

Effect of School Environment on Dental Students' Perceptions of Cultural Competency Curricula and Preparedness to Care for Diverse Populations

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Abstract: Reports of oral health disparities among racial, ethnic, and socioeconomic sectors of the U.S. population have hastened development of strategies to address this issue. Among these strategies is revising dental school curricula in order to develop more culturally competent graduates. The present study uses data from the 2003 American Dental Education Association (ADEA) survey of dental school seniors to assess students' perceptions of the adequacy of their cultural competency training. We hypothesize that these perceptions are influenced by multiple student characteristics and contextual factors, including a school's status with respect to the Pipeline, Professions, and Practice initiative of the Robert Wood Johnson Foundation and The California Endowment. Response data from ADEA survey items reflecting student perceptions of adequacy of curriculum time devoted to cultural competency and their preparedness to treat an ethnically and culturally diverse population were analyzed to assess the influence of selected student and contextual factors. Student gender, marital status, and level of educational debt were found to influence the curriculum time variable, and students at California schools reported higher perceived preparedness levels than students at dental schools nationwide. Dental school environments promoting acceptance and respect of diverse ethnicities/cultures and student race/ethnicity were significantly associated with students' perception of the adequacy of curriculum time for cultural competency and students' perception of their preparedness to provide oral health care for racially and culturally diverse groups. The findings provide insight for development of cultural competency curricula and direction for future study in this area.

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Understanding race, culture, and ethnicity as they apply to health care is increasingly recognized as essential in training providers.¹⁻³ Broader application of this philosophy to dental education has been hastened by reports of oral health disparities among racial, ethnic, and socioeconomic sectors of the U.S. population, particularly *Oral Health in America: A Report of the Surgeon General*, published in 2000.⁴ Specifically, strategies to address these disparities include revising dental school curricula to develop more culturally competent graduates.^{3,5,6}

Both the Robert Wood Johnson Foundation (RWFJ) and The California Endowment (TCE) have made cultural competency training a funding priority by including it in their Pipeline, Professions, and

Practice: Community-Based Dental Education initiative. The fifteen U.S. dental schools funded under this initiative are required to implement programs to increase recruitment and retention of underrepresented minority and low-income students, revise didactic and clinical curricula to integrate community-based practice experiences into their educational programs, and establish community-based clinical education programs. These efforts are seen as part of the measures needed to impact the critical shortage of oral health care for the nation's underserved and disadvantaged populations.⁷

The medical literature suggests that provision of culturally competent care enhances outcomes for patients.^{8,9} Research evaluating outcomes of cultural competency training in either dental or medi-

cal school, however, are rare. Crandall et al.¹⁰ and Crosson et al.¹¹ report the successes of cultural competency training programs for medical students as measured by student self-report with a Multicultural Assessment Questionnaire and the Health Beliefs Attitudes Survey,¹² respectively. Novak et al.¹³ surveyed 627 fourth-year dental students from seven U.S. dental schools and found significant and moderately positive correlations of self-perceived cultural competency with exposure to diversity-specific content in the curriculum. Rubin¹⁴ describes using reflective journals to develop and measure cultural competence and social responsibility in first-year dental students. The journals compiled by the students following forty hours of nondental community service indicated positive outcomes as measured by occurrences of key words or phrases. These descriptive studies focus primarily on educational and learning outcomes, such as cultural competency awareness and attitudes. Less is known about how cultural competency education may affect clinical and other patient outcomes, such as satisfaction with provider-patient communication and dental care access.

The goal of this article is to inform dental schools regarding factors associated with student perceptions of cultural competency. We hypothesize that students' perceptions of their preparedness to provide care to diverse groups and the adequacy of time their schools devoted to preparing them for this aspect of their practice are influenced by multiple factors, including student characteristics and the contextual environment. Student-level characteristics include demographic and socioeconomic background of the graduating seniors, their attitudes and beliefs, and their reasons for selecting dentistry as a career. Contextual variables include such factors as the demographic makeup of the community where the school is located, cost of dental education, and whether or not the school received funding to develop a Pipeline program.

