

# Perceived Peer Tobacco Use as a Predictor of Actual Tobacco Use in College Students

Allison Y. Reddick, Dr. Tracey E. Barnett, and Erik K. Soule

*College of Public Health and Health Professions, University of Florida*

Tobacco companies target 18–24 year olds due to their high risk-taking behavior and their resulting potential for life-long addiction. The overall purpose of this study was to evaluate the effect of perceived peer use of tobacco products among college students on actual personal use. Based on the literature reviewed, it is hypothesized that college students who overestimate their peers' use of tobacco products (cigarettes and hookah) will be more likely to be users themselves. Data included assessment of 26,685 student participants from 40 institutions around the United States. Statistical analysis of the data included the chi-square test of independence. Current cigarette smokers were more likely to overestimate current peer use of cigarettes compared to non-smokers (89.8% vs. 81.1%;  $X^2=188.699$ ,  $p<.001$ ). Current hookah smokers were also more likely to overestimate current peer use of hookah compared to non-smokers (87.9% vs. 64.5%;  $X^2=586.729$ ,  $p<.001$ ). There was an overwhelmingly high peer effect of tobacco use, and this was further increased by smoking status. Compared to non-smokers, students who were current smokers (both cigarettes and hookah) were more likely to overestimate that their peers were smokers as well.

## INTRODUCTION

In the United States, the tobacco industry concentrates the majority of its marketing efforts on young adults between the ages of 18 and 24 (Smith, Curbow, & Stillman, 2007). Tobacco companies target this age group because adolescents/young adults tend to engage in risky behaviors at a higher rate during these years of life (Emmons, Wechsler, Dowdall, & Abraham, 1998). If these young patrons become addicted to tobacco products, they become a source of long-term customers for the tobacco industry.

College freshmen are at particularly high risk for tobacco use due to their newfound independence, new environment, and need to make friends (Smith et al., 2007). Gatrad, Gatrad, and Sheikh (2007) found that 40% of college students had smoked at least one cigarette in the past year. Similarly, many hookah smokers are young college students, including many within Greek (fraternity and sorority) organizations (Primack, Walsh, Bryce, & Eissenberg, 2009). The increase of hookah smoking may be connected to the fact that this stratum is too young to drink alcohol so they socialize through hookah smoking cafes (Eissenberg, Ward, Smith-Simone, & Maziak, 2008).

### **Predictors of Smoking**

According to the World Health Organization, approximately 250 million women smoke daily

around the world (as cited by Lombardi, Prado, Santos, & Fernandes, 2011). Cigarette smoking prevalence in college students is slightly higher for males than for females (Johnson, O'Malley, Bachman, & Schulenberg, 2009). Though worldwide male prevalence is higher, the prevalence of smoking in young women is growing internationally and in some countries is higher than male smoking prevalence (Lombardi et al., 2011). Tobacco companies have been focusing on young women in advertising and specific product lines through images of liveliness, slenderness, freedom, sophistication, and sexual attraction (Mackay & Amos, 2003). Tobacco products have developed features to allure women into smoking, including flavored cigarettes and extra slim style (Mackay & Amos, 2003). For young women, previous studies have found a strong association between smoking and the presence of smoking among friends and family (Lombardi et al., 2011). Research by Eissenberg et al. (2008) found that more females had never used hookah (75.8%) compared to males (63.1%) and more males were current hookah users (36.9%) compared to females (24.2%). Smith-Simone, Maziak, Ward, and Eissenberg (2008) conducted hookah research and found the same findings of more males ever using hookah (80.1%) compared to females (19.9%) in their sample population.

The association between stated use and perceived use of cigarettes and hookah will be assessed with a focus on college students. It is hypothesized that

college students who overestimate their peers' use of cigarettes and hookah will be more likely to be users themselves. This involves the factors of social context and peer influence, which implies that if the majority of a college student's friends are engaging in the use of these tobacco products that they too will most likely engage in the behavior at some point.

## METHODS

This study was approved by the University of Florida IRB as an exempt study for the de-identified NCHA-II dataset.

The ACHA-NCHA II provides the largest known comprehensive data set on the health status and activities of college students, nationwide (ACHA-NCHA, 2009). The data for this study were collected from the ACHA-NCHA II during the fall of 2008. Forty-five postsecondary institutions participated in this assessment with a total of 28,144 surveys completed by students. Institutions that either surveyed all students enrolled in their institution or those that used a random sampling technique were included in the final analysis. Taking those factors into consideration, the final analysis included 40 (88.9%) institutions with 26,685 (94.8%) student participants who completed the survey.

