

Evaluating Oral Health Care Among Medical Students

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Abstract

Introduction: Oral health is important and affects overall health. Medical students face both common and unique barriers to preserving their own oral health care. This study was designed to survey medical students at the University of Massachusetts Chan Medical School (UMass Chan) to evaluate their oral health hygiene practice and identify barriers to dental care.

Methods: We disseminated a 15-question survey to the student body via email, class Facebook pages, and in-person lecture announcements. We used bivariate analyses (using χ^2 tests) to identify any associations among select variables.

Results: Fifty-four percent of students responded to the survey. Of those, 84% brushed their teeth at least twice a day, however only 63% visited a dentist in the last 12 months. Reported barriers to dental visits included being too busy, not knowing how to find local dentists that accepted student dental insurance plans, and lack of finances especially for Hispanic students. We found no significant differences between preclinical and clinical students, however younger age (<26) was associated with more recent dental visits. Students enrolled in Medicaid had larger gaps in care compared to those with private insurance.

Conclusions: UMass Chan students face barriers to professional dental care and do reasonably well on personal dental hygiene. To improve access to dental care, especially for those on Medicaid, efforts should be made to provide referral resources and consider an on-campus dental clinic. Hispanic students may need more money in their loan package. More study on this topic is needed nationally.

Introduction

The personal health of medical students is often neglected due to significant barriers.^{1,2} These barriers include lack of time, financial constraints, and proximity to specialty care (eg, vision). Less is known about barriers affecting the oral health of medical students. Yet, oral health is an important aspect of overall health. Oral diseases are common³ and, untreated, are associated with poor social well-being and increased all-cause mortality.⁴⁻⁶

A study at one medical school (in Pennsylvania) reported that individuals seek dental care less after entering medical school.² Little is known about US medical students' personal oral hygiene habits or barriers in other parts of the country. A national study of college students confirmed that undergraduates visit the dentist more

regularly than medical students.⁷ Similarly, a single-site study of undergraduate dental care noted that undergraduates brush their teeth regularly.⁸ In general, medical students have some unique barriers for addressing health issues, including excessive workload, significant stress, and changes in dietary habits.^{2,9,10} Furthermore, medical students are at an age where they lose parental insurance coverage, which disrupts medical and dental care.¹¹ Older medical students often enroll in Medicaid, which has variable dental coverage and access depending on the state.¹²

To address the dearth of studies assessing oral health habits and dental visit regularity of US medical students, we surveyed students at the University of Massachusetts Chan Medical School (UMass Chan) regarding personal oral hygiene habits and barriers to accessing dental care.

Methods

Study Population

The survey was sent to medical students at UMass Chan (N=685). The study was deemed exempt by the UMass Chan Institutional Review Board. Participants were informed about risks and confidentiality, and consent was obtained.

Data Collection

We developed a 15-question online survey to evaluate barriers to dental care access and self-care. Survey questions were based on external sources (eg, National College Health Assessment).¹³ Students were asked about demographics (eg, race, gender), dental hygiene, dental visits, and barriers to care. The survey was pilot tested with five students to ensure ease of use.

The survey was sent to students via 4 weekly class Facebook group notices and email bulletins during December 2022. Announcements were made in person twice in first- and second-year classes and virtually in one third-year class. The fourth-year class did not receive in-person announcements. Participants could anonymously enter a drawing for \$25 gift cards. We used Qualtrics for the survey's dissemination and data collection.

Data Analysis

The data was transferred to SPSS version 28 (IBM) for analyses, using a *P* value of .05 for statistical significance. For select survey questions (eg, last dental visit), responses were recoded from four- or six-point Likert-type scales into two- or three-level categorical variables due to small sample sizes in select responses. Descriptive data analyses were followed, and bivariate analyses (using χ^2 tests) were used to identify associations among select variables.¹⁴ Comparative analysis of responses by demographics was based on previous literature, excluding race due to the small sample size at UMass Chan.^{11,13}

Results

The study had a 54% response rate (370 of 685). All 370 participants completed at least 90% of questions. Demographics were consistent with the medical schools' demographics (Table 1). The majority (84%) reported having dental insurance; one-third (31%) reported having MassHealth (Massachusetts Medicaid).

