

Summer Employment and Tobacco Use among College Students

Honors Research Thesis

Presented in Partial Fulfillment of the Requirements for graduation “with Honors Research Distinction in Public Health” in the undergraduate colleges of The Ohio State University

by  
Rachel Hardin

The Ohio State University  
May 2016

Project Advisor: Dr. Amy Ferketich, College of Public Health

**Abstract:**

Research has shown that tobacco use among college students is influenced by the social environment, especially among a subset of smokers known as social smokers. Although many college campuses now have tobacco-free policies that could restrict social use of tobacco products, these policies often do not extend to common places of summer employment for college students that have similar social environments. Currently, no recommended tobacco policy exists for such summer programs, and little research has been done to assess their need. The objective of this study was to examine trends in tobacco use among the college-aged summer staff members of a seasonal non-profit organization. At the beginning and end of the summer employment period, an online cross-sectional survey was distributed to each eligible staff member (n=124) to examine trends in tobacco use. A total of 63 participants responded to the pre-summer survey (response rate=50.8%), while 60 complete responses were recorded for the post-summer survey (response rate=48.4%). No identifying information was collected from participants, and individual participants were not traced from pre-summer to post-summer. In the post-summer survey, 22.8% (n=13) of respondents reported an overall increase in tobacco use over the summer, while 3.5% (n=2) reported a decrease in tobacco use and 73.7% (n=42) reported no change. Additionally, of the 19 respondents who reported smoking a cigarette in the past 6 months, 0% self-identified as a smoker. However, 58.9% of these individuals identified as social smokers by indicating that they more commonly smoked in social situations. These results align with past findings about the social smoker identity and indicate the potential increase in tobacco use during summer employment. This study demonstrates the need for further research into the role of workplace influences on tobacco use among college students in order to guide potential policy changes.

## **Background**

### **Patterns of Tobacco Use among Young Adults**

Although the adverse health effects of tobacco use have received attention for more than 50 years, cigarette smoking remains the leading preventable cause of premature death in the United States<sup>1</sup>. According to the Centers for Disease Control and Prevention (CDC), about 18.7% of Americans aged 18 to 24 smoke cigarettes. This is an important age group, as 90% of smokers have first tried a cigarette by age 18 and 99% have first tried a cigarette by age 26<sup>2</sup>. This is also the youngest age group that can legally be targeted by tobacco marketing efforts. In the American College Health Association (ACHA)'s National College Health Assessment, 28.6% of college students self-reported ever having smoked a cigarette, and 12.2% reported use of a cigarette in the past 30 days<sup>3</sup>.

Besides cigarettes, other tobacco products are commonly used by this age group. A national study of U.S. college students reports that 37.1% of respondents had ever used cigars and 8.5% were current cigar users. Additionally, 13.3% had ever used smokeless tobacco (SLT), and 3.7% were SLT current users. This resulted in a total of 61.0% of respondents who reported ever-use of a tobacco product and 32.9% who were current (past 30 day) users<sup>4</sup>. The study also found that 51.3% of tobacco users had used more than 1 tobacco product in the past year, indicating that tobacco use in college is often not limited to 1 specific product<sup>4</sup>. The use of e-cigarettes is also a growing trend among young adults. Another study of college students reports that 29.9% of respondents had used e-cigarettes in the past, and 14.9% were current users<sup>5</sup>.

## **Social Influences of Tobacco Use among Young Adults**

Over the past decade, “social smoking” has been identified as a phenomenon among young smokers, especially those in college. Definitions of social smoking vary and include “those who smoke more commonly with others rather than alone,” “those who smoke almost exclusively in social situations,” and “those who most commonly smoke while partying or socializing”<sup>6</sup>. Using the latter definition, a study of college smokers at a large Midwestern university found that 70% of current smokers in the sample reported social smoking.

Additionally, many of the respondents who reported social smoking did not self-identify as smokers, despite having recently smoked<sup>6</sup>. Similarly, in a study of eight U.S. colleges, 56.3% of students aged 18-24 who reported past 30 day use of cigarettes did not identify as smokers<sup>7</sup>. Waters et al. suggest that these discrepancies between smoking behavior and smoking status identification may stem from the perception that the term “smoker” refers to heavy or daily smoking behavior<sup>6</sup>.

