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Adoption of electronic-cigarette-free, hookah-free and American College Health Association recommended tobacco-free policies among a national sample of postsecondary educational institutions

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Abstract

Objective: To examine the prevalence of various types of tobacco-free policies among a US national sample of postsecondary educational institutions (PEIs).

Participants: A national sample of US PEIs (N=605) attended by the participants of the NEXT Generation Health Study.

Methods: Tobacco policies of these PEIs were reviewed to determine if they were e-cigarette-free (yes/no), hookah-free (yes/no), and ACHA-recommended tobacco-free (yes/no) in June-December 2017. Logistic regression models were used to examine the relationships between institutional characteristics and tobacco policies.

Results: Overall, 39.2%, 26.0%, and 20.0% of the sample adopted e-cigarette-free, hookah-free, and ACHA-recommended tobacco-free policies, respectively. Proprietary PEIs (vs. public) were less likely to have ACHA-recommended tobacco-free policies, while PEIs in the South and Midwest (vs. West) were more likely to have ACHA-recommended tobacco-free policies ($p < 0.05$).

Conclusions: Most sampled PEIs did not have ACHA-recommended tobacco-free policies. Subsequent research needs to investigate how ACHA-recommended tobacco policies influence tobacco use.

Keywords

Tobacco-free; Policy; young adult

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INTRODUCTION

Young adulthood is a period of many life transitions and serves as a vulnerable time for substance use initiation.¹ College students encompass over 40% of the US young adult (18–24-year-old) population.² A study that followed a cohort of nationally representative 10th graders into young adulthood found that 5% of US young adults attend non-degree-granting institutions during the first year after high school, such as technical or vocational schools.³ Thus, postsecondary educational institution (PEI) campuses are an important environment to intervene. Previous studies found that tobacco policies on college and university campuses are associated with decreased tobacco use prevalence,^{4,5} changes in tobacco-related beliefs,^{4,5} and lower secondhand smoke exposure.^{5,6} To foster campus-wide tobacco-free environments, the American College Health Association (ACHA) has set forth several recommendations. Two of these recommendations are for institutions to prohibit tobacco use on all grounds, and to define tobacco as “all tobacco-derived or containing products, including, but not limited to, cigarettes (clove, bidis, kreteks), electronic cigarettes, cigars and cigarillos, hookah-smoked products, and oral tobacco (spit and spitless, smokeless, chew, snuff).”⁷ While the constituents of ACHA are 2 and 4-year colleges, their recommendations are applicable to non-degree granting PEIs. The number of PEI campuses with smoke-free or tobacco-free policies has grown; the American Nonsmokers’ Rights Foundation (ANRF) reports over 2,000 100% smoke-free campus sites in 2018, an increase from less than 500 sites in 2010.⁸

While this trend in college tobacco and smoke-free policies is promising, little attention has been paid to whether they followed the ACHA recommendations prohibiting all tobacco use, including electronic cigarettes (e-cigarettes) and hookah.⁷ E-cigarette and hookah use are especially prevalent among young adults compared to older age groups.^{9,10} The 2017 National College Health Assessment revealed that 14.2% of college students have ever used e-cigarettes and 19.9% have ever used hookah.¹¹ Young adults perceive these products as less harmful and addictive than cigarettes.^{12,13} However, while little is known about the long-term health effects of e-cigarettes, their use cannot be considered risk-free. They can deliver high levels of nicotine.¹⁴ Additionally, there are concerns that exposure to e-cigarettes can lead to the renormalization of smoking.¹⁵ Hookah smoke has many of the same toxins as cigarette smoke,¹⁶ and its use has been associated with multiple smoking-related health effects, such as cardiovascular disease, decreased pulmonary function, and cancer.¹⁷ Furthermore, prospective studies have shown that use of hookah and e-cigarettes have each been associated with future cigarette smoking initiation among young adults.^{18–20}

Presently, the literature examining the prevalence of college tobacco policies has mainly been limited to specific states²¹ and has largely excluded proprietary institutions, which are disproportionately attended by racial/ethnic minority students.²² A recent report presented information on 2082 US college and university campuses that had smoke-free policies, of those 80% prohibited e-cigarette use and 21% prohibited hookah use additionally.²³ However, the previous report did not include university and college campuses that do not have smoke-free policies, limiting its ability to estimate the prevalence of e-cigarette free and hookah free policies. This previous report also did not include information about how many of the sample college and university campuses met the ACHA-recommended tobacco-

free policies. Thus, the main goal of this study was to examine the prevalence of e-cigarette-free, hookah-free, and ACHA-recommended tobacco-free policies among public, private, and proprietary PEIs attended by a national sample of 10th-graders followed into young adulthood.

METHODS

Sample

This study included PEIs attended by the participants of the NEXT Generation Health Study, allowing us to achieve a distribution of PEIs that is proportional to the distribution of US young adults attending these institutions.²² This sampling strategy also afforded us access to a list of non-degree-granting institutions attended by young adults from the same source cohort. The NEXT Generation Health study is a nationally representative longitudinal study of 10th graders recruited in 2009–2010 and followed annually through 2016–2017.³ Using data from the 2012–13 and 2013–14 assessments, a total of 643 postsecondary educational institutions were identified. Institutions that were excluded from analysis included those that offer online courses only (n=4), are permanently closed (n=13), or had unknown tobacco-free policies (n=21) for a final sample of 605 institutions.