The survey instrument assessed self-reported demographic information. Those identifying as transgender (0.2%) were excluded due to the small number. Only participants 18–25 years of age were included in the sample as they represent the typical college student age range. Race was coded as white and non-white to combine minorities for more power for analysis. Class status was recoded into two categories: underclassmen and upperclassmen. Students who identified as being in their first or second year of college (in pursuit of an undergraduate degree) were coded as underclassmen. Students who identified as being in their third, fourth or fifth year or more of college (in pursuit of an undergraduate degree) were coded as upperclassmen. Degree seeking was coded as those who identified as being an undergraduate student and those who identified as being a graduate student, including both in analysis. Grade point average was coded into three categories: 3.0 or higher, 2.0–2.9, and below 2.0. Current residence was condensed to living on or off campus.

On-campus residence included campus residence halls, fraternity/sorority housing, and other college university housing. Fraternity/sorority housing was considered on campus due to proximity to campus as well as the high involvement in university activities. Off-campus residence included parent/guardian's home and other off-campus housing. Being a member of a social fraternity or sorority (involvement in Greek life) was coded as yes or no and included National Interfraternity Conference, National Panhellenic Conference, National Pan-Hellenic Council, and National Association of Latino Fraternal Organizations.

For the tobacco use questions, the responses were coded in terms of current use and ever used. Originally in the survey the respondent tobacco use and typical (perceived) student use responses were split into never used, have used but not in the last 30 days, and varying degrees of choices of use within the last 30 days (1–2 days, 3–5 days, 6–9 days, 10–19 days, 20–29 days, and used daily). For current use, the varying choices within the last thirty days were recoded as current smoker if any days were indicated. Have used, but not in the last 30 days and never used were coded as nonsmoker (for current). For ever use, any selection was coded as “ever smoked” while no use was coded as “never smoked”.

## RESULTS

A greater number of females responded to the survey than males (69.5% vs. 30.5%). Also, more whites were participants compared to non-whites (75.8% vs. 24.2%). The average age of participants was 19.86, with most of the participants (89.5%) reporting that they were seeking an undergraduate degree. Within the undergraduate degree seeking participants, 55.3% identified with being underclassmen (1<sup>st</sup> or 2<sup>nd</sup> year of college) and 44.7% identified with being upperclassmen (3<sup>rd</sup> year or more). More students (52.7%) lived on-campus than off-campus (47.3%). The majority of participants (92.0%) were not involved in Greek life. For grade point average, 89.2% had a GPA of 3.0 or higher, 10.2% had a GPA between 2.0–2.9, and 0.6% had a GPA below 2.0. The demographic characteristics of the respondents are depicted in Table 1.

**Table 1.** Demographic Characteristics

Demographics	N=26,685 N (%)
Sex	
Male	7,955 (30.5%)
Female	18,107 (69.5%)
Race	
White (Non-Hispanic)	19,589 (75.8%)
Non-White	6,265 (24.2%)
Age	
18–25	23,099 (88.5%)
Mean Age	19.86
Class Status	
Underclassmen (1st or 2nd year)	12,729 (55.3%)
Upperclassmen (3rd year or greater)	10,279 (44.7%)
Degree Seeking	
Undergraduate	23,008 (89.5%)
Graduate	2,691 (10.5%)
Residence	
On-Campus	13,764 (52.7%)
Off-Campus	12,335 (47.3%)
Fraternity/Sorority member	
No	23,865 (92.0%)
Yes	2,065 (8.0%)
Grade Point Average	
3.0 or higher	21,848 (89.2%)
2.0–2.9	2,490 (10.2%)
Below 2.0	144 (0.6%)

### **Cigarette Ever Use**

Males reported ever smoking cigarettes more often than females (35.2% vs. 30.9%;  $X^2=40.585$ ,  $p<.001$ ). For race, more whites (34.4%) than non-whites (24.6%) reported ever using cigarettes in their lifetime ( $X^2=176.417$ ,  $p<.001$ ). Upperclassmen reported a

higher total percentage of ever using cigarettes than underclassmen (37.0% vs. 28.1%;  $X^2=192.599$ ,  $p<.001$ ). Respondents seeking a graduate degree reported more ever using cigarettes than respondents seeking an undergraduate degree (34.9% vs. 32.0%;  $X^2=4.429$ ,  $p=.035$ ). For ever use of cigarettes, 39.4% of students living off-campus reported ever using cigarettes in their lifetime compared to 27.2% of students living on-campus ( $X^2=377.977$ ,  $p<.001$ ). For students involved in Greek organizations, 38.7% responded that they have smoked cigarettes compared to 31.6% of students not involved in Greek organizations ( $X^2=38.712$ ,  $p<.001$ ). The statistics of the respondents who have ever used cigarettes are depicted in Table 2.