Although studies of social smoking among young adults are fairly new in the public health world, tobacco industry marketing documents have discussed this phenomenon for over 30 years<sup>8</sup>. While the tobacco industry estimates that social smokers account for 20-25% of all smokers across a wide range of socioeconomic backgrounds, levels of education, and ethnicities, much of their marketing efforts target young adults<sup>8</sup>. The industry documents identify young adults aged 18-24 who are undergoing a transition period, such as entering a new workplace or school setting, as a group highly susceptible to changes in tobacco consumption<sup>9</sup>. Tobacco marketers therefore attempt to integrate tobacco use into the social activities and environments of these new settings in order to encourage increased consumption<sup>9</sup>. Such marketing efforts may

increase the likelihood that young adults, especially those identifying as social smokers, will increase tobacco consumption during transition periods such as entering college or starting a new job.

The phenomenon of social smoking poses two main concerns. First, nondaily social smokers are at risk of transitioning into daily smokers. Although the majority of social smokers do not believe they will continue smoking outside of the college environment<sup>10</sup>, studies of nondaily college smokers have found otherwise. A 2005 study that traced the cigarette use of a cohort of low-level college smokers over a period of 4 years found that the smoking levels of these college students varied greatly over their college years. After 4 years, 44% had quit smoking, 35% were occasional smokers, and 20% were daily smokers<sup>11</sup>. The second concern is that although not all nondaily or social smokers will transition into daily smokers, even low levels of nicotine exposure are a cause for concern<sup>4</sup>. Studies have shown that even nondaily smoking behavior can increase the risk of disease, especially cardiovascular disease and lung cancer<sup>12</sup>.

### **Tobacco Control Policies Targeting Young Adults**

In 2009, the ACHA officially recommended that all colleges and universities strive to create a 100% tobacco-free environment<sup>13</sup>. As of October 2, 2015, at least 1,130 American college campuses had 100% tobacco-free policies in place<sup>14</sup>. These tobacco-free policies, however, often do not extend to common places of summer employment for college students. Each year, the youth labor force peaks during the months of April to July<sup>15</sup>. Fluctuations in employment in several seasonal industries correspond with these trends in the youth labor force.

In particular, employment at recreational and vacation camps peaks during the summer months<sup>16</sup>. A report from the American Camp Association reports that 76% of camp staff members are between the ages of 18 and 25, an age range that aligns closely with the age of most college students<sup>17</sup>. Although these summer programs usually do not take place on college campuses, they may create a similar social environment in which employees of similar ages work and live together.

While existing research outlines trends in tobacco use among college students and the importance of social influence, little research has focused on tobacco use during summer employment. Like in college, the social environment of summer programs, combined with tobacco marketing efforts, may encourage social smoking and the social use of other tobacco products. Furthermore, unlike college campuses, the tobacco policies of these summer programs and camps vary from place to place, and no recommended tobacco policy exists. As such, the objective of this study was to examine trends in tobacco use among college-aged summer staff in an effort to guide future policies for similar summer programs.

## **Methods**

### **Participants**

The study population consisted of the summer staff members of a non-profit organization based in the Appalachian region during the summer of 2015. During the initial training period and the post-summer wrap-up period, all staff members were housed in the same facility. For the remainder of the summer, staff members were assigned to 30 different facilities throughout Virginia, West Virginia, Kentucky, Tennessee, and North Carolina. Staff members were

identified from a list provided by the organization, which included the names and email addresses of 135 staff members. Nine of these individuals were year-round employees and were excluded from this study. Two other individuals refused employment prior to the start of the summer and were also excluded. The remaining 124 summer staff members were contacted via email by a study investigator.

### **Procedures**

Each eligible summer staff member received a total of 4 emails from a study investigator. During May 2015, a recruitment email was sent that briefly described the study and included a link to the online questionnaire. A reminder email was sent several weeks later. During August 2015, the link to a similar post-summer questionnaire was again sent, along with a final reminder email several weeks later. The study methods and questionnaires were approved by the Institutional Review Board at The Ohio State University.

### **Measures**

Pre-summer and post-summer questionnaires were developed through Qualtrics software (see Appendix I for the full list of items). The two questionnaires were identical, except for 3 follow-up questions only included on the post-summer questionnaire. As these questionnaires did not collect identifying information, pre-summer and post-summer responses were not individually linked. Instead, the two questionnaires were independent cross-sectional surveys. The questionnaires asked for the basic demographics of participants, including age, race, sex, highest level of education to date (most participants were still in college), household income, and

college major. A question about position within the organization was also included, which refers to a respondent's position on their individual staff within the larger summer staff of the organization. Each staff has a Center Director, who fulfills a supervisory role within an individual staff and generally has at least two years of prior experience with the organization. A returner generally has one year of prior experience, and a First Year has no prior experience on staff with the organization. Each individual staff generally has 1 Center Director, 1 Returner, and 2 First Years.

