

Attitude of dental students toward diabetes counseling, monitoring and screening in Faculty of Dentistry - Aden University

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Abstract

Globally, 425 million people have diabetes mellitus (D.M). It is well established that diabetes is associated with oral manifestations which display an increased risk of oral disorders. It is estimated that approximately 5% of all patients seen in dental offices have diabetes. Considering the large number of patients with undiagnosed diabetes who visit the dentists were well-positioned dentists will be able to detect undiagnosed cases early by recognizing oral manifestations and referring suspected to a physician for further diagnostic workup. Dental professionals being a part of health care team members, also share the responsibility of screening and counseling patients for various systemic and infectious diseases.

The aim of this study is to examine students' attitudes towards diabetes counseling, monitoring, and screening.

A cross-sectional survey for 372 from the first and fifth-year students, who completed the self-administrated questionnaires during Nov 2017, was conducted. Most dental students agree with educating patients about the risk of diabetes to oral and overall health and wellbeing, which consider part of their professional responsibility with an interesting agreement for referring patients with high blood glucose to medical evaluation. Less than half of students believe that dental professional time can be spent on other things rather than obtaining blood glucose for patients and more than half of them consider the use of glucometer in dental practice for screening, monitoring, and reading within the scope of dental practice. Attitudes of students for diabetes education, monitoring, and screening play an important role in future dealing with the patients in real practice.

Keywords: Dentist, Hyperglycemia, Glucometer.

Background

Diabetes mellitus (DM) is one of the highly prevalent non-communicable diseases of the modern era. The number of people with diabetes has risen from 108 million in 1980 to 422 million in 2014, while the number of people with pre-diabetes in the age group 20–79 was 308 million in 2007 and is expected to increase to 418 million by the year 2025.¹² Diabetes mellitus is a leading cause of death and disability worldwide,¹⁵ poorly controlled diabetes is an important risk factor for periodontitis, and gingivitis in which periodontitis is, sometimes, the first sign that a patient has diabetes.¹³

Diabetes mellitus is a growing public health concern and a common chronic metabolic disease worldwide. Oral manifestations and complications in patients with diabetes mellitus have been recognized and reported recently as a major complication of diabetes mellitus. There is an increasing evidence that chronic oral complications in patients with diabetes adversely affect blood glucose control. Prevention and management of oral complications, especially periodontal disease, in patients with diabetes is important due to their possible adverse effect on glycemic control.³

While dental practice has historically been confined to delivery of oral and maxillofacial care, mounting scientific evidence supporting the interrelationships between oral and systemic diseases has launched a new era that casts dental professionals as central, proactive participants in establishing inter professional collaborations.²⁰

Regular dental visits provide opportunities for prevention, early detection, and treatment of periodontal problems in persons with diabetes, all of which may affect glycemic control.⁹ Although uncommon, medical emergencies can occur at anytime in the dental office, the high prevalence of diabetes may contribute to a higher occurrence of medical emergencies in the dental office.⁴

Based on the Centers for Disease Control estimates, young adults with diabetes have about twice the risk of periodontal disease than young adults with no diabetes and almost one-third of people with diabetes have severe periodontal disease. Dentists are well positioned to detect undiagnosed patients with diabetes early by recognizing oral manifestation of diabetes and referring suspected undiagnosed patients to a physician for further diagnostic workup.⁹

Early detection and treatment of DM may reduce the burden of diabetes and its complications. Screening for diseases is to identify those who have an increased likelihood of developing a disease or experiencing an increase in disease severity as a first step in disease prevention and control. The early diagnosis of diabetes, however, might help to prevent its long-term complications that are responsible for the high morbidity and mortality of diabetes patients.¹⁴

Early diagnosis of diabetes in the dental setting can help improve the patient's oral health and overall health status by helping patients avoid or reduce complications from diabetes.¹⁸

Material and Methods:

Across sectional survey was conducted among first and fifth year students during November 2017, in, Faculty of Dentistry – University of Aden .They were asked to participate in survey voluntarily. These two group of study 1st and 5th level were selected based on previous study done by Anders et al who take 1st and 4th level at Buffalo School of Dental Medicine based on clinical diagnosis where the course of clinical diagnosis is thought in third level but in our faculty it is thought in fourth .6 This study was done after getting consent from faculty administration.

