Original Investigation

College students' exposure to secondhand smoke

Mark Wolfson, Thomas P. McCoy, & Erin L. Sutfin

Abstract

Introduction: Exposure to secondhand smoke (SHS) is associated with morbidity and mortality from coronary heart disease, lung cancer, respiratory infections, asthma, sudden infant death syndrome, and other illnesses. Although substantial numbers of college students smoke, little is known about their exposure to SHS. This paper provides data on self-reported exposure of college students to SHS.

Methods: A Web-based survey of a random sample of undergraduate students at 10 universities (eight public and two private) in North Carolina was conducted ($N=4,223$).

Results: A total of 83% of students reported any exposure in the 7 days preceding the survey. Exposure in a restaurant or bar was the most common (reported by 65% of students), followed by exposure at home or in the same room as a smoker (55%) and in a car (38%). Being a daily or nondaily smoker, binge drinking, being a fraternity or sorority member or pledge, female gender, White race, and higher parental education levels were associated with exposure in one or more contexts. Students younger than 21 years were less likely to report exposure in a bar or restaurant and more likely to report exposure in cars or at home. The overall campus smoking rate was positively associated with reported exposure in cars, at home or in someone's room, and in any location.

Discussion: College administrators, other policy makers, and tobacco control advocates should take steps to reduce smoking and concomitant exposure to SHS among college students.

Introduction

Cigarette smoking by college students has been the focus of considerable attention in recent years. This concern has been sparked by a number of factors. First, cigarette use increased na-

tionwide on college campuses in the 1990s. Wechsler, Rigotti, Gledhill-Hoyt, and Lee (1998) found that self-reported current (30-day) cigarette smoking rates rose from 22.3% to 28.5% between 1993 and 1997 in a nationally representative sample of 116 students at 4-year colleges. Although current smoking by college students peaked in 1999 at 30.6%, it remains high (19.2% in 2006; Johnston, O'Malley, Bachman, & Schulenberg, 2007:49) and is a cause for continuing concern.

Second, current full-time college students are at increased risk for future smoking, compared with same-age peers not attending college. In a large population-based sample of young adults (aged 18–29 years) living in California, experimental smokers (lifetime consumption of 1–99 cigarettes) who were full-time college students were 46% more likely to be at risk for future smoking than experimenters who had never been to college (Gilpin, White, & Pierce, 2005).

Third, there has been a recent trend for college students to start smoking (Everett et al., 1999; Wechsler et al., 1998; Wetter et al., 2004). This trend may stem, at least in part, from targeting of college students by the tobacco industry. Analyses of tobacco industry documents indicate that the industry recognizes that the transition to college is stressful for young adults and thus provides a marketing opportunity to encourage new smokers and solidify existing patterns of smoking (Ling & Glantz, 2002). To attract college students to smoke, the industry specifically targets their promotions at bars that are close to college and university campuses (Katz & Lavack, 2002).

Surprisingly, relatively little attention has been paid to the issue of college students' exposure to secondhand smoke (SHS). SHS inhaled by nonsmokers is a combination of exhaled smoke and sidestream smoke; the latter contains higher levels of toxins than does mainstream smoke, although it dilutes more quickly (U.S. Department of Health and Human Services, 1986). SHS contains at least 250 chemicals that are either toxic or carcinogenic, and it is itself considered a known human carcinogen (National Toxicology Program, 2000). SHS exposure is estimated

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to be responsible for 3,000 deaths annually from lung cancer in nonsmokers and 35,000 deaths in nonsmokers from coronary heart disease, respiratory infections, asthma, sudden infant death syndrome, and other illnesses in children in the United States (Centers for Disease Control and Prevention, 2002).

Recent studies suggest that most colleges do not have a comprehensive ban on smoking. For example, in a study of the largest public university in each of the 50 states, Halperin and Rigotti (2003) found that only 54% of schools banned smoking inside student housing and 50% banned smoking outside building entrances. College students are likely to be exposed regularly to SHS, regardless of their smoking status, given that they smoke at rates at least as high as those of the general adult population; frequent venues that may be smoking friendly (such as restaurants, bars, and clubs); and often live, study, and attend class in unregulated or partially regulated environments. However, no studies of college students' exposure to SHS have been published.