Current and ever-use of tobacco products, including cigarettes, e-cigarettes, cigars or cigarillos, hookah, and SLT were assessed. For cigarettes, all participants were asked about ever-use of cigarettes, and only those reporting smoking at least 5 packs of cigarettes or more over their lifetimes were asked about current use. Current use was defined as smoking every day or some days. For the remaining tobacco products, participants were asked if they had ever tried each product. Only those reporting ever-use of a product were asked about current use. The questionnaires also included questions about participants' perception of their own smoking behavior (*"Do you consider yourself a smoker?" "People who smoke more commonly in social situations are sometimes referred to as social smokers. Do you consider yourself a social smoker?"*) and their perceived ability to quit smoking.

In the post-summer questionnaire, participants were also asked how their tobacco use, as well as attitudes about tobacco use, changed over the course of the summer. Many of the tobacco use assessment questions were taken from the Population Assessment of Tobacco and Health (PATH) study<sup>18</sup>.



## **Analysis**

STATA was used to calculate descriptive statistics. Frequency distributions were performed separately for each pre-summer and post-summer variable. Chi-square and Fisher's Exact tests were also run to evaluate if there were significant demographic differences between ever-users of each tobacco product at baseline, those who self-reported an increase in tobacco use over the summer at the post-summer time point, and those identifying as social smokers at baseline.

## **Results**

A total of 63 participants responded to the pre-summer questionnaire, yielding a response rate of 50.8%, while 60 complete responses were recorded for the post-summer questionnaire for a response rate of 48.4%. For both questionnaires, the age of respondents ranged from 18 to 26, and the average age of the sample was 20.5 (Table 1). Both samples were also primarily female (63.5%, n=40; 68.9%, n=42) and white (96.8%, n=61; 95.1%, n=58). About half of each sample consisted of those ranking as first years in the organizational structure (48.4%, n=30; 51.7%, n=31).

At baseline, 46.8% (n=29) of respondents reported ever-use of cigarettes, 14.5% (n=9) reported ever-use of e-cigarettes, 40.3% (n=25) reported ever-use of cigars or cigarillos, 37.1% (n=23) reported ever-use of hookah, and 16.1% (n=10) reported ever-use of SLT (Table 2). In the post-summer questionnaire, 48.3% (n=29) were ever-users of cigarettes, 18.6% (n=11) were ever-users of e-cigarettes, 52.5% (n=31) were ever-users of cigars or cigarillos, 39.0% (n=23) were ever-users of hookah, and 13.6% (n=8) were ever-users of SLT. The average age at first

cigarette was 18.1 for the pre-summer questionnaire and 18.6 for the post-summer questionnaire. No statistical tests were performed to compare pre- to post-summer responses because we are not able to link participants in each survey, which would be necessary because of the dependent nature of the data.

A smaller proportion of respondents reported current use of these tobacco products. Of the respondents reporting ever-use at baseline, 0% were current users of e-cigarettes, 12.0% (n=3) were current users of cigars or cigarillos, 13.0% (n=3) were current hookah users, and 0% were current SLT users. In the follow-up survey, 8.3% (n=1) reported current use of e-cigarettes, 32.3% (n=10) reported current use of cigars or cigarillos, 17.4% (n=4) reported current use of hookah, and 25.0% (n=2) reported current use of SLT.

When respondents reporting ever-use of each type of tobacco product at baseline were compared by gender, position within the organization, and year in school using chi-square analysis, statistically significant differences were found between positions for both cigarette and cigar ever-users (Table 3). More Returners (66.7%) and Center Directors (69.2%) reported ever-use of cigarettes than First Years (30.0%). Similarly, more Returners (60.0%) and Center Directors (46.2%) reported ever-use of cigars or cigarillos than First Years (23.3%).

In the post-summer survey, 22.8% (n=13) of respondents reported an overall increase in tobacco use over the summer, while 3.5% (n=2) reported a decrease in tobacco use and 73.7% (n=42) reported no change. No statistically significant differences were found between those reporting an increase in tobacco use on the basis of gender, position, and year in school (Table 4). Additionally, of the 9 respondents who reported smoking a cigarette in the past 6 months at baseline, 0% self-identified as a smoker. However, 69.2% of these individuals identified as

social smokers under the definition “smoking more commonly in social situations.” No statistically significant demographic differences were found between those identifying as a social smokers at baseline (Table 5).