Measures

Tobacco-free policies were assessed using the following approach. First, we obtain this information on tobacco-free policies enacted as of November 2017 from the American for Nonsmokers' Rights Foundation's (ANRF) Smokefree and Tobacco-Free US and Tribal Colleges and Universities database for the sampled PEIs in the database.²³ For PEIs not in the database, we conducted online research to obtain copies of the written policies. For PEIs that did not have tobacco-free policies available online, we approached the PEIs over the phone and asked them to send us copies of the written policies. Using the same coding criteria as the ANRF, we coded the collected policies into three comparable dichotomous variables, e-cigarette free, hookah free, and meeting ACHA recommendations. To be classified as e-cigarette-free, policies need to explicitly prohibit e-cigarette use everywhere on campus (by including words such as "e-cigarette", "vaping", "simulated smoking" or similar), with the only possible exemptions including one's personal vehicle, research in a controlled lab setting, and/or religious or ceremonial purposes. To be classified as hookah-free, policies need to explicitly prohibit hookah use (by mentioning "hookah", "shisha," or "water pipe") everywhere on campus, with the same exceptions as above. Institutions met the ACHA-recommendations if they met the e-cigarette free and hookah-free criteria, as well as prohibiting both combustible and noncombustible tobacco products everywhere on campus, with the same possible exceptions. Among institutions that failed to reach the ACHA-recommended tobacco-free policies, there was a spectrum of policy types that varied in strength and coverage. For instance, one institution may have restricted e-cigarettes or hookah indoors or within 25 feet of entrances, whereas another institution may have no restrictions at all, but both policies failed to meet ACHA-recommendations. Between June and December 2017, KC, who has experience in qualitative research, provided training to all coders (CT, LS, MA, JB) on coding criteria for policy outcomes. To ensure that each coder was proficient, each initially coded a small set of policies, which were reviewed by KC for

consistency with the coding criteria. One coder (CT) coded the majority of cases (249 institutions) with two other (LS and MA) coding the remaining cases. Each coded case was then reviewed for verification by a second trained coder (JP, LS, MA). Discrepancies in coding were resolved through discussions among coders and KC; ANRF was consulted for cases that could not be resolved through discussion.

Institutional characteristics, including census region (Midwest, Northeast, South, or West), metropolitan status (located in a metropolitan statistical area or not), historically black college or university status (yes/no), degree granting status (offered bachelor's degree, associate degree, or non-degree-granting), and sources of funding (public, private, or proprietary), were collected through the National Center for Education Statistics website (<https://nces.ed.gov>), the Common Data Set Initiative, (<http://www.commondataset.org/>) or institutional websites.

Statistical Analysis

Institutional characteristics associated with having e-cigarette-free, hookah-free, or having met ACHA-recommendations were first investigated through chi-square tests. Multivariate analyses were restricted to the outcome of having a smoke-free policy meeting ACHA-recommendations, as this was a summary measure of policies that met criteria for being tobacco-free, e-cigarette-free, and hookah-free. Logistical regression was used to assess the characteristics associated with meeting the ACHA-recommendations (vs. not meeting ACHA-recommendations). The model included variables that were significantly associated with a ACHA-recommended tobacco-free policy in bivariate analyses ($p < 0.05$). All analyses were conducted in SAS version 9.4 (SAS Institute, Cary, NC).

RESULTS

Overall, 39.2% ($n=237$) of the sampled PEIs had e-cigarette-free policies. Prevalence was the highest in Midwest institutions (50.6%), institutions offering associate degrees (49.6%), and publicly funded institutions (47.5%; $p < 0.05$, see Table 1). Conversely, institutions in the West (22.7%), non-degree-granting institutions (24.0%), and proprietary institutions (2.2%) had the lowest prevalence.

Of the sampled PEIs, data on 58% ($n=374$) was collected by ANRF. Between the PEIs from the ANRF database and the PEIs coded by our group, no differences were found by region, metropolitan status, or historically black college/university status. There were differences by program and funding type, such that there were fewer numbers of proprietary or non-degree-granting PEIs within the ANRF database ($p < 0.05$).

Twenty-six percent ($n=156$) of the sampled PEIs had hookah-free policies. In bivariate analyses, prevalence varied by census region, degree-granting status, and source of funding ($p < 0.05$). A third of Midwest institutions (33.3%) had hookah-free policies, and prevalence was only 18.4% in the Northeast and 14.6% in the West. Only 3 (6.0%) of non-degree-granting institutions were hookah-free, while no proprietary institution had such a policy.

Twenty percent (n=122) of the sampled PEIs met the ACHA recommendations. In bivariate analyses, census region, degree-granting status, and sources of funding were each associated with meeting the ACHA-recommendations ($p<0.05$) and were included in the subsequent analysis. In the multiple logistic regression, PEIs in the South and Midwest (vs. West) had higher odds of having met the ACHA-recommendations (AORs 2.23 and 1.86, respectively), while proprietary institutions (vs. public) and non-degree granting institutions (vs. bachelor's degree) had lower odds (AORs 0.16 and 0.16, respectively).

