

# Knowledge of Oral Cancer Risk Factors Among African Americans: Do Nurses Have a Role?

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**Purpose/Objectives:** To assess the knowledge of oral cancer risk factors among African Americans.

**Design:** Descriptive; guided by the Patient/Provider/System Theoretical Model for cancer screening.

**Setting:** Community-based primary care center in a southern state.

**Sample:** 141 African Americans. The majority was female, had a 12th grade education, and had an income less than \$10,000; 25% were smokers.

**Methods:** Participants were asked to identify whether each of 15 factors (i.e., seven risk factors and eight nonrisk factors) increased risk for oral cancer. One point was added for each correct response; therefore, scores could range from 0–15 points. Demographic data were collected.

**Main Research Variables:** Knowledge of and misconceptions about oral cancer.

**Findings:** Only six participants correctly identified all of the risk factors. The majority recognized tobacco but was not as aware of the effects of the sun, alcohol, and diet. Many erroneously identified factors such as hot beverages, poor oral hygiene, spicy foods, dentures, and mouthwash as risk factors. Those with higher incomes and those who visited their dentists in the prior year had more knowledge of risk factors. No differences were found in knowledge based on age, gender, education, or smoking status.

**Conclusions:** Some patients are less likely to routinely visit a dentist and are less knowledgeable about the risk factors for oral cancer. Many of these risk factors are modifiable; therefore, patients need to be aware of the risks and have access to effective strategies to reduce risk.

**Implications for Nursing:** Assess risk factors, teach risk reduction, and correct misinformation. Refer patients to dental professionals. Develop community outreach to African American men at barbershops and fraternal organizations.

Oral cancer encompasses cancers of the oral cavity, including the lips and pharynx. The tongue is the most common site for oral cancer, and squamous cell carcinoma is the most common oral malignancy (National Cancer Institute [NCI], 2003; Sciubba, 2001; Silverman, 2001). An estimated 28,260 new cases of oral cancer will be diagnosed in 2004, with approximately 7,300 deaths from this disease (American Cancer Society [ACS], 2004a). The incidence increases with age, with 90% of oral cancer occurring in patients aged 45 and older (ACS, 2004b; Silverman). The incidence and mortality rates associated with oral cancer are higher among men. Furthermore, as with many cancer types, African Americans are more likely to present with regional or distant disease and have lower five-year relative survival rates associated with oral cancer (ACS, 2004a; Silverman). Treatment for oral cancers may involve surgery, chemotherapy, or radiation (ACS, 2004b).

Prevention of oral cancer through risk factor reduction and early detection of the disease is key in reducing incidence

## Key Points . . .

- ▶ Nurses can play a role in the prevention and early detection of oral cancer.
- ▶ Nursing strategies should include efforts to educate patients about the risk factors of oral cancer and increase screening.
- ▶ Research should identify potential patient, provider, and system barriers that may influence oral cancer screening.

and mortality. Modifiable and nonmodifiable risk factors, as well as screening recommendations, have been identified for this disease (see Figure 1). However, little progress, if any, has been made in improving the prevention, early detection, and survival rates for patients with oral cancer (Mignogna, Fedele, Russo, Ruoppo, & Muzio, 2001; Silverman, 2001). Inadequate knowledge about oral cancer and its risk factors may play a contributing role in its incidence and late diagnosis.

Previous studies have suggested that Caucasians, women, people who have been educated beyond high school, and non-smokers were more knowledgeable about oral cancer risk factors, signs, and symptoms compared to others (Horowitz, Moon, Goodman, & Yellowitz, 1998), yet inconsistencies exist regarding the degree of knowledge about each of the risk factors. For instance, people were most knowledgeable about the role of tobacco (i.e., cigarettes or cigars, chewing tobacco) in oral cancer but were less knowledgeable about the effects of ultraviolet light and alcohol. Moreover, many erroneously identified factors such as spicy foods or hot beverages as risk factors for developing oral cancer (Horowitz & Nourjah, 1996; Horowitz, Nourjah, & Gift, 1995). People who are less knowledgeable about the risk factors, signs, and symptoms of oral cancer may be less likely to participate in oral cancer screening (Horowitz et al., 1998).