## **Discussion**

While numerous studies have examined the role of social smoking among college students and other young adults, this study furthers the research by looking at tobacco use behavior specifically in a summer employment setting. This study found a 22.8% increase in self-reported tobacco use during summer employment among the college-aged employees of a seasonal non-profit organization. The most common tobacco products in terms of self-reported ever-use were cigarettes and cigars, followed by hookah, e-cigarettes, and SLT. In terms of smoker identification, while none of the participants self-identified as a smoker, about 60% of recent smokers identified as social smokers.

Compared to previous studies that assessed tobacco use among college students, a higher percentage of respondents in the present sample reported ever-use of cigarettes, while a smaller percentage reported current use<sup>3</sup>. Reported numbers for ever and current use of cigars and cigarillos were much higher in the sample than in other studies, while numbers were lower than expected for e-cigarette and SLT use<sup>4,5</sup>. Although cigars are traditionally viewed as a product used primarily by older men, cigar or cigarillo use was the second highest category for ever-use in the pre-summer survey and the most common in the post-summer survey. These results align with several other studies that note the growing popularity of cigars and cigarillos among young adults<sup>4,19</sup>.

This study also contributes to the existing literature on social smoking. Respondents reporting cigarette use in the past 6 months were reluctant to identify as smokers, but nearly 60% identified as social smokers. These results support the findings of other studies<sup>6,7</sup> and have important implications for future studies and interventions targeted towards young adults. For example, many basic tobacco screening questions asked by healthcare providers may exclude this group of nondaily social smokers who do not classify themselves as traditional “smokers.” As a result, this subgroup may miss the opportunity to receive cessation counseling or interventions. Given the prevalence of alternative tobacco use, especially cigars and cigarillos, among the sample, the term “social smoking” itself may be too narrow. Social influences on tobacco consumption appear to not be limited to cigarettes alone and instead could also affect the use of products such as e-cigarettes, cigars or cigarillos, hookah, and SLT.

Another finding of importance involves the average age at first cigarette among the study sample. Unlike other studies assessing tobacco use in the general population, the average age at first cigarette was 18 for both the pre- and post-summer questionnaires. Data from the Adult Tobacco Survey from 2003 to 2007 found that the average age at first cigarette ranged from 14.8 to 16.4 for those who had smoked fewer than 100 cigarettes in their lifetime<sup>20</sup>. The average age of onset was much higher among the present sample, indicating that this age range may be an important transition period in tobacco use. Furthermore, 77.8% of ever-cigarette users in the sample reported an age at first cigarette between the ages of 18 and 22, an age range that encompasses the majority of college students. These findings corroborate the idea that young adults in this age range, particularly those undergoing a transition in school or work, are

susceptible to changes in tobacco consumption, a concept that often guides marketing strategies of tobacco companies<sup>8,9</sup>.

### **Limitations**

The primary limitation of this study lies in its cross-sectional study design. Individual participants were not traced from the beginning of employment to the end of employment, so we were unable to specifically assess how each respondent's tobacco use changed. Because of this design, the data consists of two separate samples. To remedy this, a longitudinal study would be helpful in clarifying the results. An additional limitation of this study is the relatively small sample size. With about 60 respondents for both the pre-summer and post-summer questionnaires, cell counts were often less than five in chi-square analyses, necessitating a Fisher's Exact Test. The participants of this study were also limited to the summer employees of one specific organization. Given these limitations, the ability to generalize the results of this study is limited. Additional studies conducted in other summer employment settings with more diverse study populations are needed in order to fully understand the role of summer employment in tobacco use patterns among college students.

### **Conclusions and Future Directions**

This study demonstrates a clear increase in overall tobacco use over the summer of employment in this sample of college students. Despite the limitations in study design and sample size, the results align with previous studies of tobacco use among college students, especially in terms of the increased prevalence of cigar use and social smoker self-identification. Given the limited generalizability of this study, further research into the role of workplace

influences on tobacco use among college students should be conducted. If the results of an increase in tobacco use during summer employment are found to be generalizable to other common places of summer employment for college students, policy changes among these places of employment may help to reduce this outcome. Like college campuses, such common places of employment could adopt standardized tobacco policies in an attempt to reduce tobacco use during these transition periods. Additionally, the role of social influences on all forms of tobacco use among college students should continue to be investigated in order to better inform tobacco prevention and cessation efforts targeted towards this unique age group.

