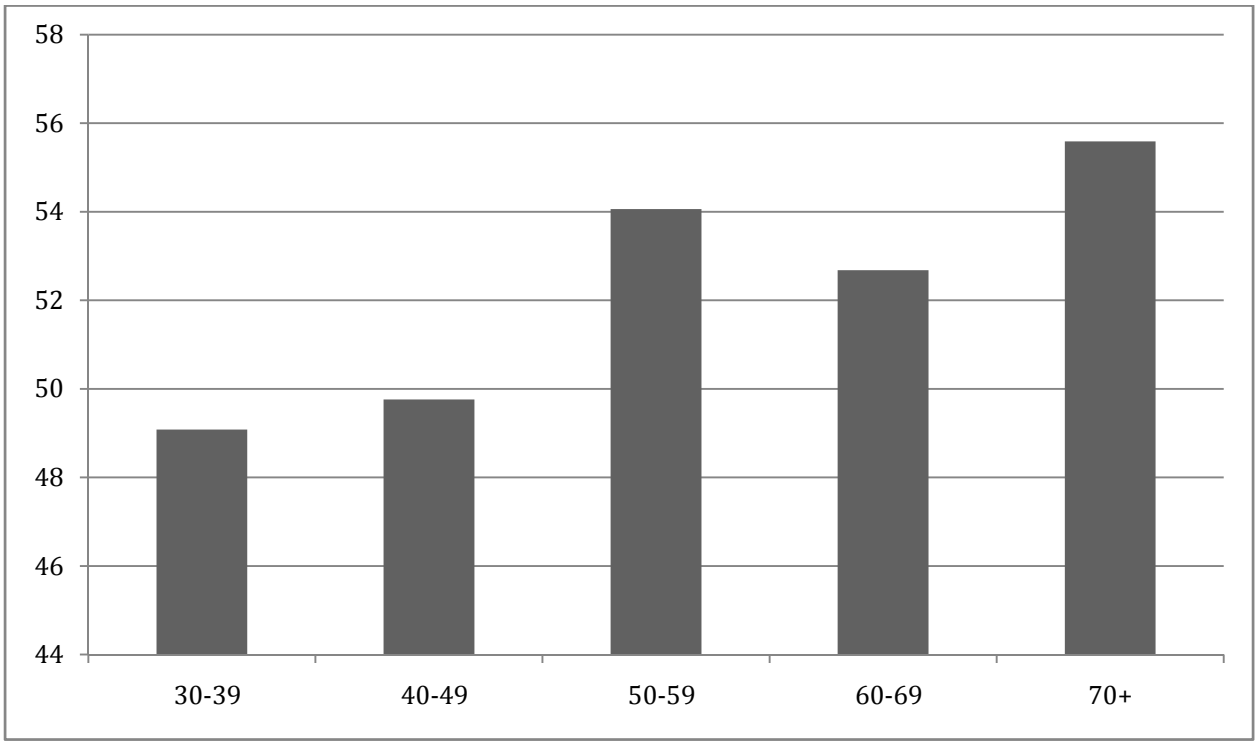


Figure 8. Percent with gingival bleeding by age and race/ethnicity, NHANES 1988-94