Oral cancer screening involves examination of the oral cavity and throat. Screening is recommended as a routine part of dental and primary care patient encounters, and patients can

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Digital Object Identifier: 10.1188/04.ONF.785-791

### Risk Factors for Oral Cancer

- Tobacco
- Alcohol
- Ultraviolet light
- Vitamin A deficiency
- Plummer-Vinson Syndrome (rare)
- Human papillomavirus infection
- Age (Risk increases with age.)
- Gender (Oral cancer is more common in men.)

### Oral Cancer Screening Recommendations

- Regular dental checkups, including examination of the entire mouth
- Self-examination of the mouth and oral cavity

### Possible Signs and Symptoms of Oral Cancer

- A sore on the lip or in the mouth that does not heal
- A lump on the lip or in the mouth or throat
- A white or red patch on the gums, tongue, or lining of the mouth
- Unusual bleeding, pain, or numbness in the mouth
- A sore throat that does not go away or a feeling that something is caught in the throat
- Difficulty or pain with chewing or swallowing
- Swelling of the jaw that causes dentures to fit poorly or become uncomfortable
- A change in the voice
- Pain in the ear

### Figure 1. Oral Cancer Risk Factors, Screening Recommendations, and Symptoms

*Note.* Based on information from American Cancer Society, 2004b; National Cancer Institute, 2003.

be encouraged to perform self-examinations of their oral cavities (ACS, 2004a; NCI, 2003); however, inconsistency in the implementation of oral cancer screening has been found. Despite the fact that an estimated 68% of those in a national survey reported visiting their dental provider during the prior year (Centers for Disease Control and Prevention [CDC], 2003), other research found that less than 30% of patients reported having had oral cancer screening in their lifetime (Horowitz et al., 1998; Horowitz & Nourjah, 1996). Caucasians, those with more than a high school education, and those with annual incomes above the poverty level are more likely to report annual oral cancer screening (Horowitz et al., 1998; Horowitz & Nourjah). These same characteristics describe individuals who are most likely to be knowledgeable about the risk factors, signs, and symptoms for oral cancer. These findings may imply that those who do not fit these demographic characteristics have lower rates of oral cancer screening and may be less knowledgeable about the disease.

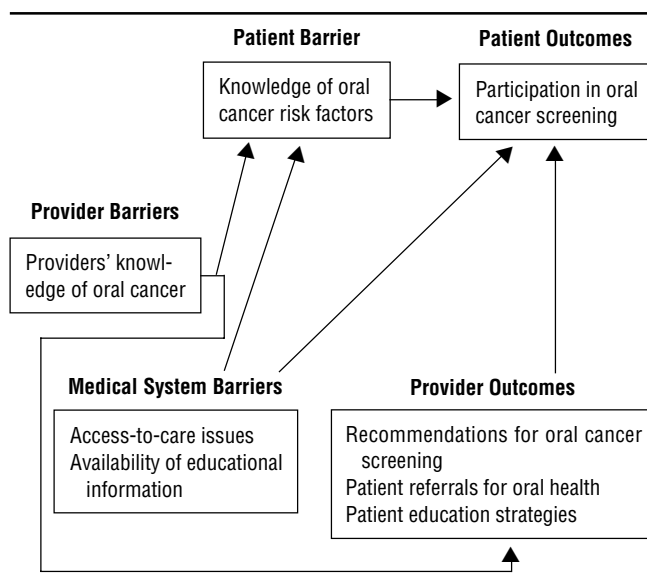
Unfortunately, few studies, if any, have focused specifically on the level of knowledge about oral cancer risk factors among African Americans, particularly African American men, who have the highest mortality rate from this disease. Moreover, nurses have conducted few of these studies. Nurses at all levels and in multiple settings (e.g., academic, clinical, research) can strongly influence oral cancer prevention and early-detection behaviors. For example, in schools and colleges of nursing, curricula can provide information on risk factors, signs, and symptoms of oral cancer. In clinical settings, nurses can perform oral assessments, evaluate risk factors, and implement strategies to enhance risk factor reduction. Given the seeming lack of research on knowledge of oral cancer among African Americans, a crucial first step is