Table 1: Demographics of Young Adult Workers, 2015

	<b>Pre-Summer, Mean (SD) or n (%)</b>	<b>Post-Summer, Mean (SD) or n (%)</b>
<b>Respondents, N (Response Rate)</b>	63 (50.8%)	60 (48.4%)
<b>Age</b>	20.5 (1.6)	20.5 (1.5)
<b>Sex</b>		
Male	23 (36.5%)	19 (31.2%)
Female	40 (63.5%)	42 (68.9%)
<b>Race</b>		
White/Caucasian	61 (96.8%)	58 (95.1%)
Mixed Race/Multiple Categories	1 (1.6%)	2 (3.3%)
Other	1 (1.6%)	1 (1.6%)
<b>Hispanic</b>		
Yes	1 (1.6%)	2 (3.3%)
No	62 (98.4%)	59 (96.7%)
<b>Position</b>		
First Year	30 (48.4%)	31 (51.7%)
Returner	15 (24.2%)	11 (18.3%)
Center Director	13 (21.0%)	14 (23.3%)
Support Staff	4 (6.5%)	4 (6.7%)
<b>Educational Status</b>		
Rising freshman or sophomore in college	13 (21.0%)	13 (21.7%)
Rising junior in college	20 (32.3%)	19 (31.7%)
Rising senior in college	18 (29.0%)	19 (31.7%)
College graduate	9 (14.5%)	8 (13.3%)
Other	2 (3.2%)	1 (1.7%)
<b>College GPA</b>		
>3.5	31 (51.7%)	37 (61.7%)
3.0-3.5	19 (31.7%)	16 (26.7%)
<3.0	10 (16.7%)	7 (11.7%)
<b>Annual Household Income</b>		
<\$70,000	11 (22.4%)	12 (26.1%)
\$70,000 to \$99,999	8 (16.3%)	6 (13.0%)
\$100,000 to \$149,999	16 (32.7%)	14 (30.4%)
\$150,000 or more	11 (22.4%)	12 (26.1%)
Prefer not to respond	3 (6.1%)	2 (4.3%)

Table 2: Ever-Use of Tobacco Products at Baseline and Follow-Up

	<b>Pre-Summer n (%)</b>	<b>Post-Summer n (%)</b>
<b>Cigarettes</b> Yes	29 (46.8%)	29 (48.3%)
<b>E-Cigarettes</b> Yes	9 (14.5%)	11 (18.6%)
<b>Cigars</b> Yes	25 (40.3%)	31 (52.5%)
<b>Hookah</b> Yes	23 (37.1%)	23 (39.0%)
<b>Smokeless Tobacco</b> Yes	10 (16.1%)	8 (13.6%)

Table 3: Prevalence of Ever-Use of Tobacco Products at Baseline by Select Participant Characteristics

	Cigarettes	E-Cigarettes	Cigars	ST	Hookah
<b>Gender</b>					
Male	8 (36.4%)	3 (13.6%)	11 (50.0%)	4 (18.2%)	8 (36.4%)
Female	29 (52.5%)	6 (15.0%)	14 (35.0%)	6 (15.0%)	15 (37.5%)
<b>Position</b>					
First Year	9 (30.0%)*	3 (10.0%)	7 (23.3%)*	3 (10.0%)	10 (33.3%)
Returner	3 (30.0%)*	3 (20.0%)	9 (60.0%)*	4 (26.7%)	6 (40.0%)
Center Director	10 (66.7%)*	2 (15.4%)	6 (46.2%)*	3 (23.1%)	6 (46.2%)
Support Staff	9 (69.2%)*	1 (25.0%)	3 (75.0%)*	0 (0.0%)	1 (25.0%)
	1 (25.0%)*				
<b>Year In School</b>					
Rising Freshman or Sophomore	4 (30.8%)	1 (7.7%)	3 (23.1%)	1 (7.7%)	3 (23.1%)
Rising Junior or Senior	18 (47.4%)	6 (15.8%)	15 (39.5%)	6 (15.8%)	17 (44.7%)
College Graduate/Other	7 (63.6%)	2 (18.2%)	7 (63.6%)	3 (27.3%)	3 (27.3%)

\* denotes  $p < 0.05$  (Fisher's Exact)



Table 4: Prevalence of Self-Reported Increase in Tobacco Use by Select Participant Characteristics

	<b>Increase in Tobacco Use</b>	<b>p-value</b>
<b>Gender</b>		0.55
Male	4 (21.1%)	
Female	9 (23.7%)	
<b>Position</b>		0.192
First Year	4 (13.8%)	
Returner	2 (20.0%)	
Center Director	6 (42.9%)	
Support Staff	1 (25.0%)	
<b>Year In School</b>		1.00
Rising Freshman or Sophomore	3 (23.1%)	
Rising Junior or Senior	8 (22.9%)	
College Graduate/Other	2 (22.2%)	

