



Prevalence of marijuana use at college entry and risk factors for initiation during freshman year



Cynthia K. Suerken^{a,*}, Beth A. Reboussin^{a,b}, Erin L. Sutfin^b, Kimberly G. Wagoner^b, John Spangler^c, Mark Wolfson^b

^a Department of Biostatistical Sciences, Wake Forest School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157, United States

^b Department of Social Sciences and Health Policy, Wake Forest School of Medicine, Medical Center Blvd, Winston-Salem, NC 27157, United States

^c Department of Family and Community Medicine, Wake Forest School of Medicine, Medical Center Blvd, Winston-Salem, NC 27157, United States

HIGHLIGHTS

- The study included responses from 3146 students from 11 colleges in NC and VA.
- Nearly 30% of students reported lifetime use of marijuana at college entry.
- We observed a marijuana initiation rate of 8.5% during freshman year.
- We identified several predictors of marijuana use at entry into college.
- We identified several predictors of marijuana initiation over freshman year.

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ABSTRACT

Background: Marijuana is currently the most commonly used drug on college campuses. Marijuana use among college students is increasing, and many students begin using marijuana during college. The goal of this study was to investigate predictors of lifetime marijuana use at college entry and initiation during freshman year.

Methods: We used responses from the first two semesters of a longitudinal study of 3146 students from 11 colleges in North Carolina and Virginia. Random-effects logistic regression models were constructed to identify factors that predict lifetime marijuana use at college entry and initiation during freshman year.

Results: Nearly 30% of students reported ever having used marijuana at college entry. Among students who had never used marijuana prior to college, 8.5% initiated use during freshman year. In multivariable logistic regression models, having at least \$100 per month in spending money; attending church rarely or never; current use of cigarettes, alcohol, and hookah tobacco; lifetime use of other illicit drugs; and a higher propensity toward sensation seeking were associated with a higher likelihood of having used marijuana at least once at college entry. Hispanic ethnicity, living on campus, and current use of cigarettes and alcohol were associated with a higher likelihood of initiating marijuana use during freshman year.

Conclusion: These results have implications for targeting substance abuse prevention programs on college campuses.

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1. Introduction

Marijuana is the most prevalent illicit drug on college campuses today (Johnston, O'Malley, Bachman, & Schulenberg, 2012). A recent national study estimates that 46.6% of college students have used marijuana in their lifetime, and 19.4% report marijuana use within the past 30 days (Johnston et al., 2012). Marijuana initiation typically begins before or during high school, with 57.7% of recent marijuana initiates

reporting having used marijuana for the first time prior to turning 18 (Substance Abuse and Mental Health Services Administration, 2012). However, many students use marijuana for the first time in college, and the prevalence of marijuana use among college students has risen within the past few years (Johnston et al., 2012). Pinchevsky et al. (2012) report a 25% marijuana initiation rate among students that had not used marijuana prior to attending college. Mohler-Kuo, Lee, and Wechsler (2003) estimate that among college students who report marijuana use within the past year, 20% report having initiated use after the age of 18.

While students who attend college are less likely to use marijuana prior to age 18 than their peers who do not attend college, the prevalence of marijuana use among 18–21 year old college students

* Corresponding author at: Department of Biostatistical Sciences, Division of Public Health Sciences, Wake Forest School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157, United States. Tel.: +1 336 713 1348; fax: +1 336 713 5249.

E-mail address: CSuerken@wakehealth.edu (C.K. Suerken).

increases at a higher rate than the prevalence of marijuana use among 18–21 year olds who do not attend college (White, Labouvie, & Papadaratsakis, 2005). The increased autonomy from parents, the college social environment—including peers who may have already initiated marijuana use, and widespread availability may make first year college students especially susceptible to trying illicit drugs such as marijuana. Beck et al. (2009) found that college students often use marijuana to heighten sociability and ease emotional distress from personal and academic problems.

Marijuana use can have a particularly negative impact on the lives of college students. Among college students, marijuana use has been shown to be associated with lower grade point averages, spending less time studying (Bell, Wechsler, & Johnston, 1997), disruptions to enrollment in college (Arria et al., 2013), reduced rates of degree completion (Fergusson & Boden, 2008; Fergusson, Horwood, & Beautrais, 2003), cognitive impairment (Pope & Yurgelun-Todd, 1996), difficulty concentrating, missing classes, and putting oneself in physical danger (Caldeira, Arria, O'Grady, Vincent, & Wish, 2008). Cigarette use, binge drinking, and other illicit drug use also have been shown to be associated with marijuana use in college students (Bell et al., 1997; Mohler-Kuo et al., 2003).

