

Abstract: Dentists must be trained in oral cancer (OC) screening and counseling. However, educational gaps exist in OC prevention worldwide. The objective of this investigation was to assess self-reported perceptions and practices relevant to OC education among Mexican dental school deans. At a leadership meeting in 2007, deans were given a questionnaire containing Likert-type scale evaluations of agreement with statements. Associations between variables were analyzed with Pearson’s chi-square test. Of thirty-four deans attending, twenty-three (68 percent response rate) answered the questionnaire in full. Among the respondents, 83 percent believed “very strongly” that dentists must look for OC, but only 52 percent believed “very strongly” that OC screening must be adopted as a standard practice. Fifty-two percent ranked dentists’ responsibility in looking after their patients’ overall health as “very strong.” The deans indicated less support for dentists’ roles to intervene in tobacco and alcohol cessation. Participant deans lead institutions that provide education for over 12,000 dental students; their low awareness on OC screening and counseling may hinder the establishment of routine standardized screening and health promotion that help save human lives.

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Key words: cancer screening, deans, dental education, oral cancer, survey

Submitted for publication 2/29/08; accepted 9/8/08

Oral cancer (OC) is a major killer worldwide.1 Because OC is often detected in advanced stages and continues to show a high mortality rate,2 calls have been made for global action against the neglected burden of OC.3 Nevertheless, this disease exemplifies the educational challenges still facing dentists worldwide. To empower dentists with the skills and tools to identify early signs of cancer and precancerous conditions, educators have advocated routine risk assessment and clinical examination for OC as key elements of dental school curricula and professional continuing education. However, surveys among dental students and dentists consistently reveal gaps in knowledge and practices relevant to OC screening and counseling.4-17

Surveys that assess the knowledge and attitudes among dental students and dentists allow for evaluation of the outcomes of dental education. Surveys have been conducted among deans18-20 to identify opportunities and challenges for dental education, from the perspective of policymakers whose opinions bear heavily on the information provided in their schools. The hypothesis underlying our research study is that dental school deans recognize the importance of OC, but their opinions and practices on OC may not be consistent with the current paradigm that regards oral health as integral to the individual’s overall well-being and recommends an expansion of the role of dentists in OC screening, risk counseling, and health promotion. To test this hypothesis, the aims of our investigation were to analyze self-reported perceptions and current practices relevant to educational, diagnostic, and public health aspects of OC among a group of deans of dental schools in Mexico.

Materials and Methods

The survey adhered to relevant guidelines for appropriate, ethical research design and the relevant standards to ensure the protection of human subjects. The protocol was reviewed and approved by the Ethics and Biosafety Committees at the National University of Mexico School of Dentistry.

The pre-tested thirty-five-item survey instrument was administered to a group of dental school deans. Great care was taken to ensure that all deans understood that they would answer a confidential, self-administered questionnaire as volunteers. No incentives were offered. Questionnaire administration
took place in May 2007 during the meeting of the Mexican Federation of Dental Schools (FMFEO) in Mexico City. The FMFEO meeting brings together the deans of schools that train a high percentage of dental students in Mexico to discuss accreditation, certification, and curricular issues. At the beginning of their meeting, the deans were informed about the purpose of this investigation and the structure of the questionnaire; then, they were given the time to respond.

