ORIGINAL RESEARCH

Changes in Attitudes, Intentions, and Behaviors toward Tobacco and Marijuana during U.S. Students' First Year of College

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Abstract: Tobacco and marijuana are commonly used by college students and have negative health effects. The purpose of this study was to understand how students' attitudes, intentions, and behaviors toward tobacco and marijuana change during freshman year and to examine how attitude and intention predict use of these substances. 275 college students completed phone interviews before and after their freshman year. The identical interviews assessed students' attitudes, intentions, and behaviors toward both substances. Attitudes and intentions increased significantly. 12.2% of participants initiated tobacco use and 13.5% initiated marijuana use. Only intention predicted tobacco initiation, while both attitude and intention predicted marijuana initiation. Overall, attitudes, intentions, and behaviors changed significantly toward favored use. Predictors of use varied by substance, suggesting that different prevention approaches may be beneficial.

Keywords: college students, tobacco, marijuana, attitudes, intentions, behaviors

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Introduction

The transition from high school to college is marked by newfound independence, intellectual growth, and repeated encounters with substance use and abuse. Tobacco and marijuana are among the most abused substances by university students in the United States.[1] While cigarette smoking among adolescents is currently at a historic low,[2] marijuana use continues to increase.[3] Recent data from the National College Health Assessment shows that roughly one-third of all college students have tried either a hookah with tobacco or cigarettes, and over 37% have tried marijuana.[4] Given that 80% to 90% of tobacco smokers begin smoking during adolescence or early adulthood and roughly 25% of marijuana consumers initiate use after starting college,[5,6] first-year college students comprise a vital target group for tobacco and marijuana intervention.

Tobacco use consequences and patterns

Tobacco use during the college years can lead to physical, mental, and emotional harm as well as addiction. As the leading preventable cause of death in the United States, tobacco use is linked to an array of human cancers, cardiovascular diseases, and respiratory diseases.[7] Among students who are daily tobacco users, nicotine use has been associated with poorer working memory performance and neuro-toxicity.[8] Furthermore, cessation of tobacco use has been associated with withdrawal symptoms including depression, anxiety, nicotine cravings, and disruption of memory.[8] Although cigarettes account for much of college students' tobacco use, it is also understood that most students who have used tobacco have used more than one method of consumption.[9]

Despite its adverse health effects, tobacco use has become an integral part of the college experience. Among U.S. college students, over half of current smokers are social smokers, meaning they smoke primarily with others.[10] When compared to the general adult population, young adult smokers are less likely to smoke every day and they consume fewer cigarettes on a daily basis.[10] However, social smoking during adolescence has the potential to lead to life-long addiction. Social smokers represent a unique subset of tobacco users because they generally believe that they are not addicted to nicotine and will not continue to smoke after leaving the college

environment.[10] Research contradicts these assumptions, showing that adolescents who smoke only a few cigarettes per month and those who have smoked as few as 100 cigarettes total can suffer physical and psychological withdrawal symptoms when they attempt to quit using tobacco and are deprived of nicotine.[6] The tobacco industry has long recognized the importance of social influence on smoking and employs marketing strategies that target young adults across bars, clubs, and college campuses.[9] Because college freshmen attempt to define themselves socially during their transition to college,[11] they may be especially susceptible to the influence of peers and of the tobacco industry.

Despite strategic marketing ploys by the tobacco industry, patterns of tobacco use among college students during the past 15 years have shown a marked decrease in current (past-30-day) use. In 1999, 31% of U.S. college students had smoked within the past month and in 2011 only 15% had smoked within the past month.[12] A comparison of tobacco use across different class standings demonstrated an upward trajectory of tobacco use during the college years, showing that more college seniors use cigarettes and smokeless tobacco products than do freshmen.[13] Thus, although overall tobacco use is currently at historic lows, a student's freshman year may be a critical time in which he or she establishes later-college and potentially life-long use.