Table 5: Prevalence of Self-Reported Social Smoking at Baseline among Recent Cigarette Smokers by Select Participant Characteristics

	<b>Social Smoker</b>	<b>p-value</b>
<b>Gender</b>		0.49
Male	4 (80.0%)	
Female	5 (62.5%)	
<b>Position</b>		0.46
First Year	3 (60.0%)	
Returner	3 (75.0%)	
Center Director	3 (100.0%)	
Support Staff	0 (0.0%)	
<b>Year In School</b>		0.75
Rising Freshman or Sophomore	2 (50.0%)	
Rising Junior or Senior	5 (83.3%)	
College Graduate/Other	2 (66.7%)	

**References:**

1. Centers for Disease Control and Prevention. Current cigarette smoking among adults-United States, 2005-2013. *MMWR: Morbidity and Mortality Weekly Report*. 2014; 63(47): 1108-1112.  
[http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6347a4.htm?s\\_cid=mm6347a4\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6347a4.htm?s_cid=mm6347a4_w). Accessed December 28, 2015.
2. Centers for Disease Control and Prevention. Youth and tobacco use. Centers for Disease Control and Prevention Web site.  
[http://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/youth\\_data/tobacco\\_use/index.htm](http://www.cdc.gov/tobacco/data_statistics/fact_sheets/youth_data/tobacco_use/index.htm). Accessed December 28, 2015.
3. American College Health Association. American College Health Association-National College Health Assessment II: Reference Group Executive Summary Spring 2014.  
[http://www.acha-ncha.org/docs/ACHA-NCHA-II\\_ReferenceGroup\\_ExecutiveSummary\\_Spring2014.pdf](http://www.acha-ncha.org/docs/ACHA-NCHA-II_ReferenceGroup_ExecutiveSummary_Spring2014.pdf). Published 2014. Accessed December 28, 2015.
4. Rigotti NA, Lee JE, Wechsler H. US college students' use of tobacco products: Results of a national survey. *JAMA*. 2000; 284(6): 699-705.  
<http://jama.jamanetwork.com/article.aspx?articleid=192969&resultclick=1#REF-JOC00488-25>. Accessed December 28, 2015.
5. Saddleson ML, et al. Risky behaviors, e-cigarette use and susceptibility of use among college students. *Drug and Alcohol Dependence*. 2015; 149: 25-30.  
<http://www.sciencedirect.com/science/article/pii/S0376871615000046#>. Accessed December 28, 2015.
6. Waters K, Harris K, Hall S, Nazir N, Waigandt A. Characteristics of social smoking among college students. *Journal of American College Health*. 2006; 55(3): 133-139.  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2963439/>. Accessed December 28, 2015.
7. Levinson AH, Campo S, Gascoigne K, Jolly O, Zakharyan A, Vu Tran Z. Smoking, but not smokers: Identity among college students who smoke cigarettes. *Nicotine & Tobacco Research*. 2007; 9(8): 845-852.  
<http://www.ucdenver.edu/academics/colleges/PublicHealth/community/CEPEG/WkProducts/Publications/Documents/9Smoking-NotSmokers.pdf>. Accessed December 28, 2015.
8. Schane RE, Glantz SA, Ling PM. Social smoking: Implications for public health, clinical practice, and intervention research. *American Journal of Preventive Medicine*. 2009; 37(2): 124-131. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2771192/>. Accessed February 9, 2016.
9. Ling PS, Glantz SA. Why and how the tobacco industry sells cigarettes to young adults: Evidence from industry documents. *American Journal of Public Health*. 2002; 96(6): 908-916.  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447481/>. Accessed January 5, 2016.

