

The Views of Dentists, Nurses and Nutritionists on the Association Between Diabetes and Periodontal Disease: A Qualitative Study in a Latino Community

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Abstract

Objective: To interview health professionals in a Latino community about the association between diabetes and periodontitis, and provide a basis to develop interventions for them to promote oral health and good glycemic control among patients with diabetes. **Methods:** Five dentists, seven nurses and two nutritionists were interviewed about their practices relevant to oral health and diabetes, knowledge about the association, beliefs about Latinos, recommendations on reaching others in their fields, and barriers. The interviews were audiotaped, transcribed, and analyzed qualitatively. **Results:** Professionals identified policy, community and practice barriers for promoting diabetic control and oral health. **Conclusions:** Producing a resource list, cross-educating professionals about diabetes and oral health, training professionals to better serve Latino patients, developing appropriate protocols for each profession regarding the association between diabetes and periodontitis, and educating the community about diabetic control, oral health and disease prevention were identified as potential strategies to improve oral health among Latino persons with diabetes.

Key Words: Diabetes mellitus, periodontal diseases, interviews, professional practice, dentists, nurses, school nursing, nutritionists, Hispanic Americans

Introduction

There are convincing data that poorly controlled diabetes leads to a two- to three-fold increased risk for severe periodontitis, and there is increasing evidence that the relationship is bidirectional – specifically, periodontitis may cause elevation in blood glucose (1). Health professionals should be aware of this relation so that they can accurately inform and advise their patients, especially since persons with diabetes have no better oral hygiene than the general population (2). In Latino communities this is particularly important, because rates of diabetes and periodontal diseases are disproportionately high, and adequate treatment for either disorder is less likely (3, 4).

The purpose of this qualitative study in a Chicago Latino community was to elicit attitudes and practices of health professionals about the association between diabetes and periodontitis, to guide development of interventions to promote periodontal health and better glycemic control among Latinos. Community-based, qualitative research was chosen as the first step to obtain the in-depth contextual information necessary to develop effective interventions (5-8). Although health care professionals have provided information about working with Latinos with diabetes (7), the attitudes and experiences of the professionals themselves are less well understood. Even less understood is how non-dental health professionals regard oral health issues associated with diabetes.

Methods

In 2004, a study was conducted in the Greater Lawn area of Chicago, consisting of two adjacent city communities with low median incomes and high proportions of Mexican-origin Latinos. The study utilized the partnership between the Illinois Prevention Research Center and the community (9).

The authors designed an interview script with questions concerning health professionals' practices relevant to oral health and diabetes treatment (both Type I and Type II), beliefs about Latino patients, recommendations concerning the diabetes-periodontitis link, and assessments of barriers. Dentists were recruited by mail via on-line telephone directories; nurses from local schools and hospitals (no outpatient clinic nurses were recruited); and nutritionists through nurses.

Four interviewers (authors AK, KN, EL and JC) had been trained in conducting focus groups. Further training was provided by the first author who reviewed the goals of the interviews, the questions, and the concepts that they were to probe with the other interviewers. The interviews consisted of open-ended questions, lasted 30-45 minutes, were tape-recorded and transcribed, and in one case, translated into English. Three interviews were conducted in person, and the others by telephone. The study was approved by the Human Subjects Review Board; signed consent was

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Table 1
Characteristics of dentists, nurses and nutritionists interviewed

	Dentists n=5	Hospital Nurses n=3	School Nurses n=4	Nutritionists n=2
Males/females	4/1	0/3	0/4	0/2
% of practice Latino	45-90%	30-50%	50-99%	25-50%
Range of experience	6-22 years	7-27 years	22-41 years	13-20 years
Spanish-speaking	1-fluent	1-fluent 1-some ability	1-some ability	No Spanish
Availability of Spanish interpretation	All had Spanish-speaking employees	Reported mixed availability of interpretation services	Reported few language problems since the children spoke English	Spanish-speaking staff available
Type of Practice	Solo private practice of general dentistry	Inpatient	Schools	Inpatient and outpatient
Oral self-care addressed in their practice?	Yes to Limited	Limited	Limited	No
Diabetes addressed in their practice?	Yes to Limited	Yes	Yes	Yes

obtained; and participants were compensated for their time.

Three authors read all the transcripts and summarized each interview by topic. Next, they summarized topics within each profession. Finally, a fourth author read all the transcripts, and checked the summaries for accuracy. The authors then searched the summaries for information that would indicate appropriate interventions. Atlas.ti software was used to assist in this process.