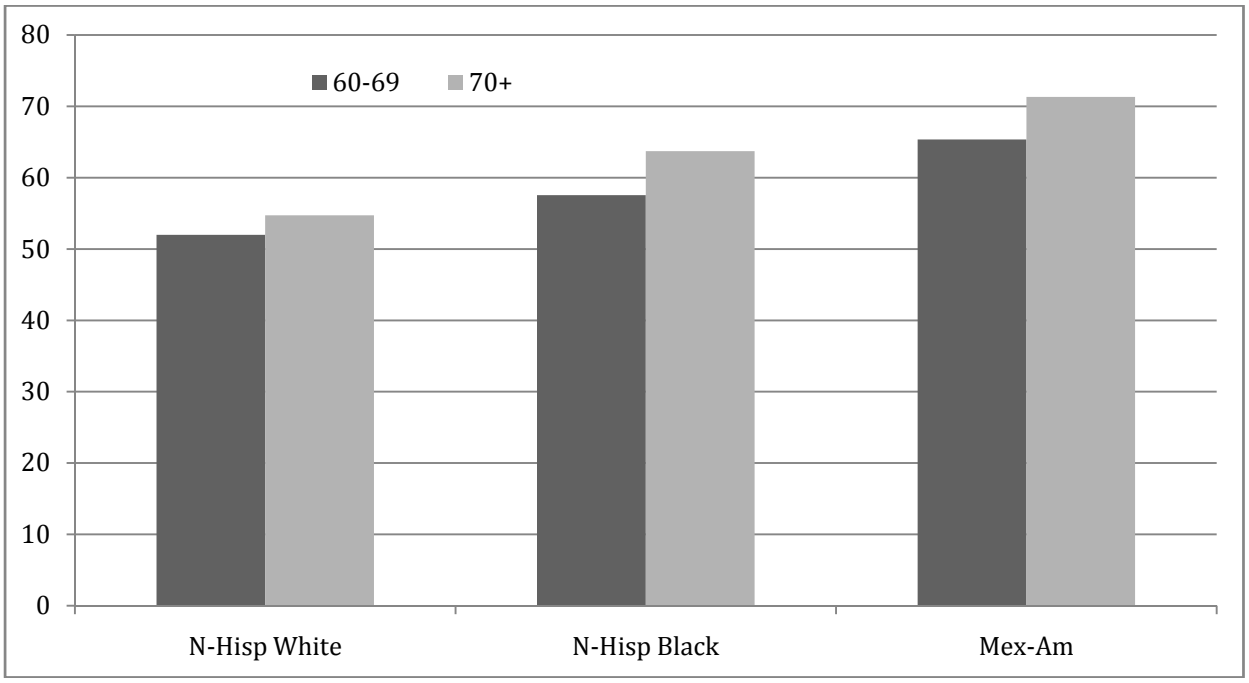


Figure 9. Percent with at least one site with >4mm attachment loss by age, NHANES, 1999-2002

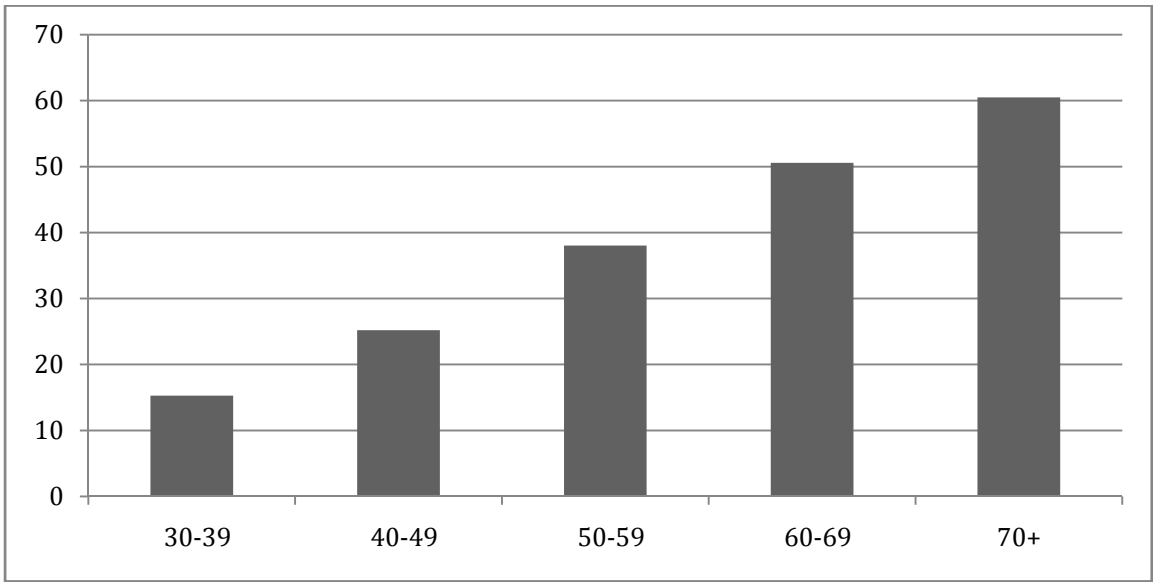


Figure 10. Percent with at least one site with >4mm attachment loss by age and race/ethnicity, NHANES 1988-94