to assess baseline knowledge of risk factors among this population. This type of information is important before effective intervention strategies can be implemented. Therefore, the purpose of this study was to assess the levels of knowledge about oral cancer risk factors among African Americans who received health care at a community-based primary care center.

## Framework

This study is part of a larger project designed to test the Patient/Provider/System Theoretical Model (PPSTM) for cancer screening, which is an amended version of the Powe Fatalism Model (Powe, 1995). The Powe Fatalism Model was developed to explain the influence of patient barriers such as cancer fatalism and knowledge of colorectal cancer on participation in colorectal screening for rural elders. The PPSTM expands the Powe Fatalism Model and explains the interactions of provider, patient, and medical system barriers and adherence to cancer-screening guidelines for patients and their providers. Provider barriers (e.g., perceived patient fatalism, provider knowledge of cancer-screening and early-detection guidelines, provider awareness of cancer-related resources) are believed to directly influence patient barriers (e.g., cancer fatalism; patients' knowledge of breast, cervical, colorectal, oral, and prostate cancer-related resources). In addition, these provider barriers are believed to influence the providers' self-reported rates of cancer screening and diagnostic testing (provider outcome) and may influence patient participation (patient outcome) in cancer-screening and early-detection programs. Medical system barriers (e.g., access-to-care issues, availability of resources and educational materials) are believed to directly influence patient barriers, patient outcomes, and provider outcomes.

The constructs of the PPSTM that are most relevant to the current program of study (see Figure 2) are knowledge of oral cancer risk factors (patient barrier), providers' knowledge of



**Figure 2. Excerpts of the Patient/Provider/System Theoretical Model for Cancer Screening®**

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oral cancer (provider barrier), and access-to-care issues and availability of educational information on oral cancer at the primary care centers (medical system barriers). Given the fact that nurse-initiated research focused on oral cancer has been limited, the current study aimed to describe the knowledge of oral cancer risk factors among African American patients at a community-based primary care center. Future studies will use these findings as a baseline to explore the interactions between patient and provider knowledge of risk factors and rates of oral cancer screening.

## Methods

Using a descriptive design, this study assessed knowledge of oral cancer risk factors among African Americans who were recruited at a federally funded, community primary care center. Federally funded community health centers provide comprehensive primary care services to more than 8 million medically underserved patients in the United States (U.S. Department of Health and Human Services [USDHHS], 2003). Sixty-six percent of the patients attending these centers in the southeastern United States are at or below the poverty level, 75% are uninsured or on Medicaid, and 57% are ethnic minorities (USDHHS, 2003). For the current study, the center reported seeing approximately 300 patients per week, with the majority being African American. Patients were eligible to participate in the study if they were 18 years or older, oriented to place and person, able to speak and understand English, and not in any self-reported or observed distress (i.e., physical or emotional). Although this study focused on African Americans, no one was excluded from the study population based on race or ethnicity. However, only seven participants in the study were not African American, which makes comparison between racial or ethnic groups impossible; as a result, the data from these seven individuals are not reflected in this report. The institutional review board of Emory University approved the study.