Informed consent is taken from voluntary participant before completing the questioner.

Demographic data including students age and gender, were collected as will as personal and family history of diabetes mellitus.

Questions regarding the attitude towards diabetes monitoring, counseling and screening were based on, a study done by Ander's to examine Dental Students' Attitudes towards diabetes counseling, monitoring, and screening.⁶

Each item in the questionnaire are consists of statement and five point Likert type respond scale ranging from 1 strongly agree to 5 strongly disagree.

Statistical analysis of variable was done by using SPSS version 23.Quantitive variable was presented by mean (\pm SD), Qualitative variables presented by percentage and tested by chi-square test with significant relation of *P* value < 0.05.

Results and discussion:

This study was, across sectional survey for 372 of the first and fifth year students who completed validated questionnaire ,distributed as 80 % (253 from 315) of first year and 83% (119 from 143) of fifth year, with the mean age 20.2 (between 17-27 years).

Female students were more than male (53.5% vs. 46.5%) and most of them have family history of diabetes mellitus 57.5 % (1st degree 26.3 % , 2nd degree 31.2%)

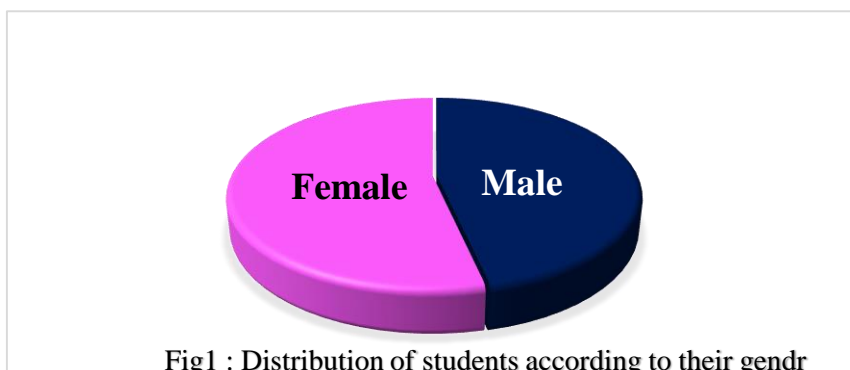


Fig1 : Distribution of students according to their gendr

Table 1 :Distribution of students according to family history of diabetes mellitus.

Family history	No	%
No	158	42.5
First degree	98	26.3
Seconed degree	116	31.2
Total	372	100.0

Diabetes is a chronic metabolic disease characterized by hyperglycemia and is caused by a defect in insulin secretion or insulin function or both.⁵

It seems that dentists and physicians play an important role in improving diabetic patients’ knowledge regarding oral complications and their effect on their quality of life. In addition, it is recommended that referring to a dentist could be a part of diabetes treatment protocol. ¹⁷Dental education includes the knowledge and skill to deal with the medical conditions and procedures to diagnose these diseases.²

During recent years, concerns have been risen about the need to address the relationship between general health and oral health in the dental setting.⁹

Dental professionals, being a part of health care team member, also share the responsibility of screening and counseling patients for various systemic and infectious disease.¹¹

In order to ensure good oral health, all aspects of the life should be analyzed and all the systems of human body should be checked.¹

In this study Table 2, most of dental students 60.2% in this study agreed to that patient should be educated about the risk of diabetes to oral and overall health and wellbeing. 61 % of students strongly agreed that patient should be referred for medical evaluation if blood glucose is too high.