Materials and Methods

The two dependent variables used in this study were data obtained from the 2003 American Dental Education Association (ADEA) survey of dental school seniors: 1) students' perception of the adequacy of time devoted to cultural competency in the curriculum, which was rated with a three-point scale ranging from 1=inadequate to 3=excessive, and 2) students' perception of their level of preparedness

to provide oral health care for racially and culturally diverse groups, which was rated with a five-point scale ranging from 1=not well prepared to 5=well prepared. For the purposes of this analysis, the latter measure was collapsed into a binary outcome: "not prepared" (1, 2) and "prepared" (3, 4, 5).

The 2003 ADEA survey of dental school seniors was distributed to graduating seniors at the fifty-four accredited U.S. dental schools in the late winter and spring of 2003. Weaver et al.¹⁵ provided a detailed description of the methodology. Data were provided by fifty-two of the dental schools. The overall response rate by senior students at these fifty-two schools was 83.2 percent.¹⁶ This response rate was calculated based on the total number of students who completed the survey from the fifty-two schools returning surveys divided by the total number of students graduating from these schools. The sample size for the outcome variable dealing with adequacy of time was 3,536 and for preparedness was 3,527.

The student-level characteristics represent the demographic and economic items from the ADEA survey (gender, age at time of graduation from dental school, race/ethnicity, marital status, parents' income, parents' education, and estimated educational debt upon graduation) and are reflected in the tables. We also constructed three scales to assess attitudes and beliefs: service orientation, entrepreneurial orientation, and social consciousness. These scales were based on extensive factor analyses performed on the individual belief and attitude items from the 2003 ADEA survey.^{16,17} Service orientation was constructed from the item asking students to indicate whether they strongly agree, agree, disagree, or strongly disagree with the following statements: "Access to oral health care is a societal good and right" (item 44f); "Access to oral health care is a major problem in the United States" (item 44g); "Assuring and providing care to all segments of society is an ethical and professional obligation" (item 44h); and "Everyone is entitled to receiving basic oral health care" (item 44i). Survey item 10 asking students to indicate the importance to them of various reasons for selecting dentistry as a career (on a scale of 1-5, with 1 being "Low" and 5 being "High") was used to construct the other two scales. Entrepreneurial orientation was constructed from two of these reasons ("a. Opportunity for self-employment" and "c. High income potential"), and social consciousness from three of the reasons ("b. Service to others"; "g. Service to my own race or ethnic group"; and

“h. Opportunity to serve vulnerable and low-income populations”).

The contextual or community variables representing the county where the school is located were derived from the U.S. census 2000¹⁸ and include 1) percent underrepresented minorities or URM (Hispanics, blacks, and native Americans) and 2) low-income residents, as measured by Federal Poverty Level (FPL) <200%. The contextual variables representing the school environment came from a variety of data sources, including ADEA¹⁵ (public vs. private school, students’ perceptions of whether or not the school environment promotes acceptance and respect of different cultures/races, mean number of weeks at extramural rotation), American Dental Association (ADA)¹⁹ (percent total URM, total expenses for first-year residents), mission statements of the individual schools (explicitly stated commitments to recruit URM students or to provide care for URM patients), and the national program office for the Pipeline initiative⁷ (Pipeline vs. non-Pipeline participant).

Statistical analysis consisted of bivariate comparisons between the outcome and each of the independent variables and multivariate regression modelling.