## Instruments

Data about risk factors were collected using a modified version of a 34-item questionnaire that was developed by Horowitz et al. (1995) to assess oral cancer knowledge (e.g., risk factors, signs, symptoms) among adults. The current study included 15 items that assessed patients' knowledge of the risk factors for oral cancer. These items were listed in random order, and participants were asked to determine whether they thought the items were risk factors for oral cancer. The list included seven actual risk factors and eight nonrisk factors. One point was given for each correct response; final scores could range from 0–15 points, with higher scores indicating more accurate knowledge of the risk factors for oral cancer. In addition to a summative score, each item can be analyzed and reported separately (Horowitz et al., 1995). The reliability of the original scale was not reported. The modified version of the scale has been used (Powe et al., 2003) to assess knowledge of risk factors among African American dental providers (e.g., dentists, hygienists, students) and reflected a Cronbach alpha reliability ranging from 0.63–0.72. One of the authors of the original instrument reviewed the revised version to confirm content validity. In the current study, the scale reflected a Cronbach alpha reliability of 0.61. Each participant also completed a demographic data questionnaire that

asked about age, education, ethnicity, marital status, and gender. Information on health history, whether participants knew someone with cancer, whether their physician had talked with them about cancer, smoking history, height, and weight also was gathered.

## Procedure

The dates and times for the data collection were prearranged with the medical directors and office managers at the primary care center. After participating in a training protocol, data collectors and the project manager recruited participants from the waiting areas of the center from 9 am–5 pm for five consecutive days. This timeframe provided the opportunity to recruit from a patient population that presented to the center with diverse healthcare needs. After patients signed in for their appointments, a member of the team approached them, explained the purpose of the study, and obtained informed consent. Most participants were able to read the questionnaires without assistance from the research team; therefore, they completed the questionnaires in the general waiting area. If a participant needed help reading the questionnaire, he or she was escorted to a private room to maintain the privacy of his or her responses. Members of the research team were available to answer general questions about the survey and its purpose but did not provide detailed information about individual items. If participants were called in to see their provider before they finished the questionnaire, a member of the research team retrieved the questionnaire, which participants finished after their appointment. After participants completed the questionnaire, a member of the research team checked each form for completeness. Then, each participant received a \$10 gift certificate to a local grocery store as an incentive for completing the survey.

## Results

The sample consisted of 141 African American men (16%) and women (84%). Their mean age was 34 years, with a range of 18–69 years, and their mean educational level was 12 years, with a range of 0–20 years. Twenty-five percent ( $n = 35$ ) of the participants reported smoking an average of seven cigarettes per day (range = 1–21). The majority was single or never married (56%), and 66% ( $n = 93$ ) reported an average annual income of \$10,000 or less. A little more than half ( $n = 73$ ) of the participants reported that they had visited their dental provider during the previous year. Ten percent ( $n = 14$ ) had a previous diagnosis of cancer (e.g., breast, cervical, ovarian, leukemia).

## Knowledge of Risk Factors for Oral Cancer

The participants had a mean score of 8.7 (range = 0–13) out of a maximum of 15 points on the risk factor survey; therefore, they were able to answer approximately 58% of the items correctly. Among the 15 items, the ACS (2004b) has recognized only seven as risk factors for oral cancer. Only 4% ( $n = 6$ ) of the participants correctly identified all seven factors. Half of the sample did not recognize older age as a risk factor or risk associated with excessive use of alcohol. Although 78% identified the use of tobacco products as a risk factor, 53% did not recognize overexposure to ultraviolet radiation as a risk factor. Similarly, 65% were not aware that a diet low in fruits and vegetables and a vitamin A deficiency (55%) were

risk factors. However, 63% correctly identified prior oral cancer lesions as a risk factor for recurrence of the disease (see Figure 3).