The present study examined the frequency of self-reported exposure to SHS across multiple locations, as well as the correlates of exposure, in a large sample of students attending 10 four-year colleges in North Carolina.

Methods

Participants

In fall 2006, a random sample of undergraduate college students attending 10 universities (eight public and two private) in North Carolina was invited to complete a Web-based survey as part of a group-randomized trial of an intervention to prevent high-risk drinking behaviors and their consequences on college campuses and surrounding communities (Study to Prevent Alcohol Related Consequences [SPARC]; O'Brien et al., 2006). At each university, students were selected randomly from undergraduate enrollment lists and asked to participate in the survey, known as the College Drinking Survey (CDS). The goal was to have 416 students (104 each of freshmen, sophomores, juniors, and seniors) from each university complete the survey ($n = 4,160$). The number of students invited to participate was based on power considerations for the overall SPARC trial as well as anticipated response rates based on previous Web-based surveys of college students (McCabe, Diez, Boyd, Nelson, & Weitzman, 2006; Reed, Wang, Shillington, Clapp, & Lange, 2007) and three previous fieldings of the CDS. The overall response rate was 21.0%, and individual response rates varied quite a bit among the 10 schools (9.3%–32.7%). The estimate of the response rate is a conservative one, given that some individuals on the student lists provided by registrars at the beginning of the school year likely dropped out by the time the survey was conducted. The response rate was limited by the survey link's being deactivated after the quota of 4,160 students was reached (Mittra, Jain-Shukla, Robbins, Champion, & DuRant, 2008).

Procedure

The study protocol was approved by the Wake Forest University School of Medicine (WFUSM) institutional review board (IRB). Several of the schools participating in the study also required IRB review and approval or set up oversight agreements with

the WFUSM IRB. Students selected to participate were sent an E-mail informing them of the survey and inviting them to participate. Included in the E-mail was a link to a secured Web site where the survey could be completed. The E-mail notification protocol, including multiple, frequent reminders for the Web-based survey, was based on the Dillman (2000) approach for Web-based surveys. Students were sent up to four E-mail reminders over approximately 4 weeks. All students who completed the survey were sent an E-mail awarding them US\$10.00 in PayPal dollars. From the list of completions, one student from each school was selected randomly to receive \$100.

Measures

The CDS was developed using items from surveys of alcohol use and other health behaviors among college students and high school-aged youth and middle-school-aged youth (Kolbe, 1990; Preisser, Young, Zaccaro, & Wolfson, 2003; Presley, Meilman, & Lyster, 1994; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994), as well as new items. Items regarding SHS exposure were adapted from a survey of SHS exposure among a cohort of adults with asthma living in northern California (Eisner, Katz, Yelin, Hammond, & Blanc, 2001). The CDS had 318 items with multiple skip patterns based on the absence of reported behaviors. The survey took about 25 min to complete, depending on the skip patterns for each student.

Exposure to SHS. To measure SHS exposure, participants were asked to report exposure to cigarette smoke during the past 7 days in five different locations: in a car; in the home; in the same room; in a bar, club, cocktail lounge, or sports arena; and in a restaurant (adapted from Eisner et al., 2001). Response options were as follows: 0, 1–2, 3–4, 5–6, and 7 days. We coded these categories to represent 0 versus 1 or more days because of the relatively low prevalence of more than 2 days. We also collapsed some of the locations into conceptually consistent categories: home/room and bar/restaurant. Additionally, we created a composite variable representing any exposure to SHS in any of the following three categories: in a car, at home or in the same room, and in a bar or restaurant. In addition to these exposure questions, a question was included that asked, "In general, would you say that the smoke from other people's cigarettes is not at all annoying to you, somewhat annoying to you, or very annoying to you?"

Research has demonstrated that SHS exposure in the general population is correlated with a variety of demographic factors, including race/ethnicity and education (Soliman, Pollack, & Warner, 2004). Thus, we included measures of demographics in the analyses presented below, as well as factors that have been related to alcohol use and smoking.

Demographic variables. Demographic variables included age, gender, race, and mother's and father's educational levels (some college education or less vs. 4-year college degree).

Lifestyle factors. Lifestyle factors included residence (on- or off-campus), Greek pledge or member, and living in a smoke-free dorm (yes/no).