Bivariate and multivariate data analyses took into account the lack of independence within dental schools, as students from the same schools are likely to have correlated measures due to shared environments.²⁰ Bivariate tests of significance were performed using analysis of variance (ANOVA) and chi-square tests. For the multivariate model of the outcome dealing with time devoted to cultural competency, which we treated as an ordinal-level variable, a generalized ordered logit model, which relaxes the assumption of proportional odds, was used. This assumption was not fulfilled for some of our covariates (the Brant test was used to test for proportional odds), so the generalized model allowed these variables to have varying effects on the outcome by using different intercepts. For the multivariate model using preparedness to care for racial, ethnic, and culturally diverse groups as the outcome, a binary logit regression was used with the original five-point scale collapsed into a binary outcome as described above. The binary logit model was fitted using a generalized estimating equation (GEE).²¹ To produce a more parsimonious set of predictors in the multivariate regression models, we used backward stepwise regression procedures for each dependent variable using $P < 0.2$ as the exclusion criterion. To test for equality of odds ratios obtained in both the

general ordered logit and GEE models, Wald χ^2 tests were performed. Statistical analyses were conducted using Stata Intercooled 8.2.²²

Results

Time Devoted to Cultural Competency

Table 1 shows the bivariate associations among the independent variables for “time devoted to cultural competency in the curriculum” using the three response categories of inadequate, appropriate, and excessive. Among the contextual variables, neither the community variables representing the county where a school was located nor the mission statement variables were significant, and only the type of school (private more likely to find the time inadequate) and the students’ view of whether or not the school’s environment promotes acceptance and respect of different cultures and races were significant. Students attending public institutions were slightly more likely to report that time devoted to cultural competency curriculum was adequate compared to those attending a private university. Students who reported their school environment promotes acceptance and respect were significantly more likely to report time devoted to cultural competency was inadequate. No significant differences were reported at baseline among schools receiving or not receiving a Pipeline program grant. All but three of the student characteristics showed significant differences. The groups most likely to report that the amount of time spent on cultural competency curriculum was inadequate were females, URMs and Asian/Pis, unmarried, and those with parental income of \$30,000 or less, educational debt of greater than \$168,000, a higher service orientation score, and a higher socially conscious score.

Table 2 reports results using a generalized ordered logit model, which relaxes the proportional odds assumption. Regarding contextual variables, only the dental school environment variable was significantly related to time devoted to cultural competency (results significant on the Brant test). This finding indicates that, in school environments where students perceived that acceptance and respect were promoted, students were more likely to report time devoted to cultural competency as inadequate or appropriate compared to excessive (OR=.13, Wald Test indicates $p < 0.05$; data not shown).

Table 1. Bivariate associations between time devoted to cultural competency, population characteristics, school characteristics, and individual-level characteristics

Categories of Outcome (n)	Inadequate (888)	Appropriate (2421)	Excessive (227)	P-value ¹
Contextual Variables				
Mean percent URM* in county ²	35	35	35	
Mean percent FPL† < 200% ²	32	32	33	
Type of school (%) ³				
Public (n=1920)	23	70	7	P=.007
Private (n=1616)	27	67	6	
Pipeline status (%) ⁴				
CA Pipeline (n=473)	22	71	8	
National Pipeline (n=574)	28	67	5	
Non-Pipeline (n=2489)	25	68	7	
Commitment to recruit URM (%) ⁵				
Yes (n=909)	27	70	5	
No (n=2627)	25	68	7	
Commitment to care for URM (%) ⁵				
Yes (n=802)	26	67	7	
No (n=2734)	25	69	6	
Mean total percent URM in school ³	12	11	11	
Total cost for first year (\$) ³	\$31,615	\$30,461	\$30,282	
Mean score: school environment promotes acceptance and respect ⁶	3.23	3.22	3.18	P<.0001
Mean # of weeks at extramural rotation ⁶	6.6	6.6	7.0	
Student Variables				
Gender (%)				
Male (n=2089)	21	71	8	P<.0001
Female (n=1445)	31	65	5	
Age (%)				
29 years and up (n=1074)	26	67	7	
<29 years (n=2416)	25	69	6	
Race (%)				
URM (n=349)	36	58	5	P<.0001
Asian/PI (n=888)	31	64	5	
White (n=2218)	21	72	7	
Marital status (%)				
Married (n=1518)	22	70	8	P=.0005
Not married (n=2012)	27	67	6	
Parents' income (%)				
0-\$30,000 (n=381)	32	65	4	P=.0109
\$30,001-\$50,000 (n=458)	24	70	6	
>\$50,000 (n=2661)	24	69	7	
Parents' education (%)				
Neither parent has a college degree (n=550)	23	72	5	
At least one parent has a degree (n=2948)	25	68	7	
Educational debt upon graduation (%)				
\$168,000-\$350,000 (n=865)	30	64	6	P=.0002
\$120,000-\$167,000 (n=907)	23	72	4	
\$70,000-\$119,000 (n=864)	22	69	8	
<\$70,000 (n=846)	25	69	6	
Service Orientation (mean score)	3.4	3.3	3.0	P<.0001
Entrepreneurial Orientation (mean score)	4.3	4.3	4.2	
Socially Conscious (mean score) ⁷	3.0	2.9	2.7	P<.0001

