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Usual Source of Cigarettes and Alcohol Among US High School Students*

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Abstract

BACKGROUND—Cigarette and alcohol use are common among youth. We examined sources of cigarettes and alcohol among youth who were current cigarette and alcohol users.

METHODS—We analyzed nationally representative data from the 2009 and 2011 national Youth Risk Behavior Surveys—biennial, school-based surveys of high school students in the United States. Students completed anonymous, self-administered questionnaires. Overall response rates were 71% for both years.

RESULTS—Among the 17.3% of current cigarette users <18 years, 27.3% usually gave someone else money to buy their cigarettes and 27.7% usually borrowed (bummed) them. Fewer (14.1%) usually bought their own cigarettes in a store. Among the 40.3% of current alcohol users, 24.3% usually gave someone else money to buy it and 41.2% usually had someone give it to them. A few (4.5%) usually bought their own alcohol in a store. Age and intensity of use were positively associated with students buying their own cigarettes or alcohol, but negatively associated with students borrowing or having someone else give it to them.

CONCLUSIONS—Because social and commercial sources of cigarettes and alcohol are common, multiple strategies are needed to reduce the ability for youth to obtain them and reduce their desire for them.

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Human Subjects Approval Statement

CDC's institutional review board approved the protocol for the national YRBS.

Disclaimers

The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

There are no conflicts in interest to disclose.

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Keywords

tobacco; cigarettes; alcohol; minors; Youth Risk Behavior Survey

Cigarette and alcohol use are significant contributors to premature morbidity and mortality[1–4] and yet commonly are used among youth.[4] In 2011, 44.7% of high school students had ever tried cigarettes and 18.1% were current cigarette users (ie, had smoked cigarettes during the preceding 30 days).[4] In the same year, 70.8% had ever had at least 1 drink of alcohol, 38.7% were current alcohol users (ie, had at least 1 drink of alcohol during the preceding 30 days), and 21.9% had engaged in binge drinking (ie, ≥5 drinks in a row) during the preceding 30 days.[4] Most high school students are below the minimum legal purchasing age for cigarettes—18 years in all 50 states and the District of Columbia—and nearly all are below the minimum legal purchasing age for alcohol—21 years in all 50 states and the District of Columbia. Therefore, understanding where students get the cigarettes they smoke and the alcohol they drink is important to inform strategies to reduce cigarette and alcohol use.

Research conducted to date suggests underage youth use both commercial and noncommercial sources to obtain cigarettes and alcohol.[5–16] To implement effective policy and educational interventions, it is important to understand characteristics of youth who rely on different types of commercial and noncommercial sources for cigarettes and alcohol. Youth who are female and are in younger age groups more often rely on social sources for cigarettes and alcohol than youth who are male and are in older age groups.[4,11–13,17] Differences in sources of cigarettes and alcohol among different racial/ethnic groups are less well studied and not entirely understood.[4–6,8,18] Two studies have found that social sources for cigarettes[6,18] and alcohol[18] were more common among White high school-aged youth than among Black and Hispanic youth. Another study found that a higher percentage of Black than White students usually got their alcohol from someone else giving it to them,[4] and another found that the percentage who purchased a pack of cigarettes was similar among White, Black, and Hispanic high school-aged youth.[6]

The purpose of this secondary data analysis is to build upon existing literature by using nationally representative data to examine the extent to which sex, age, and race/ethnicity as well as the intensity of cigarette and alcohol use are associated with a variety of both commercial and social sources.

METHODS

Participants and Survey Administration

The Centers for Disease Control and Prevention's (CDC) national school-based Youth Risk Behavior Survey (YRBS) is a cross-sectional survey that has been conducted biennially since 1991. In each survey year, a similar independent 3-stage cluster sample design is used to obtain a nationally representative sample of public and private school students in grades 9 to 12 in the 50 states and the District of Columbia.[19] Data from the 2009 and 2011 survey years were combined for this analysis to provide a sufficient sample size of students who

were current cigarette and alcohol users. Because each year a new, independent sample of schools and students is drawn, it is highly unlikely any student would participate in the YRBS in 2 different years.

Student participation in the YRBS is anonymous and voluntary, and the YRBS is conducted in accordance with local parental permission procedures. YRBS participants complete a self-administered questionnaire during a regular class period and record their responses on a computer-scannable questionnaire booklet or answer sheet. For 2009 and 2011, school response rates were 81% for both years, student response rates were 88% and 87%, respectively, overall response rates (the product of the school and student response rates for each year) were 71% for both years, and sample sizes were 16,410 and 15,425, respectively. A weighting factor was applied to each record to adjust for school and student nonresponse and oversampling of Black and Hispanic students. Missing data were not imputed. Details of the YRBS sampling strategies and the psychometric properties of the YRBS questionnaire have been reported elsewhere.[4,19,20]

Instrument

The YRBS measures 6 categories of health-risk behaviors: (1) behaviors that contribute to unintentional injuries and violence, (2) tobacco use, (3) alcohol and other drug use, (4) sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, including human immunodeficiency virus (HIV) infection, (5) unhealthy dietary behaviors, and (6) physical inactivity. The focus of this study was the usual source of cigarettes among current cigarette users who were <18 years and the usual source of alcohol among current alcohol users of any age.