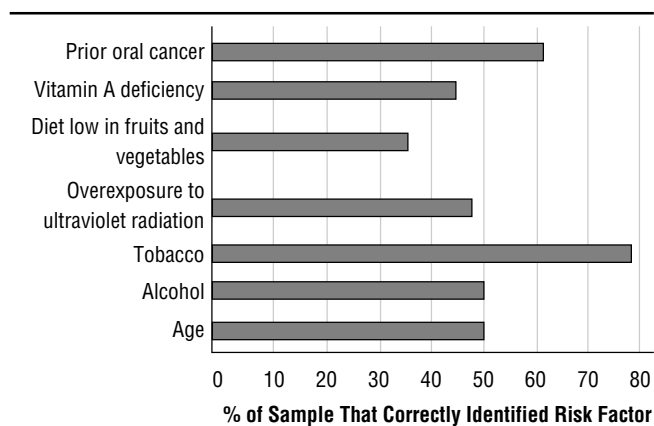
The survey contained eight items that have not been specifically identified as risk factors for oral cancer, yet many of the participants identified them as risk factors. Almost half (49%) of the participants linked oral cancer with obesity, 82% associated the disease with poorly fitting dentures, and 53% identified poor oral hygiene as a risk factor. The majority (75%) knew that family history of cancer (any type) was not associated with greater risk for oral cancer, but most participants believed that eating spicy foods (68%), consuming hot foods and beverages (74%), and using too much mouthwash (94%) placed them at risk for oral cancer.

### Differences in Knowledge of Oral Cancer Risk Factors Based on Demographic Variables

To identify whether knowledge of oral cancer risk factors varied based on selected demographic variables, t tests were conducted (see Table 1). Age was recoded into two dichotomous variables (i.e.,  $\geq 40$  years and  $< 40$  years). Although participants younger than 40 years had slightly higher mean scores, these differences were not statistically significant ( $df = 138$ ,  $t = 0.944$ ,  $p = 0.347$ ). Similarly, educational level was recoded in participants with a high school education and those with educational levels greater than 12 years. Participants educated beyond 12th grade and men in the sample had higher knowledge scores, but these differences were not statistically significant ( $df = 139$ ,  $t = 1.258$ ,  $p = 0.210$  versus  $df = 139$ ,  $t = 0.960$ ,  $p = 0.338$ ). Annual income was recoded to reflect subjects with incomes less than \$10,000 and those greater than \$10,000. Participants with incomes greater than \$10,000 had significantly higher knowledge scores ( $df = 138.56$ ,  $t = 2.757$ ,  $p = 0.007$ ) as well as those who visited their dentists within the past year ( $df = 138$ ,  $t = 2.848$ ,  $p = 0.006$ ). No difference was found in knowledge scores between smokers and nonsmokers ( $df = 136$ ,  $t = 0.041$ ,  $p = 0.967$ ).

## Discussion

The incidence and mortality rates associated with oral cancer are highest among African American men. Despite the fact that many of the risk factors for this disease are modifiable,



**Figure 3. Rates of Oral Cancer Risk Factor Identification (N = 141)**

**Table 1. Knowledge of Oral Cancer Risk Factors Based on Demographic Variables**

Demographic Variable	Risk Factor Knowledge Scores	
	$\bar{x}$	SD
Age < 40 years	8.87	2.27
Age $\geq 40$ years	8.44	2.93
Education < 12th grade	8.55	2.54
Education $\geq 12$ th grade	9.17	2.39
Female	8.62	2.64
Male	9.18	1.53
Income < \$10,000	8.29	2.78
Income $\geq$ \$10,000	9.37	1.83*
Smoker	8.69	2.57
Nonsmoker	8.67	2.50
Dental visit < 1 per year	9.27	2.03*
Dental visit $\geq 1$ per year	8.08	2.84

\*  $p = 0.05$

N = 141

few studies have evaluated whether this population is knowledgeable about this disease. Nurses play a key role in breast, cervical, colorectal, and prostate cancer prevention and early detection, but their efforts in oral cancer prevention have not been addressed routinely. Nurses encounter patients in multiple settings, and many of these patients may be less likely to routinely visit a dentist or primary care provider in the absence of specific symptoms. Therefore, nurses must capitalize on all patient encounters as an opportunity for cancer prevention and early detection.

