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Perception of oral cancer risk among subjects in an oral cancer screening program

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Abstract

Background: Screening people who are at high risk of developing oral cancers is a promising tool for decreasing morbidity and mortality attributable to this cancer.

Methods: A consortium led by the New York University College of Dentistry conducted a three-day oral cancer screening during June 1999. As part of the screening intake, the authors conducted a survey to assess the sociodemographic characteristics, level of knowledge of risk factors and predictors of oral cancer awareness among the subjects. The authors performed bivariate and multivariate analyses using two indicators of oral cancer awareness as dependent variables.

Results: The 803 subjects were racially and ethnically diverse, 66 percent were 40 years of age or older, 43 percent had a history of smoking, and 9 percent were likely to have had a history of alcohol abuse. Race/ethnicity, education level and knowledge of risk factors for oral cancer were predictors of awareness of an oral cancer examination, whereas only knowledge and possible history of alcohol abuse were predictors of having a history of examinations.

Conclusions: This screening program attracted a diverse sample of people at high risk of developing oral cancer due to smoking and likely history of alcohol abuse. Consistent with other national and international studies, the authors found a lack of knowledge of the risk factors associated with oral cancer and a low rate of histories of oral cancer examinations among the subjects.

Keywords: screening, oral cancer, risk factors

Introduction

Oral and pharyngeal cancers account for 3 percent of all diagnosed malignancies in the United States [1]. An estimated 32,000 new cases are diagnosed annually. In addition, more than 8,000 deaths are attributable to oral cancer each year. Major risk factors for oral cancer include alcohol and tobacco use, as well as sun exposure for lip cancer; tobacco use is responsible for 90 percent of these cancers and heavy smokers who are older than 40 years of age and use alcohol are at the highest risk [2]. Public awareness about the risk factors and methods of early detection of oral cancer are quite low [3, 4]. Tobacco and alcohol users over age 40 are at highest risk for this disease [5] but often do not appreciate their own heightened risk status [6, 7], and do not take advantage of community head and neck cancer screenings when they are offered [8, 10]. Although the efficacy of oral cancer screening has not been evaluated in a randomized clinical trial, the high concentration of these cancers in tobacco and alcohol users over age 40 argues for the utility of targeted screening [11]. An awareness of personal risk or susceptibility to illness is a central factor in most major theories of health behavior change [12, 14], but there are only a few studies examining oral cancer risk perception among higher risk individuals [10, 15, 16]. Studies examining the covariates of oral cancer risk perception will provide the basis for the development of tailored interventions aimed toward increasing oral cancer risk perception, screening, and risk reduction among tobacco and alcohol users. In this study, we assessed oral cancer risk behavior history, risk perception, and demographic and behavioral risk covariates of risk perception among oral cancer screening participants. We hope to use this information to determine whether screening is a feasible context for risk reduction counseling and to guide the content and tailoring of oral cancer prevention messages.

Materials and Methods

A consortium led by the College of Dentistry conducted a 3-day, no-cost, oral cancer screening during June of 2020 at several sites. Advertising included print and radio media, and signs posted in the College of Dentistry and nearby hospitals. Five screening participants of 808 refused to participate in the survey. Prior Institutional Review Board approval was obtained.

The 5-min survey [17] was administered by trained interviewers and included 21 items assessing sociodemographic characteristics, oral cancer knowledge, past (history) and current risk behaviors, and readiness to quit smoking [18]. Alcohol abuse history was assessed with the CAGE (Cutting down, Annoyance by criticism, Guilty feeling, and Eye-openers) questionnaire [19]. Oral cancer risk perception was assessed by asking all of the participants their risk for developing oral cancer compared with others of their age and sex using a five-point Likert scale [10, 20, 21]. Smokers were asked their perception of risk for developing

oral cancer compared with other smokers of their age and sex, and nonsmokers of their age and sex, using separate scales identical to that described above [20, 22].

Results

Maximum Participants (66%) were over age 40. Over one-half (63%) were women, and nearly one-half (44%) reported completion of a college degree. These oral cancer screening participants reported substantial risk behavior histories and current use (Table 1). Whereas the rate of ever smoking (43%) is somewhat lower, the rate of current use (29%) is higher. Sixteen percent of current smokers reported that they smoke more than a pack a day, which is slightly less and which may be explained by the relatively older age of the screening participants. Most smokers stated that they were receptive to quitting. Nine percent had a probable alcohol-abuse or -dependence history, which is lower, as indicated by their endorsement of at least two questions from the CAGE questionnaire [19]. Four percent reported current high-risk alcohol consumption of 14 or more drinks per week. Nearly one-half of the sample (43%) reported that they abstained from alcohol use altogether, which was low. Overall, 46% of the sample reported at least one behavioral risk factor for oral cancer (history of smoking or alcohol abuse, or currently drinking 14 or more drinks/week), and the presence and extent of tobacco and alcohol use were highly intercorrelated.

