



Prevalence and correlates of waterpipe tobacco smoking by college students in North Carolina

Erin L. Sutfin^{a,*}, Thomas P. McCoy^b, Beth A. Reboussin^b, Kimberly G. Wagoner^a, John Spangler^c, Mark Wolfson^a

^a Department of Social Sciences and Health Policy, Wake Forest University School of Medicine, United States

^b Department of Biostatistical Sciences, Wake Forest University School of Medicine, United States

^c Department of Family and Community Medicine, Wake Forest University School of Medicine, United States

ARTICLE INFO

Article history:

Received 10 December 2010

Received in revised form 28 January 2011

Accepted 31 January 2011

Available online 25 February 2011

Keywords:

Hookah

Waterpipe

Tobacco

Young adults

Smoking

ABSTRACT

Background: Known most commonly in the U.S. as “hookah,” waterpipe tobacco smoking appears to be growing among college students. Despite beliefs that waterpipe use is safer than cigarette smoking, research to date (albeit limited) has found health risks of waterpipe smoking are similar to those associated with cigarette smoking, including lung cancer, respiratory illness, and periodontal disease. The goals of this study were to estimate the prevalence of use among a large, multi-institution sample of college students and identify correlates of waterpipe use, including other health-risk behaviors (i.e., cigarette smoking, alcohol, marijuana, and other illicit drug use) and availability of commercial waterpipe tobacco smoking venues.

Methods: A cross-sectional sample of 3770 college students from eight universities in North Carolina completed a web-based survey in fall 2008.

Results: Forty percent of the sample reported ever having smoked tobacco from a waterpipe, and 17% reported current (past 30-day) waterpipe tobacco smoking. Correlates associated with current waterpipe use included demographic factors (male gender, freshman class); other health-risk behaviors (daily and nondaily cigarette smoking, alcohol use, marijuana use, other illicit drug use); perceiving waterpipe tobacco smoking as less harmful than regular cigarettes; and having a commercial waterpipe venue near campus.

Conclusions: The results highlight the popularity of waterpipe tobacco smoking among college students and underscore the need for more research to assess the public health implications of this growing trend.

© 2011 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Waterpipes are known by different names depending on the region of the world, including hookah, narghile, arghile, and hubble-bubble (Maziak et al., 2005). In the U.S., a waterpipe is commonly known as hookah. Waterpipes involve the passage of smoke through water prior to inhalation. Although used to smoke other substances, including marijuana and hashish, waterpipes are most often used to smoke flavored tobacco, which is made by mixing shredded tobacco with honey or molasses and dried fruit. In the U.S., this sweetened, flavored tobacco mix is most commonly known as shisha.

Despite perceptions among young adults that waterpipe tobacco smoking is safer than cigarette smoking (Smith et al., 2007), studies to date do not support these perceptions (Maziak et al., 2004c; Maziak, 2008; Asfar et al., 2005). Although research is limited, the existing evidence suggests that waterpipe smoking-associated health risks are similar to those of cigarette smoking. A recent meta-analysis concluded that waterpipe tobacco smoking was significantly associated with lung cancer, respiratory illness, low birth-weight and periodontal disease (Akl et al., 2010). An analysis of mainstream waterpipe smoke (i.e., inhaled by the user) found large amounts of carcinogens, hydrocarbons, and heavy metals, including 36 times the amount of tar as in cigarette smoke (Shihadeh, 2003).

Waterpipe tobacco smoking often occurs in a social setting, among friends at a private residence, or in venues that offer ready-to-smoke waterpipes to customers. Recently, commercial waterpipe venues have proliferated in the U.S. Many such venues have opened in college towns, suggesting that college students are a target market for waterpipe venues. For example, in 2003

* Corresponding author at: Department of Social Sciences and Health Policy, Division of Public Health Sciences, Wake Forest University School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157, United States. Tel.: +1 336 713 5282; fax: +1 336 716 7554.