Table 2: Distribution of students according to the scope and responsibility of diabetic patients												
Scope and Responsibility	S.A		A		Total A		N		D		S.D	
	No	%	No	%	No	%	No	%	No	%	No	%
It is the dental professional's responsibility to:												
1-Educate patients about the risks of diabetes to overall health and well-being	106	28.5	224	60.2	330	88.7	19	5.1	18	4.8	5	1.3
2-Educate patients about the risks of diabetes to oral health.	208	55.9	134	36	342	91.9	19	5.1	9	2.4	2	0.5
It is within the scope of dental practice to:												
3-Ask patients if they have diabetes.	212	57	118	31.7	330	88.7	24	6.5	12	3.2	6	1.6
4-Advise diabetic patients to monitor their own blood glucose using a glucometer.	121	32.5	172	46.2	293	78.7	56	15.1	17	4.6	6	1.6
5-Discuss benefits of controlling diabetes	109	29.3	197	53	306	82.3	40	10.8	18	4.8	8	2.2
6-Discuss specific strategies for controlling diabetes.	77	20.7	190	51.1	267	71.8	67	18	31	8.3	7	1.9
7-Refer a patient for medical evaluation if the patient's blood glucose is too high.	227	61	108	29	335	90	24	6.5	10	2.7	3	0.8
SA=strongly agree; A=agree; N=neutral; D=disagree; SD=strongly disagree												

Most of students agree that education of the patients about risk of diabetes will be to over all health and wellbeing is part of dental professional responsibility with 60.2 % and strongly agree 55.9% about risk to oral health.

Most dental offices routinely obtain a medical history from patients prior to treatment, and 96 percent of dentists in a recent study reported that their health history asks about a patient's diabetic condition.⁶

57.0% of the students strongly agreed that asking patient if they have diabetes is part of their responsibility , and 61.0% referring for medical evaluation if the patient blood glucose is high within the scope of dental practice.

The dental students were in general agreement that glucose monitoring of patients diagnosed with diabetes is within the scope and responsibility of the dental profession.⁶

46.2% agreed to advise patient monitor their own blood glucose using glucometer , 53.0% & 51.1 % with discuses benefit of and strategy of treatment. The dental practitioner can serve an important role within the diabetic treatment team .¹⁰

Table 3 : Distribution of students according to the barrier for students in dealing with diabetes patients.

Barriers	S.A		A		N		D		S.D		Total D	
	No	%	No	%	No	%	No	%	No	%	No	%
1- The dental professional's time can be much better spent doing things other than monitoring blood glucose on a patient.	11	3	71	19.1	82	22	153	41.1	55	14.8	208	55.9
How strong a barrier to evaluation and counseling regarding elevated blood glucose is ?												
2- Amount of time required to obtain and discuss a patient's glucose levels	27	7.3	153	41.1	122	32.8	58	15.6	12	3.2	70	18.8
3- Lack of reimbursement for the time taken to obtain and discuss a patient's blood glucose levels	18	4.8	107	28.8	141	37.9	84	22.6	22	5.9	96	28.5
4- Lack of confidence in my ability to obtain and discuss a patient's blood glucose	11	3	73	19.6	82	22	136	36.6	70	18.8	206	55.4
5- Patient resistance to having a blood glucose taken in the dental office	21	5.6	69	18.5	105	28.2	117	31.5	60	16.1	177	47.6
6- Lack of adequate referral knowledge	37	9.9	97	26.1	95	25.5	105	28.2	38	10.2	143	38.4
7- Lack of insurance reimbursement for services	28	7.5	76	20.4	130	34.9	83	22.3	55	14.8	138	37.1
SA=strongly agree; A=agree; N=neutral; D=disagree; SD=strongly disagree												

In Table 3 while 41.1 % of student's belief that dental professional time can be spent in other things rather than obtaining blood glucose for patients, the majority of them consider the use of glucometer in dental practice for screening, monitoring and reading within the scope of dental practice.

It is found that 41.1% of the students disagreed to that the time of dental professional can be better spent in doing things other than maintaining blood glucose , 36.6 of student agreed to the lack of confidence in discussing patient about blood glucose , 31.5% disagreed that patient resistance to taking blood glucose test in dental office, while 28.¹² disagree that they lack adequate referral knowledge.

