

Victorian Oral Health Professionals' Attitudes and Barriers to Diabetes Screening.

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Introduction

Diabetes is increasing at a faster rate than other chronic diseases such as heart disease and cancer in Australia. Despite this, little is known about the management of patients with diabetes, undiagnosed diabetes/pre-diabetes or at risk of diabetes in the oral health care setting. In addition to the number of patients with undiagnosed diabetes or pre-diabetes, it is important that oral health professionals are aware of and understand diabetes mellitus (DM), in terms of clinical practice and patient education.

Objectives

As part of a larger study on the management of diabetes, pre-diabetes, and those at risk of diabetes by Oral Health Professionals (OHPs - dentists, dental hygienists, dental therapists, and oral health therapists), this study aims describe the attitudes of OHPs practising in Victoria, Australia about screening for Type-2 diabetes (T2D) in dental settings, and perceived barriers for implementing these screening.

Methods

The study was a cross-sectional survey of Oral Health Practitioners in Victoria, Australia. With the approval of the Human Research Ethics Committee at the University of Melbourne, a request was submitted to the professional associations representing Victorian OHPs (Australian Dental Association Victoria Branch; Dental Hygienists Association of Australia; Australian Dental and Oral Health Therapists Association), to distribute the survey (i.e. invitation-letter with URL of online survey) to their members. Ethics approval was obtained from the University of Melbourne. This analysis includes responses received from September 2017-January 2018 (n=181).

Variables included in this analysis: five socio-demographic and work-related characteristics:

- a) Socio-demographic [gender]
- b) Occupational characteristics considered in this assessment included:
 - Professional groups: 'Dental Hygienists (DH)'; 'Oral Health Therapists (OHT)'; and 'Dental Therapists (DT)'. Dentists were sub-divided into 'General Dental Practitioners (GDP)' and 'Dental Specialists'.
 - Professional experience in years.
 - Work location: 'Urban', or 'Rural'.
 - Work Sector: 'Private only'; 'Public only'; and 'Mixed'.
- c) Attitudes about T2D screening included eight self-assessed items on a 5-point numerical scale (1 = 'Strongly disagree' to 5 = 'Strongly agree'). An attitudes score was calculated by adding attitudes items.
- d) OHPs were also asked to rank five issues regarding the incorporation of T2D screening in dental settings.

Data analysis

The analysis provides descriptive information on the participants' work and various socio-demographics. Bivariate associations were evaluated with Chi-squared analysis and one-way analysis of variance (ANOVA). In order to better understand the association between the combination of socio-demographic and work variables and overall T2D attitudes score, a stepwise multiple linear regression analysis (MLRA) was performed. All p-values <0.05 were considered significant. Data manipulation and analyses were conducted using IBM SPSS Statistics (Version 23.0, IBM Corporation, Endicott, NY, USA).

Result

181 OHPs respondents were part of this analysis. The majority of this group were dentists (76.7%; n=138), either General Dental Practitioners (GDP) (60.0%) or Dental Specialists (11.7%). Another 14.4% (n=26) were OHTs; 5.0% (n=9) were DHs; and the remaining 3.9% (n= 7) were DTs (See Table 1).

Table 1. Demographic and work characteristics of oral health professionals in Victoria, Australia.

	Dentists (n=138)	DHs (n=9)	OHT (n=26)	DTs (n=7)
Gender **	%	%	%	%
Male	52.9	--	19.2	14.3
Female	47.1	100	80.8	85.7
Duration of practicing ***				
5 years or less	14.6	12.5	53.9	14.3
6-10 years	13.8	--	42.3	14.3
11-15 years	30	37.5	3.8	28.6
>25 years	41.6	50	--	42.9
Place of residence				
Urban	76.5	100	68	57.1
Rural/Regional	23.5	--	32	42.9
Work sector *				
Private	72.8	100	65.4	28.6
Public	22.2	--	26.9	71.4
Mix	5.1	--	7.7	--

* Chi-squared test; p-value: *0.05; **0.001; ***0.0001

By gender, 60.6% were female. By work sector, the majority (72.8%) nominated the private sector; about one quarter, worked in the public sector (22.2%), and 5.0% of the participants indicated a combination of private and public-sector work, with no statistically significant difference by professional background. Differences in professional experience by gender were statistically significant by oral health profession (p<0.001). Those working exclusively as an OHT/DH/OHT were predominantly female.