This study, guided by the PPSTM for cancer screening, sought to assess knowledge of oral cancer risk factors among a sample of African American patients who received care at a community-based, federally funded primary care center. Findings suggest that inadequate knowledge and misinformation about oral cancer may represent barriers that can influence oral cancer screening and early detection for these patients.

Overall, participants responded correctly to little more than half of the items, and only 6 of the 141 participants were able to correctly identify all seven risk factors for oral cancer. In addition, only four participants knew which of the eight items were not risk factors. However, none of the participants scored a perfect 15 points. Important information was gained by examining individual item responses to the risk factors. For example, smoking is a major risk factor for oral cancer. Approximately 23% of African Americans surveyed in the 1999 Behavioral Risk Factor Surveillance System were classified as smokers (i.e., smoking 100 or more cigarettes in their lifetime and now smoke every day or some days) (CDC, 2003). In the current study, 25% of the participants identified themselves as smokers. As in other studies (Cruz et al., 2002; Horowitz et al., 1995), the use of tobacco products was by far the most familiar risk factor to participants. This finding may be linked to the increased media attention on smoking, increased cigarette taxes, smoking bans in federal and other buildings, and the large financial settlements from tobacco companies since the late 1990s (ACS, 2004a). Furthermore, smoking is readily linked to lung cancer, emphysema, bronchitis, and heart disease. Therefore, linking smoking with oral cancer is not a leap for

participants, given the fact that cigarettes and other tobacco products have direct contact with the oral cavity.

Conversely, as in other studies (Horowitz et al., 1998), participants were less informed about the other risk factors for oral cancer (e.g., alcohol, overexposure to the sun, a diet low fruits and vegetables, vitamin A deficiency). Reasons for this are unclear.

Campaigns that have focused on the role of the sun in the development of cancer most often have addressed melanoma. Although the risk of melanoma is 20 times greater for Caucasians than African Americans mainly because of the degree of skin pigmentation, African Americans have varying levels of skin pigmentation, which means that some may be at higher risk for skin cancer (ACS, 2004b). Nonetheless, few campaigns that focus on the role of the sun in cancer are inclusive of African Americans and their added risk for oral cancer. Nurses may be able to identify patients who work outdoors and can provide information regarding sunscreen, protective lip balms, and protective clothing. Nurses also may need to provide information regarding the role of diet because participants did not readily associate it with increasing the risk of oral cancer.

As in previous studies (Horowitz et al., 1995, 1998), a large percentage of the participants in this study believed that excessive use of mouthwash, consumption of hot beverages and spicy foods, poor oral hygiene, and wearing poorly fitting dentures increased the risk for oral cancer. Reasons for the beliefs about hot beverages and spicy foods are unclear but may relate to participants' thoughts that these items may actually damage oral mucosa and thus lead to the development of cancer. Nurses within community health centers are in key positions to correct this type of misinformation.

Interestingly, some confusion still is present in the literature regarding the role of dentures, mouthwash, and oral hygiene as risk factors for oral cancer. Although some texts list these as risk factors, the current scientific thinking is that poorly fitting dentures may trap alcohol and other particles that may lead to irritation of the mucosa; however, the use of dentures or mouthwash and poor oral hygiene do not place patients at increased risk for oral cancer (ACS, 2004b). Because some literature lists these as risk factors, providers may be misinformed and, in turn, misinform their patients.