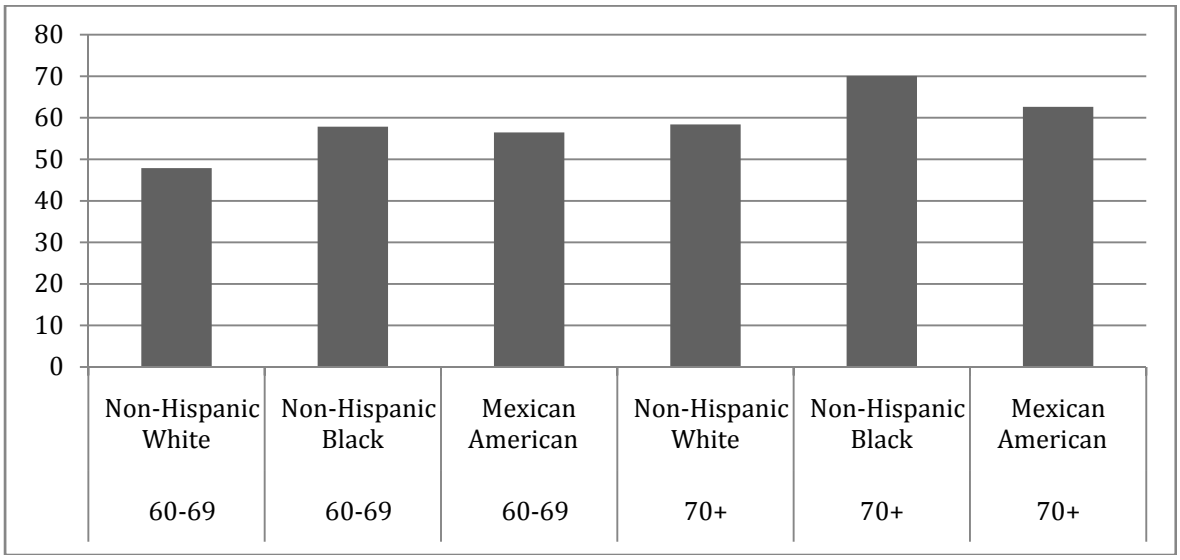


Figure 11. Percent edentulous by age, NHANES, 1998-2002

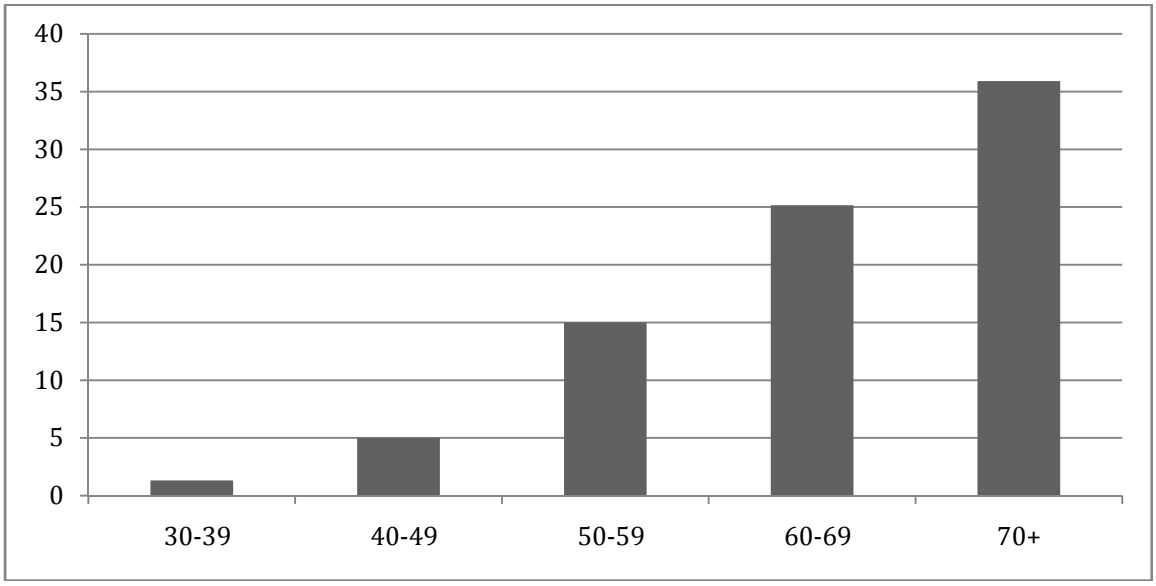


Figure 12. Percent edentulous by age and race/ethnicity, NHANES, 1998-2002

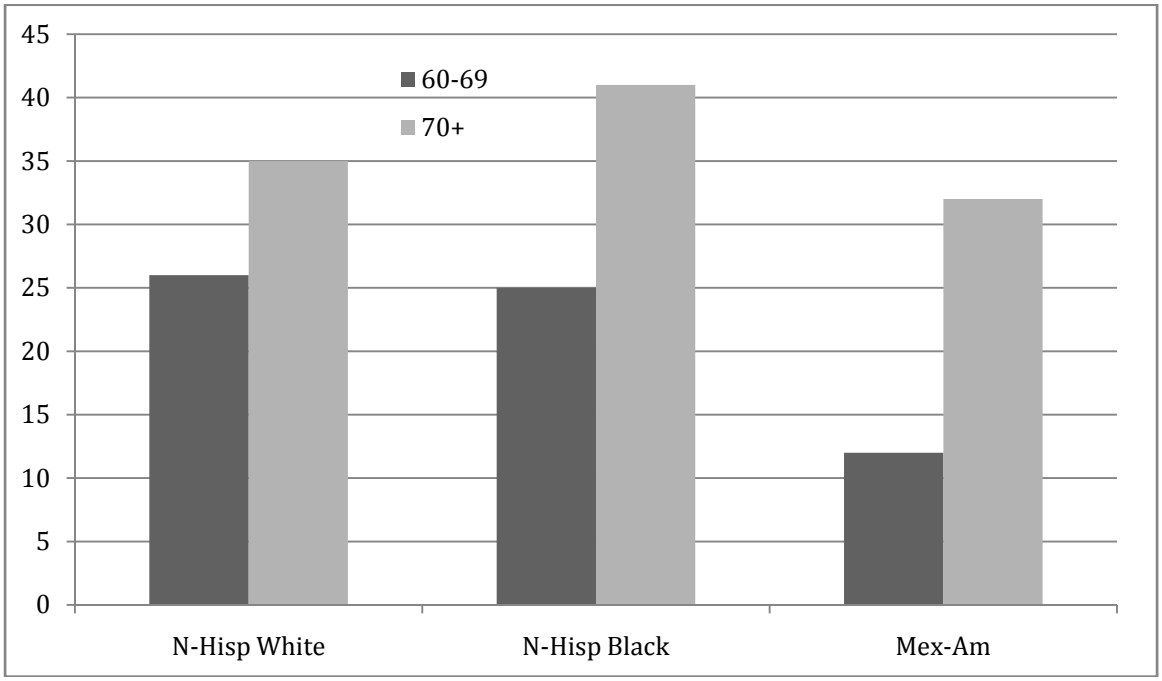


Figure 13. Incidence per 100,000 of oral and pharyngeal cancer by gender and race, 2004