College-level correlates. With only 10 schools participating in the study, we had limited ability to include college-level factors in statistical analyses. Consequently, the college-level factors that were included were whether the school was a private or

public institution, the overall smoking rate on the campus (based on participants' past-30-day smoking rate), and whether the campus was an intervention or a comparison school in the SPARC trial (the survey was conducted ca. 2.5 years into the intervention period).

Tobacco use. Tobacco use was measured by one item assessing past 30 day use of cigarettes. Responses options were as follows: 0, 1–2, 3–5, 6–9, 10–19, 20–29, or all 30 days. Categories were collapsed to form three mutually exclusive categories: nonsmokers (who smoked on none of the past 30 days), non-daily smokers (who smoked on at least 1 but fewer than 30 days), and daily smokers (who reported smoking on all the past 30 days).

Alcohol use. Alcohol use was assessed with one item measuring heavy episodic drinking in the past 30 days: four or more drinks in a row for females and five or more drinks in a row for males (coded as yes/no).

Data analyses

The goal of the statistical analyses was to identify correlates associated with any exposure to SHS and context-specific exposure in our sample of students attending 4-year colleges. Context-specific exposure was considered using survey items related to three contexts: in a car, at home or in the same room, and in a bar or restaurant. School was treated as a random effect in mixed-effects logistic regression analyses to take into account within-school clustering (where students were considered nested within schools). Adjusted odds ratios and 95% *CI*s were calculated for predictor variables in the multivariable logistic regression analyses. All predictor variables were included in multivariable analyses simultaneously in each model. A two-sided *p* value of less than .05 was considered to be statistically significant. All analyses were performed using Stata version 10.

Results

A total of 4,275 students completed the survey; however, data for the items assessed in this paper were available from 4,223 students (98.8%). The sample was 61% female and 79% White. Few students (2%) were younger than 18 years; 63% were 18–20 years old and 35% were older than 21 years. The average age of the students was 20.4 years (*SD* = 2.8). Overall, the sample closely mirrored the composition of the undergraduate population of the 10 participating colleges. See Table 1 for descriptive statistics on sample demographics, lifestyle factors, college-level factors, and tobacco and alcohol use.

Some 38% of students reported past-7-day exposure to SHS in a car, 55% at home or in the same room as a smoker, and 65% in a bar or restaurant. A total of 83% of students reported any exposure to SHS in the 7 days preceding the survey.

Table 2 presents cross-tabulations of our three groupings of exposure location. We found a modest degree of overlap in the individuals who were exposed in each of three types of location (the Cramer's *V*'s were .41 for exposure in a car and at home/in the same room, .25 for in a car and at a bar/restaurant, and .35 for at home/in the same room and in a bar/restaurant).

Table 1. Student demographics and health behaviors from 2006 College Drinking Survey (*N* = 4,223)

Characteristics	Value
Gender; <i>n</i> (%)	
Male	1,622 (38)
Female	2,572 (61)
Age group (years); <i>n</i> (%)	
<18	66 (2)
18–20	2,649 (63)
21+	1,498 (35)
Race; <i>n</i> (%)	
White	3,318 (79)
Non-White	882 (21)
Hispanic ethnicity; <i>n</i> (%)	
Yes	159 (4)
No	4,028 (95)
Residence location; <i>n</i> (%)	
On-campus	2,401 (57)
Off-campus	1,813 (43)
Greek affiliation; <i>n</i> (%)	
Yes	507 (12)
No	3,716 (88)
Mother's education level; <i>n</i> (%)	
Some college or more	3,432 (81)
High school degree or less	732 (17)
Father's education level; <i>n</i> (%)	
Some college or more	3,287 (78)
High school degree or less	807 (19)
Study condition campus; <i>n</i> (%)	
Intervention	2,180 (52)
Control	2,030 (48)
Past-30-day smoking status; <i>n</i> (%)	
Nonsmoker	3,128 (74)
Nondaily smoker (1–29 days)	799 (19)
Daily smoker (all 30 days)	293 (7)
Lives in a smoke-free dorm; <i>n</i> (%)	
Yes	690 (16)
No	3,513 (83)
Type of campus; <i>n</i> (%)	
Private	747 (18)
Public	3,463 (82)
Campus smoking rate, %; <i>M</i> (<i>SD</i>)	25.9 (8.4)
Binge drinking in past 30 days; <i>n</i> (%) ^a	
Yes	1,894 (45)
No	2,226 (53)

Note. ^aBinge drinking was defined as five or more drinks in a row for males and four or more drinks in a row for females.