The students' age was determined using the question: "How old are you?" Response options ranged from ≤12 to ≥18 years; thus, it was not possible to identify those students who were ≥21 years (ie, able to legally purchase alcohol). Because nationwide in 2011, only 1.5% of people who were 20 or 21 years old were enrolled in high school,[21] it was assumed for this analysis that all respondents were below 21 years.

To measure cigarette use, students were asked: "During the past 30 days, on how many days did you smoke cigarettes?" Current cigarette use was defined as having smoked cigarettes on ≥1 of the 30 days before the survey. Students' usual source of cigarettes was examined among the 17.3% of current cigarette users who were <18 years (N = 4101). Students' usual source of cigarettes was determined by the question: "During the past 30 days, how did you usually get your own cigarettes?" Response options were: I did not smoke cigarettes during the past 30 days; I bought them in a store such as a convenience store, supermarket, discount store, or gas station; I bought them from a vending machine; I gave someone else money to buy them for me; I borrowed (or bummed) them from someone else; a person ≥18 years gave them to me; I took them from a store or family member; and I got them some other way. Students' usual source of cigarettes was compared across subgroups defined by sex, race/ethnicity (non-Hispanic White [hereafter referred to as White], non-Hispanic Black [hereafter referred to as Black], and Hispanic or Latino, irrespective of race [hereafter referred to as Hispanic]), age, the number of days students smoked cigarettes during the 30

days before the survey, and the number of cigarettes students smoked per day on days the student smoked during the 30 days before the survey.

To measure alcohol use, students were asked: “During the past 30 days, on how many days did you have at least 1 drink of alcohol?” Current alcohol use was defined as having drunk alcohol on ≥1 of the 30 days before the survey. Students’ usual source of alcohol was examined among the 40.3% of current alcohol users (N = 11,113). Students’ usual source of alcohol was determined by the question: “During the past 30 days, how did you usually get the alcohol you drank?” Response options were: I did not drink alcohol during the past 30 days; I bought it in a store such as a liquor store, convenience store, supermarket, discount store, or gas station; I bought it at a restaurant, bar, or club; I bought it at a public event such as a concert or sporting event; I gave someone else money to buy it for me; someone gave it to me; I took it from a store or family member; and I got it some other way. Students’ usual source of alcohol was compared across subgroups defined by sex, race/ethnicity, age, the number of days students drank alcohol during the 30 days before the survey, and the number of days students engaged in binge drinking during the 30 days before the survey. To measure binge drinking, students were asked: “During the past 30 days, on how many days did you have ≥5 drinks of alcohol in a row, that is, within a couple of hours?”

Data Analysis

To account for the complex sample design of the survey, we conducted all analyses using SUDAAN statistical software (Research Triangle Institute, Research Triangle Park, North Carolina). Descriptive tables were used to examine the usual sources of cigarettes and alcohol. Because only 1 source could be selected, summed row percentages add up to 100%. Rounding may result in row sums that are not exactly 100%. To examine the characteristics associated with using each source of cigarettes among current cigarette users <18 years, we used logistic regression models run independently for each source with the following variables simultaneously entered into the logistic regression models: sex, race/ethnicity, age, number of days students smoked cigarettes, and number of cigarettes students smoked per day. Similarly, to examine characteristics associated with using each source of alcohol among current alcohol users, we simultaneously entered the following variables into independent logistic regression models with each alcohol source used as separate outcome: sex, race/ethnicity, age, number of days students drank alcohol, and number of days students engaged in binge drinking. The number of students who bought cigarettes in vending machines; who bought alcohol at a restaurant, bar or club; or who bought alcohol at a public event were each so small that logistic regression analyses were not conducted for those sources. We considered differences significant at $p<.05$.

RESULTS

The sample was comprised of 51.9% male students, 57.8% White, 14.3% Black, and 19.3% Hispanic students, and primarily students aged 15–17 years (Table 1). Overall, 17.3% of students <18 years were current cigarette users, with use most common among White students and older students. Similarly, 40.3% of all students were current alcohol users with use most common among White and Hispanic students and older students.

Cigarettes

The 3 most common sources of cigarettes among high school students who were current smokers below 18 years were borrowed or bummed them from someone else (27.7%), gave someone else money to buy them (27.3%), and bought them in a store, such as a convenience store, supermarket, discount store, or gas station (14.1%) (Table 2). A small percentage (1.3%) relied on vending machines as a usual source of cigarettes. A sizable percentage (13.5%) of students got their cigarettes in "some other way."

The adjusted odds of buying cigarettes in a store was higher among male than female students, higher among Black and Hispanic students than White students, higher among students aged 16 and 17 years than students aged 14 years or younger, and higher with increased smoking intensity both in terms of number of days of smoking and number of cigarettes smoked per day (Table 3). In contrast, the adjusted odds of borrowing or bumming a cigarette from someone else as a usual source of cigarettes were lower among Black and Hispanic students than White students and lower with increased smoking intensity. The odds of relying on a person ≥18 years to give them cigarettes also was lower among students who smoked on higher numbers of days. The odds of giving someone else money to buy cigarettes increased with increasing days of smoking, but was lower among students who smoked ≥11 cigarettes per day compared with those who smoked ≤1 cigarette per day.