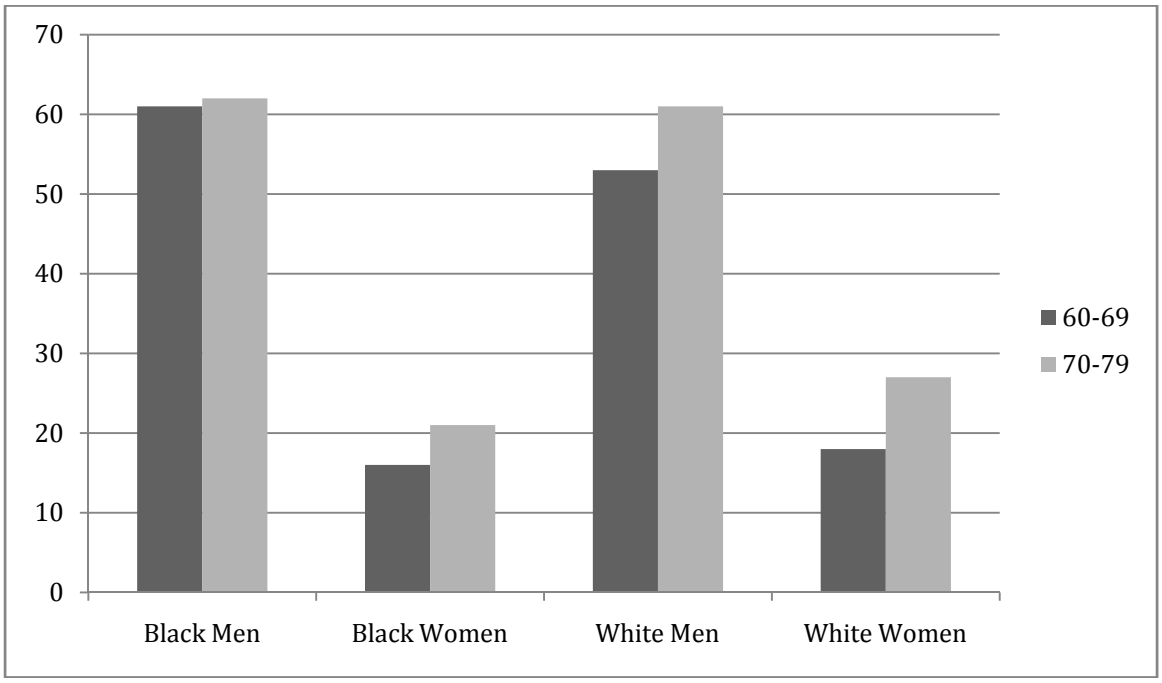


Figure 14. Five-year survival rates for oral and pharyngeal cancer by gender and race, 1975-2003

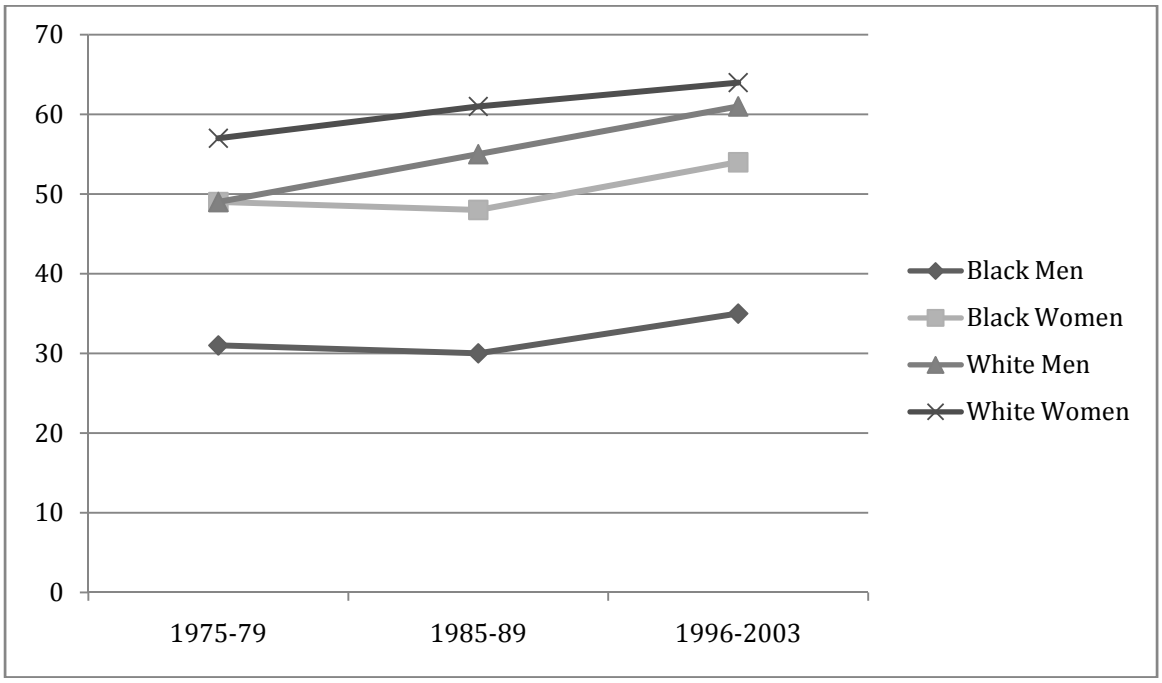


Figure 15. Percent rating health status as excellent or very good by age, NHANES 1988-94