The questions on the survey were designed to assess the deans’ attitudes and elicit their perceptions of current practices related to OC in their schools. Some questions were translated and adapted from previous surveys reported in the literature. The survey instrument included thirteen items that elicited demographic and background information such as gender, age, year of graduation, areas of study, and academic degrees. The remaining questions were design in a Likert-scale format to allow respondents to indicate their degree of agreement with the statements. Twenty-two items requested opinions about OC, oral public health, and perceptions about the extended responsibilities of dentists as health professionals. Questions on current practices addressed the deans’ perceptions of dental students’ knowledge of OC diagnosis, their schools’ resources and activities relevant to OC, and the amount of financial support they would be prepared to invest in new technologies for early visualization of OC. Questions on financial resources were asked to assess, through arbitrary ranges in U.S. dollars, the deans’ commitment to OC screening and their perceptions about the patient’s capacity to pay for this service. Responses on perception items were ranked as “very strong,” “strong,” “medium,” “low,” and “very low.” Current practice items were ranked “yes,” “no,” and “I don’t know.” Prior to the deans’ survey, the questionnaire was assessed for clarity, average time to respond, and response agreement among 123 dentists applying to our school’s Postgraduate Division; none of these pilot-test subjects was a member of the research team. The response agreement among these subjects (Cronbach’s alpha r=0.8533) indicated that the questionnaire options did not cause significant confusion. The questionnaire is available from the corresponding author.

Possible associations between variables were analyzed by means of Pearson’s chi-square test using the software package JMP v5.0.1 (SAS Institute Inc., Cary, NC, USA). A critical value of p=0.05 was considered statistically significant. Results are presented as rounded percentages.

Results

Of the thirty-four deans attending the 2007 FMFEO meeting, twenty-three answered the questionnaire in full, for a 68 percent response rate. Within one month after the meeting, additional follow-up was initiated with the eleven nonrespondents, but no additional completed questionnaires were returned. Of the twenty-three respondents, 78 percent were male, and the majority (70 percent) led state-funded schools. All twenty-three respondents were qualified dentists and had completed postgraduate studies: fifteen (65 percent) had obtained a master’s degree, and eight (35 percent) had received graduate education in a dental specialty. The year of their graduation from dental school ranged from 1974 to 1997: 43 percent graduated in the 1970s, 35 percent in the 1980s, and 22 percent in the 1990s. Neither their gender or year of graduation was associated with their responses.

Fifty-two percent of the respondents ranked dentists’ responsibility in looking after their patients’ overall health as “very strong” (Figure 1). Equal or lower percentages of deans showed a “very strong” commitment for dentists to intervene in tobacco cessation (52 percent), advise the alcoholic patient to get specialized treatment (36 percent), and evaluate the patient for nutritional disorders (26 percent).

Most (83 percent) deans rated their perception as “very strong” that “Dentists must search for OC and refer the patient to a specialist,” but significantly fewer (52 percent) believed “very strongly” that “The search for OC must be adopted as a standard practice” (p=0.008). Forty-six percent believed “very strongly” that “Diagnostic tests for OC must be applied in the clinic” (Figure 2). One-half of the respondents believed “very strongly” that “Training is required for telling a patient of a positive OC result.”

Over 80 percent of the deans indicated that OC has been detected in patients in their teaching clinics (Figure 3). Most (78 percent) said that their schools train students to examine the patient’s neck for swollen lymph nodes. Sixty-five percent of the deans reported that a student’s dexterity in examining the patient’s oral mucosa was assessed at their school. Fourteen (61 percent) of the deans said their school had faculty who specialize in oral pathology and held clinic sessions on oral medicine. Fewer (43 percent) deans said their schools had faculty trained in oral medicine. In response to the question “Do you think that your graduates are able to detect OC and precancer?,” fifteen respondents (65 percent) replied
Figure 1. Deans’ (n=23) opinions about dentists’ responsibilities for their patients’ overall health

Dentists must routinely assess patient’s risk for diabetes
Dentists must routinely obtain patient’s blood pressure
Dentists must routinely assess patient’s hypertension risk
Dentists are responsible for looking after their patients’ overall health
Dentists must advise patients to quit smoking
Dentists must advise alcoholic patients to get specialized treatment
Dentists must routinely evaluate patients for nutritional disorders

Percentages of deans who responded “VERY STRONG” (black), “STRONG” (gray), and “MEDIUM” (white).

a: 13 percent of deans responded “LOW”
b: 9 percent of deans responded “LOW,” and 4 percent wrote down “DISAGREE”

