

Periodontal Disease and Diabetes: Perceptions, Communication, and Referral Between Rural Primary Care Physicians and Dentists

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■ ABSTRACT

Background and objective. Connections between oral health and systemic disease, specifically diabetes, are well described in the literature. Screening strategies for diabetes in dental settings and dental screenings in diabetes care settings exist. The purpose of this study was to evaluate the communication and referral patterns between dentists and physicians in a rural state with respect to recognition of dental disease and diabetes.

Methods. Surveys were sent to the members of the North Dakota Academy of Family Physicians, the North Dakota Medical Association, and the North Dakota Dental Association.

Results. Overall, 85 responses were collected, with 100% of responding physicians and dentists answering “yes” to a perceived link between oral and systemic health. Physician respondents tended to make a referral for dental evaluation in patients with prediabetes or diabetes more often than dentists referred patients with periodontal disease to physicians.

Conclusion. Awareness of the link between dental disease and diabetes and of the need for referral is higher among physicians than among dentists. Opportunity exists to improve awareness and increase referrals.

Approximately 30.3 million people in the United States have diabetes (1); roughly 47% of adults >30 years of age have periodontal disease (2). A “two-way street” link between diabetes and periodontal disease, such that each affects the other, is well established (3–10). A variety of possible mechanisms have been and are still being researched, including oxidative stress and immunoinflammatory responses (11–13). People with diabetes have higher levels of malondialdehyde and lower levels of glutathione, which are well understood markers of oxidative stress in hyperglycemic states. Additionally, macrophages and monocytes often exhibit elevated production of proinflammatory cytokines and mediators such as tumor necro-

sis factor α in response to periodontal pathogens, which may increase host tissue destruction.

Recognition of the well-elucidated interplay between periodontal disease and diabetes is key for both physicians and dentists. Communication and referral between these two health care disciplines consistent with interprofessional team management of chronic disease (14) would seem to be crucial to successful treatment of both conditions. The purpose of this study was to examine these professional relationships and referrals in a population of rural physicians and dentists.

Methods

This survey study sought to 1) focus attention on the link between periodontitis and diabetes and 2) evaluate the communication and referral pat-

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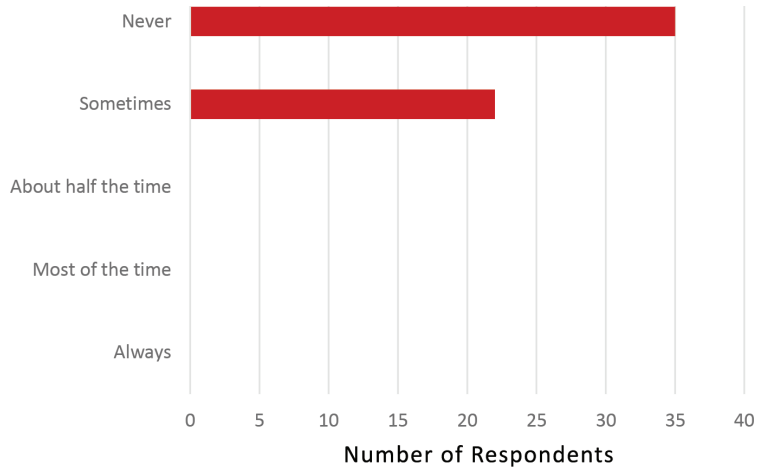
terns between rural dentists and physicians with respect to recognition of dental disease and diabetes. The survey tool used was created by author P.M.F. as part of an honors thesis and was used to elicit knowledge from respondents. The survey was approved by P.M.F.'s thesis committee and by the University of North Dakota institutional review board, which also reviewed and approved the study.

Surveys were mailed to all members of the North Dakota Academy of Family Physicians (289 members), the North Dakota Medical Association (~1,000 members), and the North Dakota Dental Association (420 members) through each organization, and responses were collected electronically via the Qualtrics online survey program. Thus, the investigators did not know the identity or location of the respondents other than that they practiced in North Dakota. The surveys had some customization for each of the two disciplines. Surveys also included questions regarding experience working with patients who have periodontal disease and diabetes and referral patterns regarding periodontal disease and diabetes.

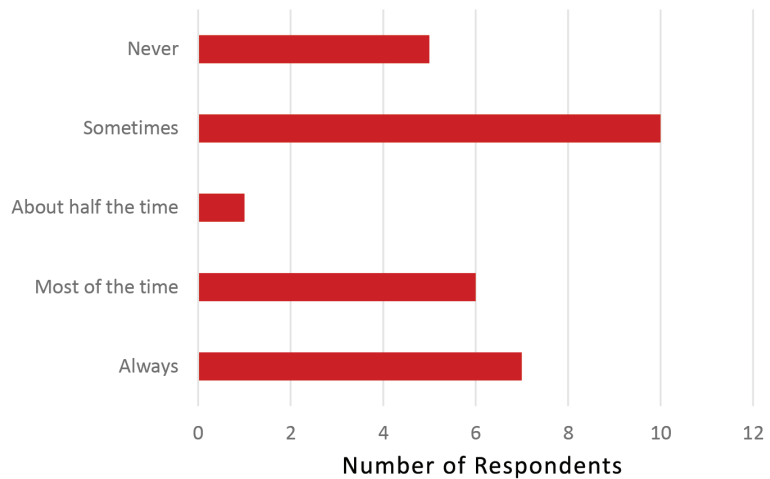
Results

Of the 1,289 physician surveys and 420 dentist surveys mailed, 85 responses were collected (56 from dentists and 29 from physicians; response rates 2.25 and 13.33%, respectively). One hundred percent of responding physicians and dentists answered “yes” to perceiving a link between oral and systemic health.

Of the dentists surveyed, 21.4% reported treating ≤25 patients with gingivitis or periodontal disease, 28.67% reported treating 26–50 such patients, 30.4% reported treating 51–100 such patients, and 19.6% reported treating ≥101 such patients each month. Although the majority of dentists surveyed reported treating >50 patients with gingivitis or periodontal disease per month, dentists did not universally report referring these patients to physi-



■ **FIGURE 1.** Number of dentists who refer their patients with gingivitis or periodontal disease to physicians.



■ **FIGURE 2.** Number of physicians who refer their patients with prediabetes or diabetes to dentists.

cians (Figure 1). Similarly, 51.72% of physicians reported treating ≤25 patients with prediabetes or diabetes, 27.59% reported treating 26–50 such patients, 17.24% reported treating 51–100 such patients, and 3.45% reported treating ≥101 such patients each month.

Conclusion

Although dentists and physicians in this study noted the important interaction between oral health and systemic health, in this case of periodontal disease and diabetes, referrals between these two specialties do not always occur. This indicates an oppor-

tunity to promote interprofessional interaction through education about appropriate referral patterns between dentists and physicians to potentially improve the health of patients with periodontal disease and diabetes. This study was limited by its low response rates, which may limit assessment of referral patterns and generalizability of the findings.

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Duality of Interest

No potential conflicts of interest relevant to this article were reported.

Author Contributions

P.M.F. researched the data and wrote parts of the manuscript as an honors thesis project. E.L.J. contributed to the discussion as part of the original thesis process, wrote additional material for the manuscript, and reviewed and edited the manuscript. E.L.J. is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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