Adoption of Tobacco- and Smoke-Free Policies in a US National Sample of Postsecondary Educational Institutions

Catherine Trad, BA, Jennifer Bayly, BS, Launick Saint-Fort, BS, Mary Andrews, BA, Minal Patel, PhD, Melanie Sabado-Liwag, PhD, Denise Haynie, PhD, Bruce Simons-Morton, EdD, and Kelvin Choi, PhD, MPH

Objectives. To examine the institutional characteristics associated with the adoption of tobacco- and smoke-free policies among US postsecondary educational institutions.

Methods. In 2017, we collected information on tobacco policy types and institutional characteristics of a national sample of US postsecondary educational institutions (n = 605) attended by the participants of the NEXT Generation Health Study. We used logistic regression to examine the relationships between these variables.

Results. Overall, 35.2% of these institutions adopted tobacco-free policies (i.e., prohibit all tobacco product use on campus), 10.1% had smoke-free policies (i.e., prohibit smoking but not other tobacco product use on campus), and 53.7% did not have tobacco- or smoke-free policies. Proprietary (privately owned, for-profit) institutions (vs public institutions) were the least likely to have tobacco- or smoke-free policies ($P < .05$), which were disproportionately attended by racial/ethnic minority students. Adoption of these policies also varied by census region ($P < .05$).

Conclusions. Prevalence of tobacco- and smoke-free policies among US postsecondary educational institutions is low.

Public Health Implications. Wide dissemination of evidence-based interventions to accelerate adoption of tobacco-free policies in all postsecondary educational institutions is warranted. (*Am J Public Health.* 2018;108:1366–1369. doi:10.2105/AJPH.2018.304568)

Tobacco use is the primary cause of preventable diseases and premature deaths in the United States.[1] Young adulthood represents a critical period for the development of tobacco use, with young adults (aged 18–24 years) having the highest prevalence of any combustible tobacco product use relative to other age groups.[1] Although education is inversely associated with prevalence of smoking,[2] smoking behaviors continue to develop even among those who have enrolled in a 4-year college.[3]

Studies have found negative associations between the adoption of tobacco-free policies, smoking behaviors, and secondhand smoke exposure.[3–5] However, the literature on tobacco-free policies at postsecondary educational institutions is limited. Previous studies that examined the adoption of tobacco- and smoke-free policies by postsecondary educational institutions included only 4-year colleges and universities[4,5] and community colleges.[6] Therefore, the prevalence of adoption of tobacco- or smoke-free policies in proprietarily funded (i.e., for-profit) institutions, which are disproportionately attended by racial/ethnic minorities,[7] is unknown. Furthermore, most of the previous studies included postsecondary educational institutions within a single state, which limited their ability to examine geographic variation in adoption of these policies, except 1 study that was conducted when most of the United States did not have smoke-free policies.[8]

In the current study, we investigated the prevalence of tobacco-free policy types in a US national sample of postsecondary educational institutions, including publicly, privately, and proprietarily funded institutions. Furthermore, we examined the institutional characteristics associated with the adoption of these policies.

METHODS

Postsecondary educational institutions attended by the participants during the 2012 to 2013 and 2013 to 2014 data collections of the NEXT Generation Health Study were included in this study (n = 643). The NEXT Generation Health Study (https://www.nichd.nih.gov/about/org/diphr/officebranch/sbsb/next) was a longitudinal study of a nationally representative sample of 10th graders recruited in 2009 to 2010 and followed up annually through 2016 to 2017. This sampling approach allowed us to obtain a distribution of postsecondary educational institutions that was proportional to the distribution of US young adults enrolled in these institutions[7] and provided us access to

ABOUT THE AUTHORS

Catherine Trad, Jennifer Bayly, Launick Saint-Fort, Mary Andrews, Melanie Sabado-Liwag, and Kelvin Choi are with the Division of Intramural Research, National Institute on Minority Health and Health Disparities, Bethesda, MD. Minal Patel is with the Cancer Prevention Fellowship Program, Division of Cancer Control and Population Sciences, National Cancer Institute, Rockville, MD. Denise Haynie and Bruce Simons-Morton are with the Health Behavior Branch, Eunice Kennedy Shriver *National Institute of Child Health and Human Development, Rockville.*

Correspondence should be sent to Kelvin Choi, PhD, MPH, Division of Intramural Research, National Institute on Minority Health and Health Disparities, 9000 Rockville Pike, Bldg 3, Room 5W05, Bethesda, MD 20892 (e-mail: kelvin.choi@nih.gov).
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a list of non–degree-granting institutions attended by young adults from the same source cohort. We obtained tobacco-free policy and institutional characteristic information either from Americans for Nonsmokers' Rights Foundation or from online research and telephone inquiries conducted by 3 authors and reviewed by 4 authors between June and December 2017. We resolved differences in coding through discussions. Institutions that offered only online courses (n = 4), were permanently closed (n = 13), or had unknown tobacco-free policies (n = 21) were excluded from the analysis (final n = 605).