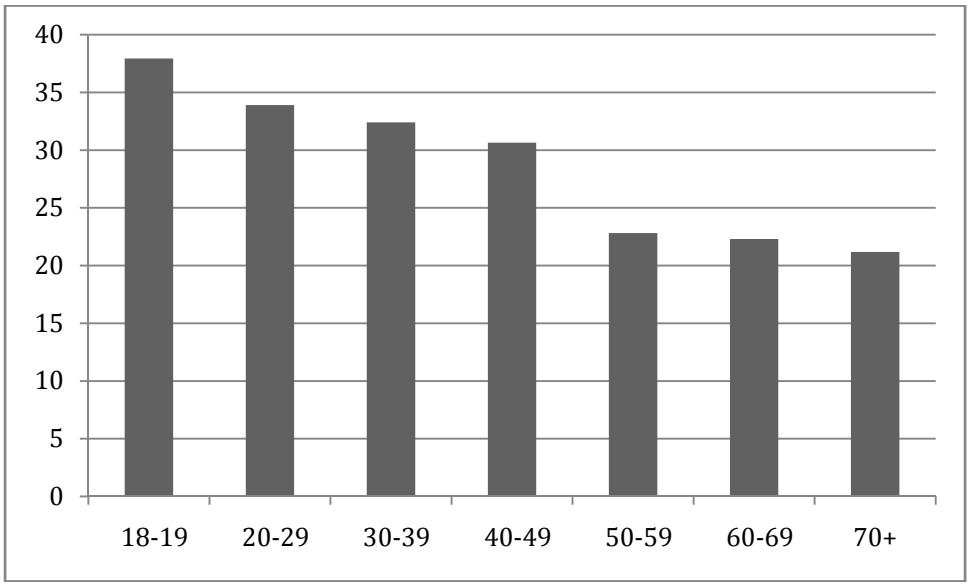


Figure 16. Percent rating health status as excellent or very good by age and race/ethnicity, NHANES 1988-94

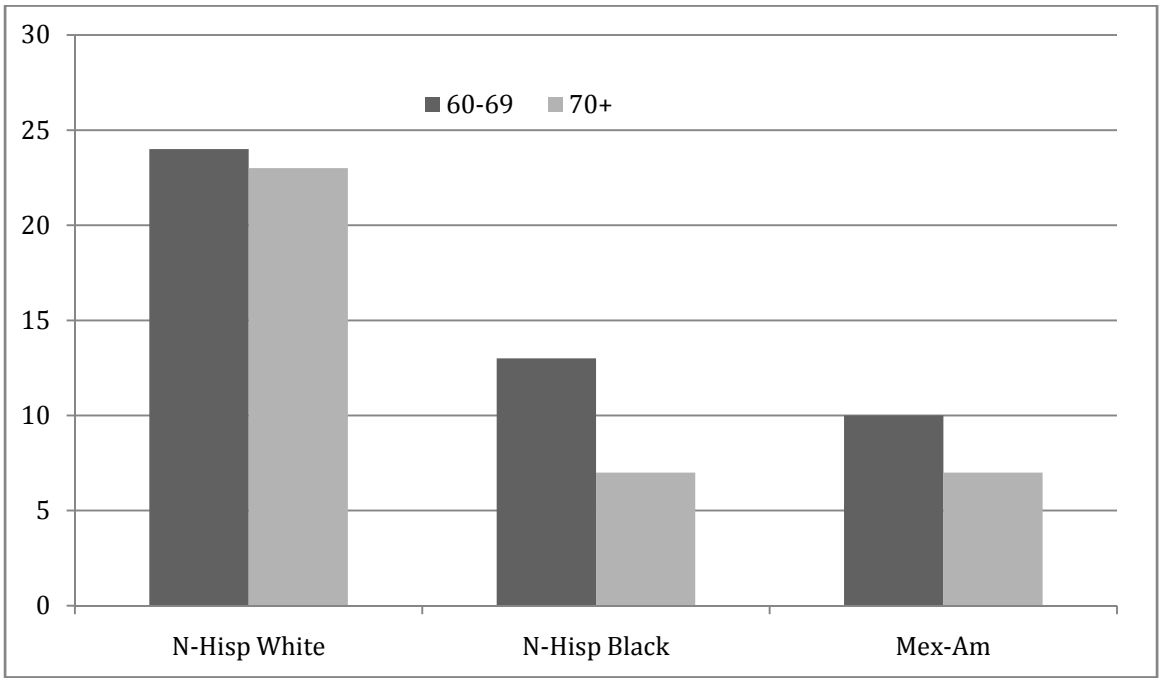


Figure 17. Percent of those over 65 years of age reporting a dental visit in the past year by race/ethnicity, 1997-2009