Alcohol

The most common usual source of alcohol among current alcohol users was that someone gave it to the student (41.2%, Table 4). One in 4 (24.3%) students usually got their alcohol by giving someone else money to buy it for them. A small percentage of students usually bought their alcohol in a store (4.5%), at a restaurant, bar, or club (1.5%), or at a public event (0.5%). A sizable percentage of students usually got their alcohol in "some other way" (18.7%).

The adjusted odds of usually buying alcohol in a store were higher among male than female students, higher among students aged ≥18 years than those aged ≤14 years, and higher among students with higher drinking frequency, that is, ≥6 of the past 30 days (Table 5). Buying alcohol in a store was not associated with binge drinking frequency. The adjusted odds of giving someone else money to buy alcohol was lower among Black and Hispanic students than White students, but higher among older age groups than among those aged ≤14 years and higher among students with higher binge drinking frequency. The odds of relying on someone giving them alcohol as a usual source of alcohol were lower among male than female students, lower among the oldest age group compared with the youngest age group, and lower among students with increased drinking and binge drinking frequency.

DISCUSSION

These data confirm the findings of other studies[8,9,11,12] showing that commercial and social sources of both cigarettes and alcohol are used by underage smokers and drinkers and that those sources vary by sex, age, and smoking or drinking intensity.[8,11–13,17] This study found

that among the 17.3% of current cigarette users <18 years, both commercial and social sources of cigarettes were common. More than one half of students usually got their cigarettes by either giving someone else money to buy them or borrowing or bumming them from someone else (27.3% and 27.7%, respectively). A substantial percentage (14.1%) of students usually bought their own cigarettes in a store. This study did not discern the kinds of stores most commonly used to obtain cigarettes or alcohol; however, previous studies suggest small stores, convenience stores, or gas stations are more commonly used among youth below 18 years to buy cigarettes than drug stores or supermarkets[6,22] and suggest enforcement efforts and campaigns that aim to reduce underage purchases might best directed to those kinds of stores rather than larger retail outlets. Among the 40.3% of current alcohol users, social sources of alcohol were even more common, with 24.3% usually giving someone else money to buy it and 41.2% reporting that usually someone had given it to them. A smaller percentage (4.5%) usually bought their own alcohol in a store. For both cigarettes and alcohol, age and intensity of use was positively associated with buying their own cigarettes or alcohol, but negatively associated with borrowing or having someone else give it to them.

This study found that Black and Hispanic students were more likely than White students to report they usually bought cigarettes in a store, and less likely to usually borrow or bum them from someone else, but White, Black, and Hispanic students were equally likely to usually buy alcohol in a store and report that someone usually gave it to them. White students were more likely than Black and Hispanic students to give someone else money to buy alcohol. It is difficult to directly compare these results with those of other studies because of differences in question wording; however, all studies find that both commercial and social sources are used to varying degrees by White, Black, and Hispanic students.[5,6,18]

It is logical that as the need for more cigarettes increases with smoking intensity, both in terms of the number of days of smoking and the numbers of cigarettes smoked per day, relying on social sources would decline while self-purchasing would increase. Similarly, it is logical that as the number of days of drinking increases, the ability to rely on someone giving them alcohol would decrease. Because these data are cross-sectional, it is impossible to determine if the smokers' and drinkers' access or ability to self-purchase played a role in increasing use of cigarettes and alcohol. Arguably, however, the more difficult the acquisition of cigarettes or alcohol, the more difficult it would be to smoke or drink an increasing number of days per month.

Efforts focused on reducing in-store purchases of cigarettes and alcohol may have limited success in reducing cigarette and alcohol use among minors if these minors simply rely more often on social sources. To reduce smoking and alcohol use prevalence, it will be necessary to address both the supply and demand of cigarettes and alcohol. Reducing cigarette and alcohol sales to those who are below the minimum legal purchasing age is an important means to address supply. Decreases in demand can be expected with changes in social norms that result from parental communication regarding substance use, school-based tobacco and substance use prevention policies and programs, price increases, restricted cigarette and alcohol advertising and promotion aimed at youth, media campaigns, and clean indoor air policies or smoke-free workplaces, schools, and homes.[8,18,23–32]

Limitations

First, these data apply only to youth who attend school and, therefore, are not representative of all persons in this age group. School enrollment rates have not changed markedly in recent years. Nationwide, in 2009, of persons aged 16–17 years, approximately 4% were not enrolled in a high school program and had not completed high school.[33] Studies of youth who have dropped out of school consistently show that substance use rates among high school dropouts are higher than among youth enrolled in school.[34] Second, the data are based on self-report and the extent of underreporting or over-reporting cannot be determined, although the survey questions demonstrate good test-retest reliability.[20] Third, for both cigarettes and alcohol, "got it some other way" was a fairly common response to how some students usually got the cigarettes they smoked or the alcohol they drank. It is unlikely most of these students relied on internet sales—a 2001 study found that 2.2% of current smokers below 18 years had attempted to purchase cigarettes on the Internet[35]—but it is worth noting 1 study that found some online vendors have inadequate procedures in place to prevent online purchases of alcohol among minors.[36] That study found that "of the 100 orders placed by the underage buyers, 45 were successfully received."[36]

Conclusions

Because high school students who smoke cigarettes or drink alcohol rely on both commercial and social sources for cigarettes and alcohol, it is important to find multiple and effective strategies that reduce the ability for youth to obtain these substances as well as reduce their desire for them. These strategies include effective policies that make it more difficult for youth to obtain cigarettes and alcohol; continued efforts by the Food and Drug Administration to restrict tobacco advertising and promotion to youth; enforcement of existing laws regulating the sale of tobacco and alcohol products to minors; mass-media campaigns to educate on the dangers of tobacco use; reduced exposure to alcohol advertising among youth; policies that make choosing to abstain from cigarettes and alcohol an easier choice, including price increases and smoke-free environments; and education via schools, the community, and health care providers that teach youth about the harms of cigarette and alcohol use and ways to stop smoking or drinking.