10. Moran S, Wechsler H, Rigotti NA. Social smoking among US college students. *Pediatrics*. 2004; 114(4): 1028-1034.  
[http://go.galegroup.com.proxy.lib.ohio-state.edu/ps/retrieve.do?sort=RELEVANCE&docType=Article&tabID=T002&prodId=AONE&searchId=R1&resultListType=RESULT\\_LIST&searchType=AdvancedSearchForm&contentSegment=&currentPosition=1&searchResultsType=SingleTab&inPS=true&userGroupName=colu44332&docId=GALE%7CA123674320&contentSet=GALE%7CA123674320](http://go.galegroup.com.proxy.lib.ohio-state.edu/ps/retrieve.do?sort=RELEVANCE&docType=Article&tabID=T002&prodId=AONE&searchId=R1&resultListType=RESULT_LIST&searchType=AdvancedSearchForm&contentSegment=&currentPosition=1&searchResultsType=SingleTab&inPS=true&userGroupName=colu44332&docId=GALE%7CA123674320&contentSet=GALE%7CA123674320). Accessed December 28, 2015.
11. Kenford SL, Wetter DW, Welsch SK, Smith SS, Fiore MC, Baker TB. Progression of college-age cigarette samplers: What influences outcome. *Addictive Behaviors*. 2005; 30(2): 285-294. <http://www.sciencedirect.com.proxy.lib.ohiostate.edu/science/article/pii/S0306460304001893>. Accessed December 28, 2015.
12. Centers for Disease Control and Prevention. The health consequences of smoking: A report of the Surgeon General. <http://www.ncbi.nlm.nih.gov/books/NBK44698/>. Published 2004. Accessed February 8, 2016.
13. American College Health Association. Position Statement on Tobacco on College and University Campuses.  
[https://www.acha.org/documents/resources/guidelines/ACHA\\_Position\\_Statement\\_on\\_Tobacco\\_Nov2011.pdf](https://www.acha.org/documents/resources/guidelines/ACHA_Position_Statement_on_Tobacco_Nov2011.pdf). Published September 2009. Updated November 2011. Accessed January 4, 2016.
14. Colleges and Universities. Americans for Nonsmokers' Rights Foundation Web site.  
<http://no-smoke.org/goingsmokefree.php?id=447>. Accessed December 28, 2015.
15. Bureau of Labor Statistics. Employment and unemployment among youth: Summer 2015.  
<http://www.bls.gov/news.release/pdf/youth.pdf>. Published August 18, 2015. Accessed December 28, 2015.
16. Bureau of Labor Statistics. Spotlight on statistics: School's out.  
[http://www.bls.gov/spotlight/2011/schools\\_out/](http://www.bls.gov/spotlight/2011/schools_out/). Published July 2011. Accessed December 28, 2015.
17. American Camp Association. Fall 2014 camp enrollment and staff recruitment survey.  
[http://www.acacamps.org/sites/default/files/resource\\_library/2014-Fall-Enrollment-Summary-Results.pdf](http://www.acacamps.org/sites/default/files/resource_library/2014-Fall-Enrollment-Summary-Results.pdf). Published 2014. Accessed December 28, 2015.
18. United States Department of Health and Human Services. Population Assessment of Tobacco and Health (PATH) study 2013-2016 [United States] Restricted-Use Files.  
<http://www.icpsr.umich.edu/icpsrweb/NAHDAP/studies/36231>. Accessed January 26, 2016.
19. Sterling K, Berg CJ, Thomas AN, Glantz SA, Ahluwalia JS. Factors associated with small cigar use among college students. *American Journal of Health Behavior*. 2013; 37(3): 325-333.  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3757522/>. Accessed February 28, 2016.

20. Centers for Disease Control and Prevention. Adult tobacco survey---19 states, 2003-2007. *MMWR: Morbidity and Mortality Weekly Report*. 2010; 9(3): 1-74.  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5903a1.htm>. Accessed February 28, 2016.

**Appendix I: Questionnaires**

1. How old are you? (Open-ended)\*
  
2. What is your sex?\*

  - Male
  - Female
  - Other

  
3. With which race(s) do you identify? (Check all that apply)\*

  - White/Caucasian
  - Black or African American
  - Native American
  - Asian/Pacific Islander
  - Other

  
4. Do you identify as Hispanic or Latino?\*

  - Yes
  - No

  
5. What is your position with ASP?\*

  - First year
  - Returner
  - Center Director
  - New Support Staff
  - Returning Support Staff

  
6. What is your current educational status?\*

  - Rising freshman in college
  - Rising sophomore in college
  - Rising junior in college
  - Rising senior in college
  - College graduate
  - Other

  
7. What is your major? (Open-ended)\*
  
8. What is your current college GPA?\*

  - >3.5
  - 3.0-3.5
  - 2.5-2.99
  - 2.0-2.49
  - <2.0
  - Not applicable

  
9. What is your parents' total household income?\*

Less than \$10,000  
\$10,000 to \$29,999  
\$30,000 to \$49,999  
\$50,000 to \$69,999  
\$70,000 to \$99,999  
\$100,000 to \$149,999  
\$150,000 or more  
Don't know  
Prefer not to respond

10. Have you ever tried cigarette smoking, even one or two puffs?\*

Yes

No

[If no, go to #11. If yes, skip to #13.]

