

Oral Health Knowledge, Attitude, and Practices and Sources of Information for Diabetic Patients in Lahore, Pakistan

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Sustained hyperglycemia affects almost all tissues in the body (1), including those in the oral cavity (2). Oral complications of diabetes include xerostomia, opportunistic infections, greater accumulation of plaque, delayed wound healing, susceptibility to periodontal disease, oral paresthesia, and altered taste (2). Studies suggest a bidirectional adverse relationship between diabetes and periodontal disease; diabetes can aggravate periodontitis, and periodontitis can negatively affect control of diabetes (3,4). Therefore, preventive behaviors like brushing, flossing, and periodic dental visits, which have a positive correlation with better periodontal health (5), become paramount for diabetic patients (6). Oral hygiene behavior and seeking oral health care depend on a number of factors. Patients comply better with oral health care regimens when informed and positively reinforced. Lack of information is among the reasons for nonadherence to oral hygiene practices. Further, oral health attitudes and beliefs are significant for oral health behavior (7). A higher likelihood of seeking preventive dental care is found to be associated with dental knowledge (8). The motives prompting people to seek preventive dental care include the beliefs that one is susceptible to dental disease, that dental problems are serious, and that dental treatment is beneficial. Those who believe that they are highly susceptible to dental disease make more preventive dental visits (9). Health education attempts to change behaviors by altering an individual's knowledge, attitudes, and beliefs about health matters

(9). The present study aimed to gather baseline information on knowledge, attitude, and practices of diabetic patients regarding their oral health with the view of enhancing dental health education for this population, which would upgrade their knowledge and understanding. This is believed to improve the oral health status of the diabetic patients, in turn controlling diabetes and, ultimately, quality of life.

RESEARCH DESIGN AND METHODS

— This study was a cross-sectional descriptive survey of 240 diabetic patients visiting the Diabetic Clinic of Shaikh Zayed Medical Complex, Lahore, Pakistan. Inclusion criteria for sampling were the fulfillment of all three of the following conditions: that the patient 1) be suffering from type 1 or type 2 diabetes, 2) have at least one natural tooth, and 3) be diagnosed with diabetes for at least 6 months. Any diabetic medical personnel or patients with apparent physical or mental handicap were excluded. Patients of all age-groups were included in the sample.

A questionnaire was designed to assess the knowledge, attitude, and practices of diabetic patients along with corresponding demographic variables (Table 1). The questionnaire was piloted in 30 patients to determine its validity. The study was approved by the ethical committee of Shaikh Zayed Medical Complex. Informed verbal consent was taken from each eligible participant before administration of the questionnaire. Willing participants were informed in detail by the investigators about the research

project and its consequences. The investigators asked the questions verbally in Urdu and filled out the form. Privacy of the patients was ensured during filling of questionnaires. At the end of questioning, patients were informed about the impact of their systemic condition on oral health.

RESULTS — The mean \pm SD (range) age of the sample was 49 ± 11.05 years (17–80). The male-to-female ratio was 1:1.4. The results show that 35.4% of the patients had knowledge about the oral complications of diabetes. Only 17.7% of this group knew about this issue from their treating physicians. Fifty-seven percent did not know that diabetes predisposed them to oral disease, and 7.6% denied any existence of a link between diabetes and oral health. Sources of knowledge included treating physician, self-experience, diabetic patients' family members and friends, dentists, and, very rarely, printed media.

According to 28% of respondents, self-remedy was the solution to dental problems. Forty-five percent of subjects also said that if told of their predisposition to oral disease, they would increase their brushing frequency; 31.5% said that this information would not affect their routine, while 23% said that they would consult a dentist. Two percent of the participants brushed their teeth three times a day, and 22% brushed twice daily.

Knowledge regarding oral complications of diabetes that was imparted by physicians was significantly related to brushing frequency ($P = 0.005$); 53.4% of counseled patients brushed two or three times daily, while only 22.3% of uncounseled patients brushed two or three times per day.

CONCLUSIONS — The primary finding of this study is a lack of knowledge about the relationship of diabetes with oral complications. The results are consistent with studies conducted worldwide (10–12). However, most diabetic patients knew about various medical complications of diabetes like nephropathy, retinopathy, and diabetic foot because their physicians had laid emphasis on these topics. This may indicate lack of oral health counseling on the part of phy-

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A table elsewhere in this issue shows conventional and Système International (SI) units and conversion factors for many substances.

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Table 1—Questions regarding oral health knowledge, attitude, and practices of the sample

Did your physician tell you about the oral problems related to diabetes?	
Yes	6.3
No	77.9
Don't know	15.8
Is a diabetic more prone to oral diseases?	
Yes	35.4
No	7.6
Don't know	57
Do you have any dental/oral problems?	
Yes	66.6
No	31.3
Don't know	2.1
Is it because of diabetes?*	
Yes	53.1
No	28.8
Don't know	18.1
If there is an oral problem, what should be done?	
Consult a physician	20
Consult a dentist	47
Self-remedy	28
Ignore it	5
If someone tells you that you are more prone to oral diseases, what would you do?	
Increase brushing frequency	45
Decrease brushing frequency	0.5
Same as normal routine	31.5
Consult a dentist	23
Do you smoke?	
Yes	17.1
No	70
Occasionally (>1 daily)	12.9
Is smoking more injurious to the gums of a diabetic than those of a nondiabetic?	
Yes	38
No	14.3
Don't know	47.7

Data are percent. *Asked only of those who answered "yes" to the question, "Do you have any dental/oral problems?" (66%).

sicians, as evidenced by other studies (13–15). On the other hand, patients felt that they would be more careful about oral hygiene if they were informed. Overall oral hygiene measures in diabetic patients were found to be deficient.

We found an association between counseling by physicians and positive practices toward oral health by patients. Diabetic patients who claimed to know about the oral complications of diabetes through sources other than their physician showed no significant difference in their brushing habits compared with those who never knew about the systemic effects of diabetes ($P = 0.225$).

Diabetic patients who smoke need to be informed that smoking adversely affects their periodontium 10-fold more than that of normal individuals (16). This calls for a targeted effort in motivating diabetic patients against smoking by health care providers. Further studies are recom-

mended on a larger scale to confirm the association indicated in the present study.

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