IMPLICATIONS FOR SCHOOL HEALTH

This study found that students who smoke cigarettes or drink alcohol use both commercial and social sources to obtain them. Schools may have limited capacity to address commercial access to these substances, but can address the demand for cigarettes and alcohol with school policies and programs designed to reduce cigarette smoking and alcohol use among young people. Research has established that well-designed, properly implemented school programs to prevent tobacco use and addiction are effective in reducing tobacco use prevalence, particularly in the context of broader community-wide interventions.[30,37,38] The CDC's Guidelines for School Health Programs to Prevent Tobacco Use and Addiction recommend that all schools (1) develop and enforce a school policy on tobacco use; (2) provide instruction about the short- and long-term negative physiological and social consequences of tobacco use, social influences on tobacco use, peer norms regarding tobacco use, and refusal skills; (3) provide tobacco-use prevention education in kindergarten

through 12th grade; (4) provide program-specific training for teachers; (5) involve parents or families in support of school-based programs to prevent tobacco use; (6) support cessation efforts among students and all school staff who use tobacco; and (7) assess the tobacco-use prevention program at regular intervals.[30] These guidelines, based on a synthesis of research as well as input from experts in the field of tobacco use prevention, focus on policies and practices to prevent young people from experimenting with tobacco, to encourage those who have already experimented or who regularly use tobacco to stop, and support cessation among those unable to stop without further assistance.[30]

In the absence of guidelines for alcohol use prevention similar to those developed for tobacco use prevention, school districts and schools will benefit from the CDC's Health Education Curriculum Analysis Tool, often referred to as HECAT.[39] The HECAT can help school districts, schools, and others conduct a clear, complete, and consistent analysis of health education curricula based on the National Health Education Standards and CDC's Characteristics of an Effective Health Education Curriculum.[39] The Alcohol and Other Drug Use Prevention Curriculum module helps identify school-based curricula that are likely to enable students to master the essential knowledge and skills that promote an alcohol-free and other drug-free lifestyle.[39] In addition, the Substance Abuse and Mental Health Services Administration's (SAMHSA) National Registry of Evidence-Based Programs and Practices (NREPP) provides community and school personnel with a searchable online database of mental health and substance abuse interventions that met NREPP's minimum requirements for review and have been independently assessed and rated for Quality of Research and Readiness for Dissemination.[40] A 2004 Institutes of Medicine (IOM) report suggests school-based programs to prevent or reduce alcohol use among youth vary in their effectiveness and where positive, the effects are either small or modest.[38] The IOM notes that the most effective programs aim to delay the onset of alcohol use rather than aim to reduce alcohol use among students who have already become users.[38] To that end, programs listed on NREPP's database should be carefully reviewed so that users clearly understand the intervention and its level of effectiveness so only those interventions shown to reduce alcohol use among young people are adopted.

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Table 1

Sample Description—National Youth Risk Behavior Survey, 2009 and 2011

	Full Sample % (Unweighted N*)	Current Cigarette Use† % (95% CI)	Current Alcohol Use‡ % (95% CI)
Total	(31,835)	17.3 (16.3–18.4)	40.3 (39.2–41.4)
Sex			
Female	48.1 (15,988)	16.7 (15.5–18.0)	40.5 (39.2–41.7)
Male	51.9 (15,721)	17.8 (16.5–19.2)	40.1 (38.7–41.6)
Race/ethnicity			
White	57.8 (13,060)	19.7 (18.1–21.3)	42.6 (41.1–44.1)
Black	14.3 (5599)	9.6 (8.3–11.0)	32.0 (30.0–34.1)
Hispanic	19.3 (9386)	16.5 (15.2–18.0)	42.6 (40.6–44.6)
Age (years)			
≤14	11.8 (3308)	10.4 (9.1–11.8)	27.1 (24.5–29.8)
15	24.7 (7171)	13.9 (12.6–15.4)	33.5 (31.6–35.5)
16	26.0 (8196)	18.6 (17.0–20.2)	40.9 (39.1–42.8)
17	24.1 (8151)	22.8 (21.0–24.7)	46.9 (44.8–48.9)
≥18	13.4 (4877)	—	51.1 (48.8–53.3)

CI, confidence interval.

*Sample N's may not add to the total N because of missing data.

†Among students who were <18 years, smoked cigarettes on ≥1 day during the 30 days before the survey (N = 4101).

‡Had at least 1 drink of alcohol on ≥1 day during the 30 days before the survey (N = 11,113).