E-mail address: ESutfin@wfubmc.edu (E.L. Sutfin).

alone, four waterpipe tobacco smoking venues opened within five miles of Carnegie Mellon University and the University of Pittsburgh (Primack et al., 2006); similar patterns have been observed elsewhere (American Lung Association, 2007). However, research has yet to assess the association between commercial waterpipe availability and use.

There is growing evidence that smoking tobacco through a waterpipe by youth and young adults is on the rise worldwide, including the U.S. (Maziak, 2011; World Health Organization (WHO) Study Group on Tobacco Product Regulation, 2005). In a recent sample of university students in Karachi Pakistan, 54% reported ever use (Jawaid et al., 2008); while ever use was reported by 38% of a sample of British university students (Jackson and Aveyard, 2008, for a review, see Maziak, 2011).

To date, only six reports have focused on waterpipe tobacco smoking by U.S. college students, all within the last four years, suggesting the recent increase of this trend (Primack et al., 2008, 2010; Eissenberg et al., 2008; Grekin and Ayna, 2008; Smith et al., 2007; Smith-Simone et al., 2008a). Five were conducted at single institutions, and had relatively small sample sizes (ranging from 411 to 744), limiting generalizability. The sixth and most recent study included eight institutions across the U.S. and had a large sample size ($N=8745$) (Primack et al., 2010). Current (past month) waterpipe smoking in these studies ranged from 9.5% to 20.4%. Variations in the rates of current use may represent real differences in smoking patterns, but may also reflect differences in the year of the survey and non-representative samples (four of the six studies used convenience samples). Ever-use also varied considerably, from 12.7% to 48.4%. However, even the lowest prevalence suggests that substantial numbers of college students are waterpipe users.

These studies also assessed variables associated with waterpipe use, including demographics, cigarette smoking, perceived harm and addictiveness of waterpipe smoking. Younger age (Primack et al., 2008, 2010; Eissenberg et al., 2008), male gender (Smith-Simone et al., 2008a; Primack et al., 2010; Eissenberg et al., 2008) and White race (Primack et al., 2008, 2010; Eissenberg et al., 2008) were associated with waterpipe smoking. Among studies that assessed cigarette smoking as a correlate of waterpipe use, all found that the two were associated (Eissenberg et al., 2008; Grekin and Ayna, 2008; Primack et al., 2008). Additionally, ever and current waterpipe users were more likely to perceive waterpipe tobacco smoking as less harmful than cigarettes. Primack et al. (2008) also reported that over 52% of college students sampled believed waterpipes are less addictive than cigarettes.

To date, only one study has included multiple institutions, but the focus was limited to waterpipe tobacco smoking among college athletes (Primack et al., 2010). Data from larger random samples at multiple institutions are needed to better understand the spread and correlates associated with waterpipe smoking among college students. Additionally, the relationship between waterpipe smoking and other health-risk behaviors popular among college students (e.g., alcohol, marijuana, and other illicit drugs) remains unclear. Thus, the purpose of this study was: (1) to estimate the prevalence of waterpipe tobacco smoking in a large, multi-institution sample of college students; and (2) to assess correlates associated with waterpipe tobacco smoking, including demographics, other health-risk behaviors, and availability of commercial establishments for waterpipe tobacco smoking.

2. Methods

2.1. Sample

In fall 2008, a stratified random sample of undergraduate students attending eight universities in North Carolina were invited to complete a web-based survey as part of a randomized group trial of an intervention to reduce high-risk drinking behaviors and their consequences, the Study to Prevent Alcohol-Related Conse-

quences (SPARC). Participating schools included both public and private universities (seven public and one private), ranging from 5000 to over 40,000 students. Students from each campus were selected randomly within class year strata from undergraduate enrollment lists provided by each school. Our target sample at each university was 450 respondents, equally divided by class year, for a total of approximately 3600 students. The number of students selected to participate was based both on power considerations for the overall SPARC trial, and the expectation from previous studies and previous waves of the survey that approximately 30–35% of the students would complete the survey within the allotted time period (Reed et al., 2006). Shortly after the target number from the eight schools was met, the website was closed.