*Underrepresented Minorities; †Federal Poverty Level

¹Only p-values <.05 are reported.

Data sources: ²U.S. Census Bureau 2000; ³ADA 2002/03 survey of predoctoral dental education; ⁴categories designated by national evaluation team and national program office for the Pipeline initiative, 2003; ⁵mission statements of the fifty-six U.S. accredited dental schools, retrieved July 2004; ⁶ADEA survey of dental school seniors; ⁷N for Socially Conscious: 474 inadequate; 2388 adequate; 220 excessive.

Table 2. Time devoted to cultural competency as a function of dental school and student characteristics

Contextual Variables	Contextual and Student Characteristics	
	OR	95% CI
Pipeline Status (ref: Non-Pipeline)		
CA Pipeline	1.52	0.83-2.77
National Pipeline	0.92	0.72-1.19
Total cost for first year	1.00	0.99-1.00
Mean score: school environment promotes acceptance and respect	+	
Student Variables		
Gender male (ref: female)	1.41***	1.19-1.67
Age 29 years and older (ref: <29)	0.96	0.83-1.12
Race (ref: white)		
URM	+	
Asian/PI	+	
Married (ref: not married)	1.22*	1.05-1.42
Parents' income (ref: >\$50,000)		
0-\$30,000	0.76	0.56-1.02
\$30,000-\$50,000	1.00	0.81-1.24
Neither parent has a college degree (ref: at least one parent has a degree)	1.08	0.87-1.36
Educational debt upon graduation (ref: <\$70,000)		
\$168,000-\$350,000	0.75*	0.60-0.94
\$120,000-\$167,000	0.90	0.73-1.13
\$70,000-\$119,000	1.07	0.87-1.32
Beliefs/attitudes		
Service Orientation Scale	+	
Entrepreneurial Scale	0.97	0.87-1.09
Socially Conscious Scale	0.69***	0.59-0.80
Wald [P-value]	278.72***	

Note: Generalized ordered logistic regression models were used

+P-value <0.05 did not fulfill the proportional odds assumption (based on the Brant Test) and had two parameter estimates that are discussed in the text.

*p<.05; **p<.01; ***p<.001

Student characteristics significantly associated with the perception that time spent on cultural competency was appropriate or excessive included male gender (OR=1.41, p<0.001) and marital status (OR=1.22, p<0.05). In contrast, seniors reporting highest levels of educational debt upon graduation were least likely to report that time spent on cultural competency was adequate (OR=0.75, p<0.05). Similarly, URM (OR=0.58, Wald Test p<0.05; data not shown) and Asian/PI (OR=0.67, Wald Test p<0.05; data not shown) seniors as compared to whites were significantly more likely to report that time devoted to cultural competency curriculum was inadequate (results significant on the Brant test).