Multivariate analyses: context-specific exposure

In multivariable analyses, we found that reporting exposure to SHS while in a car was significantly associated with age (exposure was greater among 18–20 year-olds than among those older than 21 years), being a member or pledge of a Greek organization, living off-campus, being a student at a school with a higher campus smoking rate, being a nondaily or daily smoker, and binge drinking in the past 30 days (Table 3).

Table 2. Cross-tabulations of contexts for exposure to secondhand smoke

Home or same room				Bar or restaurant				Bar or restaurant			
	No	Yes	Total		No	Yes	Total		No	Yes	Total
Car				Car				Home or same Room			
No	1,591 ^a	1,028	2,619	No	1,162	1,464	2,626	No	1,012	871	1,883
	60.8% ^b	39.3%	100%		44.3%	55.8%	100%		53.7%	46.3%	100%
	84.4% ^c	44.5%	62.4%		78.6%	53.7%	62.4%		68.5%	32.0%	44.9%
Yes	295	1,282	1,577	Yes	316	1,264	1,580	Yes	465	1,848	2,313
	18.7%	81.3%	100%		20%	80%	100%		20.1%	79.9%	100%
	15.6%	55.5%	37.6%		21.4%	46.3%	37.6%		31.5%	68.0%	55.1%
Total	1,886	2,310	4,196	Total	1,478	2,728	4,206	Total	1,477	2,719	4,196
	45.0%	55.1%	100%		35.1%	64.9%	100%		35.2%	64.8%	100%
	100%	100%	100%		100%	100%	100%		100%	100%	100%
$\chi^2(df=1)=703.1$				$\chi^2(df=1)=254.5$				$\chi^2(df=1)=515.0$			
$p< .001$				$p< .001$				$p< .001$			
Cramer's $V= .41$				Cramer's $V= .25$				Cramer's $V= .35$			
$n=27$ missing				$n=27$ missing				$n=27$ missing			

Note. ^aFrequency.

^bRow percentage.

^cColumn percentage.

Reporting exposure to SHS while at home or in the same room as someone who was smoking was significantly associated with age (exposure was greater among 18–20 year-olds than

among those older than 21 years), being White, being a member or pledge of a Greek organization, living off-campus, being a student at a school with a higher campus smoking rate, being a

Table 3. Logistic regression analyses of exposure to secondhand smoke in a car^a

Variable	Car, $n = 1,585$ (38%)		
	AOR	95% CI	p value
Female gender	1.13	0.97–1.33	.115
White race	0.95	0.77–1.18	.652
Hispanic ethnicity	1.02	0.66–1.58	.932
Age group (years)			.001 ^b
<18	0.89	0.45–1.78	.747
18–20	1.37	1.15–1.63	<.001
21 or older (referent)			
Greek member or pledge	1.53	1.21–1.93	<.001
Lives off-campus	1.21	1.00–1.47	.048
Lives in a smoke-free dorm	0.94	0.75–1.18	.574
Mother's education: high school or less	1.12	0.91–1.37	.289
Father's education: high school or less	0.90	0.74–1.10	.306
Study condition campus			
Intervention	1.14	0.71–1.83	.598
Control (referent)			
Campus type			
Private	0.68	0.35–1.33	.258
Public (referent)			
Campus smoking rate (%)	1.05	1.01–1.08	.005
Smoking status			<.001 ^b
Nonsmoker (referent)			
Nondaily smoker (1–29 days)	3.70	3.06–4.47	<.001
Daily smoker (all 30 days)	8.00	5.73–11.2	<.001
Binge drank in past 30 days	2.34	1.99–2.75	<.001

Note. AOR = adjusted odds ratio.

^aOverall $N = 4,223$.

