



Abstinence rates among college cigarette smokers enrolled in a randomized clinical trial evaluating Quit and Win contests: The impact of concurrent hookah use



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ARTICLE INFO

Available online 13 March 2015

Keywords:

Cigarette smoking
Hookah smoking
Smoking cessation
Awards and prizes
Young adult
College students

ABSTRACT

Objective. To examine baseline characteristics and biochemically verified 1-, 4-, and 6-month tobacco quit rates among college students enrolled in a Quit and Win cessation trial, comparing those who concurrently smoke both hookah and cigarettes with those who deny hookah use.

Methods. Analyses were conducted on data from 1217 college students enrolled in a Quit and Win tobacco cessation randomized clinical trial from 2010–2012. Multivariable logistic regression (MLR) analyses examined group differences in baseline characteristics and cotinine verified 30-day abstinence at 1, 4, and 6-month follow-up, adjusting for baseline covariates.

Results. Participants smoked 11.5 (± 8.1) cigarettes per day on 28.5 (± 3.8) days/month, and 22% smoked hookah in the past 30 days. Hookah smokers (n = 270) were more likely to be male (p < 0.0001), younger (p < 0.0001), report more binge drinking (p < 0.0001) and score higher on impulsivity (p < 0.001). MLR results indicate that hookah users, when compared to non-users, had a 36% decrease in odds of self-reported 30-day abstinence at 4-months (OR = 0.64, 95% CI = 0.45–0.93, p = 0.02) and a 63% decrease in odds in biochemically verified continuous abstinence at 6-months (OR = 0.37, CI = 0.14–0.99, p = 0.05).

Conclusion. College cigarette smokers who concurrently use hookah display several health risk factors and demonstrate lower short and long-term tobacco abstinence rates.

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Introduction

While cigarette smoking is on the decline overall in the U.S., use remains high among young adults. Compared with individuals ages 12–17 and 26 and older, those between the ages 18–25 have the highest prevalence of current smoking (31.8%) (Substance Abuse and Mental Health Services Administration, 2012). Although college students are less likely to smoke cigarettes than their peers not enrolled in college (46%) (Lenk et al., 2012), current smoking rates among college smokers continues to be high (21.3%) (Substance Abuse and Mental Health Services Administration, 2012). In addition, the use of other tobacco products is increasingly common among young adults. A national survey of students from 119 four-year colleges indicates that past 30-day use of cigars, smokeless tobacco and pipes were 8.5%, 3.7% and 1.2% respectively

(Rigotti et al., 2000). The use of a waterpipe to smoke tobacco, commonly referred to as “hookah” or “shisha,” has also increased in popularity among college students. Lifetime or “ever use” of hookah among college students is approximately 40%, while the recent prevalence estimate of current use (use within the past 30 days) is approximately 16% (Griffiths et al., 2011; Rahman et al., 2014; Sutfin et al., 2011). This data suggests that after cigarettes, hookah smoking may currently be the most commonly used tobacco product used by college students.

Hookah smoking is often a social experience and socializing is often indicated as the most appealing aspect of this behavioral trend (Ahmed et al., 2011). Hookah bars are frequently located around college campuses (Fielder et al., 2012; Sutfin et al., 2011). Further, hookah smoking may be gaining in popularity because of a widespread belief that it is not as harmful as smoking cigarettes or using other tobacco products and that it is less addictive (Primack et al., 2008; Sutfin et al., 2011). However, a hookah session has been associated with ingestion of greater carbon monoxide, tar and nicotine than smoking a single cigarette (Eissenberg and Shihadeh, 2009). Further, saliva and urine cotinine levels of hookah smokers are comparable with cigarette smokers (Aoun et al., 2007;

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Neergaard et al., 2007). A systematic review of the literature on health effects of hookah indicates that smoking hookah more than doubles the risk of lung cancer, respiratory illness and low birth weight when used during pregnancy (Akl et al., 2010).

Recent interest in hookah smoking among college students has provided a picture of the general characteristics of a young adult hookah smoker. Hookah users are generally younger in age, more likely to be white and male (Eissenberg et al., 2008), report increased use of both alcohol and marijuana (Sutfin et al., 2011), and are more likely to be current cigarette smokers (Eissenberg et al., 2008; Sutfin et al., 2011). In fact, among a sample of current hookah users, 77.4% endorsed concurrent use of cigarettes (Lee et al., 2014).