Regarding beliefs and attitudes, those rating highest on the socially conscious scale were least likely to view time devoted to cultural competency as adequate (OR=0.69, p<0.001). Students scoring higher on the service orientation scale (results significant on the Brant test) were more likely to believe time spent on cultural competency was inadequate or appropriate but not excessive (OR=0.73, Wald Test p<0.05; data not shown).

Preparedness to Care for Racially and Culturally Diverse Groups

Table 3 shows bivariate associations among the independent variables in relation to levels of the dependent variable “preparedness to care for racially and culturally diverse groups,” using two response categories: prepared or not prepared. The table reports associations with the contextual and student variables. Among the contextual variables, two were significant predictors of perceived preparedness. Students attending California dental schools were significantly more

likely to report preparedness. Similarly, students attending dental schools with environments that were perceived to promote acceptance and respect also reported being prepared to care for diverse patients. Only two of the student characteristics predicted perceived preparedness. Older age and white race/ethnicity were significantly associated with perceived preparedness.

Table 4 reports results using GEE. Similar to the bivariate results, two significant dental school characteristics predict preparedness. Seniors from California Pipeline schools (OR=1.71, p<0.01) and those attending schools where students perceived that the environment promoted cultural and social

acceptance and respect of diverse students and patients (OR=2.91, $p<0.01$) were significantly more likely to report preparedness to care for diverse patients.

In the regression analysis the only student characteristic associated with preparedness was race/ethnicity, with URM (OR=0.69, $p<0.05$) and Asian/PI (OR=0.64, $p<0.01$) seniors compared to whites significantly less likely to report they were prepared to care for diverse populations. The last row of the multivariate tables (Tables 2 and 4) show the Wald statistic indicating the overall model fit is significant.

Discussion

The majority of respondents (68.5 percent) believed the time devoted to cultural competency education was appropriate, and an even greater percentage (86 percent) believed that they were prepared to care for patients from racially and culturally diverse groups. Schools may be generally satisfied that such a high percentage believe that they are so prepared.

Schools may well consider, however, the 25 percent of graduating seniors who believed that the amount of time devoted to cultural competency was inadequate. Merely increasing time holds no value unless the additional course material is well conceived and presented in an effective manner. Additionally, efforts to increase course time will compete with other disciplines for which students regard the time as inadequate. Students indicated, for example, that there was inadequate time devoted to such clinical disciplines as implant dentistry (43 percent), orthodontics (39.5 percent), and

Table 3. Bivariate associations between preparedness to care for racially and culturally diverse groups, dental school characteristics, and individual-level characteristics

Categories of Outcome (n)	Prepared (3067)	Not Prepared (460)	P-value ¹
Contextual Variables			
Mean percent URM in county ²	35	35	
Mean percent FPL <200% ²	32	33	
Type of school (%) ³			
Public (n=1607)	87	13	
Private (n=1920)	87	13	
Pipeline status (%) ⁴			
CA Pipeline (n=472)	90	10	P=.0023
National Pipeline (n=573)	83	17	
Non-Pipeline (n=2482)	87	13	
Commitment to recruit URM (%) ⁵			
Yes (n=906)	89	11	
No (n=2621)	86	14	
Commitment to care for URM (%) ⁵			
Yes (n=791)	87	13	
No (n=2736)	87	13	
Mean total percent URM in school ³	11	11	
Total cost for first year (\$) ⁶	\$30,693	\$30,725	
Mean score: school environment promotes acceptance and respect ⁶	3.23	3.20	P=.0009
Mean number of weeks at extramural rotation ⁶	6.6	6.6	
Student Variables			
Gender			
Male (n=2084)	88	12	
Female (n=1441)	86	14	
Age			
29 years and up (n=1069)	85	15	P=.0427
<29 years (n=2412)	88	12	
Race (ref: white)			
URM (n=352)	84	16	P=<.0001
Asian/PI (n=883)	83	17	
White (n=2214)	89	11	
Marital status			
Married (n=1510)	88	12	
Not married (n=2011)	86	14	
Parents' income			
0-\$30,000 (n=502)	84	16	
\$30,000-\$50,000 (n=460)	87	13	
>\$50,000 (n=2530)	88	12	
Parents' education			
Neither parent has a college degree (n=547)	86	14	
At least one parent has a degree (n=2942)	87	13	
Educational debt upon graduation			
\$168,000-\$350,000 (n=861)	86	14	
\$120,000-\$167,000 (n=904)	89	11	
\$70,000-\$119,000 (n=869)	87	13	
<\$70,000 (n=842)	87	13	
Service Orientation Scale	3.3	3.3	
Entrepreneurial Scale	4.2	4.3	
Socially Conscious Scale	2.9	3.0	