### **Hookah Ever Use**

Females reported a higher percentage of ever using hookah than males (37.0% vs. 29.6%;  $X^2=124.402$ ,  $p<.001$ ). More white students reported ever using hookah compared to non-white students (33.7% vs. 26.7%;  $X^2=90.325$ ,  $p<.001$ ). Ever using hookah was higher for upperclassmen than underclassmen (36.0% vs. 28.9%;  $X^2=124.675$ ,  $p<.001$ ). For degree-seeking students, 32.0% of undergraduate students reported ever using hookah whereas 29.6% of graduate students reported ever using hookah ( $X^2=3.064$ ,  $p=.080$ ). For ever used hookah, 34.7% of off-campus residents reported using hookah in their lifetime compared to 29.9% of on-campus residents. More Greek member students reported ever using hookah than students not involved in Greek organizations (40.6% vs. 31.1%;  $X^2=71.267$ ,  $p<.001$ ). The statistics of the respondents who have ever used hookah are depicted in Table 3.

### **Current Cigarette Use**

Males reported more often being current cigarette smokers than females (19.6% vs. 14.8%;  $X^2=84.483$ ,  $p<.001$ ). For race, 17.5% of whites and 11.6% of non-whites identified as being a current cigarette smoker ( $X^2=101.706$ ,  $p<.001$ ). Of those who identified as upperclassmen (3<sup>rd</sup> year or greater), 18.0% were current cigarette smokers compared to 15.2% of underclassmen (1<sup>st</sup> or 2<sup>nd</sup> year). Students seeking an undergraduate degree reported higher current cigarette smoking than students seeking a graduate degree (16.4% vs. 13.0%;  $X^2=10.183$ ,  $p<.001$ ). More students living off-campus reported being a current smoker

(20.5%) compared to those living on-campus (13.2%;  $X^2=216.380$ ,  $p<.001$ ). Students involved in Greek organizations reported more current cigarette use compared to those who were not involved in Greek

life (19.0% vs. 16.0%;  $X^2=11.143$ ,  $p=.001$ ). The statistics of the respondents who are current cigarette smokers are depicted in Table 2.

**Table 2.** Student Cigarette Demographics

Characteristics	Current		Ever	
	N (%)	p-value	N (%)	p-value
Sex				
Male	1,034 (14.9%)	p<.001	4,694 (29.6%)	p<.001
Female	1,511 (9.5%)		2,578 (37.0%)	
Class Status				
Underclassmen (1 <sup>st</sup> or 2 <sup>nd</sup> yr)	1,520 (12.6%)	p<.001	3,473 (28.9%)	p<.001
Upperclassmen (3 <sup>rd</sup> yr or greater)	948 (10.2%)		3,365 (36.0%)	
Degree Seeking				
Undergraduate	2,468 (11.5%)	p<.001	6,838 (32.0%)	p=.080
Graduate	53 (4.2%)		370 (29.6%)	
Current Residence				
On-Campus	1,565 (11.6%)	p=.011	4,043 (29.9%)	p<.001
Off-Campus	976 (10.5%)		3,223 (34.7%)	
Greek member				
Yes	277 (14.9%)	p<.001	753 (40.6%)	p<.001
No	2,251 (10.8%)		6,469 (31.1%)	
Race				
White	2,003 (11.6%)	p<.001	5,797 (33.7%)	p<.001
Non-white	502 (9.7%)		1,380 (26.7%)	

**Current Hookah Use**

More males reported current hookah use than females (14.9% vs. 9.5%;  $X^2=139.207$ ,  $p<.001$ ). Respondents that identified as white reported more often being a current hookah smoker compared to those who identified as non-white (11.6% vs. 9.7%;  $X^2=15.118$ ,  $p<.001$ ). Underclassmen reported more current hookah use than upperclassmen (12.6% vs. 10.2%;  $X^2=31.568$ ,  $p<.001$ ). Respondents seeking a graduate degree reported less current hookah use than

those seeking an undergraduate degree (4.2% vs. 11.5%;  $X^2=63.594$ ,  $p<.001$ ). On-campus residents reported higher current hookah use than off-campus residents (11.6% vs. 10.5%;  $X^2=6.433$ ,  $p=.011$ ). Of those involved in Greek life, 14.9% identified as being a current hookah user compared to 10.8% of those not involved in Greek life ( $X^2=29.242$ ,  $p<.001$ ). The statistics of the respondents who are current cigarette smokers are depicted in Table 3.