Marijuana use consequences and patterns

As the relationship between college students and their tobacco use becomes more clearly understood, a growing body of research is also revealing a relationship between college students and marijuana use. Marijuana is the most prevalent illicit drug used by adolescents and young adults.[5] Although recent data suggests that marijuana is less damaging to lungs than tobacco,[14] long-term marijuana use has been associated with other adverse physical health outcomes including respiratory disorders, injury to airway tissue, and impaired immune function.[15,16] Furthermore, marijuana use has been associated with neuropsychological and cognitive decline from childhood to midlife, even after adjusting for years of education, and has also been associated with the development of certain features of schizophrenia.[3,17]

While data exists on the long-term physical and psychological effects of marijuana, there is also increasing evidence suggesting marijuana impacts a student's social transition to college. At the time of matriculation, first-year students significantly misperceive campus norms for marijuana use, estimating that almost every student has used in the last 30 days.[18] Additionally, 40.5% of entering students perceive the campus atmosphere to be one that promotes marijuana use.[18] A related study found that 74% of students who did not use marijuana prior to college were offered marijuana during college and, of those individuals, 54% initiated marijuana use.[5] Many factors appear to contribute to increased marijuana use during this transition, including decreased adult supervision, overall greater personal freedom, increased availability and opportunity, and a sense of perceived anonymity in the college community.[19]

The trajectory of marijuana use among college students in the past 20 years shows an overall upward trend. From 1991 through 1998, annual and daily prevalence of marijuana use increased significantly among the college population and, after a period of decline in the early part of the millennium, both annual and daily marijuana use again increased.[12] By 2011, about one-third of college students had used marijuana in the past year and 19.4% were current (past-30-day) users.[12] Data shows that marijuana use continues to increase during the college years, with more college seniors using marijuana than freshmen.[13] Therefore, freshman year may be the most beneficial time for marijuana interventions.

Motivations for tobacco and marijuana use

Although both tobacco and marijuana are known to produce negative physical consequences, trends in regulation of each are largely dissimilar. Over the past few decades, billions of dollars have been poured into anti-tobacco media campaigns.[20] Furthermore, almost every state and the federal government have increased tobacco taxes in recent years in an effort to reduce tobacco use and generate revenue.[21] Concurrently, 18 states and Washington, D.C. have passed laws sanctioning medical marijuana use and, in the November 2012 election cycle, two of

these states passed additional legislation legalizing recreational marijuana use. Although little empirical evidence exists on this matter, the opposing treatment of tobacco and marijuana by society may lead young adults to develop different sets of beliefs about these substances.

While much is known about college students' substance use behaviors, the adverse effects of these substances, and the political debate surrounding them, little is known about what prompts students to use tobacco and marijuana during their transition to college. The Theory of Planned Behavior has been used successfully as a theoretical framework in numerous adolescent substance use studies.[22,23] The theory suggests that a person's behavior is determined by his or her intentions to perform the behavior. This intention, in turn, is a function of his or her attitudes toward the behavior.[24] Therefore, understanding students' attitudes and intentions is the first step in predicting substance use behaviors and developing interventions. It is unknown, however, whether there is stability or change in the attitudes and intentions that affect behaviors toward tobacco and marijuana in the transition from high school to college. By understanding these factors and how they interrelate, interventions that specifically target each substance can be developed. The purpose of this study was threefold: (1) to understand how students' attitudes, intentions, and behaviors toward tobacco and marijuana change during their first year of college, (2) to understand how students' methods of consumption of these substances change during their first year, and (3) to examine how attitude and intention predict initiation or maintained use of these substances.

Methods
Data for this study was collected between May 15, 2011 and August 5, 2012 and received approval from the Institutional Review Boards of the University of Wisconsin—Madison and the Seattle Children's Research Institute.

Setting and recruitment
Recruitment efforts began after receiving institutional review board approval from the relevant institutions. Incoming college freshmen from the University of Wisconsin—Madison and the University of

Washington—Seattle were recruited for a longitudinal study about health behaviors among college students. These large, state universities were selected based on structural similarity and geographical separation. The separation allowed for differences in overall student culture, which likely led to increased heterogeneity in the sample. Students were eligible if they were between the ages of 17 and 19 years and enrolled as freshmen for Fall 2011 at one of the two study universities. Participants were randomly selected from freshman rosters, which were provided by the universities upon receiving IRB approval. After generating a list of potential participants, students were recruited via an initial announcement postcard and then received up to three rounds of emails and phone calls. The study design included a pre-college baseline assessment, which required that students' first interviews occurred before they arrived on campus. Consequently, students who were already on campus for early-enrollment programs were excluded from participation. Participants ages 18 and older provided oral consent before their first telephone interview. In cases where the student was a minor, oral consent was required from both a parent and the participant.