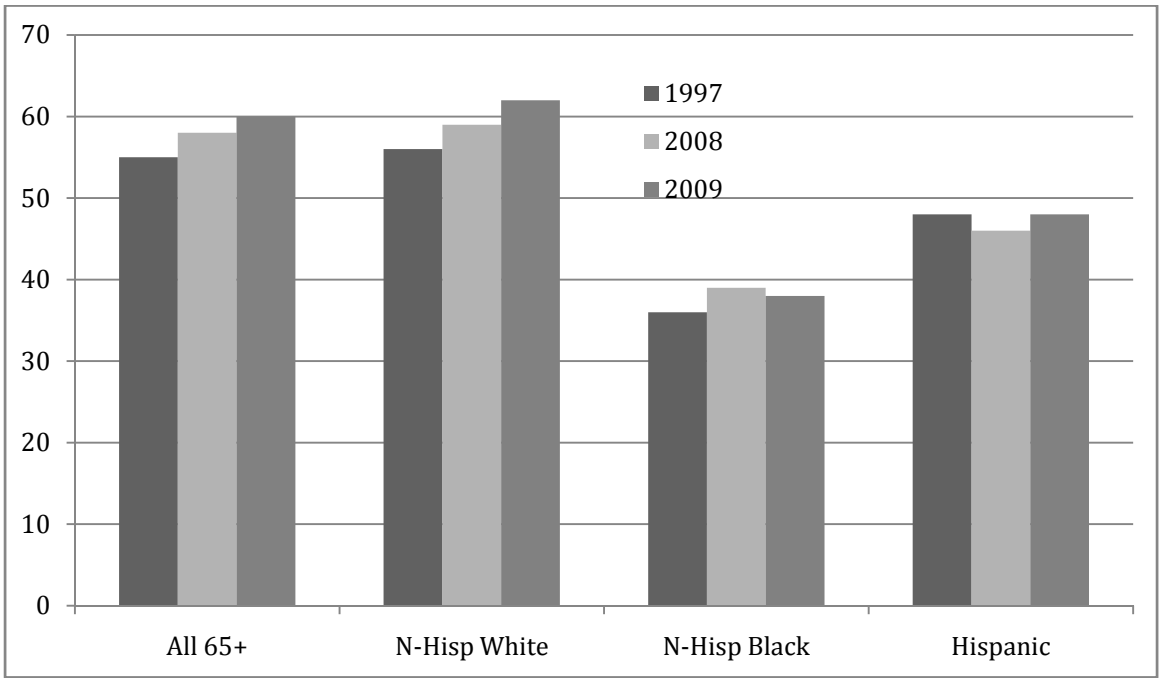


Figure 18. Percent of those over 65 years of age reporting a dental visit in the past year by poverty status, 1997-2009

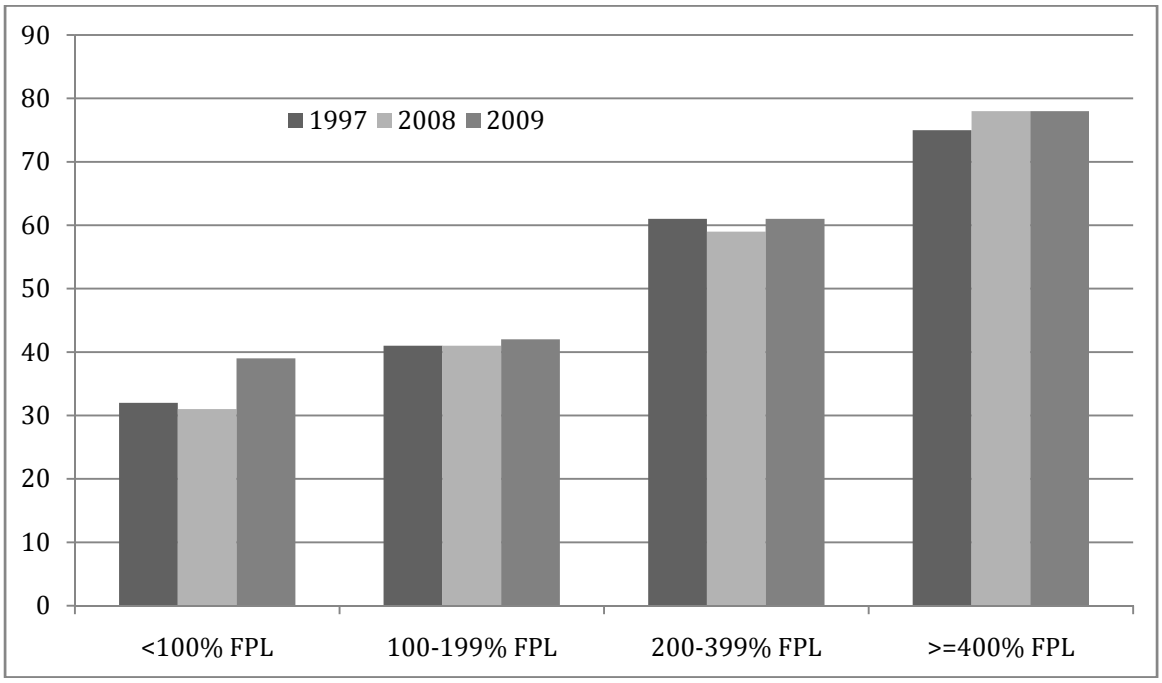


Table 1. Frequently Prescribed Classes of Drugs associated with Xerostomia

Drugs		
Alpha Adrenergic agents	Antihistamines	Nitrates
Beta Adrenergic agents	Anti-Parkinson's agents	Corticosteroids
Analgesic agents	Antipsychotic agents	CNS Stimulants
Antibiotics	Benzodiazepines	Hypnotics
Anticholingeric agents	Diuretics	Muscle Relaxants
Anticonvulsants	Antidepressants	