**Table 3.** Student Hookah Demographics

Characteristics	Current		Ever	
	N (%)	p-value	N (%)	p-value
<b>Sex</b>				
Male	1,366 (19.6%)	p<.001	2,447 (35.2%)	p<.001
Female	2,343 (14.8%)		4,904 (30.9%)	
<b>Class Status</b>				
Underclassmen (1 <sup>st</sup> or 2 <sup>nd</sup> yr)	1,825 (15.2%)	p<.001	3,383 (28.1%)	p<.001
Upperclassmen (3 <sup>rd</sup> yr or greater)	1,681 (18.0%)		3,454 (37.0%)	
<b>Degree Seeking</b>				
Undergraduate	3,506 (16.4%)	p=.001	6,837 (32.0%)	p=.035
Graduate	162 (13.0%)		435 (34.9%)	
<b>Current Residence</b>				
On-Campus	1,788 (13.2%)	p<.001	3,675 (27.2%)	p<.001
Off-Campus	1,907 (20.5%)		3,662 (39.4%)	
<b>Greek member</b>				
Yes	352 (19.0%)	p=.001	718 (38.7%)	p<.001
No	3,327 (16.0%)		6,586 (31.6%)	
<b>Race</b>				
White	3,015 (17.5%)	p<.001	5,923 (34.4%)	p<.001
Non-white	602 (11.6%)		1,272 (24.6%)	

**Perceived Peer Ever Cigarette Use**

Females perceived that 94.5% of peers had ever used cigarettes whereas males perceived 92.7% of peers had ever used cigarettes ( $X^2=27.997$ ,  $p<.001$ ). Undergraduate and graduate students perceived similar levels of peer’s ever use of cigarettes (94.0% vs. 94.8%;  $X^2=1.548$ ,  $p=.213$ ). Upperclassmen perceived 94.8% of peers had ever use of cigarettes by their peers compared to underclassmen who perceived 93.3% of peers had ever used cigarettes ( $X^2=21.326$ ,

$p<.001$ ). Students who live off-campus perceived higher peer ever use of cigarettes than students who live on-campus (95.8% vs. 92.7%;  $X^2=94.349$ ,  $p<.001$ ). Students involved in Greek life perceived that 95.1% of their peers had ever used cigarettes whereas students not involved in Greek life perceived that 93.9% of their peers had ever used cigarettes ( $X^2=4.262$ ,  $p=.039$ ). Perceptions of typical peer cigarette ever use statistics are depicted in Table 4.

**Table 4.** Perceptions of Typical Peer Cigarette Use

Characteristics	Current		Ever	
	N (%)	p-value	N (%)	p-value
Sex				
Male	5,577 (80.7%)	p<.001	6,410 (92.7%)	p<.001
Female	13,290 (84.5%)		14,871 (94.5%)	
Class Status				
Underclassmen (1 <sup>st</sup> or 2 <sup>nd</sup> yr)	10,004 (83.7%)	p<.589	11,146 (93.3%)	p<.001
Upperclassmen (3 <sup>rd</sup> yr or greater)	7,721 (83.5%)		8,772 (94.8%)	
Degree Seeking				
Undergraduate	17,725 (83.6%)	p=.001	19,918 (94.0%)	p=.213
Graduate	969 (78.5%)		1,171 (94.8%)	
Current Residence				
On-Campus	10,837 (80.8%)	p<.001	12,438 (92.7%)	p<.001
Off-Campus	8,013 (87.0%)		8,825 (95.8%)	
Greek member				
Yes	1,571 (85.1%)	p=.026	1,754 (95.1%)	p<.039
No	17,166 (83.1%)		19,384 (93.9%)	
Race				
White	14,105 (82.6%)	p<.001	16,141 (94.6%)	p<.001
Non-white	4,381 (85.2%)		4,754 (92.4%)	