Table 2

Usual Source of Cigarettes Among Current Cigarette Users Who Were <18 Years,[*] by Student Characteristics and Cigarette Smoking Intensity

	Bought Them in a Store[†]	Bought Them From a Vending Machine	Gave Someone Else Money to Buy Them	Borrowed (or Bummed) Them From Someone Else	A Person ≥18 Years Gave Them to Me	Took Them From a Store or Family Member	Got Them Some Other Way
Unweighted N	N = 580	N = 50	N = 1047	N = 1071	N = 457	N = 272	N = 624
	%(95%CI)	%(95%CI)	%(95%CI)	%(95%CI)	%(95%CI)	%(95%CI)	%(95%CI)
Total	14.1 (12.3–16.0)	1.3 (0.9–1.8)	27.3 (25.5–29.3)	27.7 (25.8–29.6)	10.1 (9.0–11.2)	6.1 (5.3–7.0)	13.5 (12.1–14.9)
Sex							
Female	9.9 (7.9–12.3)	0.7 (0.4–1.1)	30.3 (27.2–33.4)	28.3 (25.8–30.9)	12.0 (10.4–13.8)	6.4 (5.4–7.6)	12.5 (10.9–14.3)
Male	17.7 (15.5–20.2)	1.8 (1.2–2.8)	24.8 (23.0–26.7)	27.2 (25.1–29.4)	8.4 (7.0–9.9)	5.8 (4.8–7.0)	14.2 (12.4–16.2)
Race/ethnicity							
White	14.0 (11.8–16.5)	1.2 (0.8–1.8)	29.2 (26.8–31.7)	30.9 (28.7–33.3)	9.5 (8.2–11.0)	4.4 (3.5–5.6)	10.7 (9.2–12.5)
Black	16.8 (12.1–22.9)	2.1 (0.9–4.8)	19.9 (15.1–25.8)	20.1 (15.4–25.8)	9.8 (6.9–13.7)	11.0 (7.1–16.6)	20.3 (15.2–26.6)
Hispanic	14.0 (11.2–17.5)	1.3 (0.5–3.0)	23.6 (20.4–27.0)	19.9 (17.2–23.0)	13.6 (11.5–16.1)	10.2 (8.2–12.6)	17.3 (14.9–20.1)
Age (years)							
≤14	6.6 (4.1–10.5)	3.3 (1.2–8.8)	19.8 (15.5–25.0)	34.3 (27.9–41.4)	5.5 (3.3–9.0)	9.2 (6.2–13.5)	21.2 (16.3–27.1)
15	8.9 (6.8–11.6)	1.3 (0.6–2.8)	25.4 (22.5–28.5)	27.5 (24.4–30.9)	9.2 (7.2–11.8)	8.9 (7.0–11.3)	18.7 (16.2–21.4)
16	14.2 (11.5–17.4)	1.2 (0.6,2.4)	28.0 (25.0–31.2)	26.0 (23.3–28.9)	11.2 (9.4–13.4)	5.8 (4.6–7.3)	13.5 (11.5–15.9)
17	18.8 (16.1–21.8)	0.9 (0.5–1.6)	29.6 (26.4–33.0)	27.8 (24.7–31.2)	10.5 (8.8–12.6)	3.9 (2.8–5.3)	8.5 (7.1–10.1)
Number of days smoked cigarettes[‡]							
1–2	5.0 (3.6–6.7)	0.6 (0.2–1.4)	11.2 (9.4–13.4)	43.5 (39.6–47.6)	13.0 (11.0–15.3)	9.2 (7.4–11.5)	17.5 (14.7–20.6)
3–5	10.1 (7.5–13.4)	0.3 (0.1–1.6)	22.4 (18.5–26.9)	37.2 (32.3–42.2)	9.7 (7.4–12.6)	6.5 (4.5–9.3)	13.8 (10.4–18.2)
6–9	14.8 (10.8–19.9)	2.0 (0.8–4.8)	24.0 (19.1–29.7)	34.3 (27.7–41.5)	10.2 (7.7–13.5)	5.0 (3.0–8.2)	9.7 (7.0–13.3)
10–19	17.4 (13.1–22.6)	0.7 (0.2–2.5)	33.4 (27.9–39.4)	27.0 (21.8–33.0)	8.4 (6.0–11.7)	3.6 (1.9–6.6)	9.5 (6.9–12.9)
≥20	22.4 (18.8–26.3)	2.4 (1.6–3.7)	42.3 (38.4–46.2)	8.1 (6.7–9.7)	8.2 (6.6–10.2)	4.4 (3.2–6.1)	12.2 (10.4–14.3)
Number of cigarettes smoked per day[§]							
<1 or 1	7.3 (5.8–9.2)	0.8 (0.4–1.7)	16.7 (14.7–18.9)	40.0 (36.9–43.9)	10.7 (9.3–12.4)	7.9 (6.6–9.5)	16.2 (13.8–18.8)
2–5	15.7 (13.0–18.9)	0.7 (0.2–2.1)	34.8 (31.6–38.0)	24.4 (22.1–27.0)	9.6 (8.1–11.5)	4.5 (3.5–5.9)	10.2 (8.8–11.8)
6–10	28.8 (23.7–34.5)	0.9 (0.3–2.9)	44.2 (38.6–49.9)	4.1 (2.5–6.8)	9.7 (6.8–13.9)	2.2 (1.1–4.5)	10.0 (7.2–13.7)
≥11	25.3 (19.6–32.0)	8.0 (5.1–12.5)	29.3 (22.6–37.0)	4.5 (2.6–7.4)	7.8 (5.2–11.6)	9.0 (5.8–13.9)	16.1 (11.8–21.5)

CI, confidence interval.