^b2df

Table 4. Logistic regression analyses of exposure to secondhand smoke at home or in the same room^a

Variable	Home or same room, <i>n</i> = 2,318 (55%)		
	AOR	95% CI	<i>p</i> value
Female gender	1.10	0.95–1.26	.201
White race	1.29	1.07–1.55	.006
Hispanic ethnicity	0.97	0.67–1.42	.885
Age group (years)			<.001 ^b
<18	1.18	0.68–2.05	.559
18–20	1.40	1.19–1.64	<.001
21 or older (referent)			
Greek member or pledge	1.31	1.06–1.63	.014
Lives off-campus	1.38	1.16–1.65	<.001
Lives in a smoke-free dorm	0.96	0.79–1.17	.688
Mother's education: high school or less	0.96	0.80–1.16	.706
Father's education: high school or less	0.99	1.06–1.63	.887
Study condition campus			
Intervention	1.03	0.82–1.30	.803
Control (referent)			
Campus type			
Private	0.96	0.68–1.33	.788
Public (referent)			
Campus smoking rate (%)	1.02	1.00–1.03	.049
Smoking status			<.001 ^b
Nonsmoker (referent)			
Nondaily smoker (1–29 days)	1.91	1.58–2.31	<.001
Daily smoker (all 30 days)	3.88	2.76–5.46	<.001
Binge drank in past 30 days	1.77	1.53–2.05	<.001

Note. AOR = adjusted odds ratio.

^aOverall *N* = 4,223.

^b2df

nondaily or daily smoker, and binge drinking in the past 30 days (Table 4).

Reporting exposure to SHS while at a bar or restaurant was significantly associated with age (compared with those older than 21 years, exposure was less among 18–20 year-olds and among those younger than 18 years), being White, being female, having a father with a lower level of education (high school graduate or less), being a member or pledge of a Greek organization, living off-campus, being a student at an intervention versus a comparison school, being a daily smoker, and binge drinking in the past 30 days (Table 5).

Multivariate analyses: any exposure

Reporting exposure to SHS in any context within the past 7 days was associated with female gender, age (compared with those older than 21, exposure was less for those younger than 18 years), being a member or pledge of a Greek organization, being a student at a school with a higher campus smoking rate, being a student in a public university, being a nondaily or daily smoker, and binge drinking in the past 30 days (Table 6).

Discussion

In our large sample of undergraduate students at 10 universities in North Carolina, we found high rates of self-reported SHS

exposure. Some 83% of students reported any exposure in the 7 days preceding the survey. Exposure in a restaurant or bar was the most common (reported by 65% of students), followed by exposure at home or in the same room as a smoker (55%) and in a car (38%).

A number of variables were found to be related significantly to either site-specific or any exposure to SHS. Daily smokers and nondaily smokers were more likely than nonsmokers to report exposure, which is not surprising given that they are more likely than other students to have friends who smoke and to frequent or live in locations where smoking occurs. Similarly, students who binge drink were more likely than other students to report exposure, which is likely to reflect the co-occurrence of smoking and drinking among college students (McKee, Hinson, Rounsaville, & Petrelli, 2004; Sher, Gotham, Erickson, & Wood, 1996). Living in residence locations associated with smoking, such as Greek houses and off-campus housing, also was associated with self-reported exposure. Exposure patterns by age reflect the easier access that older students may have to drinking establishments. Individuals younger than 21 years were less likely than those of legal age to report exposure in a bar or restaurant; those aged 18–20 years were more likely than those aged 21 years or older to report exposure in a car or at home. A number of background characteristics were associated with exposure in one or more locations, including female gender, White race, and higher parental education levels.

Table 5. Logistic regression analyses of exposure to secondhand smoke in a bar or restaurant^a

Variable	Bar or restaurant, <i>n</i> = 2,736 (65%)		
	AOR	95% CI	<i>p</i> value
Female gender	1.53	1.33–1.77	<.001
White race	1.28	1.07–1.54	.007
Hispanic ethnicity	1.13	0.77–1.66	.546
Age group (years)			.015 ^b
<18	0.55	0.32–0.95	.033
18–20	0.82	0.69–0.96	.015
21 or older (referent)			
Greek member or pledge	1.76	1.39–2.24	<.001
Lives off-campus	1.41	1.18–1.68	<.001
Lives in a smoke-free dorm	0.93	0.76–1.13	.468
Mother's education: high school or less	0.85	0.70–1.03	.099
Father's education: high school or less	0.83	0.69–1.00	.047
Study condition campus			
Intervention	0.77	0.64–0.93	.006
Control (referent)			
Campus type			
Private	0.99	0.75–1.29	.916
Public (referent)			
Campus smoking rate (%)	1.01	0.99–1.02	.301
Smoking status			.002 ^b
Nonsmoker (referent)			.566
Nondaily smoker (1–29 days)	1.06	0.87–1.29	.566
Daily smoker (all 30 days)	1.79	1.29–2.48	<.001
Binge drank in past 30 days	1.84	1.58–2.15	<.001

Note. AOR = adjusted odds ratio.