2.2. Procedures

All randomly selected students were sent an email inviting them to participate in a web-based survey. The message included a link to a secured website where the survey could be completed. The email notification protocol, including multiple, frequent reminders for the web-based survey, was based on the approach used by Dillman (2000). Students were sent up to four emails over approximately four weeks. All who completed the survey were sent emails awarding them \$15.00 in PayPal dollars. From the list of completions, one student at each school was randomly selected to receive \$100. The study protocol was approved by the Wake Forest University School of Medicine Institutional Review Board.

2.3. Measures

The web-based College Drinking Survey, from which data in the present report were taken, focused on alcohol use and measured demographics, alcohol consumption behaviors, and consequences of alcohol use. The survey also assessed other health-risk behaviors, including use of tobacco, marijuana, and other drugs.

2.3.1. Demographic characteristics. Demographics included year in school, gender, race/ethnicity, residence location (on/off-campus) and mother's and father's educational level (some college education or less vs. college degree or higher). Participants were asked about membership in Greek organizations (fraternities or sororities), as a member or a pledge, because membership in Greek organizations has been related to several health-risk behaviors among U.S. college students, including alcohol and tobacco use. Previously, we found that social smokers were more likely to be members of Greek organizations compared to heavy smokers (Sutfin et al., 2009). Monthly spending money was also assessed using six categories: less than \$100, \$100–\$199, \$200–\$299, \$300–\$399, \$400–\$499, \$500 or more.

2.3.2. Waterpipe tobacco smoking. In the section of the survey focused on tobacco use, students were asked several questions about waterpipe use adapted from Maziak et al. (2005) and Ward et al. (2007), including: *have you ever smoked a waterpipe (also known as hookah, shisha, narghile), even one or two puffs (yes/no)*. Ever-users were then asked age of initiation, use in past month (Ward et al., 2007), and waterpipe smoking location, including own house/apartment/dorm room, friend's house/apartment/dorm room, at a party, at a café or restaurant, or other location. Quit attitudes and behavior were assessed with two items: *do you think you can quit waterpipe smoking anytime you want? (yes/no)*; and *do you intend to quit waterpipe smoking?* Response options were not at all, in the next month, in the next 6 months, in the future.

2.3.3. Harm perceptions. Participants were asked: compared with a regular cigarette, how harmful do you think waterpipes (also known as hookah, shisha, narghile) are?. Response options were: less harmful, as harmful, and more harmful (Smith et al., 2007).

2.3.4. Cigarette smoking. Using standard items from Youth Risk Behavior Surveillance System (Centers for Disease Control and Prevention, 2006), age of smoking initiation (used to gauge if students had ever smoked a whole cigarette) and the number of days smoked in the past month were assessed. Responses to age of initiation were: I have never smoked a whole cigarette, age 8 or younger, each individual age between 9 and 21, and 22 or older. Responses to the number of days smoked were: 0 days, 1–2 days, 3–5 days, 6–9 days, 10–19 days, 20–29 days, and all 30 days. Using these two items, four categories were created to represent cigarette smoking behavior: never smoker (never smoked a whole cigarette), former or experimenter (smoked a whole cigarette in lifetime, but not in the past 30 days), current nondaily (smoked on between 1 and 29 of the past 30 days), and current daily (smoked on all of the past 30 days).

2.3.5. Health-risk behaviors. Students were asked about past month marijuana use (yes/no), past month alcohol use (yes/no) and lifetime illegal drug use, including any form of cocaine, methamphetamines, hallucinogens, flunitrazepam (Rohypnol), 3-4-methylenedioxymethamphetamine (Ecstasy), or prescription drugs without a prescription (yes/no).

Download English Version:

<https://daneshyari.com/en/article/7509274>

Download Persian Version:

<https://daneshyari.com/article/7509274>

[Daneshyari.com](https://daneshyari.com)