Procedure

Telephone interviews were conducted by trained research assistants at two different time periods. Baseline interviews were completed between June and September 2011 (Time 1) before students arrived at their respective schools. Follow-up interviews were conducted between May and August 2012 after the students' first year of college was complete (Time 2). Participants were contacted by a member of the research team when it was time to schedule an interview and were given a choice of time slots based on mutual availability. The identical interviews assessed students' attitudes, intentions, and behaviors toward tobacco and marijuana based on a series of self-report scales. Participants received incentive payments of $25 for completing the first interview and $30 for completing the second interview. Interview responses were entered into a database, quality checked for entering errors by a different research assistant, and compiled for data analysis at the conclusion of the study. Telephone interviews were used for this study because many participants were more than an hour away from the primary research site, and because phone interviews have been used successfully in the past as a way to interview participants regarding stigmatizing topics such as risky health behaviors.[25] In order to further minimize the influence of the social desirability bias, interviewers avoided the use of leading questions and emphasized the strict confidentiality of the study at several points throughout the interview.

Measurements

In accordance with the Theory of Planned Behavior, the interviews assessed students' attitudes, intentions, and behaviors regarding tobacco and marijuana through the use of several validated self-report measures. Demographic information including gender, university, type of housing, and ethnicity was also obtained at Time 1.

Attitudes

Attitudes toward both substances were measured with the question, "On a scale between 0 and 6, with 0 as very negative, 3 as neutral, and 6 as very positive, what would you say your own attitude towards (tobacco, marijuana) is?" This question was developed based on previous work that utilized Likert scales to assess young adults' attitudes towards alcohol.[26–28] The current study modified this approach to assess attitudes toward tobacco and marijuana. Participants' responses to this question were scored and categorized exactly as they appeared on the Likert scale, with 0 = very negative, 1 = negative, 2 = somewhat negative, 3 = neutral/don't know, 4 = somewhat positive, 5 = positive, and 6 = very positive.

Intentions

If participants had never used the substance in question, or were not current (past-28-day) users, they were asked, "How likely do you think it is that you will consume this substance in the next 6 months? Please answer from 0 'not at all likely' to 5 'very likely.'" This scale has been used for alcohol assessment in previous work and was found to have an alpha of 0.93.[26] The current study modified this approach to assess tobacco and marijuana intentions. Participants' responses to this question were scored and categorized exactly as they appeared on the Likert scale, with 0 = not at all likely, 1 = unlikely, 2 = somewhat unlikely, 3 = somewhat likely, 4 = likely, and 5 = very likely.

Behaviors

Lifetime use was measured with the question, "Have you ever used (tobacco, marijuana) in your life?" If a participant had ever used tobacco or marijuana, the interviewer read a list of possible methods by which the substance may have been consumed. Participants were instructed to say yes or no to each method and were then asked if there were any other methods by which they had consumed the substance. Students were also asked how old they were when they first tried (tobacco, marijuana) and whether they had used it in the past 28 days.

Data analysis

Descriptive statistics were calculated. The first purpose of the study was to understand how students' attitudes, intentions, and behaviors towards tobacco and marijuana use change during their first year of college. Because data was not normally distributed, Wilcoxon signed-rank tests for paired data were used to assess these changes between Time 1 and Time 2.

Another purpose of the study was to examine how attitude and intention predict initiation or maintained use of these substances. To understand these relationships, categories of participants' substance use were first defined. The four categories included (1) Tobacco Initiators, who had never used tobacco at Time 1 but had used it by Time 2, (2) Tobacco Maintainers, who had used tobacco at Time 1 and were current users at Time 2, (3) Marijuana Initiators, who had never used marijuana at Time 1 but had used it by Time 2, and (4) Marijuana Maintainers, who had used marijuana at Time 1 and were current users at Time 2.