Previous research has attempted to identify people who are likely to have greater knowledge about oral cancer risk factors. These included individuals who are above the poverty level, Caucasian, aged 40–64 years, and educated beyond high school (Horowitz et al., 1998; Horowitz & Nourjah, 1996). These findings were supported partially by the current study. No significant differences were found in overall risk factor knowledge between participants who were younger than 40 years compared to those who were older. Likewise, but in contrast to previous findings (Horowitz et al., 1998), subjects who were educated beyond 12th grade did not have significantly higher levels of knowledge of the risk factors. In the current study, no significant differences existed in knowledge of risk factors between men and women or smokers and nonsmokers. However, a limited number of smokers and those with more than a 12th-grade education may have masked any significant effects. Participants with annual incomes greater than \$10,000 in addition to those who visited their dental provider during the past year did have significantly higher levels of knowledge of oral cancer risk factors. The specific role of income and dental visits on knowledge of

oral cancer risk factors needs to be explored further. People with higher incomes may be able to better overcome medical system barriers (e.g., access issues, obtaining educational literature) or their dental providers may be knowledgeable about the disease and may have discussed these issues with their patients. However, these participants may have gained their information about oral cancer from other sources. Nurses need to better understand how and where patients receive their health-related information. Then, these networks may be used to provide information about oral cancer risk factors. Future research should address some of these issues so that effective intervention strategies can be developed.

## Implications for Education, Practice, and Research

The ability to generalize findings from this study is limited by the fact that the participants were recruited from one center, the majority was female, and the sample was not randomly selected. Furthermore, the reliability of the 15-item scale was 0.61 for the current study. However, the scale was intended to measure known risk factors of oral cancer; thus, evaluating these factors for internal consistency may be somewhat misleading. Despite these precautions for generalizations, findings from this study have implications for education, practice, and research.

In *Healthy People 2010*, the USDHHS (2000a) identified 22 objectives regarding oral health, and 12 are particularly relevant to oral cancer prevention, detection, and control (see Figure 4). Given the objectives for oral health along with the fact that African Americans average 1.2 dental visits per year compared to 2.2 visits for Caucasians (USDHHS, 2000b), opportunities may be limited for discussion of oral cancer risks and factor modification by dental providers. Moreover, healthcare providers, including dentists, physicians, and nurses, may be less familiar with oral cancer prevention and early-detection guidelines and strategies (Forrest, Drury, & Horowitz, 2001; McCunniff, Barker, Barker, & Williams, 2000; Powe et al., 2003). If this is the case, providers may be less likely to offer or perform routine oral cancer screening, which can result in late diagnosis of oral cancer and higher mortality. Therefore, nurses as well as other healthcare providers should have a basic understanding of oral cancer and its risk factors.

Obviously, nurses are not dental providers, yet nurses can assess cancer risk factors and include them in their teaching plans. This educator role is important because nurses encounter patients across the lifespan in a variety of settings. Moreover, many of the risk factors for oral cancer are similar to the risk factors for other types of cancer. In some cases, information on oral cancer can be added to existing teaching plans. For example, clinicians could include an assessment of oral cancer risk factors in the general patient assessment and provide patients with information on ways to limit or reduce risk factors. Nurses also may be in a position to refer patients to smoking or alcohol cessation programs, if needed, and counsel patients regarding nutritional intake (Lewis, Heitkemper, & Dirksen, 2000). Nurses in school settings could begin a dialogue with adolescents about the role of tobacco and alcohol in the development of oral cancer and the effective use of sunscreen, as well as other health-related issues (Lewis et al.).

- 3.60 Reduce the oropharyngeal cancer death rate.
- 3.10 Increase proportion of physicians and dentists who counsel their at-risk patients about tobacco use cessation, physical activity, and cancer screening.
- 7.11 Increase the proportion of local health departments that have established culturally appropriate and linguistically competent community health promotion and disease prevention programs.
- 21.60 Increase the proportion of oral and pharyngeal cancers detected at the earliest stage.
- 21.70 Increase the proportion of adults who, in the past 12 months, report having had an examination to detect oral and pharyngeal cancers.
- 21.10 Increase the proportion of children and adults who use the oral health-care system each year.
- 21.11 Increase the proportion of long-term care residents who use the oral healthcare system each year.
- 21.12 Increase the proportion of low-income children and adolescents who received any preventive dental service during the past year.
- 21.13 (Developmental) Increase the proportion of school-based health centers with an oral health component.
- 21.14 Increase the proportion of local health departments and community-based health centers, including community, migrant, and homeless health centers that have an oral health component.
- 21.16 Increase the number of states and the District of Columbia that have an oral and craniofacial health surveillance system.
- 21.17 (Developmental) Increase the number of tribal, state (including the District of Columbia), and local health agencies that serve jurisdiction of 250,000 or more people that have an effective public dental health program directed by a dental professional with public health training.