Nearly two-thirds (63%) of participants reported visiting a dentist within the past 12 months. Forty percent stated that they received dental care every 6 months (Table 2).

Regarding barriers to care, nearly one half (47%) reported being "too busy." One-fifth (23%) stated they did not know how to find a dentist who accepted their insurance. Students enrolled in MassHealth (40%) had

significantly more difficulty finding a provider compared to students with DeltaDental insurance (25%) or other private dental insurance (6%; $\chi^2=38.32$; $P<.001$). Nearly one-fifth of participants (18%) reported financial barriers. Other barriers included limited time, fear of the dentist, difficulty finding a trustworthy provider, and visiting less due to self-pay. Only 6.8% reported no barriers.

Most students (84%) brushed their teeth at least twice a day for 60 to 120 seconds (58%). One-third (30%) flossed daily (Table 2).

Most students (62%) were interested in receiving a list of dentists who accepted common dental insurances. Many (61%) were interested in being supplied with free resources (eg, toothbrushes; Table 2).

Approximately one-half of students with MassHealth (55%) reported visiting the dentist in the past 12 months, compared with 64% with DeltaDental and 75% with other private insurance ($\chi^2=12.62$; $P=.049$; Table 3). Younger students (72% under age 26) were more likely to visit the dentist in the past year versus 57% of older students. Differences in the last dental visit between students in preclinical versus clinical years were not significant (Table 4).

Nearly 60% of clinical students responded being “too busy” compared to 30% of preclinical students. We found no significant differences in personal dental hygiene practices by race or ethnicity. Hispanic students (38%) were more likely to report financial barriers to receiving dental care compared to non-Hispanic students (16%; $\chi^2=6.46$; $P=.011$; Table 5).

DISCUSSION AND CONCLUSIONS

More UMass Chan medical students visited the dentist annually compared to medical students in the aforementioned Pennsylvania study (63% vs 50%) but less than college students in the national study (63% vs 76%).^{2,7} This finding may suggest that medical students have unique barriers compared to college students. These findings also align with medical schools in different states, potentially having different barriers to accessing dental care. Among older students who enrolled in Medicaid, students experienced state programs with different levels of coverage and different percentages of dentists who accepted Medicaid. With respect to time as a barrier, 78% of medical students in the Pennsylvania study noted lack of time while only 47% of UMass Chan students reported being too busy. At UMass Chan, students have 3 personal days in nonclinical years and 7 during clinical years, which may account for some of this discrepancy.

One possible solution to address time constraints could be adding an on-campus dental clinic within student health services; this was suggested by 15% of the Pennsylvania medical students. Providing students with a list of local dentists and insurances accepted could be helpful considering that two-thirds of UMass Chan students were interested in this resource. Moreover, because Hispanic students faced more financial barriers to accessing dental care, they might be offered additional health funds in their loan package.

Our study has some limitations. Our response rate was 54%, and we surveyed only one medical school. This limitation could impact generalizability of our findings. We also did not define the term “too busy.”

Clearly, students are reporting barriers to comprehensive oral care. UMass Chan could use our results to improve access to dental care. Future studies could evaluate whether these changes improve rates of dental visits. More studies are needed at a national level.