11. Do you think you will smoke a cigarette in the next year?

Definitely yes

Probably yes

Probably not

Definitely not

12. If one of your best friends were to offer you a cigarette, would you smoke it?

Definitely yes

Probably yes

Probably not

Definitely not

[Skip to #17]

13. How old were you when you first tried cigarette smoking? (Open-ended)

14. How many cigarettes have you smoked in your entire life?

1 or more puffs but never a whole cigarette

1 cigarette

2 to 10 cigarettes (about ½ pack total)

11 to 20 cigarettes (about ½ pack to 1 pack)

21 to 50 cigarettes (more than 1 pack but less than 3 packs)

51 to 99 cigarettes (more than 2 ½ packs but less than 5 packs)

At least 100 or more cigarettes (5 packs or more)

[If 5 packs or more, go to #15. If any other response, skip to #16]

15. Do you currently smoke...

Every day

Some days

Not at all

16. When was the last time you smoked a cigarette, even one or two puffs?

Earlier today

Not today but sometime during the past 7 days

Not during the past 7 days but sometime during the past 30 days

Not during the past 30 days but sometime during the past 6 months

Not during the past 6 months but sometime during the past year

1 to 4 years ago

5 or more years ago

17. Have you ever used an e-cigarette, even one or two times?\*

Yes

No

[If yes, go to #18. If no, skip to #19]

18. Do you currently use e-cigarettes?

Yes

No

19. Have you ever smoked a cigar, cigarillo, or filtered cigar, even one or two puffs?\*

Yes

No

[If yes, go to #20. If no, skip to #21]

20. Do you currently smoke cigars, cigarillos, or filtered cigars?

Yes

No

21. Have you ever smoked tobacco in a hookah, even one or two puffs?\*

Yes

No

[If yes, go to #22. If no, skip to #23]

22. Do you currently smoke tobacco in a hookah?

Yes

No

23. Have you ever used any smokeless tobacco products (e.g. snus pouches, loose snus, moist snuff, dip, spit or chewing tobacco), even one or two times?\*

Yes

No

[If yes, go to #24. If no, skip to #25]

24. Do you currently use any smokeless tobacco products?

Yes

No

[ASK THOSE WHO HAVE SMOKED CIGARETTES IN PAST 6 MONTHS]

25. Do you consider yourself a smoker?

Yes

No

26. People who smoke more commonly in social situations are sometimes referred to as social smokers. Do you consider yourself a social smoker?

Yes

No

27. If you decided to quit smoking for good, how likely is it that you would succeed?

Very likely

Somewhat likely

Somewhat unlikely

Very unlikely

28. How true is the following statement: I feel a sense of control over my smoking. I can "take it or leave it" at any time.

Not at all true

Somewhat true

Moderately true

Very true

Extremely true

The next questions ask how you think about people who use tobacco. Consider a typical person your age who smokes. How would you describe this person using the following characteristics?

29. COOL\*

Not at all cool

Somewhat uncool

Neutral

Somewhat cool

Extremely cool

30. ATTRACTIVE\*

Not at all attractive

Somewhat unattractive

Neutral

Somewhat attractive

Extremely unattractive

31. INDEPENDENT\*

Not at all independent



Somewhat independent  
Neutral  
Somewhat independent  
Extremely independent

32. How many of your friends do you think use a tobacco product of any kind?\*

None  
A few  
Some  
Most  
All

33. Which of the following people smoke? Please select all that apply.\*

Best friend  
Other close friends  
Father  
Mother  
Grandparents  
Other caregiver (e.g., stepfather or stepmother, foster parents)  
Older brother(s)  
Older sister(s)  
None of the above

34. During the last 12 months, how often did you usually have any kind of drink containing alcohol?\*

More than 4 times a week  
2-4 times a week  
Once a week  
2-3 times a month  
Once a month  
3-11 times in the past year  
1-2 times in the past year  
0 times in the past year

35. During the last 12 months, how often did you have 5 or more (males) or 4 or more (females) drinks containing any kind of alcohol in within a two-hour period?\*

More than 4 times a week  
2-4 times a week  
Once a week  
2-3 times a month  
Once a month  
3-11 times in the past year  
1-2 times in the past year  
0 times in the past year

36. In general, how would you rate your health?\*

- Excellent
- Good
- Fair
- Poor
- Very Poor

**FOLLOW-UP (ONLY FOR POST-SUMMER SURVEY)**

37. In general, how did your level of tobacco use change this summer?\*

- Increased
- Decreased
- Stayed the same

38. Did working in Appalachia this summer in any way change your opinions about smoking or tobacco use?\*

- Yes
- No

39. If so, please explain. (open-ended)