



Short Communication

Social and substance use correlates of adult hookah use, 2016

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HIGHLIGHTS

- Hookah use is correlated with concurrent tobacco, e-cigarette, and substance use.
- Half of past 30-day hookah users use infrequently (1–2 days in past 30 days).
- Peer hookah use is common among hookah users.
- Users misperceive hookah as being less harmful and addictive than cigarettes.
- Hookah use is correlated with self-identification as a social/occasional smoker.

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ABSTRACT

Introduction: Hookah prevalence has been increasing in U.S. adults. This study examines correlates and frequency of hookah use in a national sample of U.S. adults (18–44 years).

Methods: Data were drawn from Wave 10 (October 2016) respondents aged 18–44 years from the Truth Initiative Young Adult Cohort Study (n = 4085). Weighted bivariate analyses were used to estimate correlates and frequency of hookah use, and differences between past 30-day and non-current hookah users on social and substance use (alcohol, marijuana, and other drugs) correlates.

Results: Twenty percent of the sample ever used hookah, and 2% used hookah in the past 30 days. Compared to never users and non-current users, a significantly greater proportion of ever and past 30-day hookah users reported past 30-day e-cigarette, tobacco, and substance use (p's < 0.01). Eighty-one percent of past 30-day hookah users had at least one close friend who also used hookah, and 35% self-identified as social/occasional smokers. The majority (68%) of past 30-day users reported hookah use on fewer than five of the past 30 days, and 58% engaged in two or more hookah sessions on those days.

Conclusions: Ever and past 30-day hookah use are associated with concurrent tobacco, e-cigarette, and substance use. They are also correlated with peer hookah use and self-identification as a social/occasional smoker. Even infrequent hookah sessions can expose users to health risks. Research identifying contexts in which hookah is used and how it is used with other substances is needed to inform interventions to reduce hookah use.

1. Introduction

Hookah (also referred to as waterpipe, narghile, and shisha), tobacco smoking (HTS) has increased globally and in the United States

(U.S.) over the past decade (Kasza et al., 2017; Majeed, Sterling, Weaver, Pechacek, & Eriksen, 2017; Salloum et al., 2016). An analysis of 2012–2013 National Adult Tobacco Survey data estimated 3.9% of adults 18 and older in the U.S. use hookah “every day”, “some days”, or

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“rarely” (Agaku et al., 2014). More recent studies analyzing population-based data found 16% of adults in the U.S. have ever used hookah, 10% used in the past year, and 1.5% used in the past month (Majeed et al., 2017; Robinson, Wang, Jackson, Donaldson, & Ryant, 2017). Hookah is frequently used in social settings, with use more prevalent among males, young adults aged 18–24, college enrollees, and alcohol, other substances, and tobacco products users (Cavazos-Rehg, Krauss, Kim, & Emery, 2015; Haddad, El-Shahawy, Ghadban, Barnett, & Johnson, 2015; Mermelstein, 2015; Villanti, Cobb, Cohn, Williams, & Rath, 2015).

Prior studies have shown hookah users inaccurately believe hookah is less harmful and addictive compared to cigarettes, despite evidence indicating a single HTS session can expose users to higher levels of nicotine and toxicants than cigarette smoking (Akl et al., 2010; Cobb, Ward, Maziak, Shihadeh, & Eissenberg, 2010; Ramoa, Shihadeh, Salman, & Eissenberg, 2016). Although only 10% of past year hookah users report daily or weekly use (Robinson et al., 2017), co-use with other substances and tobacco products is high (Cohn, Ehlke, Cobb, & Soule, 2017; Fielder, Carey, & Carey, 2013), posing additional health risks to users.

Studies have focused primarily on HTS in college students (Lipkus, Reboussin, Wolfson, & Sutfin, 2015), youth (Lee, Hebert, Nonnemaker, & Kim, 2015; Sterling & Mermelstein, 2011), or young adults (Rath, Villanti, Abrams, & Vallone, 2012; Salloum et al., 2017; Villanti et al., 2015), yet this study is intended to expand the knowledge of HTS patterns and correlates in a broader age group. Although one recent study reported U.S. population data characterizing HTS frequency and use patterns (Robinson et al., 2017), there is limited evidence on patterns and correlates of HTS in the U.S. adult population. This study, using 2016 data, builds from prior work by assessing social, tobacco-related, and substance use correlates in data from a national sample of U.S. adults (18–44 years).

