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Hookah Use and Perceptions among Young Adult Hookah Users

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Abstract

Background: Despite declining cigarette use, hookah use has increased substantially among youth and young adults. This is alarming, as hookah can lead to the same health risks as cigarettes and expose users to a high amount of smoke, nicotine, and toxicants. Determining patterns of hookah use and perceptions in young adults is important in prevention efforts.

Methods: Structured in-person interviews were conducted for this qualitative study in June 2016. Twenty-three hookah users between the ages of 18 and 29 years living in Austin, TX who were not currently enrolled in a college or university completed the interview. NVivo 11 Pro was utilized to code transcribed transcripts for common themes among participants.

Results: When trying hookah for the first time, all participants had used flavored tobacco, with fruit flavors being most popular at initiation and for current use. Many participants initiated hookah use under the age of 18 years old. While only one participant initiated hookah use alone, one-third of participants had smoked hookah alone, not in the company of others. The majority of participants owned or previously owned their own hookah device. Common motivational factors for hookah use involved being social, taste, and the calming/relaxation effect. Participants perceived hookah use to be both harmful and addictive; however, many participants were unsure if hookah was more harmful to health than cigarettes.

Conclusion: Young adults who are not currently enrolled in college may have similar hookah use behaviors and risk perceptions as do college students, yet non-college students in this sample are using hookah alone and report owning a hookah device. This study supports the need for research on the effect of policy changes on hookah use, receptivity to warning labels, and programs to correct misperceptions.

Keywords

Hookah; Young adults; Tobacco use behaviors; Perceived harm; Perceived addiction; Qualitative

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Introduction

While cigarette smoking is declining, the prevalence of hookah (or waterpipe) use has recently increased among young adult populations in the United States (US) and is one of the most widely used tobacco products [1]. Current, or past 30-day, use was higher for hookah (16%) in comparison to cigarettes (12%) among college students in 2015 [2]. The Legacy Young Adult Cohort Study found that 23% of 18–34 year old participants were ever hookah users, while 4% were current users [3]. Data from the 2013–2014 National Adult Tobacco Survey (NATS) determined that 20.2% of 18–24 year olds used hookah ‘every day’, ‘some days’, or ‘rarely’ [1], an increase from 18.2% from the 2012–2013 NATS [4].

Flavored tobacco found in hookahs appeals to young adults, especially for those who would not normally use other forms of tobacco [5]. Hookah bars, where patrons can rent hookah devices for a small fee, have increased in popularity in the US since the turn of the 21st century [6]. Additionally, smoking hookah within the home has also been found to be prevalent, with 70% of hookah users at one university using hookah at home [7]. With the increase in hookah use, influence of flavors, and rise in popularity of hookah bars and hookah use at home, there is a need to study hookah use behaviors among young adults.

The rise in hookah use is alarming considering the negative health effects. Using hookah has been linked to the same health risks as smoking cigarettes. A hookah user could inhale the amount of smoke equivalent to 100 cigarettes in a single hookah session [8]. Additionally, heating charcoal to burn the tobacco in hookah pipes exposes users to carbon monoxide, metals, and cancer-causing chemicals [9]. Preliminary studies have assessed the negative health outcomes of hookah use, which showed an association with lung [10], esophageal [11,12], and oral cancers [10]; decreased cardiovascular and pulmonary function [13]; and reproductive issues, such as infertility and low birthweight [14]. Despite the health risks associated with hookah use, young adults in college perceive hookah as popular, distinctly different, less harmful and addictive, and more socially acceptable than smoking cigarettes [7,15–18]. In comparison to young adults who have never used hookah, hookah ever users were more likely to have low perceptions of harm resulting from use [19]. The common misconceptions of health risks need to be studied in young adults who are not in college in order to understand their hookah use.

Similar to perceived harm, many young adults do not perceive hookah to be addictive. Over half of students from a large urban university sample reported that they considered smoking tobacco from a hookah less addictive than cigarette smoking [16]. At another university, 97% of students believed that they could quit smoking hookah at any time [20]. In a study on multiple products including e-cigarettes and marijuana, university students reported that they thought that hookah was the least addictive overall [21]. However, as hookah sessions usually last at least 30 minutes, hookah users are exposed to greater quantities of nicotine in comparison to cigarette smoking [22]. Only a very small portion of nicotine is filtered out when passing through the water in the hookah pipe, leaving users still exposed to a large quantity [22]. One study found that a 45 minute hookah session increased nicotine blood levels up to 250% [23]. Gaining a better understanding of hookah risk perceptions in young adults will assist in structuring health communication tactics for prevention.