On average, most participants did not feel at high risk for developing oral cancer, with most (77%) reporting their risk for oral cancer was less than, or equal to, that of others of their age and sex; and 31 and 19% of current smokers perceived their oral cancer risk as less than that of other smokers and other nonsmokers, respectively (Table 2).

Among all participants, men felt more at risk than women [p=0.01]. Age was not significantly related to oral cancer risk perception [p>0.05], nor was level of education [p>0.05]. Current smokers and those with more extensive lifetime use of tobacco had higher risk perception than did nonsmokers and lighter smokers. However, those who drank 14 or more drinks per week did not have higher risk perception than those who did not drink this amount [p>0.05].

Table 1: Risk behaviors among participants in an oral cancer screening program (total N=803)

Smoking history	
Never smoked	439 (55%)
Smoked at least 100cigarettes	347 (43%)
Missing	17 (2%)
Current Tobacco Use	
Yes	230 (29%)
No	573 (71%)
Type of current use (n 230, current smokers)	
Currently smoke cigarettes	216 (27%)
Currently smoke cigars	11 (1.4%)
Currently smoke pipe	1 (.1%)
Currently use smokeless tobacco/chew	2 (.2%)
Current smoking rate (n 230)	
<½ pack a day	102 (44%)
½ up to 1 pack a day	84 (37%)
> 1 pack a day	37 (16%)
Missing	7 (3%)
Number of reported drinks/per week	
7/wk	560 (70%)
7/wk, 14/wk	22 (2%)
14/wk	29 (4%)
Missing	192 (24%)
Alcohol abuse/dependence history (CAGE questionnaire)	
Yes	73 (9%)
No	730(91%)

Table 2: Oral cancer risk perceptions among oral cancer screening participants

Questions	**Subsample assessed**	**Much less than others n (%)**	**Slightly less than others n (%)**	**About the same as others n (%)**	**Slightly more than others n (%)**	**Much more than others n (%)**	**Total n (%)**
"Compared to other people my age and sex my chances of having oral cancer in the future are"	Nonsmokers	193(36)	93(17)	186(35)	40(9)	16(3)	537(100)
"Compared to other people my age and sex my chances of having oral cancer in the future are"	Smokers	37(17)	22(10)	88(41)	51(23)	20(9)	218(100)
"Compared to other smokers my age and sex, my chances of having oral cancer in the future are"	Smokers	40(18)	30(13)	101(45)	34(15)	19(9)	224(100)
"Compared to nonsmokers my age and sex, my chances of having oral cancer in the future are"	Smokers	26(12)	17(7)	38(17)	75(33)	70(31)	226(100)

Discussion

This study is the first to examine the relationship between oral cancer risk behaviors, demographics, and oral cancer risk perception among a large, diverse sample of oral cancer screening volunteers. Consistent with other small-sample surveys [10, 15, 16], tobacco users are aware of their heightened oral cancer risk. The findings demonstrate the feasibility of reaching high risk individuals for oral cancer screening and risk reduction counseling, because almost one-half (46%) of participants in this screening reported at least one behavioral risk factor for oral cancer.

Despite their high-risk profile, screening attendees felt relatively invulnerable to developing oral cancer. Relatively low perceptions of risk were comparable with those found in hospital-based screening [10], and probably reflect normative optimistic biases [20, 21]. However, tobacco users, but not heavy alcohol users, were relatively accurate in their heightened oral cancer risk perception. This suggests that individuals with heavy alcohol use histories may be less likely to present themselves for oral cancer screening than smokers, and less likely to pursue alcohol-dependence treatment to reduce their risk of oral cancer.

Significant gender and racial differences in oral cancer risk perception were explained by variations in tobacco use among demographic groups, but older participants were no more likely to feel at risk than were younger participants, despite their more extensive risk histories. This finding may signal an important opportunity for educating older individuals about their at-risk status [23] and the benefits of quitting, and for delivering tailored risk communication that would encourage oral cancer screening and risk reduction. These findings support the need for health education materials that incorporate oral cancer risk perception of high-risk individuals, which should be offered in places frequented by high-risk individuals, including smoking cessation clinics, alcohol drug rehabilitation centers, and food shelters. Currently, there are few oral cancer educational resources [24].

The major limitation of this study involves the absence of a comparison group of non-screeners that would have allowed examination of risk perception as a motivator for screening participation, and the extent to which these screeners' risk perceptions differed from that of the general population. Another limitation of the study involved the substantial percentage (24%) of missing data for current alcohol consumption. This may highlight participants' reluctance to accurately report their level of alcohol consumption in medical settings. Study strengths include the assessment of a large, very diverse participant population, which allowed us to disentangle relationships between demographics and risk behaviors and perception.

In conclusion, the results of this study suggest that risk reduction counseling in the oral cancer screening session may be a feasible way to reach those who are most at risk.

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