COMMENT

This is the first study to examine the prevalence of adopting e-cigarette-free, hookah-free, and ACHA-recommended (prohibits all tobacco use, including e-cigarette and hookah use) tobacco-free policies among postsecondary educational institutions in the US. Our results indicate that the majority of institutions have policies that fall short of the ACHA's recommendations.⁷ Less than half of the sampled institutions had policies with e-cigarette coverage, and a quarter with hookah coverage. Moreover, only a fifth met the ACHA-recommendation of having a tobacco-free policy that explicitly included both e-cigarette and hookah use. Administrators at institutions with tobacco-free policies may believe their policies cover e-cigarettes and hookah without explicitly listing these products. However, previous research has found e-cigarette users, particularly young adults, vape in smoke-free environments, suggesting they may not consider such policies to include e-cigarettes.²⁴ Considering young adults' perceptions that e-cigarettes and hookah are less harmful than cigarettes,^{12,13} it is possible students may not consider these products under the umbrella of tobacco use or tobacco-free policies.

Strengthening and expanding tobacco policies may also be beneficial in changing college students' perceptions regarding e-cigarettes and hookah, as has been previously shown in research on smoke-free policies and smoking attitudes. For instance, one study surveyed students at a college before and after implementation of a campus smoke-free policy. Compared to students from a control college without a policy change, the researchers demonstrated a significant change in smoking norms following the policy. After the policy implementation, there was a decrease in the proportion of students who agreed smoking among students was acceptable and an increase in the proportion of students that had favorable attitudes towards the regulation of smoking in public places.⁴

Strengths and Limitations

The sample was not generated as a random sample, limiting its generalizability to all US PEIs; however, the sample was national and included non-degree granting institutions that are rarely included in this type of research. Further, we did not evaluate other aspects of the ACHA recommendations, such as bans for on-campus tobacco promotion and advertising, and the study could not assess implementation of the policies, which may also vary by PEI.

Conclusion

We found that the vast majority of the sampled US postsecondary education institutions do not have tobacco-free policies that meet the ACHA recommendations. Future research is

needed to investigate the factors that facilitate the adoption of ACHA-recommended tobacco-free policies, especially among proprietary educational institutions that are disproportionately attended by racial/ethnic minority young adults. Future studies are also needed to assess the enforcement and compliance with these policies on PEI campuses. Additionally, the relationship between policy compliance and social norms among young adults who enrolled in postsecondary educational institutions merits further research.

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Characteristics associated with several types of tobacco policies in a US national sample of postsecondary educational institutions, 2017

Table 1.

Census Region	Sample Characteristics			Number (%) Having Policy		ACHA Recommendations	
	N(%)	E-Cigarette-Free* N(%)	Hookah-Free* N(%)	Met ACHA-Recommendations* N(%)	Adjusted Logistic Regression** AOR (95% CI)		
Midwest	180 (29.8%)	91 (50.6%)	60 (33.3%)	38 (21.1%)	1.86 (1.03, 3.38)		
Northeast	129 (21.3%)	44 (34.1%)	23 (17.8%)	21 (16.3%)	1.34 (0.69, 2.58)		
South	186 (30.7%)	77 (41.4%)	57 (30.7%)	50 (26.9%)	2.23 (1.24, 4.00)		
West	110 (18.2%)	25 (22.7%)	16 (14.6%)	13 (11.8%)	1.00		
Located in a metropolitan statistical area							
Yes	491 (81.2%)	190 (38.7%)	125 (25.5%)	98 (20.0%)	--		
No	114 (18.8%)	47 (41.2%)	31 (27.2%)	24 (21.1%)	--		
Historically Black College or University							
Yes	25 (4.1%)	10 (40.0%)	6 (24.0%)	5 (20.0%)	--		
No	580 (95.9%)	227 (39.1%)	150 (25.9%)	117 (20.2%)	--		
Degree-granting status							
Bachelor's degrees	430 (71.1%)	163 (37.9%)	111 (18.4%)	92 (21.4%)	1.00		
Associate degrees	125 (20.7%)	62 (49.6%)	42 (33.6%)	27 (21.6%)	1.00 (0.60, 1.64)		
Non-degree-granting	50 (8.3%)	12 (24.0%)	3 (6.0%)	3 (6.0%)	0.16 (0.06, 0.43)		
Sources of funding							
Public	394 (65.1%)	187 (47.5%)	123 (31.2%)	94 (23.4%)	1.00		
Private	166 (27.5%)	49 (29.5%)	33 (19.9%)	28 (16.9%)	0.67 (0.41, 1.08)		
Proprietary	45 (7.4%)	1 (2.2%)	0 (0.0%)	0 (0.0%)	0.16 (0.06, 0.43)		

* Bolded estimates statistically significant in bivariate analyses (p<0.05);

** Reference group = policy does not meet ACHA recommendations; AOR=adjusted odds ratio controlling for all other variables in the model.