Existing research on young adult hookah use is markedly based on college students' use and perceptions; thus, there is limited research on hookah use behaviors among young adults not currently enrolled in college [24]. No known hookah studies have focused solely on this population of young adults. As approximately 60% of young adults in the US were not in college in 2013 [25], analyzing the behaviors in this population is important for future prevention efforts, including developing health warnings aimed at young adults. Moreover, there may be key differences between young adults attending college and those who are not, as college students are less likely to smoke cigarettes than their non-college attending counterparts [26]. The purpose of this qualitative study was to determine patterns of hookah use and perceptions of harm and addictiveness among young adults not currently seeking a college degree.

Methods

Twenty-three participants were recruited through an online advertisement and screened for eligibility using an online survey via Qualtrics. To be eligible, participants had to have used tobacco in a hookah device within the past three months, not be enrolled in a community college or university in either spring or summer semesters in 2016, be between 18 and 29 years old, and currently reside in Austin, TX. All participant interviews were performed in-person, where informed consent was obtained for every participant. Participants were provided with a \$50 Visa gift card upon study completion.

Structured interviews were performed in June 2016. Interview questions were derived from concepts specific to hookah use behaviors as well as harm and addictiveness perceptions and further developed from other surveys used in prior studies on college students, including the (M-PACT) survey [27] (Table 1). Participants also answered demographic questions. All interviews were audio recorded and transcribed verbatim via a professional online transcription service. NVivo 11 Pro was utilized to code transcripts based on common themes and subthemes among participants. Interview content was coded by themes in order to generate implications from participant responses [28]. The lead author (NN) solely coded all transcripts to ensure accurate portrayal of each participant interview within themes [29].

Results

The final sample consisted of 23 participants, with 12 (52%) females and 11 (48%) males. The average age of the participants was 24.3 years ($SD=2.90$). Nine (39%) participants were non-Hispanic white, six (26%) black, four (18%) Hispanic, three (13%) Asian and one (4%) Native American. Six (26%) participants graduated from high school, five (22%) attended some college, and 12 (52%) had completed an associate's degree or higher. In response to annual income, 10 (43%) earned less than \$20,000 per year, while eight (35%) earned between \$20,000 and \$40,000 and five (22%) earned more than \$40,000. When asked about their marital status, 21 (91%) of participants identified as being single, while two (9%) were married. Based on concepts from previous studies, seven themes, including hookah use, initiation, flavored hookah, hookah ownership, other tobacco and substance use, perceived harm, and perceived addiction, were utilized in the analyses. Additionally, subthemes

emerged from the data for some themes in order to provide more detailed participant responses.

Hookah use

Although every participant had used hookah within three months of their scheduled interview, the average use of hookah varied among participants. Two participants used hookah every day, while six participants used hookah at least once a week. The majority of participants (n=20) used hookah at least once in the past 30 days. All participants had smoked hookah with a friend, while eight participants had smoked hookah alone. Only one participant had never been to a hookah bar.

Length of Hookah Sessions: On average, four participants had hookah sessions that lasted for less than an hour, and seven participants had sessions for at least two hours. A majority of the participants (n=12) had hookah sessions that lasted at least one hour and ended before two hours. One participant explained that the length of hookah sessions depended on the coals used:

"Depending on the coal, we've got different coals. We got a brand new one that's Indian and that one lasts for a couple of hours. So I'd say, like, an hour and a half, honestly." (Female, 20)

Influences: Influences to use hookah varied among participants, where many mentioned more than one motivational factor. Fifteen participants cited social influences, such as an activity to do together with friends, as a motivational factor to use hookah. Other influences included taste, calming effect/relaxation, celebrations, euphoric feeling, and oral fixation in order to suppress appetite. One participant cited peer pressure:

"I have bad friends, they're just not good. My friends are bad. Peer pressure." (Male, 19)

Another participant cited the hookah environment:

"Well, I'm not a drug user, and a lot of my friends are. And I'm a bartender, so I'm always around alcohol, so I just wanted to use something different. I like Mediterranean food, too, and I just like the environment." (Female, 27)

Initiation of hookah use

While many participants tried hookah for the first time as an adult, several participants (n=9) had initiated hookah use as a minor. Only one participant claimed to have smoked hookah alone when they initiated hookah use. The most common reason to try hookah was that participants 'just wanted to try it' (n=10). Other reasons for initiation included curiosity, smell/taste, social, relaxation, introduced/invited by a friend, not being old enough to drink, and interested. One participant who spoke of the first time they initiated hookah use stated:

"It's because I was at a party and everyone was doing-- well, 'Everyone was doing it,' sounds like it was something I did just because everyone did it. I was interested in it. I had smoked cigarettes rarely before, like one or two, didn't like them because they were too potent or too strong. Then someone had told me that this was

nice, because it was much smoother and just had a good flavor. And it wasn't really something that was designed to get you high or have any type of lasting effect, too. It was more just an experience that you should try at least once." (Male, 27)

Flavored hookah

No participants claimed to have tried plain or tobacco-flavored shisha when they first started using a hookah. Most participants (n=16) used a variation of a fruit flavor, such as apple, while mint and candy, such as chocolate, flavors were also popular at initiation. Two participants claimed to use more than one flavor when they first started to use hookah.