*Usual source of cigarettes during the 30 days before the survey, among students <18 years who smoked cigarettes on ≥1 day during the 30 days before the survey.

†Such as a convenience store, supermarket, discount store, or gas station.

‡During the 30 days before the survey.

§On the days they smoked during the 30 days before the survey.

Table 3

Adjusted Odds of Usual Sources of Cigarettes Among Current Cigarette Users Who Were <18 Years[†]

	Bought Them in a Store[‡] AOR (95% CI)	Gave Someone Else Money to Buy Them AOR (95% CI)	Borrowed (or Bummed) Them From Someone Else AOR (95% CI)	A Person ≥18 Years Gave Them to Me AOR (95% CI)	Took Them From a Store or Family Member AOR (95% CI)	Got Them Some Other Way AOR (95% CI)
Sex						
Female	1.0	1.0	1.0	1.0	1.0	1.0
Male	1.9 (1.5, 2.4)**	0.7 (0.6, 0.8)**	1.1 (0.9, 1.2)	0.7 (0.5, 0.8)**	0.9 (0.7, 1.1)	1.3 (1.0, 1.6)*
Race/ethnicity						
White	1.0	1.0	1.0	1.0	1.0	1.0
Black	1.6 (1.0, 2.6)*	0.7 (0.5, 1.0)	0.4 (0.3, 0.6)**	1.0 (0.6, 1.5)	2.4 (1.4, 4.3)**	1.9 (1.2, 3.0)**
Hispanic	1.4 (1.1, 1.9)*	1.0 (0.8, 1.3)	0.4 (0.3, 0.5)**	1.5 (1.2, 1.9)**	2.1 (1.4, 3.0)**	1.6 (1.2, 2.0)**
Age (years)						
≤14	1.0	1.0	1.0	1.0	1.0	1.0
15	1.5 (0.8, 2.7)	1.2 (0.8, 1.8)	0.7 (0.5, 1.0)	1.7 (0.9, 3.2)	1.1 (0.6, 2.0)	0.9 (0.6, 1.3)
16	2.3 (1.3, 4.0)**	1.3 (0.9, 2.0)	0.7 (0.4, 1.0)	2.4 (1.3, 4.2)**	0.8 (0.5, 1.3)	0.6 (0.4, 0.9)*
17	3.1 (1.8, 5.3)**	1.4 (1.0, 2.0)	0.8 (0.6, 1.2)	2.2 (1.2, 3.8)*	0.5 (0.3, 0.9)*	0.4 (0.3, 0.6)**
Number of days smoked cigarettes[§]						
1–2	1.0	1.0	1.0	1.0	1.0	1.0
3–5	1.9 (1.2, 2.8)**	2.1 (1.5, 2.9)**	0.8 (0.6, 1.0)	0.7 (0.5, 1.0)*	0.7 (0.4, 1.2)	0.9 (0.6, 1.4)
6–9	2.5 (1.5, 4.2)**	2.2 (1.5, 3.3)**	0.7 (0.5, 1.0)*	0.7 (0.5, 1.0)	0.6 (0.3, 1.1)	0.7 (0.4, 1.0)
10–19	2.9 (1.8, 4.7)**	3.5 (2.5, 5.0)**	0.5 (0.4, 0.7)**	0.6 (0.4, 0.8)*	0.4 (0.2, 0.8)*	0.6 (0.4, 1.0)
≥20	3.0 (1.9, 4.5)**	5.4 (4.0, 7.4)**	0.2 (0.1, 0.2)**	0.5 (0.3, 0.8)**	0.5 (0.3, 0.9)*	1.0 (0.7, 1.4)
Number of cigarettes smoked per day[//]						
<1 or 1	1.0	1.0	1.0	1.0	1.0	1.0
2–5	1.5 (1.1, 2.2)*	1.2 (1.0, 1.6)	0.8 (0.7, 1.0)	1.2 (0.9, 1.6)	0.9 (0.6, 1.3)	0.7 (0.5, 1.0)*
6–10	2.9 (1.9, 4.4)**	1.3 (0.9, 1.8)	0.2 (0.1, 0.3)**	1.4 (0.9, 2.3)	0.6 (0.2, 1.3)	0.7 (0.4, 1.2)
≥11	2.2 (1.3, 3.5)**	0.6 (0.4, 1.0)*	0.2 (0.1, 0.5)**	1.3 (0.7, 2.5)	2.3 (1.0, 5.0)*	1.0 (0.6, 1.7)

*$p < .05$,

** $p < .01$.

AOR, adjusted odds ratio; CI, confidence interval.

† Usual source of cigarettes during the 30 days before the survey, among students <18 years who smoked cigarettes on ≥1 day during the 30 days before the survey. Logistic regression model included sex, race/ethnicity, age, number of days smoked cigarettes, and number of cigarettes smoked per day.

‡ Such as a convenience store, supermarket, discount store, or gas station.