#### Figure 4. *Healthy People 2010 Oral Cancer Prevention and Control Objectives*

*Note.* Based on information from U.S. Department of Health and Human Services, 2000a.

Especially within community-based primary care centers that might be located in medically underserved areas, nurses should be willing to partner with dental professionals in correcting misinformation about oral cancer and making appropriate referrals. This partnership will facilitate progress toward the 2010 objectives for oral health. In addition, some of these primary care centers have dental services on site. If this is the case, nurses may encourage patients to schedule their appointments with their primary care provider and dental provider on the same day. Some community-based primary care centers have implemented these “one-stop” healthcare models to facilitate patients’ use of these services at each encounter. Nurses may need to enlist the assistance of female patients to help their partners and family members learn about this

disease. For example, men in the sample had a higher knowledge score than women, but only 16% of the sample was male. Female patients who participate in teaching sessions about oral cancer should be encouraged to share this information with their partner or family members. Other strategies that may be effective in reaching men include providing educational workshops on oral cancer at barbershops, work sites, and fraternal organizations. These strategies could be used as outreach initiatives of healthcare organizations as well as a way to engage nursing students in community projects.

Nurse educators and clinicians can play a pivotal role in the review of medical-surgical texts to ensure information on oral cancer prevention and early detection is included and is consistent with the current state of the science. This is important because previous research suggests that dental students and providers were less familiar with the risk factors of oral cancer and that inconsistency exists in the literature regarding these risks (McCunniff et al., 2000; Powe et al., 2003). These inconsistencies ultimately may adversely affect patients’ oral cancer knowledge.

More nurse-initiated research is needed to determine other factors that influence patients’ knowledge of oral cancer and their oral cancer screening and early-detection behaviors. This research should focus on several areas that parallel the PPSTM for cancer screening. First, research needs to evaluate additional patient barriers such as knowledge of the signs and symptoms of oral cancer. Second, provider barriers such as nurses’ knowledge of risk factors and signs and symptoms of oral cancer should be assessed. Nursing curricula and texts should be assessed to ensure that oral cancer prevention and early-detection protocols are incorporated. Third, system barriers such as the availability of educationally and culturally appropriate literature and access-to-care issues should be evaluated. Fourth, patient, provider, and system barriers should be evaluated for their potential interaction effects on oral cancer screening. Then, interventions should be developed to target the identified barriers and may include culturally appropriate patient and provider education but also could focus on decreasing medical system barriers to oral cancer screening.

*The authors wish to thank the participants for sharing their experiences and acknowledge Elvan Daniels, MD, Yvonne Fry, MD, Mary Frazier, MD, and Virgil Murray, BS, for their contributions to this program of research.*

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## For more information . . .

- ▶ Cancer Facts and Figures for African Americans 2003–2004  
[www.cancer.org/downloads/STT/861403.pdf](http://www.cancer.org/downloads/STT/861403.pdf)
- ▶ Medline Plus: African American Health  
[www.nlm.nih.gov/medlineplus/africanamericanhealth.html](http://www.nlm.nih.gov/medlineplus/africanamericanhealth.html)
- ▶ Oral Health Resources: Fact Sheet  
[www.cdc.gov/OralHealth/factsheets/adult-older.htm](http://www.cdc.gov/OralHealth/factsheets/adult-older.htm)

*Links can be found at [www.ons.org](http://www.ons.org).*

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