^aOverall *N* = 4,223.

^b2df

Characteristics of the larger school environment also were associated with the likelihood of exposure. The overall campus smoking rate was associated positively with reported exposure in a car, at home or in the same room, and in any location. Interestingly, attending a campus that was in the intervention condition of the SPARC trial, which focuses on policy, enforcement, and awareness changes to the campus and community environment to reduce high-risk drinking by students, was related negatively to reported exposure in bars and restaurants. Students attending one of the two private universities were less likely to report exposure than were those at one of the eight public schools in the sample.

Our findings of high rates of self-reported exposure, as well as patterns of exposure that reflect the “ecology” of social networks and smoking locations, may offer some suggestions for intervention strategies.

First, the high rates of exposure we observed suggest that college administrators should attend to the issue of student exposure to SHS. Administrators have a responsibility to provide a safe and healthy environment for students. Although administrators may be limited in their ability to affect exposure in some locations—such as off-campus housing and bars and restaurants—they can take steps to reduce smoking and concomitant exposure to SHS among college students. These

steps include enacting smoke-free campus policies and offering smoking cessation services, such as those recommended by the American College Health Association (2005).

In addition, the large number of students who report exposure to SHS may offer opportunities for advocacy efforts to change campus policies. In our sample, nearly all nonsmokers (93.9%) and the majority of smokers (57.8%) reported that SHS was somewhat or very annoying (data not shown in the tables). The issue of SHS, and the opportunities it offered to mobilize individuals who were affected by the externalities of smoking, played a critical role in galvanizing tobacco control efforts in the United States and elsewhere (Asbridge, 2004; Malone, Boyd, & Bero, 2000). Students who are exposed to SHS may be an important force in efforts to promote tobacco control policy on college campuses.

This study is based on a large but geographically limited sample of undergraduate students at 4-year universities in a single state. Thus, its generalizability to other settings is not known. In addition, it relied on a self-reported measure of the number of days on which students experienced exposure. Thus, we do not know anything about the duration of the exposure or the number of times during the day the students were exposed (see Jaakkola & Jaakkola, 1997). Finally, because the study relied on cross-sectional data, no causal statements can be made.

Table 6. Logistic regression analyses of any exposure to secondhand smoke^a

Variable	Any secondhand smoke, <i>n</i> = 3,506 (83%)		
	AOR	95% CI	<i>p</i> value
Female gender	1.57	1.31–1.88	<.001
White race	1.17	0.94–1.46	.152
Hispanic ethnicity	1.25	0.77–2.04	.367
Age group (years)			.077 ^b
<18	0.49	0.27–0.92	.026
18–20	0.89	0.72–1.11	.308
21 or older (referent)			
Greek member or pledge	1.48	1.10–2.00	.011
Lives off-campus	1.15	0.91–1.46	.251
Lives in a smoke-free dorm	0.95	0.74–1.22	.679
Mother's education: high school or less	0.82	0.64–1.04	.102
Father's education: high school or less	0.79	0.62–1.00	.051
Study condition campus			
Intervention	0.92	0.75–1.14	.449
Control (referent)			
Campus type			
Private	0.65	0.48–0.87	.004
Public (referent)			
Campus smoking rate (%)	1.03	1.02–1.05	<.001
Smoking status			<.001 ^b
Nonsmoker (referent)			
Nondaily smoker (1–29 days)	1.96	1.45–2.65	<.001
Daily smoker (all 30 days)	3.99	2.09–7.64	<.001
Binge drank in past 30 days	1.73	1.41–2.12	<.001

Note. AOR = adjusted odds ratio.

^aOverall *N* = 4,223.

^b2df

Nevertheless, it is the first study to provide evidence of the high rates of SHS exposure, and correlates of exposure, among college students in the United States. More than 10 million individuals were enrolled in 4-year degree-granting institutions in fall 2002 (U.S. Census Bureau, 2007); thus, colleges represent a key setting for preventing exposure to SHS to promote public health.

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Declaration of Interests

None declared.

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