Measures

We classified institutions into 3 different tobacco-free policy types based on their published policies (Web sites and documents): (1) tobacco-free (prohibit combustible and noncombustible tobacco use everywhere on campus, with few exemptions; e.g., one's personal vehicle, research in a controlled laboratory setting, and religious or ceremonial purposes; prohibiting e-cigarette use is not considered), (2) smoke-free (prohibit smoking but not noncombustible products everywhere on campus, with the same exemption as tobacco-free), and (3) not smoke-free (noncomprehensive tobacco regulation; e.g., designated smoking areas on campus). Institutional characteristics included census regions, metropolitan status, historically Black college or university status, degree program offered, sources of funding (public, private non-for-profit, and proprietary for-profit), total undergraduate student population, proportion of students who were racial/ethnic minorities, and proportion of students who were female. We obtained the information through the National Center for Education Statistics Web site (https://nces.ed.gov), the Common Data Set Initiative (http://www.commondataset.org), and institutional Web sites and correspondence.

Statistical Analysis

We used the χ^2 test and 1-way analysis of variance to compare institutional characteristics across tobacco-free policy types. We used multiple logistic regression models to investigate characteristics associated with having smoke- or tobacco-free policies (vs not-smoke-free policies) and having tobacco-free policies (vs smoke-free or not-smoke-free policies); these included variables that were associated with tobacco-free policy types in the bivariate analyses ($P < .20$). The regression analyses excluded institutions without demographic information (n = 24). All analyses were conducted in SAS version 9.3 (SAS Institute, Cary, NC).

RESULTS

Overall, 37.9% (n = 229) of the 605 institutions were tobacco-free, 9.4% (n = 57) were smoke-free only, and 52.7% (n = 319) were not smoke-free. In the bivariate analysis, census region, degree program offered, sources of funding, and total undergraduate student population were associated with tobacco-free policy type ($P \leq .05$) and included in the subsequent analyses.

In the multiple logistic regressions, institutions offering only associate's degrees (vs bachelor's degrees) and those located in the Midwest, Northeast, and South (vs West) regions were more likely to have smoke- or tobacco-free policies ($P < .05$), whereas privately and proprietarily funded institutions (vs publicly funded institutions) were less likely to have smoke- or tobacco-free policies ($P < .05$; Table 1). Further analysis showed that these institutions had a higher proportion of racial/ethnic minority students (Midwest = 34.3%, Northeast = 44.9%, South = 49.8%, West = 63.2%; publicly funded = 45.0%, privately funded = 45.9%, proprietarily funded = 64.7%). Characteristics associated with having tobacco-free policies mirrored those associated with having smoke-free policies ($P < .05$), except that the degree program offered was not associated with having a tobacco-free policy ($P = .34$; Table 1).

DISCUSSION

We conducted the first US national study examining adoption of tobacco-free policies in a sample of postsecondary educational institutions located across the United States, including non–degree-granting and proprietarily funded institutions. We found that fewer than half of these institutions have adopted any of these policies, and only about a third of them have adopted tobacco-free policies. A previous study among California institutions found that the presence of tobacco-free policies was associated with lower secondhand smoke exposure and perceived acceptability of smoking among enrolled students.[5] Thus, the low prevalence of adopting tobacco-free policies suggests that many young adults enrolled at postsecondary educational institutions are exposed to tobacco use on campus, which may lead to development of tobacco use behaviors.

Although the proportion of racial/ethnic minority students was not directly associated with tobacco-free policy types, we observed that institutions located in the West region and those privately and proprietarily funded were less likely to adopt these policies. Noteworthy is that these institutions are disproportionately attended by racial/ethnic minority young adults, and students at proprietarily funded institutions are also likely to have lower income on graduation.[9] Therefore, initiatives to accelerate adoption of comprehensive tobacco-free policies in institutions that are proprietarily funded and located in the West region could potentially contribute to reducing racial/ethnic and socioeconomic disparities in tobacco use and exposure to secondhand smoke.[10] Adoption of comprehensive tobacco-free policies might be particularly challenging for proprietarily funded institutions, because they often operate from office buildings that restrict their capacity to adopt these policies, making strategies at the local and state levels necessary to protect students at these institutions. The World Health Organization smoke-free cities initiatives provides guidance on how to implement policies to make cities smoke-free.[11]

Even though we used a US national sample, it was not a true random sample, so our findings may not be generalizable to all US postsecondary educational institutions. Nonetheless, our findings provide the first US national assessment of the adoption of tobacco-free policies among public, private, and proprietary postsecondary educational institutions.