Tables and Figures

Table 1. Demographics of Study Sample and UMass Chan

Study sample		UMass Chan demographics	
	n (%)		n (%)
Graduating class			
Class of 2023	87 (23.5)		Total enrollment: 685 (100)
Class of 2024	115 (31.1)		
Class of 2025	64 (17.3)		
Class of 2026	89 (24.1)		
MD/PhD, graduation year unknown	15 (4.1)		
Total	370 (100)		
Race		Race	
White	259 (70.2)	White	387 (56.4)
Asian American	71 (19.2)	Asian American	200 (29.2)
African American	8 (2.2)	African American	37 (5.4)
Multiracial	13 (3.5)	Multiracial	0
Not listed	10 (2.7)	Not listed	0
Unsure	1 (0.3)	Unsure	23 (3.5)
Prefer not to answer	7 (1.9)		
Ethnicity		Ethnicity	
Hispanic	21 (5.7)	Hispanic	37 (5.4)
Non-Hispanic	331 (90.2)	Non-Hispanic	648 (94.6)
Unsure	2 (0.5)		
Prefer not to answer	13 (3.5)		
Gender		Gender	
Male	115 (30.9)	Male	263 (38.4)
Female	251 (68.0)	Female	417 (60.9)
Gender variant/nonconforming	3 (0.8)	Gender variant/nonconforming	5 (0.7)
Prefer not to answer	1 (0.3)		
Age			
20–25 years old	146 (39.7)		
26+ years old	222 (60.3)		
Insurance plan			
MassHealth	118 (31.9)		
DeltaDental	86 (23.2)		
Other insurance	99 (26.8)		
No insurance	58 (15.7)		
Unknown	9 (2.4)		

Note: Frequencies in race/ethnicity may not add up to the total number of participants because of sporadic missing data.
 Abbreviation: UMass Chan, University of Massachusetts Chan Medical School

Table 2. Dental Habits, Visits, and Needs of Study Sample

	n (%)
Last visit to the dentist	
Within past 12 months	232 (62.7)
12–24 months ago	72 (19.5)
24 or more months ago	66 (17.8)
How frequently do you usually visit the dentist?	
Every 6 months	156 (42.4)
Annually	84 (22.8)
Varies, when I remember	97 (26.4)
Varies, when I have an acute issue	27 (7.3)
Varies, when I have a chronic issue	4 (1.1)
How often do you brush your teeth?	
Two times a week	9 (2.4)
Once a day	51 (13.9)
Twice a day	292 (79.3)
More than twice a day	16 (4.3)
How many minutes do you brush for?	
Unsure	8 (2.2)
Less than 30 seconds	5 (1.4)
30–59 seconds	83 (22.5)
60–120 seconds	215 (58.0)
More than 2 minutes	59 (16.0)
How often do you use dental floss?	
Never/occasionally	121 (32.7)
Weekly	137 (37.0)
Daily	111 (30.0)
I am interested in receiving a list of local providers accepting common dental plans.	
Not interested	138 (37.6)
Somewhat interested	87 (23.7)
Very interested	142 (38.7)
I am interested in free supplies from the MBRC (Max Baker Resource Center).	
Not interested	143 (39.0)
Somewhat interested	110 (30.0)
Very interested	114 (31.1)

Note: Frequencies may not add up to the total number of participants because of sporadic missing data.

Table 3. Dental Visits and Dental Hygiene by Self-Reported Insurance Type (N=361)

Last visit to a dentist?	Dental insurance plan				χ^2 (P value)
	MassHealth n (%)	DeltaDental n (%)	Other dental insurance n (%)	No insurance n (%)	
Within the past 12 months 12–24 months More than 2 years ago	66 (55.9) 27 (22.9) 25 (21.2)	55 (64.0) 16 (18.6) 15 (17.4)	75 (75.8) 12 (12.1) 12 (12.1)	30 (51.7) 15 (25.9) 13 (22.4)	12.62 (.049)
How often do you brush your teeth?					
Two times a week Once a day Twice a day More than twice a day	4 (3.4) 17 (14.5) 93 (79.5) 3 (2.6)	1 (1.2) 8 (9.3) 72 (83.7) 5 (5.8)	3 (3.0) 17 (17.2) 73 (73.7) 6 (6.1)	1 (1.8) 7 (12.3) 47 (82.5) 2 (3.5)	6.13 (.727)
How many minutes do you spend brushing?					
Less than 30 seconds 30 seconds to 1 minute 1–2 minutes More than 2 minutes	0 (0) 25 (21.7) 64 (55.7) 26 (22.6)	2 (2.4) 18 (21.7) 52 (62.7) 11 (13.3)	1 (1.0) 25 (25.8) 55 (56.7) 16 (16.5)	2 (3.5) 14 (24.6) 35 (61.4) 6 (10.5)	9.39 (.402)
How often do you floss?					
Never/occasionally Weekly Daily	33 (28.2) 42 (35.9) 42 (35.9)	25 (29.1) 32 (37.2) 29 (33.7)	39 (39.2) 35 (35.4) 25 (25.3)	22 (37.9) 24 (41.4) 12 (20.7)	7.45 (.281)