For each category, logistic regression models were used to assess predictors of tobacco or marijuana use at Time 2. Logistic regression models were chosen so that odds ratios could be used to compare the relative odds of the occurrence of the outcome of interest given exposure to the variable of interest and to compare the magnitude of these predictor variables as risk factors for that outcome.

Model 1 assessed predictors of initiation of tobacco use at Time 2. In this model, only participants who reported no lifetime tobacco use at Time 1 were included. Lifetime use of tobacco at Time 2 was the outcome or dependent variable. Predictor or independent variables included attitude towards tobacco and intention to use tobacco reported at Time 1. Model 2 assessed ongoing or maintained tobacco use. In this model, only participants who reported lifetime tobacco use at Time 1 were included. Predictor or independent variables included attitude towards and intention to use tobacco reported at Time 1.

Similarly, Model 3 assessed predictors of marijuana initiation at Time 2. In this model, only participants who reported no lifetime marijuana use at Time 1 were included. Lifetime use of marijuana was the outcome or dependent variable. Predictor or independent variables included attitude towards marijuana and intention to use marijuana reported at Time 1. Model 4 assessed ongoing or maintained marijuana use. In this model, participants who reported lifetime marijuana use at Time 1 were included. Predictor or independent variables included attitude towards and intention to use marijuana reported at Time 1. All models were adjusted for gender and ethnicity. Because of small numbers of some ethnic groups, in all analyses ethnicity was categorized as white or non-white.

All P-values were 2-sided, and $P < 0.05$ was used to indicate statistical significance. Statistical analyses were performed using Stata version 10 (StataCorp: College Station, TX).

Results

Overall, there was a 52.8% participation rate; 275 participants completed both interviews (81.4%). Among participants, 59.3% attended the University of Wisconsin—Madison and 40.7% attended the University of Washington—Seattle. Participants were 57.1% female. The majority of participants (74.9%) were Caucasian; 11.6% were Asian, 3.3% were Hispanic, 1.5% were African American/black, 6.9% were more than one ethnicity, and 1.8% were a different ethnicity. The majority of students (82.9%) lived in a school dormitory, 9.4% lived in a fraternity or sorority, 3.3% lived with a parent or guardian, and 4.4% had a different living arrangement. Both universities have a slightly higher ratio of females to males and predominantly Caucasian student bodies, which is consistent with the demographics of this study. Table 1 summarizes demographic data.

Table 1. Demographic information for first-year college student participants.

N = 275	N	%
Gender		
Male	118	42.9
Female	157	57.1
University		
University of Wisconsin—Madison	163	59.3
University of Washington—Seattle	112	40.7
Ethnicity		
Caucasian/white	206	74.9
Asian	32	11.6
Hispanic	9	3.3
African American/black	4	1.5
More than one	19	6.9
Other	5	1.8
Housing		
School dormitory	228	82.9
Fraternity/sorority	26	9.4
Parent's house	9	3.3
Other	12	4.4

Attitudes

Tobacco attitudes increased from an average of 0.9 at Time 1 to 1.2 at Time 2 ($P < 0.01$). Marijuana attitudes increased from 1.9 at Time 1 to 2.3 at Time 2 ($P < 0.01$).

Intentions

Intention to use tobacco in the next 6 months increased from 0.4 at Time 1 to 0.8 at Time 2 ($P = 0.03$). Intention to use marijuana increased from 0.7 at Time 1 to 1.1 at Time 2 ($P < 0.01$). Table 2 summarizes attitude and intention data.

Behaviors

At Time 1, 15.0% of participants were current tobacco users and 15.7% were current marijuana users. The average age of first tobacco use was 16.8 years and the average age of first marijuana use was 16.5 years. Approximately one-third (32.0%) of college students had used tobacco before freshman year and 32.7% had used marijuana. After arriving at college, 12.2% of total participants initiated tobacco use ($P < 0.01$) while 13.5% initiated marijuana use ($P < 0.01$).