PUBLIC HEALTH IMPLICATIONS

Tobacco control is a critical public health priority that can be advanced through

TABLE 1—Characteristics Associated With Different Types of Tobacco-Free Policies in a US National Sample of Postsecondary Educational Institutions: NEXT Generation Health Study, 2017

Characteristics	Overall, No. (%) or Mean ±SD	Tobacco-Free Policies, % or Mean ±SD			Smoke- or Tobacco-Free vs Not Smoke-Free, AOR (95% CI)[a]	Tobacco-Free vs Smoke-Free or Not Smoke-Free, AOR (95% CI)[a]
		Tobacco-Free	Smoke-Free	Not Smoke-Free		
Census region						
Midwest	180 (29.8)	40.0	16.7	43.3	2.81 (1.56, 5.04)	4.70 (2.66, 8.31)
Northeast	129 (21.3)	34.9	3.9	61.2	2.46 (1.31, 4.62)	2.30 (1.26, 4.24)
South	186 (30.7)	47.9	7.5	44.6	3.75 (2.10, 6.69)	4.02 (2.30, 7.05)
West	110 (18.2)	20.9	7.3	71.8	1 (Ref)	1 (Ref)
Located in a metropolitan statistical area						
Yes	491 (81.2)	36.5	9.5	54.0	. . .	. . .
No	114 (18.8)	43.9	8.8	47.3	. . .	. . .
Historically Black college or university						
Yes	25 (4.1)	36.0	12.0	52.0	. . .	. . .
No	580 (95.9)	37.9	9.3	52.8	. . .	. . .
Degree program offered						
Bachelor's degree	430 (71.1)	37.2	8.4	54.4	1 (Ref)	1 (Ref)
Associate's degree	125 (20.7)	43.2	14.4	42.4	1.36 (0.85, 2.17)	1.80 (1.10, 2.93)
Other	50 (8.3)	30.0	6.0	64.0	1.37 (0.53, 3.55)	1.67 (0.62, 4.49)
Sources of funding						
Public	394 (65.1)	44.4	11.4	44.2	1 (Ref)	1 (Ref)
Private	166 (27.4)	31.3	6.6	62.1	0.61 (0.39, 0.95)	0.54 (0.35, 0.83)
Proprietary	45 (7.4)	4.4	2.2	93.3	0.03 (0.00, 0.21)	0.02 (0.00, 0.12)
Total undergraduate student population,[a] (thousands)	10.4 ±12.7	11.4 ±0.9	12.9 ±1.6	9.2 ±0.7	1.00 (0.99, 1.02)	1.00 (0.99, 1.02)
% racial/ethnic minority students[a]	46.6 ±26.6	44.7 ±1.8	47.2 ±3.6	47.9 ±1.5	. . .	. . .
% female students[a]	56.1 ±13.0	56.2 ±0.9	55.7 ±1.7	56.1 ±0.7	. . .	. . .

Note. AOR = adjusted odds ratio; CI = confidence interval.
[a]Limited to institutions with demographic information (n = 581).

implementation of institutional tobacco-free policies. Our findings suggest that many US postsecondary educational institutions do not have comprehensive tobacco-free policies. Disseminating evidence-based interventions[12] to accelerate adoption of tobacco-free policies at all US postsecondary educational institutions is warranted. AJPH

CONTRIBUTORS

M. Patel, M. Sabado-Liwag, D. Haynie, B. Simons-Morton, and K. Choi designed the study. C. Trad, J. Bayly, L. Saint-Fort, M. Andrews, and K. Choi obtained and analyzed the data. C. Trad and K. Choi drafted the article. J. Bayly, L. Saint-Fort, M. Andrews, M. Patel, M. Sabado-Liwag, D. Haynie, and B. Simons-Morton critically reviewed and revised the article. All of the authors provided final approval of the version to be published and agreed to be accountable for all aspects of the work.

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HUMAN PARTICIPANT PROTECTION

This study was exempt from institutional review board review because this was an analysis of public records.

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