### **Perceived Peer Ever Hookah Use**

Females perceived a higher percentage of peers ever smoking hookah (88.3% vs. 86.0%;  $X^2=23.447$ ,  $p<.001$ ). White students perceived a higher percentage of peers ever using hookah than non-whites (88.6% vs. 85.7%;  $X^2=30.650$ ,  $p<.001$ ). Upperclassmen perceived higher peer ever use of hookah compared to underclassmen (89.6% vs. 86.5%;  $X^2=50.856$ ,  $p<.001$ ). Undergraduates also perceived more peer ever use of hookah than graduate students (87.9% vs. 82.8%;  $X^2=28.102$ ,  $p<.001$ ). Students who live off-campus perceived more peers ever used hookah than students who live on-campus (87.1% vs. 88.2%;  $X^2=5.181$ ,  $p=.023$ ). Students affiliated with Greek life

perceived higher peer ever use of hookah than students not affiliated with Greek life (90.7% vs. 87.3%;  $X^2=17.796$ ,  $p<.001$ ). Perceptions of typical hookah ever use statistics are depicted in Table 5.

### **Perceived Peer Current Cigarette Use**

Females perceived more peer use in current cigarette smoking than males (84.5% vs. 80.7%;  $X^2=50.289$ ,  $p<.001$ ). Respondents who identified as being white perceived 82.6% of peers were current smokers whereas more respondents who identified as being non-white perceived peers were current smokers (85.2%;  $X^2=18.387$ ,  $p<.001$ ). Undergraduate students perceived more of their peers as current cigarette

smokers (83.6%) than graduate students (78.5%;  $X^2=22.250$ ,  $p<.001$ ). Underclassmen and upperclassmen perceived similar current cigarette use among peers (83.7% vs. 83.5%;  $X^2=.292$ ,  $p=.589$ ). Students who live on-campus perceived 80.8% of their peers were current cigarette smokers whereas more students (87.0%) who lived off-campus perceived their peers were current cigarette smokers ( $X^2=153.098$ ,  $p<.001$ ). Students involved in Greek life perceived higher peer use of current cigarette use than those not affiliated with Greek life (85.1% vs. 83.1%;  $X^2=4.951$ ,  $p=.026$ ). Perceptions of typical peer cigarette current use statistics are depicted in Table 4.

**Perceived Peer Current Hookah Use**

Females perceived higher peer current hookah smokers than males (71.2% vs. 67.4%;  $X^2=32.726$ ,

$p<.001$ ). White students perceived lower peer current hookah smokers than students who identified as non-white (69.4% vs. 73.0%;  $X^2=25.068$ ,  $p<.001$ ). Underclassmen and upperclassmen perceived similar peer current hookah use (71.3% vs. 70.7%;  $X^2=.647$ ,  $p=.412$ ). Undergraduate students perceived more peer current hookah smokers than graduate students (71.0% vs. 55.5%;  $X^2=132.621$ ,  $p<.001$ ). Students who live on-campus and off-campus perceived similar peer hookah use (70.0% vs. 70.1%;  $X^2=.015$ ,  $p=.902$ ). Students affiliated with Greek life perceived higher peer current hookah smokers than those not affiliated with Greek life (73.8% vs. 69.8%;  $X^2=13.085$ ,  $p<.001$ ). Perceptions of typical hookah current use statistics are depicted in Table 5.

**Table 5.** Perceptions of Typical Peer Hookah Use

Characteristics	Current		Ever	
	N (%)	p-value	N (%)	p-value
Sex				
Male	4,632 (67.4%)	$p<.001$	5,904 (86.0%)	$p<.001$
Female	11,132 (71.2%)		13,795 (88.3%)	
Class Status				
Underclassmen (1 <sup>st</sup> or 2 <sup>nd</sup> yr)	8,456 (71.3%)	$p<.412$	10,268 (86.5%)	$p<.001$
Upperclassmen (3 <sup>rd</sup> yr or greater)	6,504 (70.7%)		8,251 (89.8%)	
Degree Seeking				
Undergraduate	14,960 (71.0%)	$p=.001$	18,519 (87.9%)	$p<.001$
Graduate	678 (55.5%)		1,011 (82.8%)	
Current Residence				
On-Campus	9,350 (70.0%)	$p<.902$	11,631 (87.1%)	$p=.023$
Off-Campus	6,401 (70.1%)		8,047 (88.2%)	
Greek member				
Yes	1,354 (73.8%)	$p<.001$	1,663 (90.7%)	$p<.001$
No	14,313 (69.8%)		17,900 (87.3%)	
Race				
White	11,763 (69.4%)	$p<.001$	15,014 (88.6%)	$p<.001$
Non-white	3,732 (73.0%)		4,378 (85.7%)	