Cross-sectional studies have found that college students who are male, white, or single are more likely to be marijuana users than students who are female, nonwhite, or married (Bell et al., 1997). Several studies have shown that athletes are less likely to use marijuana during college than non-athletes (Buckman, Yusko, Farris, White, & Pandina, 2011; Wechsler, Davenport, Dowdall, Grossman, & Zanakos, 1997; Yusko, Buckman, White, & Pandina, 2008) and members of sororities and fraternities are more likely to use marijuana than students not involved in sororities and fraternities (Bell et al., 1997; McCabe et al., 2005). College students who believe that religion is important are less likely to use marijuana than students who are less religious (Bell et al., 1997).

While many studies have identified predictors of current marijuana use in college students, little is known about predictors of marijuana use at entry to college and initiation during the first year of college. Most studies on marijuana initiation focus on adolescents or the general population (Brook, Kessler, & Cohen, 1999; Gfroerer, Wu, & Penne, 2002; Kandel & Faust, 1975; Kosterman, Hawkins, Guo, Catalano, & Abbott, 2000; Tang & Orwin, 2009). One study on college students found that peer marijuana use and sensation seeking predict marijuana initiation, but the sample only included students from one college, and the study tracked marijuana initiation over the entire college career (Pinchevsky et al., 2012). Despite a high prevalence of marijuana use, college students rarely recognize that they have a problem or seek treatment (Caldeira et al., 2009). Determining what factors predict marijuana use before college and marijuana initiation during the first year of college could help colleges in targeting marijuana prevention and treatment programs. It is especially important to identify predictors of marijuana initiation early in students' college careers in order to target interventions and prevention programs that ensure college success. The purpose of this study is to identify these factors.

2. Methods

2.1. Study design

This analysis uses data from the Smokeless Tobacco Use in College Students study (Wolfson et al., 2013). The goal of the overall study is to assess trajectories and correlates of smokeless tobacco use among a cohort of college students by surveying them each semester beginning in their freshman year and continuing through the fall of their senior year. Environmental assessments are also conducted in order to measure smokeless tobacco availability, advertising, and promotion in tobacco retailers on campus and in surrounding communities. Students at 11 colleges and universities participated in the study. Seven of the

colleges are located in North Carolina, and four are located in Virginia. Ten colleges are public schools, and the other college is a private school. Five colleges reside in rural areas, four are located in suburban areas, and two are located in urban areas. Undergraduate enrollment ranges from approximately 4000 to 24,000 students.

Based on enrollment lists provided by each school, all freshmen at these 11 schools were invited to participate in a short web-based screener survey during the fall semester of 2010 in order to determine eligibility for the study. Thirty-six percent (10,528) of eligible students participated in the screener survey. Two weeks after the screener survey, a random sample of participants was selected and invited to participate in the longitudinal cohort study. Students were selected within each school with a goal of 285 completions per school. Assuming a 20% attrition rate, 285 completions per school were required in order to have sufficient power to detect differences in smokeless tobacco use for various predictors in the parent study. In order to measure precise estimates of smokeless tobacco use, students at higher risk for using smokeless tobacco were oversampled, including lifetime smokeless tobacco users, current cigarette smokers, and males. Data are collected at each semester of the students' freshman and sophomore year, and during the fall of the students' junior and senior years. Data from the first two surveys administered during the fall and spring semesters of the freshman year were used in this analysis. Among the 4190 students who were invited to participate, 3146 eligible students completed the fall semester survey, for a 64% response rate. Eighty percent (2520) of eligible students completed the first follow-up survey during the spring semester of their freshman year. Students received a \$15 incentive for completing the fall semester survey. The incentive increases by \$5 for participation in each subsequent survey. The study protocol was approved by the Wake Forest School of Medicine Institutional Review Board. Additional privacy protection was secured by the issuance of a Certificate of Confidentiality by the Department of Health and Human Services.

2.2. Measures

2.2.1. Marijuana use

Students were classified as lifetime marijuana users at entry into college if they reported using marijuana at least once in their lifetime as of the fall semester of their freshman year. Marijuana initiation was defined as never having used marijuana in a student's lifetime as of the fall semester of the freshman year and having used marijuana in the past six months as of the spring semester of the freshman year.

2.2.2. Demographics

Demographic characteristics were measured at baseline and included gender, race (white and non-white), ethnicity (Hispanic and non-Hispanic), mother's and father's education (4 year college degree or higher vs. less than a 4 year college degree), and spending money available in a typical month (at least \$100 per month vs. less than \$100 per month).

2.2.3. Social characteristics

Social characteristics were measured at baseline and included participation in varsity athletics, club sports, and intramural sports, being a member or pledge of a sorority or fraternity, participation in religious activities (at least twice per month vs. less than twice per month), residence (on campus vs. off campus), and relationship status (married or single with a steady boyfriend or girlfriend vs. any other relationship status).

2.2.4. Other substance use

Current cigarette, alcohol, and hookah tobacco use were each defined as having used these substances within the past 30 days at baseline. Students were classified as lifetime other illicit drug users if, at baseline, they reported having used cocaine, methamphetamines,

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