When participants were asked about the location of their workplace, the majority (75.7%) indicated an 'Urban/Suburban' location; 24.3% indicated a regional location and 6.0% a rural location. Regarding the length of time practicing as an OHP, 35.5% indicated more than 25 years of practice; 26.2% between 11 and 25 years; 20.9% reported 5 years or less of practice; and the remainder 17.4% reported between 6 and 10 years of practice. Differences by duration of practice between groups were statistically significant (p<0.0001).

Attitudes to T2D screening

The majority of OHPs agreed or strongly agreed with the attitudes items included. More than 90% agreed that screening patients for diabetes risk in the dental setting could offer new opportunities to identify patients with possible undiagnosed diabetes or pre-diabetes. Also, more than 90% agreed that screening for diabetes in the dental setting would help patients to understand the link between uncontrolled diabetes and poor periodontal health (Table 2).

Table 2. Type-2 diabetes screening attitudes of oral health professionals in Victoria, Australia.

Attitudes	SD/D/Y* %	Neutral %	A/SA* %
Dental Health Professional's knowledge of a patient's overall health is important for achieving optimal oral health outcomes	0.6/0.0	0	26.6/72.8
Screening patients for diabetes risk in the dental setting could offer new opportunities to identify patients with possible undiagnosed diabetes or pre-diabetes	0.0/1.2	6.9	44.5/47.4
Screening for diabetes in the dental setting will help patients to understand the link between uncontrolled diabetes and poor periodontal health	0.0/1.7	6.4	45.1/46.8
It is appropriate for Dental Health Professionals to screen patients for diabetes in the dental setting	1.2/6.9	20.2	43.3/28.3
It is important for Dental Health Professionals to perform or conduct chair-side screening for diabetes	1.2/7.0	32.2	40.7/18.6
Dental Health Professionals feel comfortable providing oral health care to patients with diabetes	1.1/2.3	9.2	42.8/44.4
Patients with undiagnosed type 2 diabetes/pre-diabetes may benefit from blood glucose screening in a dental setting	1.7/5.8	17.9	49.2/25.4
Periodontal screening and subsequent follow up may facilitate conversation with medical practitioners when patients seek their care	0.0/1.7	10.5	58.1/29.7

* n=138; * SD: Strongly disagree; D: Disagree; A: Agree; SA: Strongly Agree.

Despite this generally good attitude, replies in some aspects of screening were moderate. For example, while almost every OHP (91.9%) agreed that screening for T2D could offer new opportunities to identify undiagnosed T2D patients, only 59.3% considered it important to conduct screening for T2D in dental settings. That is, about one-third of OHPs were neutral or disagreed with the importance of screening patients in dental settings. Additionally, 71.7% considered appropriate to conduct screening for T2D in dental settings.

Participants had a mean attitudes score of 6.6 (sd 1.6). Two variables yielded a significant effect on the attitudes score in the multivariate analysis [p<0.001]. T2D attitudes scores were associated with sector of practice [p<0.05] and type of OHP. OHPs working in the public sector had higher attitudes scores (i.e., more favorable to screening). Dental hygienists and oral health therapists scored higher than dental therapists [p<0.001] (DTs see mostly children and young people, so may not perceive diabetes to be prevalent in their patient group); general dental practitioners [p<0.02]; and specialists [p<0.02]. The variance for screening attitudes, using the full model, was 9.5% (See Table 3).

Regarding issues to incorporate screening, the most frequently ranked first were: insurance coverage (37.5%), patient willingness (24.2%), and legal liability (18.0%).

Table 3. Predictors of screening at dental settings attitude of oral health professionals in Victoria, Australia.

	B coefficient	Std. error	Significance
Dental specialist	-1.02	0.424	0.017
Dental therapist	-2.347	0.653	0.0001
Dentist	-0.735	0.293	0.013
Working in public sector	0.877	0.285	0.02
Constant	7.12		0.0001

Adjusted r²=0.095

Discussion

T2D is an important public health issue, OHPs have an important role in T2D prevention and identification. OHPs were generally positive about their role in T2D screening.

Significant difference in attitudes were found by the participant's profession and sector of work. Nonetheless, the explanatory power of the final model was low. This suggests that variables not considered in this study might add explanatory power to the model. The goal is for the whole of the health team to work collaboratively and to build a more integrated approach to T2D prevention, identification and management.

To provide effective early identification of T2D, OHPs' attitude should be enhanced, as well as resolving perceived barriers.

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