### **Estimation of Peer Use**

Current cigarette smokers were more likely to overestimate peer current use of cigarettes compared to non-smokers (89.8% vs. 81.1%;  $X^2=188.699$ ,  $p<.001$ ). Current hookah smokers were more likely to overestimate peer current use of hookah compared to non-smokers (87.9% vs. 64.5%;  $X^2=586.729$ ,  $p<.001$ ). Students who had ever used cigarettes were more likely to overestimate peer ever use of cigarettes compared to students who had never used cigarettes (97.6% vs. 91.4%;  $X^2=358.598$ ,  $p<.001$ ). Students who had ever used hookah were more likely to overestimate peer ever use of hookah compared to students who have never used hookah (96.2% vs. 80.2%;  $X^2=1085.358$ ,  $p<.001$ ).

### **DISCUSSION**

The results of this study confirm that there is an association between stated use and perceived use of cigarettes and hookah. Similar to the findings by Eissenberg et al. (2008) and Smith-Simone et al. (2008), more whites reported being current hookah smokers. When asked about perceived tobacco use among their peers, college students who reported using these tobacco products, whether current or ever, dramatically overestimated their peers' use of cigarettes and hookah. College students who are current smokers tend to believe that, since they are smoking, their peers are probably smoking as well. These findings are consistent with those of Kypri and Langley (2003), who found a positive correlation between a student's alcohol consumption and perceived norm drinking level. When college students engage in such behaviors, there is a desire to assume that their peers are also engaging in the behaviors as well.

Females reported higher hookah rates of ever use in contrast to previous results (Eissenberg et al., 2008; Primack et al., 2008; Smith-Simone et al., 2008). There are many possible factors that could be contributing to this statistic. The higher ever use of hookah by females could be due to lack of awareness of the health effects, the use of hookah for social networking, or introduction of hookah to females by their male peers. This could be an emerging trend. Nonetheless, it is something that needs continued tracking.

Underclassmen reported higher current hookah use than upperclassmen but lower ever use of hookah. These results are similar to the trends reported by the research of Eissenberg et al. (2008) and Smith-Simone et al. (2008). Eissenberg et al. (2008) also found that waterpipe use was associated with people younger than 20 and believes that this may be due to the fact that these individuals cannot access bars and instead socialize in hookah bars. College freshmen may be engaging in hookah smoking due to the social aspects, or, as Smith et al. (2007) claims, freshmen are at high risk for tobacco use due to their newfound independence and need to make friends. Upperclassmen may have engaged in hookah smoking when they were under 21 and then ceased to do so once they reach 21, an age when they could socialize through alcohol consumption at bars. This could explain the higher ever use in upperclassmen and higher current use in underclassmen.

Between stated, actual cigarette and hookah use and perceived peer use, students greatly overestimated the amount of peers who are current or have ever used cigarettes or hookah. The results of this study are in concordance with the data that males have higher percentages of current cigarette smoking than females. Female peer perception, however, is higher than males, and this could be due to the increased targeting of young females by tobacco companies as expressed by Mackey & Amos (2003). Upperclassmen have higher peer perceptions of cigarette and hookah use. On the other hand, undergraduate students have more current hookah and cigarette smokers and perceived more peer smokers than graduate students. The social aspect of smoking may be affecting undergraduates in the ways they socialize compared to graduate students. Regardless of the demographic variable, whether current or ever tobacco users, students vastly overestimated the number of peers who are current users, or who have ever used tobacco.

Limitations in this study include the extremely large sample size. The sample size is so large that it tends to make most of the rate comparisons statistically significant which may inflate findings. Regarding perceived use, the wording of the questions allows for overestimation and thus limits meaningful comparison. One possible confounder that was not accounted for could be socioeconomic status since college students typically represent middle and upper socioeconomic strata.

## CONCLUSION

Despite these limitations, the study results indicate that college students who are current tobacco users are more likely to overestimate peer tobacco use. Potential intervention programs could include

educating college students about actual peer tobacco rates, possibly reducing the idea that it is “normative” and socially accepted. Reducing the normative attitudes around tobacco would likely reduce rates as well.

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