¹Only p-values <.05 are reported.

Data sources: ²U.S. Census Bureau 2000; ³ADA survey of predoctoral dental education; ⁴categories designated by national evaluation team and national program office for the Pipeline initiative, 2003; ⁵mission statements of the fifty-six U.S. accredited dental schools, retrieved July 2004; ⁶ADEA survey of dental school seniors.

Table 4. Preparedness to care for racially and culturally diverse groups as a function of contextual and student characteristics

Contextual Variables	Contextual and Student Characteristics	
	OR	95% CI
Pipeline Status (ref: Non-Pipeline)		
California Pipeline	1.71**	1.21-2.43
National Pipeline	0.75	0.55-1.02
Mean score: school environment promotes acceptance and respect	2.91**	1.36-6.22
Student Variables		
Gender male (ref: female)	1.17	0.92-1.49
Age group (29 years and older)	0.81	0.62-1.04
Race (ref: white)		
URM	0.69*	0.50-0.96
Asian/PI	0.64**	0.47-0.86
Married (ref: not married)	1.19	0.97-1.46
Parents' income (ref: >\$50,000)		
0-\$30,000	0.74	0.51-1.06
\$30,000-\$50,000	1.01	0.72-1.43
Neither parent has a college degree (ref: at least one parent has a degree)	1.04	0.81-1.34
Educational debt upon graduation (ref: <\$70,000)		
\$168,000-\$350,000	0.84	0.64-1.10
\$120,000-\$167,000	1.05	0.73-1.51
\$70,000-\$119,000	0.87	0.65-1.15
Service Orientation Scale	1.05	0.92-1.20
Entrepreneurial Scale	0.99	0.82-1.18
Socially Conscious Scale	1.16	0.97-1.38
Wald [P-value]	65.78***	

Note: Generalized estimating equation (GEE) regression models were used.
*p<.05; **p<.01; ***p<.001

practice administration (36 percent).¹⁵ It seems, therefore, that in many schools the incorporation of new culture-related content into existing courses would be more likely to succeed than the creation of new stand-alone courses on cultural issues. These existing courses need not be limited to those in the behavioral sciences, but could include clinical courses where cultural dimensions of particular significance in patient care exist.

Interestingly, it is unclear as to whether the URM and Asian/PI students were thinking of themselves or their classmates when rating the time devoted to cultural competency as inadequate. Are these students seeking to be even *more* prepared, or do these responses reflect a perception of cultural insensitivity in their non-URM peers? Despite being enrolled in relatively diverse but otherwise predominantly white institutions, members of underrepresented

groups may nonetheless experience social stigmatization and other minority status stressors.²³ Veal et al.,²⁴ reporting on focus group data collected from seventy-eight URM dental students, stated that all respondents found the dental school experience to be isolating. African American dental students in particular were more likely to describe the dental school atmosphere as uncomfortable and reported more incidents of subtle discrimination and miscommunication when interacting with faculty. Factors such as these could conceivably contribute to a low tolerance of racially or culturally based slights and misapprehensions whether they are real or perceived, purposeful or unintentional. These issues also reflect a conclusion reached by Milem et al.²³ regarding research on the benefits of diversity in higher education: matriculation into racially and ethnically diverse institutions does not automatically impart said benefits. Establishing a diverse environment is an important first step; the likelihood that such an environment will generate beneficial learning opportunities for students is critically dependent on the institutional context within which this environment exists.²³