By the end of freshman year, 44.2% of total participants had used tobacco and 46.2% had used marijuana. At Time 2, 19.5% of participants were current tobacco users and 21.7% were current marijuana users. There was no significant difference in reported current

**Table 2.** Attitude and intention changes reported by first-year college students.

N = 275	Time 1: prior to college	Time 2: after first year of college	*P*-value*
Tobacco attitude	0.9	1.2	<0.01
Marijuana attitude	1.9	2.3	<0.01
Tobacco intention	0.4	0.8	0.03
Marijuana intention	0.7	1.1	<0.01

**Note:** *P-value assessed using Wilcoxon signed-rank test for paired data.

use between Time 1 and Time 2 for either substance. Participants had used an average of 1.8 different tobacco consumption methods at Time 1 and an average of 2.1 at Time 2; participants had tried an average of 2.1 different marijuana consumption methods at Time 1 and an average of 3.8 at Time 2. Figures 1 and 2 summarize tobacco and marijuana consumption data.

Multivariate models

Model 1 assessed tobacco initiation. The 187 participants who reported no lifetime tobacco use at Time 1 were included in this model. Of this population, 38 participants initiated tobacco use by Time 2. Among tobacco initiators, initiation of tobacco use by Time 2 was positively associated with intention to use tobacco at Time 1 (OR = 2.1, 95% CI; 1.0–4.15, $P = 0.04$).
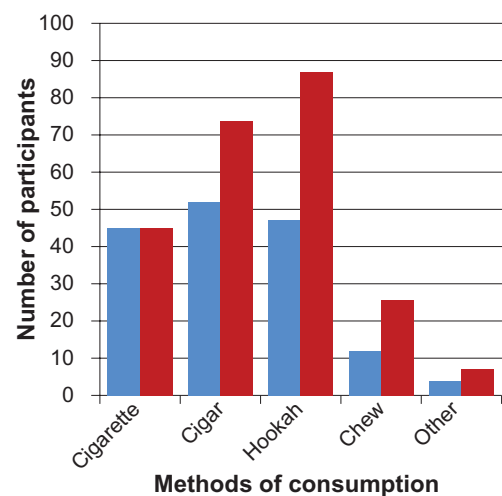
Figure 1. Changes in tobacco methods of consumption for first-year college students between Time 1 and Time 2.
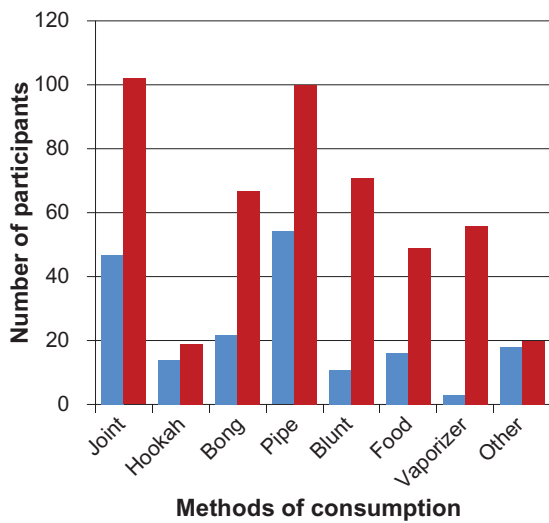
Figure 2. Changes in marijuana methods of consumption for first-year college students between Time 1 and Time 2.

Figure 3. Predictors of tobacco and marijuana initiation and maintenance during students' first year of college.
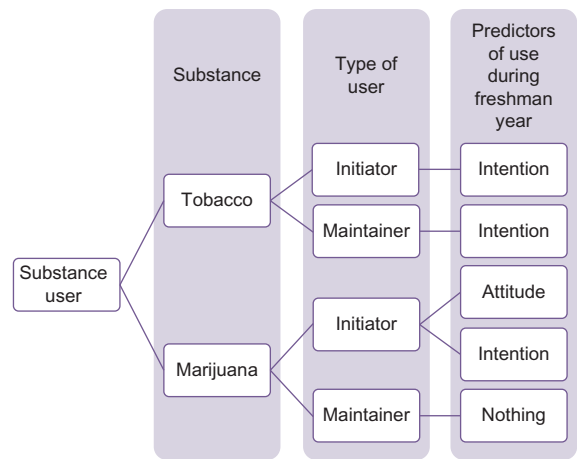
Model 2 assessed tobacco maintenance. The 88 participants who reported lifetime tobacco use at Time 1 were included in this model. Of these participants, 40 reported current tobacco use at Time 2. Among tobacco maintainers, positive intention was associated with current use at Time 2 (OR = 2.1, 95% CI; 1.2–3.5, $P = 0.008$).