Although research has provided insight on the typical college hookah user, few studies have examined the characteristics of college students who concurrently use both hookah and cigarettes or explored the impact of hookah use on cigarette smoking quit attempts. Secondary analyses of data gathered during a randomized clinical trial evaluating the impact of Quit and Win contests on college student tobacco abstinence rates (Clinical Trials.Gov Registry #NCT01096108) was used to describe the demographic, tobacco-specific and psychosocial characteristics of college student smokers who concurrently smoked hookah, compared to those who did not. These data were also used to examine

the potential impact of concurrent hookah use on biochemically verified tobacco cessation rates.

The purpose of this study is to build upon previous research to describe the demographic, tobacco-specific and psychosocial characteristics of college students who smoke cigarettes, compared to those who smoke both hookah and cigarettes. Further, to examine the potential impact of concurrent hookah use on biochemically verified tobacco cessation rates among a large sample of college students enrolled in a Quit and Win tobacco cessation research trial.

Methods

Data for this study comes from a two-by-two factorial randomized clinical trial with group allocation to four treatment arms to evaluate the efficacy of a single, lottery-incentivized cessation contest (i.e., 30-day period) vs. three, successive 30-day contests, with and without counseling, on tobacco cessation quit rates at 1, 4- and 6-months after study baseline (i.e., end of first contest period, end of treatment and end of study, retrospectively). Participants eligible for this study were students enrolled in one of 17 participating colleges who had smoked at least one cigarette per day on 10 or more days in the past month. Identification of hookah users was determined by asking the following question at eligibility: “In the past 30 days have you smoked tobacco from a waterpipe (hookah, shisha, nargile), even one or two puffs?” Participants who responded

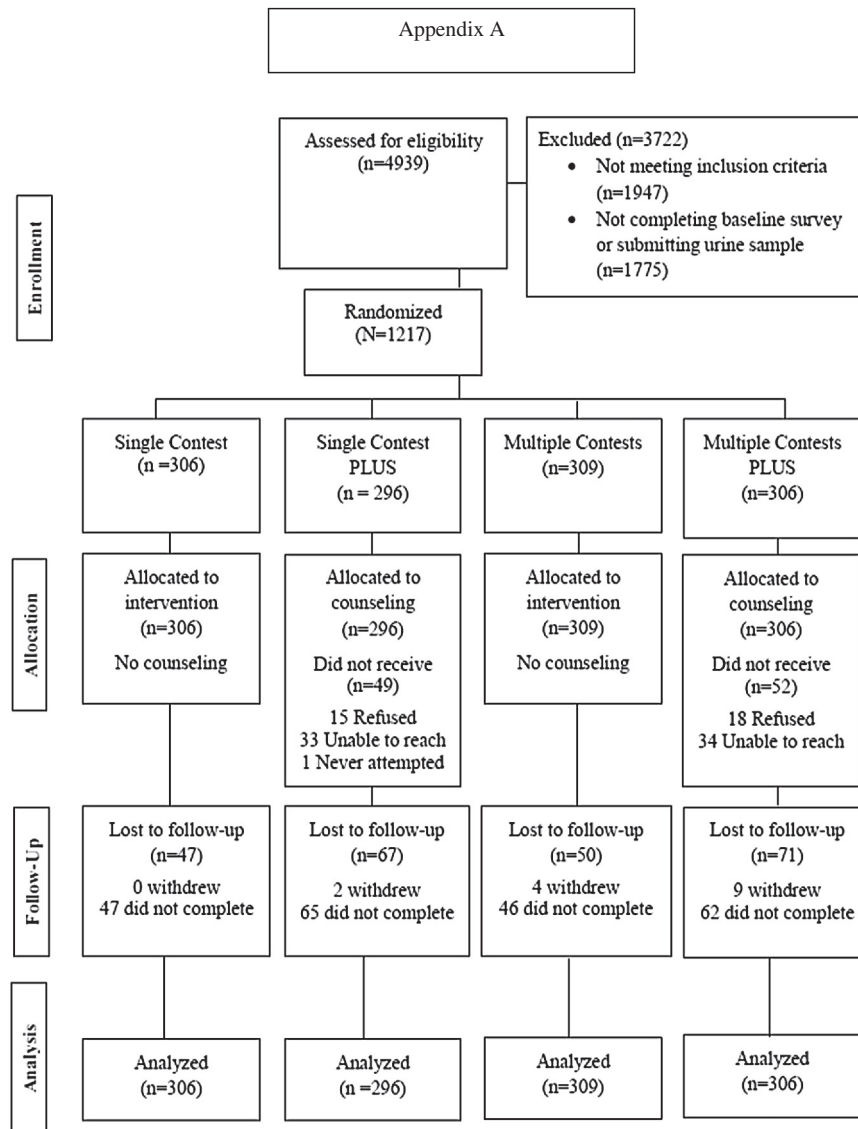


Fig. 1. Study flowchart.

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