Equally intriguing is that white respondents view themselves as more prepared to care for racially and culturally diverse groups and also are more likely to rate time spent on cultural competency as adequate or excessive. Do these students not value such preparedness as highly as their URM counterparts? Another explanation could be that these students simply do not believe that additional course material will improve their ability to care for a diverse patient population. Either possibility raises perhaps the most important question related to this issue, i.e., to what extent can cultural competency content in the dental school curriculum change the attitudes and beliefs of individuals who are not predisposed to valuing diversity and service?

The finding that students scoring higher on the service orientation scale were more likely to believe time spent on cultural competency was inadequate or appropriate was not unexpected. This student characteristic, as with URM and Asian/PI race ethnicity and higher debt upon graduation, may reflect life experiences for these students that have rendered them more culturally sensitive than others.

The school environment in which dental students are trained was significantly and consistently associated with perceptions of both time devoted to cultural competency curriculum and preparedness to care for diverse patients. The degree to which a school environment was perceived as promoting acceptance and respect of diverse cultures and races was inversely associated with the perceived adequacy of cultural competency curriculum time, yet directly associated with higher preparedness among students. The former finding, as alluded to earlier, may reflect a perception among URM and Asian/PI students that their fellow non-minority students would benefit from additional cultural enlightenment. It may, however, also indicate that, in a school environment where cultural diversity is highly valued, students in general either enter with or develop a better appreciation of the complexities and significance of cultural issues and thus perceive a need for more instruction in this regard. Furthermore, such heightened awareness of these issues may well translate into the higher perceptions of preparedness reflected in the latter finding. Additionally, students attending California dental schools were significantly more likely to report higher preparedness, a not altogether surprising finding given the diversity of the California population. In any event, it appears that the cultural environment of a school may be a significant facilitator of curriculum-based efforts to inculcate its students with cultural competency.

Conclusion

In summary, the two outcome variables we used to assess the impact of cultural competency curricula on dental students provided insights into the current status and future direction of dental education in this regard. On the positive side, the large majority of graduating students believe that they are prepared to treat patients from a variety of cultures. A substantial percentage (25 percent), however, believes that more should be done in this area. Fortunately, the fifteen schools funded by the RWJF and TCE under

the Pipeline initiative may provide guidance on how to proceed in this regard. Our study was conducted before the curriculum modifications envisioned by the Pipeline schools were implemented. Inasmuch as there were no significant differences between Pipeline and non-Pipeline schools at this baseline period for time devoted to cultural competency curriculum, we are in a position to monitor and compare changes in student perceptions at these two subsets of schools over time. We plan to follow these schools and report on findings that we believe can help us arrive at a deeper understanding of how best to focus efforts to produce a more culturally competent dental workforce. In particular, trends observed for URM and Asian/PI students (who were less likely to feel prepared to treat a diverse population and perceived a need for more time devoted cultural topics) requires further investigation best accomplished through qualitative research using an ethnographic approach. In subsequent studies, we will report qualitative results from site visit interviews conducted with dental students attending Pipeline schools in an effort to shed light on these issues.

Lastly, it is appropriate to point out that the use of students' self-perception to measure their preparedness has limitations and begs a question as to the construct validity of our study. We nonetheless contend that our analyses reported here reveal compelling factors for informing the development and delivery of cultural curricula in dental schools. Furthermore, we expect that our planned analyses of faculty survey and qualitative data from the Pipeline sites will enable a more focused examination of these factors and, when considered together with the student survey data, mitigate its inherent limitations.

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