Results

Three interviewers conducted 2, 3 and 8 interviews each in English, and a fourth conducted one in Spanish, with 5 dentists, 7 nurses, and 2 nutritionists. The characteristics of the interviewees are presented in Table 1.

Interventions concerning the association between diabetes and periodontitis were grouped according to the level of intervention indicated: policy, community, or practice level. Policy and community-level interventions are briefly mentioned here; however, the major discussion focuses on the level of practices of health care professionals.

Policy level: Several policy-level barriers were identified by the health professionals. The first was that Illinois Medicaid does not cover either periodontal treatment or nutritional

counseling. The second was the shortage of dentists who accept Medicaid in the community. Other concerns that would require policy changes were the need for appropriate interpretation services and dealing with low literacy in the communities.

Community level: The interviews revealed concerns that could be addressed through education or skills training for community members. Many of these concerns might be summed up in the term "health literacy." Nurses noted cultural differences and resistance to medical suggestions, attributing these to low education levels. They were frustrated by the lack of background for understanding health information among their patients and families. Dentists reported similar concerns; they perceived that Latino patients were focused on pain relief or other problems and were not interested in preventive or periodontal treatment. One dentist mentioned that many Latinos are not aware when they have diabetes.

In addition to cultural differences, health professionals reported emotional reactions to medical situations that could interfere with receiving treatment among their Latino patients. Nurses indicated that Latino patients were anxious and fearful about dental visits. They suggested that Latino patients did not under-

stand the importance of oral health. One dentist felt Latino patients were ashamed of having diabetes and might deny it. He quoted patients as saying, "Why do you need to know about me taking my pills? You are taking care of my mouth." Another dentist felt that Latino patients became overwhelmed and frightened at news related to diabetes and focused on the problems and dangers associated with diabetes instead of having confidence that the problems could be treated or avoided.

Many participants recognized that the counterproductive emotional reactions and attitudes could be related to underlying economic issues. Nurses observed that patients were overwhelmed with problems and needed help with "everything." All nurses felt that other issues might have higher priority than oral health or dealing with diabetes for these patients. The bottom line was that there was a perception that cultural differences and economic hardship affected patient compliance, often overriding the patient's stated wish to comply and respect for authority also noted in their Latino patients.

Practice level: *Knowledge base.* The interviews suggested that professionals' knowledge base is adequate but lacked depth. A few of the dentists suggested that periodontal disease in a patient might indicate diabetes.

None of the dentists mentioned that periodontal disease could affect glycemic control. Nurses and nutritionists either had knowledge of the association or were not surprised by it. They appropriately connected it with the recognized infections and circulation problems of diabetes. Nurses and nutritionists also identified their unfamiliarity with Latino food preferences as a problem when teaching glycemic control to Latinos.

Attitudes of health professionals. In many ways, the attitudes about understanding the association between diabetes and periodontitis were favorable. All considered oral health and periodontal health to be important, and all considered glycemic control among patients with diabetes to be important. However, when it came to devoting time and resources to changing interventions, the differences in priorities among the professionals became clear. Dentists focused less on glycemic control, and nurses and nutritionists focused less on periodontal health. Surprisingly, not all dentists emphasized prevention, believing that most patients were already aware of "what caused cavities."

Practices. Practice patterns in all groups had favorable aspects. Some of the dentists reported monitoring glucose levels, checking medical restrictions, contacting the patient's physician, using antibiotics and other chemotherapy more aggressively, and emphasizing proper diet. Most dentists placed considerable importance on oral home care. They described in detail how their staff educated patients, used Spanish reading material, read the material aloud to their patients, underlined important points, and physically demonstrated home care. All the dentists reported that dental treatment was modified for patients with diabetes to include more frequent recalls, and to emphasize home care. Nurses referred patients to dentists if an oral problem were perceived. Nutritionists did not refer to dentists, but were willing to do so. None referred patients with diabetes to dentists for evaluation of the periodontium.

Time was the biggest barrier in convincing nurses to provide information about the association to patients, especially among hospital nurses. Once they were convinced it was important enough, and if information were provided, nurses would offer it to their patients. Nutritionists were more eager to pass this information on to patients.

Current resources. None of the patient literature used by nurses or nutritionists discussed the need for prevention of periodontal disease for persons with diabetes.

Recommendations for disseminating information about the link to health professionals. Dentists were concerned about the trustworthiness of sources of information for dental professionals, especially journal articles. They suggested providing websites and continuing education (CE) through study groups and conferences. They noted that free CE would reach more dentists. Several dentists suggested that the diabetes-periodontitis association alone might not draw enough interest, since it was not income-generating. Trusted sources of information included the American Dental Association, local dental societies, schools of dentistry, and some newsletter/journals such as the *Harvard Medical Watch*. A dentist suggested that a presentation on the periodontitis and diabetes association could be developed for dentists to give to each other, to other health professionals, and to community meetings.