Table 2: Demographic Characteristics of the Participants (n=17)

Demographic Characteristics	Number
Age (Range)	66-86 years
Gender	
Male	4
Female	13
Monthly Income	
<$1000	11
Education	
Completed High School	3
Ethnicity	
African-American	13
Latino	2
West Indies/ Caribbean	2
Unemployed	9
Medicare	17
Medicaid (Dental Insurance)	10
Private Dental Insurance	1
Has regular MD	16
Medical Visit within past year	16
MD asks about Teeth/Gums	4
MD checks teeth/gums	4
MD refers to DDS/DMD	2

Table 3: Oral Health Behaviors of the Participants

Oral Health Behaviors	Number
Time Since Last Dental Visit	
<1 year	5
1-5 years	3
>5 years	9
Reason for Visit	
Cleaning	4
Full/Partial dentures	10
Gum/soft tissue treatment	3
Has Regular Dentist	7
Denture Care	
Removes before bedtime	11
Soaks overnight	10
Brush Regularly	9
Clean Between Teeth	6

Table 4: Perceptions of the Dentist/Dental Care

Perceptions of the Dentist/Dental Care	Number
Distrust Dentist	5
Fearful of Dental Care	5
Satisfied with Office Staff	15

Table 5: Dental Norms of the Participants

Dental Norms	Number
Should have Regular Professional Care	12
Dental Care Only for Pain or Need	5
Need for Regular Professional Care	
Self	2
Mother	2
Sister, other relative	3
Teacher, friend	5
No Answer	5
How to Care for Teeth	
Brush at least once a day	8
Brush and floss	2
Brush with baking soda	3
Never taught	4
Taught to Care for Teeth	
Mother	7
Other relative	3
School	3
Other	4

Table 6: Coding for Themes from Interviews and Code Counts

Coding for Themes from Interviews	Code Counts
Lack of Dental Insurance	36
Cost	31
Fear/Anxiety	20
Transportation	17
Medical Conditions	12
Lack of Interest	8
Lack of Education	6
No Need	5
Dental Personnel visiting place of residence	2

Table 7: Categorization and Responses to the Open-Ended Questions: What are Barriers to Access to Dental Care?

Themes	Participant Responses
Lack of Dental Insurance	'You don't really have money to afford to pay a dentist if you don't have some type of good insurance, which makes people reluctant about going because they cannot afford to pay and then they have to use their savings….'
Cost	'Money…everyone is concerned that they need new teeth, but insurance doesn't cover it…easier access to get dentures without out of pocket expenses'
Fear/Anxiety	'He had a time trying to kill the nerve…I was screaming and it was hurting…it was a bad experience…he could not get me numb.'….'I'm scared of needles'…'I'm scared of the drilling, that noise makes you feel like they trying to take your head off'
Transportation	"I dread going to the dentist because its hard to get transportation that will take me in my scooter. There needs to be more of a convenient way for the handicapped to get there and back"
Medical Conditions	'I have Muscular Dystrophy. The dentist hurt my feelings…he say 'get in the chair'…I said 'I can't get in the chair'...he said 'well we're not going to put you in it'
Lack of Interest	'Dental personnel came to this place to provide dental care but residents not willing to receive care, so the personnel stayed around all day and watched TV'…'some people are just not going anyway'
No Need	'I don't have no problems, nothing hurts me'…'since I have dentures, I don't need to go'
Lack of Education	'if they are like me, they didn't know they were supposed to go to the dentist after you get dentures…I've learned a lot today…people need the information that you just gave me'
Dental Personnel Visiting Place of Residence	'What about care for those too sick to go to the dentist?'

Appendix A

Questionnaire

Participant Code: _____	Completion Date: _____

In this questionnaire, we will ask you questions about your health, the health of your teeth and mouth and personal information about you and your family.
If you have any questions or concerns about a question, please ask.