Model 3 assessed marijuana initiation. The 185 participants who had never used marijuana at Time 1 were included in this model. At Time 2, 39 of these participants had initiated marijuana use. For marijuana initiators, initiation of marijuana by Time 2 was associated with both positive attitude at Time 1 (OR = 1.6, 95% CI; 1.1–2.4, $P = 0.02$) and intention (OR = 2.1, 95% CI; 1.2–3.5, $P = 0.007$).

Model 4 assessed marijuana maintenance. The 88 participants who reported lifetime marijuana use at Time 1 were included in this model. At Time 2, 44 of these participants reported current marijuana use. Among marijuana maintainers, neither attitude (OR = 0.9, 95% CI 0.5–1.6, $P = 0.8$) nor intention (OR = 1.2, 95% CI 0.7–2.04, $P = 0.4$) was associated with current use at Time 2. Figure 3 demonstrates these relationships.

Discussion

Two important points can be gleaned from these results: (1) Attitudes, intentions, and behaviors toward tobacco and marijuana all change significantly toward favored use during students' first year of college, and (2) different mechanisms predict tobacco and marijuana initiation and continued use in this population, thereby suggesting a framework for targeted interventions.

Attitude, intention, and behavior changes

Participants' attitudes toward, intentions to use, and actual use of both substances increased significantly during freshman year. Consistent with previous findings, external factors such as decreased adult supervision, increased availability and opportunity, or a sense of anonymity in the new community may all contribute to increased attitudes, intentions, and behaviors during this transition.[19] Further, social substance use, which is prevalent in the college setting,[10] may play a large role as students form new friendships and attempt to redefine their attitudes and intentions in the college environment.

Although attitudes toward and intentions to use both substances increased significantly during students' first year of college, it is interesting to note that both variables favored marijuana over tobacco. Attitudes toward tobacco at both Time 1 and Time 2 were less positive than attitudes toward marijuana at Time 1 alone. Further, intention to use marijuana was higher at both Time 1 and Time 2 than intention to use tobacco at the same times. Actual use of both substances reflects these attitudes and intentions, illustrating that marijuana was both initiated at a younger age and was more widely used among first-year college students in regard to overall and current use. Thus, results suggest that, compared to tobacco, there is a more widespread

acceptance of marijuana use among college students. This trend parallels previous findings, which show a steadily rising rate of current marijuana use among 18- to 25-year-olds on a national scale.[29]

The prevalence of tobacco and marijuana use among the current study participants was higher than the national averages reported by the National College Health Association. About one-third of matriculating college students in the current study had already used one or both substances. By the end of their first year, nearly half of all students had tried one or both substances. These comparatively higher rates could be attributed to several factors, including an existing upward trend of substance use among this population as a whole, or to the population of students at the particular universities included in this study. Although cigarette smoking rates are historically low,[29] current findings illustrate that nicotine use in general is still common among first-year college students. Further, the current data corroborates prior research, showing that marijuana use among college students continues to increase.[3,29]

Methods of consumption became more varied across use of both substances. Hookah and cigars were the most popular methods of tobacco consumption. Because the hookah is designed for group use,[30] its rise in prevalence among this population may not be surprising. Further, this data shows that the hookah has surpassed cigarettes as the most popular method of tobacco consumption among college students. Consistent with other research findings, this suggests a trend toward social tobacco use during students' first year of college.[10]

Marijuana consumption methods also became more diversified. By the end of students' freshman year, joints were the most commonly used mode while bongs, blunts, marijuana in food, and vaporizers also increased in popularity. The average marijuana user had tried nearly four different methods by follow-up, suggesting that part of the appeal of marijuana use may be the myriad of ways in which it can be consumed. Similar to tobacco, methods of marijuana consumption that were conducive to social or multiple-person use became more popular. This may not be surprising, given that the main reasons college students cite for using marijuana relate to social facilitation.[31] Overall, freshman year represents a period of momentous change for students. Attitude, intention, and behavior changes toward tobacco and marijuana reflect just some of these vicissitudes.