Table 4 : Distribution of students according to Glucometer Use diabetes patients :

Glucometer Use	S.A		A		Total A		N		D		S.D	
	No	%	No	%	No	%	No	%	No	%	No	%
It is within the scope of dental practice to:												
1-Take a diabetic patient's blood glucose reading using a glucometer.	102	27.4	156	41.9	258	69.3	74	19.9	25	6.7	15	4
2- Screen for diabetes using a glucometer on patients who are not diagnosed with diabetes	55	14.8	163	43.8	218	58.6	101	27.2	37	9.9	16	4.3
3- Monitoring blood glucose in a dental office can have an impact on controlling a patient's diabetes.	121	32.5	143	38.4	264	70.9	68	18.3	31	8.3	9	2.4
SA=strongly agree; A=agree; N=neutral; D=disagree; SD=strongly disagree												

Few dentists have ever actually used a glucometer to monitor a patient's blood glucose levels.⁸ the dental office has been proposed as a site for screening for undiagnosed diabetes.⁷

In Table 4, most of the students agreed with using glucometer in patient blood glucose reading with 41.9%.

Dental students become comfortable with glucometer use when it is part of a standard protocol. The incidence and prevalence of diabetes mellitus are increasing with time and , despite greater knowledge of the disease, one-third of people with the disease are undiagnosed.¹⁶ All individuals with periodontitis would require diabetes screening, and many at-risk persons with periodontal disease frequently visit dentist, it is suggested that the dental visit provides an important potential venue for screening.¹⁹

So screening for undiagnosed are within the scope of dental practice with 43.8% and its plays an important role in controlling patient with diabetic.

In comparison to others, literature review shows that the majority of general dentists surveyed lacked knowledge about diabetes, and believed that activities related to management of patients with diabetes in the dental setting are peripheral to their role and that their patients and colleagues did not expect them to perform those activities.¹³

Attitudes of students for diabetes education, monitoring and screening play important role in future dealing with the patients in real practice.

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سلوك طلاب الاسنان تجاه استشارات ومراقبة ونحس مرضى السكري - كلية طب الاسنان

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الملخص

يعاني 425 مليون شخص من داء السكري على الصعيد العالمي، وقد ثبت أن مرض السكري يزيد من خطر الإصابة باضطرابات الفم حيث تشير التقديرات إلى أن ما يقرب من 5 ٪ من جميع المرضى الذين يزورون أطباء الأسنان يعانون منه. وبالنظر إلى ذلك، يقوم عدد كبير من المرضى غير المشخصين بزيارة أطباء الأسنان حتى يكونوا في وضع جيد للكشف عنه والمشخصين المصابين بداء السكري في وقت مبكر من خلال التعرف على المظاهر الفموية لمرض السكري وإحالة المرضى المشتبه بهم غير المشخصين إلى الطبيب لإجراء مزيد من العمل التشخيصي حيث يشارك أطباء الأسنان كونهم جزءاً من عضو فريق الرعاية الصحية في مسؤولية فحص المرضى وتقديم المشورة لهم بشأن مختلف الأمراض.

الهدف من هذه الدراسة هو معرفة موقف الطلاب تجاه الاستشارة ومراقبة مرض السكري.

حيث تم إجراء مسح مقطعي ل 372 من طلاب السنة الأولى والخامسة الذين أكملوا الاستبيان المدار ذاتيا خلال نوفمبر 2017.

يتفق معظم طلاب طب الأسنان مع المريض المتعلم على مخاطر الإصابة بمرض السكري على صحة الفم والرفاهية بشكل عام، والتي تُعد جزءاً من مسؤوليتهم المهنية مع اتفاق مثير للاهتمام لإحالة المريض الذي يعاني من ارتفاع نسبة الجلوكوز في الدم إلى التقييم الطبي.

في حين أن أقل من نصف الطلاب يتفقون بأنه يمكن قضاء وقت طبيب الأسنان في أشياء أخرى بدلاً من الحصول على نسبة الجلوكوز في الدم للمرضى، فإن أكثر من نصفهم يفكرون في استخدام الجلوكوميتر في ممارسة طب الأسنان للفحص والمراقبة والقراءة في نطاق ممارسة عملهم.

تقوم مواقف الطلاب في التثقيف بشأن مرض السكري والرصد والفحص دوراً مهماً في التعامل مع المرضى في الممارسة العملية في المستقبل.

الكلمات المفتاحية: طبيب أسنان، فرط سكر الدم، الجلوكوميتر.