Demographics:

1. What is your *Age*? ____
2. Gender: ☐ Male ☐ Female
3. Please select your *Ethnicity*:
   ☐ Caucasian: ☐ African American: ☐ Latino:
   ☐ West Indies/Caribbean: ☐ Other (Please specify): _____
4. What is your *Monthly Income*?
   a. ☐ Less than $1,000.00
   b. ☐ $1,000.00 - $2,000.00
   c. ☐ Over $2,000.00
5. Please select your *Highest Level of Education*:
   a. ☐ No Formal Education
   b. ☐ Grade School
   c. ☐ High School Education
   d. ☐ Trade School
   e. ☐ Some College
   f. ☐ College
6. Please specify your current *Employment Status*:
   a. ☐ I am unemployed *(see question # 9)*
   b. ☐ I am employed Part-Time
   c. ☐ I am employed Full-Time
   d. ☐ I am Semi-Retired
   e. ☐ I am Fully Retired *(see question # 9)*
7. If you are employed, please specify what you do for a living.
8. Please indicate the type of insurance you have (*you may select more than one*):
   a. ☐ Medicare
   b. ☐ Medicaid
   c. ☐ Private
   d. ☐ Other
9. Do you currently have a Doctor, where you go for health care?
   a. Where:
   b. When was your last visit?

c. Does your Primary Care or other Provider ever ask about your teeth and mouth?

d. Do they ever check your teeth and mouth?

e. Do they ever refer you to a dentist?

10. If you have dental insurance, is it still active?

    a. How much does it cost to maintain?

    b. How were you able to continue to keep your dental insurance? Is it a benefit of your retirement?

    c. If no, how do your pay for dental services if/when needed?

    d. Do you have or have ever had any problems paying for dental services?

        i. Please explain:

11. How do you feel about the look of your teeth; how do you feel about the look of your mouth?

    a. What worries or concerns do you have about your mouth?

    b. Is there anything that concerns or worries you about your teeth

12. How do you clean your teeth and mouth?

    a. How often do you brush your teeth?

    b. If not, how do you clean your mouth?

    c. If you have partials or dentures, how do you clean them? (how often, what do you use to clean them, do you remove them overnight, do you soak them every night, what do you soak them in).

13. Do you how do you clean between your teeth?
    a. What kind of floss do you use?
    b. How often?
    c. If not, why not?

Dental Care

14. When was your last dental visit?
    a. What was the reason?

15. If you currently have a dentist, where do you go for dental care?

    a. If you do not currently have a dentist, where do you go for dental care?

    b. How long have you been with your current dentist?

    c. If you have been with him/her for less than one year, did you have another dentist?

    d. What was your reason for leaving your previous dentist?

    e. How do you get to your dental office?

    f. How does your dentist make you feel about receiving treatment?

    g. Do you trust your dentist?

        i. If not, why?

    h. What do you like about your dentist?

    i. What do you dislike about your dentist?

    j. Is there anything you feel that your dentist did treatment or otherwise to you that was not right or inappropriate?

    k. Are you comfortable with the dental staff?

    l. How do you feel about:

1. Dental hygienist?
2. Receptionist?
3. Other staff?

m. Are there things you are not comfortable with or do not like about the dental staff?

16. How often do you go to the dentist?
    a. If on a regular basis, why?
        i. Who gave you the idea? Was it a family member, your dentist or a friend?
    b. If you do not visit the dentist regularly, when do you go to the dentist? Why?

    c. If you do not currently have a dentist, please indicate your reasons for not having one.

    d. Are there any experiences you've had that have influenced you either to go to the dentist, or to avoid going to the dentist? (Please tell me of the dental experience(s) that influence (s) your decision to receive oral care?)

    e. Do you have any fears about going to the dentist?

    f. Do you have fears that specifically keep you from visiting the dentist? What are they?

    g. Please tell me of the dental experience(s) that influence (s) your decision to receive oral care?

    h. What prevents you from going to the dentist?

    i. What medical conditions, if any, make it difficult for you to visit the dentist?

17. When was the last time you experienced pain in your mouth?
    a. If yes, how long did you have pain?
    b. Did you visit your doctor/dentist to relieve your pain?
    c. If not, what did you do to relieve the pain?
    d. Did the treatment resolve your pain?

e. If not, what made the pain go away?

18. What type of dental procedures have you had in the past?
    a. Do you have partials or dentures?
    b. Have you ever had fillings?
    c. Have you ever had a root canal?
    d. Has a dentist ever recommended for you to get a root canal?
    e. If he/she did, did you receive the root canal?'
        i. How was your experience?

        ii. If you were told you needed another root canal, would you do so?
        iii. If no, why not?

    f. Have you ever had any teeth extracted?
    g. Do your gums bleed when you brush or floss your teeth?
        i. Does it worry you?
        ii. What do you do about it?

    h. Do you ever experience dry mouth?
        i. What do you do to treat it?
        ii. Have you told your doctor or dentist about it?
19. Have you ever had dental implants?

20. Do you have trouble eating?

    a. Are there any foods that you avoid eating because you can't chew them very well?

LEARNING TO TAKE CARE OF YOUR TEETH

21. How were you taught to take care of your mouth/teeth? Please describe in detail?

22. As you were growing up, what do you remember hearing or learning about how to take care of your teeth?

23. Do you remember who you heard or learned that information from?

24. If you had never been to a dentist growing up, how did you ever end up going to the dentist on your own?

25. What was the reason you started to going to the dentist?

26. Do you think dental care is a concern for family members and friends in your age group?

27. Can you think of other reasons why people your age do not go to the dentist?

28. Is there anything else you would like to say or any other information you would like to add?

29. If you could create a dental care program for older adults, what needs to be available to make it accessible in your age group? (What would remove barriers as they see it?)