Predictors of use

Predictors of initiation or continuation of use differed by substance, suggesting that different prevention approaches may be beneficial for these two substances. Given the broad initiation of tobacco and marijuana use among first-year college students, there is compelling evidence that this population comprises an ideal target group for intervention.

The statistical models show that a student's intention to use tobacco is the strongest predictor underlying both initiation and maintained use of the substance. This demonstrates that young adults generally have unfavorable attitudes toward tobacco, possibly because of exposure to televised antismoking advertisements or increased cost of tobacco products in the past decade.[32] Therefore, increased intentions and, consequently, increased propensity to use tobacco, may be attributable to factors such as social pressure rather than positive attitudes. Given the broad increase in social tobacco use during students' first year of college, "intention interventions" would have to be largely centered on targeting both the social conditions under which the behavior occurs and the negative social outcomes of the behavior.

Attitude and intention both predict marijuana initiation among first-year college students. Because there are fewer studies demonstrating possible long-term health effects of marijuana, it may be perceived as harmless or non-addictive. Further, marijuana's perceived conduciveness to social situations, along with its varying legal status, may make experimentation with the substance more appealing to young adults. Considering what is known about first-year students' perceptions of marijuana use on college campuses,[18] the belief that marijuana is "what everyone does" may also encourage students to try the substance. Through an understanding of the factors that predict initiation of marijuana during students' freshman year, interventions targeting both attitudes and intentions can be employed before life-long use is established.

This study is particularly relevant to current political debate surrounding both campus tobacco policies and marijuana legalization in the United States.

The two universities in the current study have similar tobacco policies, which prohibit smoking in all buildings, vehicles, and facilities affiliated with the universities. This smoke-free policy also encompasses school dormitories and other residence halls, where the majority of college freshmen live. At the University of Wisconsin—Madison, students are allowed to smoke 25 feet from buildings and at the University of Washington—Seattle, there are designated outdoor locations for students to smoke. Within recent years, many college campuses in the United States have adopted total tobacco bans on all cigarettes and related products, which may impact tobacco use on those campuses. Similar policies for marijuana use may soon be implemented at the University of Washington—Seattle, where it is now legal for students over the age of 21 to use recreational marijuana. Undoubtedly, marijuana availability and consumption will continue to increase on college campuses following its legalization in different parts of the country. Therefore, the implications of this study may be especially pertinent to prevention and intervention efforts as tobacco bans are implemented and as marijuana gains legal status.

Limitations

This study presents several limitations. Given the similar demographics and lack of ethnic diversity of the two schools surveyed, the current data is not necessarily representative of all college campuses. We cannot guarantee perfect reliability or validity of the self-report scales or deny the possible presence of the social desirability bias. Further, while the statistical models showed strong associations between attitudes, intentions, and behaviors, causality cannot necessarily be drawn from these associations.

Further studies

Additional studies are needed to determine attitudes, intentions, and behaviors among first-year college students across a larger sample of universities. While our study populations were representative of the ethnic diversity on each campus, there was an overall preponderance of Caucasians in the study. Future studies should investigate universities with a wider range of diversity. Examination of factors underlying changes in attitudes and intentions toward these substances is also warranted.

Author Contributions

Conceived and designed the experiments: MAM, MWS. Analyzed the data: MAM, MWS. Wrote the first draft of the manuscript: MWS. Contributed to the writing of the manuscript: MWS, MAM. Agree with manuscript results and conclusions: MWS, MAM. Jointly developed the structure and arguments for the paper: MWS, MAM. Made critical revisions and approved final version: MWS, MAM.

Competing Interests

Author(s) disclose no potential conflicts of interest.

Disclosures and Ethics

As a requirement of publication the authors have provided signed confirmation of their compliance with ethical and legal obligations including but not limited to compliance with ICMJE authorship and competing interests guidelines, that the article is neither under consideration for publication nor published elsewhere, of their compliance with legal and ethical guidelines concerning human and animal research participants (if applicable), and that permission has been obtained for reproduction of any copyrighted material. This article was subject to blind, independent, expert peer review. The reviewers reported no competing interests.

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