Figure 2. Deans’ (n=23) opinions about oral cancer (OC) diagnosis

Dentists must search for OC and refer the patient to a specialist
The search for OC must be adopted as a standard practice
Training is required for telling a patient of a positive OC result
Diagnostic tests for OC must be applied in the clinic

Percentages of deans who responded “VERY STRONG” (black), “STRONG” (dark gray), and “MEDIUM” (light gray)

a: 4 percent wrote down “DISAGREE” (white)
b: 5 percent wrote down “DISAGREE” (white)
“yes,” and 20 percent responded that they “did not know.” Sixty-one percent of the respondents stated that their locality’s OC incidence is not greater than that of the country as a whole, and >20 percent responded that they “did not know.”

When asked if they would use a combination of new technologies to help students visualize oral dysplasia and cancer in their teaching clinics, all twenty-three deans answered “yes.” Among them, 58 percent believed that their initial investment for the acquisition of these technologies would range between 1,000 and 2,500 U.S. dollars, while 37 percent thought it possible that they would invest over 2,500 dollars. Most deans (90 percent) believed that patients would be willing to pay ≤20 U.S. dollars for an OC screening test in the school setting.

Discussion

In Mexico, deans influence the emphasis given to OC awareness and screening activities through allocation of human and financial resources. The deans’ views are decisive for capacity building and curriculum development, so if they have a low awareness of a significant oral health issue, it is likely that certain aspects of dental education will not be covered in their schools.

This leadership meeting provided direct interaction with the deans and allowed collection of their self-reported perceptions, attitudes, and current practices on educational, diagnostic, and public health aspects of OC. Selection of the sample entailed only those deans attending the FMFEO meeting. Together, the twenty-three deans who took part in this survey lead schools that provide education for more than 12,000 dental students across all years.

The results of the survey confirm the hypothesis underlying this study that dental school deans recognize the importance of OC, but their opinions about the role of dentists in OC may not be consistent with the current paradigm that regards oral health as integral to the individual’s overall well-being and recommends an expansion of the roles of dentists in screening, risk prevention counseling, and health promotion. Fifty-two percent of the respondents ranked dentists’ responsibility in looking after their patients’ overall health as “very strong,” at a time when dentists...
are called upon to increase their role in promoting oral health as integral and essential to overall health, and understand that “all health care providers need to shoulder the responsibility for a patient’s medical health.” New educational models must be developed to effectively integrate oral health into primary health care. Moreover, dental education must prepare future dentists in providing surveillance of changing disease patterns in order to provide public health systems with valuable feedback on disease trends.

Dentists should advocate for healthy lifestyle behavior and participate in OC prevention through control of known risk factors, such as tobacco use and alcohol abuse, which are reported to have a synergistic effect that increases the individual’s OC risk. It is a cause for concern that most deans who participated in this survey did not strongly endorse the responsibilities of dentists to provide advice on tobacco cessation or encourage the alcoholic patient to find specialized help. Perhaps consumption of tobacco and alcohol abuse are still seen by the deans as a patient’s personal choice rather than public health problems that fall into the realm of dentists’ extended roles. Similar reticence related to the role of dentists in providing patients with advice on tobacco and alcohol has been observed in other surveys. Moreover, in a survey of forty-six dental schools in the United States, Patton et al. found that 87 percent of the respondents (deans or senior faculty) were confident that their graduates viewed tobacco screening and cessation counseling as part of their professional roles, but only half were confident that their graduates viewed alcohol or drug abuse screening in the same manner. In this regard, in order to maximize their interventions for health promotion, dentists still need training to develop their risk assessment and counseling skills.

OC continues to have one of the lowest survival rates among all cancers, making early detection and intervention crucial. Of special concern is the observation that while most deans perceived that dentists must look for OC and refer the patient to a specialist, only half believed that OC screening must be adopted as a standard practice, and less than half thought that diagnostic tests for OC should be used in the clinic. It is possible that fear of delivering bad news may have played a role in the respondents’ reluctance to adopt OC screening as a standard practice, as most of them believed that training is required to enable dentists to inform a patient about a positive OC result.