Table 4. Dental Visits and Dental Hygiene by Student Age (N=368) and Stage in Medical School (Preclinical vs Clinical Years; N=355)

Last visit to a dentist?	Student age group		χ^2 (P value)	Stage in medical school*		χ^2 (P value)
	20–25 years n (%)	26+ years n (%)		Preclinical N (%)	Clinical N (%)	
Within the past 12 months 12–24 months More than 2 years ago	105 (71.9) 25 (17.1) 16 (11.0)	126 (56.8) 47 (21.2) 49 (22.1)	10.12 (.006)	105 (68.6) 27 (17.6) 21 (13.7)	120 (59.4) 40 (19.8) 42 (20.8)	4.89 (.180)
How often do you brush your teeth?						
Two times a week Once a day Twice a day More than twice a day	4 (2.7) 20 (13.7) 114 (78.1) 8 (5.5)	5 (2.3) 31 (14.0) 177 (80.1) 8 (3.6)	0.83 (0.842)	4 (2.6) 20 (13.2) 122 (80.3) 6 (3.9)	4 (2.0) 29 (14.4) 158 (78.6) 10 (5.0)	0.49 (.921)
How many minutes do you spend brushing?						
Less than 30 seconds 30 seconds to 1 minute 1–2 minutes More than 2 minutes	3 (2.1) 36 (25.2) 77 (53.8) 27 (18.9)	1 (0.5) 47 (21.7) 137 (63.1) 32 (14.7)	4.70 (0.196)	3 (2.0) 32 (21.4) 88 (59) 26 (17.4)	2 (1.0) 45 (22.7) 118 (59.6) 33 (16.7)	1.25 (.870)
How often do you floss?						
Never/occasionally Weekly Daily	57 (39) 48 (32.9) 41 (28.1)	63 (28.4) 89 (40.1) 70 (35.1)	4.70 (0.098)	Not calculated	Not calculated	Not calculated

*MD/PhD student participants were removed from the analysis with this particular outcome variable.

Table 5. Self-Reported Financial Barriers to Receiving Dental Care by Self-Reported Ethnicity (N=352)

Self-reported financial barriers?	Student ethnicity		χ^2 (P value)
	Hispanic n (%)	Non-Hispanic n (%)	
No Yes	13 (61.9) 8 (38.1)	277 (83.7) 54 (16.3)	6.46 (.011)
Last visit to a dentist?			
Within the past 12 months 12–24 months More than 2 years ago	12 (57.1) 4 (19.0) 5 (23.8)	209 (63.1) 66 (19.9) 56 (16.9)	0.66 (.718)
How often do you brush your teeth?			
Two times a week Once a day Twice a day More than twice a day	0 (0) 4 (19) 13 (61.9) 4 (19)	9 (2.7) 44 (13.3) 265 (80.3) 12 (3.6)	8.4 (.007)
How many minutes do you spend brushing?			
Less than 30 seconds 30 seconds to 1 minute 1–2 minutes More than 2 minutes	0 7 (35) 12 (60) 1 (5)	5 (1.5) 74 (22.8) 191 (59) 54 (16.7)	3.10 (.377)
How often do you floss?			
Never/occasionally Weekly Daily	3 (14.3) 11 (52.4) 7 (33.3)	112 (33.8) 119 (36) 100 (30.2)	3.82 (.148)

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