§ During the 30 days before the survey.

// On the days they smoked during the 30 days before the survey.

Table 4

Usual Source of Alcohol Among Current Alcohol Users* by Student Characteristics and Alcohol Use Intensity

	Bought in a Store†	Bought at a Restaurant, Bar, or Club	Bought at a Public Event	Gave Someone Else Money to Buy It	Someone Gave It to Them	Took It From a Store or Family Member	Got It Some Other Way
Unweighted N	N = 564	N = 162	N = 71	N = 2409	N = 4599	N = 1091	N = 2217
	%(95%CI)	%(95%CI)	%(95%CI)	%(95%CI)	%(95%CI)	%(95%CI)	%(95%CI)
Total	4.5 (3.7–5.3)	1.3 (1.0–1.6)	0.5 (0.4–0.7)	24.3 (22.6–26.1)	41.2 (39.7–42.7)	9.6 (8.8–10.5)	18.7 (17.6–19.8)
Sex							
Female	2.0 (1.5–2.8)	1.4 (1.1–1.8)	0.4 (0.3–0.6)	23.0 (20.8–25.4)	48.0 (45.8–50.1)	9.2 (8.1–10.4)	16.0 (14.8–17.2)
Male	6.8 (5.8–8.0)	1.1 (0.7–1.5)	0.6 (0.4–0.9)	25.5 (23.7–27.5)	35.0 (33.0–37.0)	9.9 (8.9–11.1)	21.1 (19.3–23.1)
Race/ethnicity							
White	4.3 (3.3–5.4)	1.0 (0.7–1.5)	0.3 (0.2–0.5)	29.1 (26.9–31.3)	39.9 (38.0–41.9)	8.4 (7.4–9.6)	17.0 (15.6–18.5)
Black	5.3 (4.0–7.1)	2.0 (1.2–3.3)	0.9 (0.5–1.6)	14.6 (12.3–17.2)	45.2 (41.8–48.6)	12.9 (10.4–15.7)	19.2 (17.2–21.4)
Hispanic	5.4 (4.3–6.7)	1.5 (1.1–2.1)	0.9 (0.6–1.6)	16.7 (14.8–18.7)	42.1 (40.0–44.3)	11.3 (10.1–12.6)	22.1 (20.1–24.2)
Age (years)							
≤14	2.4 (1.4–4.3)	0.5 (0.1–1.9)	0.6 (0.2–1.5)	11.9 (9.1–15.4)	48.0 (43.6–52.5)	16.4 (13.4–19.8)	20.2 (17.1–23.7)
15	2.4 (1.8–3.3)	1.0 (0.6–1.6)	0.9 (0.5–1.4)	16.8 (14.5–19.4)	42.1 (39.8–44.4)	14.1 (12.5–16.0)	22.7 (20.5–25.1)
16	3.8 (2.8–5.2)	1.2 (0.8–1.9)	0.3 (0.1–0.7)	25.2 (22.7–27.8)	39.7 (36.8–42.7)	10.7 (9.0–12.6)	19.1 (17.3–21.0)
17	5.3 (4.0–7.0)	1.4 (0.9–2.0)	0.5 (0.3–0.9)	27.9 (25.3–30.7)	42.4 (39.8–45.0)	6.7 (5.6–8.0)	15.9 (14.0–18.0)
≥18	7.5 (6.1–9.2)	1.8 (1.3–2.6)	0.3 (0.1–0.6)	31.3 (28.8–34.0)	37.8 (34.7–40.9)	4.1 (3.2–5.3)	17.1 (14.7–19.9)
Number of days drank alcohol‡							
1–2	1.9 (1.5–2.4)	0.8 (0.6–1.2)	0.4 (0.3–0.7)	14.5 (13.1–15.9)	50.6 (48.6–52.5)	11.9 (10.6–13.2)	20.0 (18.6–21.5)
3–5	3.9 (2.9–5.1)	1.4 (0.9–2.2)	0.4 (0.2–0.8)	30.4 (27.4–33.6)	39.4 (36.8–42.1)	7.8 (6.5–9.4)	16.7 (14.9–18.7)
6–9	7.4 (5.6–9.7)	1.2 (0.6–2.2)	0.4 (0.2–0.8)	40.5 (37.0–44.1)	27.8 (25.3–30.5)	6.2 (5.0–7.7)	16.6 (14.2–19.2)
10–19	11.6 (9.1–14.6)	1.6 (0.8–3.1)	0.7 (0.3–1.5)	39.6 (35.0–44.4)	23.7 (21.0–26.7)	5.6 (4.1–7.6)	17.2 (14.4–20.4)
≥20	16.4 (12.3–21.6)	5.9 (3.6–9.6)	1.6 (0.8–3.4)	22.2 (17.8–27.3)	16.0 (12.1–20.8)	13.0 (9.9–17.0)	24.9 (20.5–29.8)
Number of days engaged in binge drinking§							
1	3.5 (2.7–4.5)	1.3 (0.8–2.1)	0.5 (0.2–0.9)	22.4 (19.6–25.5)	46.3 (43.3–49.2)	8.5 (7.1–10.2)	17.6 (15.9–19.4)
2	4.1 (2.9–5.9)	1.3 (0.8–2.1)	0.4 (0.2–1.0)	33.8 (30.7–37.1)	37.0 (34.1–40.1)	6.1 (4.8–7.7)	17.2 (14.8–19.9)
3–5	7.1 (5.4–9.1)	1.7 (1.1–2.8)	0.5 (0.2–1.0)	42.8 (39.3–46.4)	27.1 (24.2–30.2)	4.5 (3.4–5.9)	16.3 (14.3–18.6)
≥6	12.8 (10.2–16.0)	2.3 (1.4–3.7)	0.7 (0.4–1.4)	42.2 (38.4–46.1)	18.7 (16.3–21.5)	7.3 (5.8–9.0)	16.0 (13.6–18.7)

CI, confidence interval.