A timely and easy-to-perform oral examination for OC is a noninvasive procedure that can help save lives, but only two-thirds of the responding deans thought that their graduates were capable of detecting OC and precancerous lesions. Most reported that their dental school trained their students how to examine the patient’s neck for swollen lymph nodes, but only two-thirds stated that their schools held clinic sessions on oral medicine and evaluated a student’s dexterity to examine the patient’s oral mucosa. To identify early signs of OC and precancer, future dentists must be empowered with the clinical skills, and their proficiency must be assessed routinely. Because not all OC and premalignant lesions are clinically apparent, both dentists and dental students must also be trained in the use of new technologies available to help students visualize oral dysplasia and cancer. On a positive note, when asked if they would use technologies to screen for OC in their teaching clinics, all twenty-three deans answered “yes.” At the time of the survey, the aids intended for lesion visualization, such as VELscope, were not available in Mexico. As suggested by Patton et al., we are evaluating the utility of tissue autofluorescence for OC screening in low-risk populations and in patients seen by primary care providers.

Most deans reported that OC has been detected in their school’s clinics, but not all schools track statistics for OC detection, and there is a shortage of specialized human resources as not all the schools possess faculty specialized in oral pathology and oral medicine. To create a sustainable infrastructure for much-needed education and service, efforts must be made to increase the number of faculty members trained in these areas. In addition, private practitioners must have access to continuing education in OC and reliable diagnostic services. Dental school-based pathology services are important resources for OC diagnosis.

The World Health Organization (WHO) reports an estimated prevalence in Mexico of 3.2 cases of OC per 100,000 inhabitants, which means that more than 3,000 individuals are affected by OC across the nation at any point in time. Most deans may not have a sense of urgency regarding OC when 73 percent perceive that their local prevalence is not higher than that of the country as a whole. In the absence of a systematic and standardized epidemiological survey, the true prevalence of OC in Mexico remains unknown. Among Hispanics in the United States, oral and pharyngeal cancers rank tenth in incidence among all types of cancer for men and seventeenth for women, with rates of 11.4 and 4.2 per 100,000 inhabitants, respectively, and it is thought that cul-
tural habits associated with their countries of origin are preserved among Hispanics living in the United States. Approximately half of the Hispanics in the United States are of Mexican descent; this may provide an arbitrary point of reference to speculate that the OC prevalence in Mexico is higher than the estimate provided by the WHO.

The deans who participated in our survey may still regard oral and systemic health as separate entities, and they showed a low level of awareness about the educational, diagnostic, and public health aspects of OC. These findings may have a profoundly negative impact on OC education. In fact, these deficiencies may be commonplace wherever dentists are being trained in an educational model that leans heavily toward restorative dentistry in contrast to a broad perspective that emphasizes the patient’s overall health status. Although not intended to assess the degree to which graduates’ attitudes and practices regarding OC were influenced by the attitudes of their dental school leadership, a recent survey using the same questionnaire demonstrated no significant differences between these deans’ responses and those of 250 recent graduates from thirty dental schools in Mexico (results not presented).

The findings from this survey provide an opportunity to raise awareness among deans about OC and OC-related education, research, and services. In 2008, the dental school at the National University of Mexico (odonto.unam.mx) launched a program to increase OC awareness, conduct routine standardized screening, and obtain reliable epidemiological information on the prevalence of oral malignant and premalignant lesions.

Acknowledgments

We thank the participating deans for sharing their valuable opinions and Javier de la Fuente-Hernández, M.Sc., President of the Mexican Federation of Dental Schools, for his support. We gratefully acknowledge Dr. Jennifer L. Cleveland, Dental Officer/Epidemiologist at the U.S. Centers for Disease Control and Prevention, for her valuable comments.

REFERENCES