2. Methods

2.1. Study sample

This study used data from Wave 10 of the Truth Initiative Young Adult Cohort Study (collected October 2016), a nationally representative longitudinal cohort. Details on the study sample and design have been described previously (Rath et al., 2012). Briefly, the cohort is comprised of young adults aged 18–34 at study entry drawn from GfK's KnowledgePanel®, an online panel of adults ages 18 and older (<http://www.gfk.com/products-a-z/knowledgepanel-north-america/>). The baseline survey (Wave 1; n = 4215) was conducted in July 2011, with subsequent assessments occurring approximately every 6 months. The cohort is refreshed at each wave for sample size retention. African American and Hispanic communities were oversampled to ensure sufficient sample sizes. The validity of this methodology has been reported previously (Chang & Krosnick, 2009; Yeager et al., 2011) and KnowledgePanel® samples have been used broadly in studies in the peer-reviewed medical literature (Fowler Jr, Gerstein, & Barry, 2013; Jenssen, Mitra, Shah, Wan, & Grande, 2016).

This analysis focused on a subset of n = 4085 respondents (weighted) who provided information on HTS patterns at Wave 10. By Wave 10, participants ranged in age from 18 to 44. Online consent was collected before survey self-administration. This study was approved by Chesapeake Institutional Review Board, Inc.

2.2. Measures

2.2.1. Hookah tobacco smoking

All items used the following language to describe HTS: “tobacco or shisha in a hookah or waterpipe” or “hookah/shisha/waterpipe (hookah tobacco).” An image of the product was provided to enhance reports. The outcomes analyzed were ever and past 30-day HTS. Ever

HTS was defined as having ever used the product, “even one puff,” in one's lifetime. Ever users were further categorized as either past 30-day or non-current users (ever used hookah, but not in the past 30 days). Past 30-day use was defined as reporting using on at least one day in the past 30 days (ever and past 30-day use groups were not mutually exclusive). We also examined lifetime and past 30-day frequency of use, and duration of use. Respondents were asked how frequently they visit a hookah lounge/bar/restaurant and the number of their four closest friends who use hookah. Regular HTS (defined in the survey as using “at least once a week, for at least a month”) and age at first regular HTS were examined among ever users.

2.2.2. Harm and addictiveness perceptions

All respondents were asked about perceptions of harm (“a lot” or “a little less harmful”, “about the same”, and “a little” or “a lot more harmful”) and addictiveness (“more likely, about the same, or less likely to cause someone to become addicted as regular cigarettes”) of hookah compared to cigarettes.

2.2.3. Demographic factors

Respondents provided information on their age, gender, race/ethnicity, and education.

2.2.4. Tobacco use

Respondents were asked separately about past 30-day use of cigarettes, cigars, little cigars/cigarillos (LCCs), smokeless tobacco, and e-cigarettes. Images of these products were included to aid self-report. Respondents were asked, “Which of the following best describes how you think of yourself?” with response items “Smoker”, “Social Smoker”, “Occasional Smoker”, “Ex-smoker”, “Someone who tried smoking”, and “Non-smoker”. For analyses, this item was collapsed to “social/occasional smoker” (yes) with all other categories coded as “no.”

2.2.5. Alcohol, marijuana, and other drug use

Respondents were asked how often they currently use alcohol, marijuana, and other drugs (“cocaine, heroin, ecstasy, meth, etc.”), with response options of “Not at all”, “Some days”, and “Every day”. Respondents who indicated use “some days” or “every day” were asked how frequently in the past 30 days they used each substance. Current or past 30-day use of each of these substances was categorized as past 30-day use (yes/no).

2.3. Statistical analyses

Analyses were conducted using Stata/SE version 14.0, and data were weighted to offset non-response bias. Bivariate chi-square analyses were used to estimate correlates and frequency of never, ever, and past 30-day HTS (among a sub-set of ever users), and differences between past 30-day and non-current hookah users on past 30-day alcohol, substance, and other tobacco product use, as well as social correlates. Additionally, multinomial logistic regressions were run for each HTS outcome, controlling for age, gender, race/ethnicity, and education.

3. Results

Correlates of never, ever, non-current, and past 30-day HTS are presented in Table 1. In the sample, 20.5% (n = 938) of respondents ever used hookah, and 2.5% (n = 85) were past 30-day users.

3.1. Never vs. ever HTS

In the multivariable model, respondents who completed some college were more likely to be ever hookah users than never users (aOR = 3.53, p < 0.01) (not shown in tables). Past 30-day substance use was significantly higher among ever users compared to never users

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