*Usual source of alcohol during the 30 days before the survey, among students who had ≥1 drink of alcohol during the 30 days before the survey.

†Such as a liquor store, convenience store, supermarket, discount store, or gas station.

‡During the 30 days before the survey.

§Had ≥5 drinks of alcohol in a row within a couple of hours on ≥1 day during the 30 days before the survey.

Table 5

Adjusted Odds of Usual Sources of Alcohol Among Current Alcohol Users[†]

	Bought in a Store[‡] AOR (95% CI)	Gave Someone Else Money to Buy It AOR (95% CI)	Someone Gave It to Them AOR (95% CI)	Took It From a Store or Family Member AOR (95% CI)	Got It Some Other Way AOR (95% CI)
Sex					
Female	1.0	1.0	1.0	1.0	1.0
Male	2.9 (2.1, 4.0)**	1.1 (0.9, 1.2)	0.6 (0.5, 0.7)**	1.5 (1.2, 1.9)**	1.4 (1.2, 1.7)**
Race/ethnicity					
White	1.0	1.0	1.0	1.0	1.0
Black	1.4 (0.9, 2.1)	0.6 (0.4, 0.7)**	1.2 (1.0, 1.4)	1.3 (0.8, 2.1)	1.2 (0.9, 1.7)
Hispanic	1.4 (1.0, 1.9)	0.5 (0.4, 0.6)**	1.1 (1.0, 1.3)	1.5 (1.1, 2.0)*	1.4 (1.1, 1.8)*
Age (years)					
≤14	1.0	1.0	1.0	1.0	1.0
15	1.0 (0.5, 2.0)	1.4 (0.9, 2.0)	0.7 (0.5, 1.0)	1.0 (0.7, 1.4)	1.1 (0.7, 1.6)
16	1.4 (0.7, 2.6)	1.9 (1.3, 2.8)**	0.7 (0.5, 0.9)	0.5 (0.4, 0.8)*	1.0 (0.7, 1.4)
17	1.9 (1.0, 3.6)	2.0 (1.4, 2.9)**	0.8 (0.6, 1.1)	0.3 (0.2, 0.6)**	0.8 (0.5, 1.1)
≥18	2.4 (1.2, 4.6)*	2.1 (1.4, 3.0)**	0.7 (0.5, 1.0)*	0.2 (0.1, 0.4)**	0.8 (0.6, 1.2)
Number of days drank alcohol[§]					
1–2	1.0	1.0	1.0	1.0	1.0
3–5	1.4 (1.0, 2.1)	1.1 (0.9, 1.4)	0.9 (0.7, 1.1)	0.9 (0.6, 1.4)	1.0 (0.8, 1.2)
6–9	2.1 (1.2, 3.6)*	1.1 (0.9, 1.4)	0.7 (0.6, 0.9)*	1.2 (0.8, 1.7)	1.1 (0.8, 1.4)
10–19	3.1 (1.7, 5.7)**	0.9 (0.7, 1.2)	0.7 (0.5, 0.9)**	1.1 (0.7, 1.9)	1.3 (0.9, 1.9)
≥20	3.8 (1.9, 7.8)**	0.4 (0.3, 0.6)**	0.5 (0.3, 0.7)**	2.3 (1.4, 3.9)**	2.1 (1.4, 3.0)*
Number of days engaged in binge drinking[‖]					
1	1.0	1.0	1.0	1.0	1.0
2	0.9 (0.5, 1.6)	1.7 (1.4, 2.1)**	0.8 (0.6, 0.9)**	0.7 (0.5, 1.0)*	0.9 (0.8, 1.2)
3–5	1.2 (0.7, 2.0)	2.5 (1.9, 3.3)**	0.5 (0.4, 0.7)**	0.5 (0.3, 0.7)**	0.8 (0.7, 1.0)
≥6	1.5 (0.8, 2.8)	3.1 (2.3, 4.2)**	0.4 (0.3, 0.6)**	0.6 (0.4, 0.9)*	0.6 (0.4, 0.8)*

*$p < .05$,

** $p < .01$.

AOR, adjusted odds ratio; CI, confidence interval.

† Usual source of alcohol during the 30 days before the survey, among students who had ≥1 drink of alcohol during the 30 days before the survey. Logistic regression model included sex, race/ethnicity, age, number of days drank alcohol, and number of days engaged in binge drinking.

‡ Such as a liquor store, convenience store, supermarket, discount store, or gas station.

§ During the 30 days before the survey.

// Had ≥5 drinks of alcohol in a row within a couple of hours on ≥1 day during the 30 days before the survey.