According to the participants, the best way to give school and hospital nurses and nutritionists information about the diabetes and periodontitis association would be to create guidelines and new protocols through the schools, hospitals and employing agencies. Nurses and nutritionists also suggested providing teaching tools and equipment, such as pictures, handouts and videotapes for patients. Their trusted sources of information were nursing journals, the American Diabetes Association, the American Dietetic Association, and the American Society for Parenteral and Enteral Nutrition. Nutritionists were less interested in reading professional journals.

Discussion

A major limitation of this study is the small number of participants. Also, additional professionals such as physicians, outpatient nurses, dental hygienists and dental assistants should be included in future studies. In spite of these limitations, the study identified several potential interventions whose viability should be further explored through additional research. These qualitative methods have provided directions to pursue, but evidence-based, quantitative research is needed to assess the extent of problems among health professionals and to ascertain the appropriateness and effectiveness of suggested interventions.

Resources. This study identified potential resource gaps. A resource list should be created on the association between diabetes and periodontitis, reviewed for gaps and published. Resources should be developed to fill gaps.

Education of health professionals. Health professionals need more information outside their immediate fields. Dentists should understand more about glycemic control, and other professionals should understand more about preventing periodontal disease. Nurses and nutritionists requested more training on incorporating Latino foods into a diabetic diet. It is necessary to develop and train health professionals in more culturally-acceptable methods of promoting prevention and self-care in their practices. In each profession, specific methods of education were identified. Surveys of health professionals would quantify the need for education and levels of interest.

Changing professional practices. Health professionals should be encouraged to attend to both glycemic control and oral health among patients with diabetes, in part by referring to other health professionals. A survey could quantify the prevalence of interest, and document how much time and resources health professionals would be willing to devote to this. The information could then be used to facilitate meetings among schools, hospitals, outpatient clinics, employ-

ment agencies for nurses and nutritionists, health professionals and the community to develop protocols for each profession regarding the appropriate incorporation of information about the diabetes-periodontitis association into treatment protocols.

Community-based educational programs should be developed to promote health maintenance and disease prevention in diabetic and oral health among Latinos. These interviews clearly pointed to policy recommendations, such as Medicaid coverage for treatment of periodontal disease and nutritional counseling, especially for persons with diabetes. Further recommendations include better staffing of hospitals and clinics with trained Spanish interpreters, appropriate training of staff for educating people with low literacy, and provision of educational materials appropriate for those with low literacy.

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Previous presentations

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References

1. Taylor GW. Bidirectional interrelationships between diabetes and periodontal disease: An epidemiologic perspective. *Ann Periodontol* 2001; 6: 99-112.

2. Moore PA, Orchard T, Guggenheimer J, et al. Diabetes and oral health promotion: A survey of disease prevention behaviors. *J Am Dent Assoc* 2000; 131(9): 1333-41.
3. Epidemiology and Statistics Bureau, Division of Diabetes Translation. Self-reported prevalence of diabetes among Hispanics—United States, 1994-1997. *MMWR* 1999; 48(1): 8-12.
4. Albandar JM, Kingman A. Gingival recession, gingival bleeding, and dental calculus in adults 30 years of age and older in the United States, 1988-1994. *J Periodontol* 1999; 70(1): 30-43.
5. Lipton RB, Losey L, Giachello AL, et al. Factors affecting diabetes treatment and patient education among Latinos: Results of a preliminary study in Chicago. *J Med Systems* 1996; 20(5): 267-276.
6. Benavides-Vaello S, Garcia AA, Brown SA, et al. Using focus groups to plan and evaluate diabetes self-management for Mexican Americans. *Diabetes Educ* 2004; 30(2): 238, 242-4, 247-256.
7. Lipton RB, Losey LM, Giachello A, et al. Attitudes and issues in treating Latino patients with type 2 diabetes: Views of healthcare providers. *Diabetes Educ* 1998; 24(1): 67-71.
8. Anderson RM, Goddard CE, Garcia R, et al. Using focus groups to identify diabetes care and education issues for Latinos with diabetes. *Diabetes Educ* 1998; 24(5): 618-25.
9. Levy SR, Baldyga W, Jurkowski JM. Developing community health promotion interventions: Selecting partners and fostering collaboration. *Health Promotion Prac* 2003; 4(3): 314-22.