Participants had a variety of current flavor preferences. The majority (n=14) still used a fruit flavor, which indicated a slight decrease from using fruit flavor at initiation. Additionally, more participants claimed to currently use mint flavors than during initiation. Two participants enjoyed herbal flavors, such as rose or jasmine, while three participants enjoyed combination flavors, such as Dragon's Blood or blueberry lemon mint. Only one participant regularly used a plain tobacco flavor.

Tobacco-only flavor: When participants were asked if they would continue to smoke hookah if only a plain, tobacco flavor was available, seven participants stated they would not continue to use hookah. The majority (n=14) were unsure if they would continue to use hookah or not:

"Probably, I think if it comes --this is probably totally off topic with your study-- but if it came to cigars, like the-- obviously like the non-flavored cigars would be appropriate, but for some reason hookah and having some type of flavor makes it more enjoyable, at least from my standpoint". (Female, 27)

Two participants (9%) claimed that they would definitely continue to use hookah if only tobacco-flavored shisha was available:

"I don't see why not. I see it more as an activity than the flavor, I suppose. It's more of an action." (Male, 23)

Hookah ownership

Nine participants never owned a hookah device, while four participants had previously owned a hookah device. These previous owners had their device between four months up until one and a half years. One previous owner sold his device:

"I guess it's cool to have it, but I don't really use it every day, so I didn't keep it." (Male, 19)

Several participants (n=10) currently owned a hookah device. Of these participants, six preferred to use their own hookah device, two preferred a hookah bar, and two did not have a preference. Current ownership ranged from two months to over eight years. Two participants owned a hookah specifically due to cost:

"I got one probably about six months after I started smoking, mainly because it was cost effective. Going and spending \$20 on a hookah is way, way more expensive than buying your own and having to buy a \$5 box of shisha." (Male, 24)

Other tobacco and substance use

The majority of participants (n=13) did not use another form of tobacco. In addition to hookah use, some participants reported using other tobacco products including cigarettes (n=6), cigars (n=2), electronic cigarettes (n=1), and snuff (n=1).

Six participants did not drink alcohol while using hookah. Four participants rarely had one alcoholic beverage while using hookah, while nine participants occasionally had about two alcoholic beverages during a hookah session. Four participants regularly drank alcohol (average of 3 or more beverages) during hookah sessions.

Eight participants had smoked marijuana in a hookah device. While the majority of participants said that they never smoked marijuana in a hookah, two participants were explicit that marijuana would ruin a hookah device.

Perceived harm

Adverse health effects: The majority of participants (n=14) reported no health effects from smoking hookah. Other participants reported difficulty breathing, affecting ability to exercise, congestion, headache, nausea, coughing, and sore throat. One participant reported feeling dizzy and having chest pains when smoking hookah in combination with drinking alcohol. Another participant reported losing consciousness as a result from smoking too much hookah:

"I have passed out once from smoking hookah. I kept smoking and I didn't stop at one point, and I guess I didn't get enough oxygen to my brain and I passed out. I hadn't been drinking at all." (Female, 27)

Harmful to health: The majority of participants (n=15) believed that smoking hookah was harmful to health, all citing either tobacco, smoke inhalation or nicotine as reasons:

"The nicotine levels, it's just like anything else. The intake is twice as high. I think maybe ten times as high, probably. I know it is harmful, but I just don't know exactly how much, on the scale." (Male, 28)

One participant firmly believed that hookah was not harmful to health:

"Anytime I think of hookah, I don't associate it with—like, you can't get a hangover from hookah. You can't overdose on hookah...as far as health issues, no." (Female, 27)

Five participants were unsure if hookah was harmful to health or not:

"I've never really read the facts about hookah, so I really don't know." (Female, 21)

"I don't really think it is for me because I don't use it enough. I think it could be. Because you're smoking. I mean tobacco, I guess." (Male, 26)

Harm in comparison to cigarettes: Nine participants agreed that hookah was more harmful to health than cigarettes:

“Smoking hookah is like smoking three packs of cigarettes. At least I’ve heard that a two-hour session is pretty similar to that.” (Male, 24)

“You actually inhale more smoke for a longer period of time than people who smoke cigarettes do, because they just have one cigarette usually within an hour while people are continuously smoking hookah.” (Female, 27)

Eight participants disagreed that hookah was more harmful to health than cigarettes:

“I feel like cigarettes probably have a lot more harmful aspects within a cigarette and especially just because of all those studies that have been attached to cigarette smoking versus smoking hookah. I feel like cigarettes can be definitely more detrimental for somebody.” (Female, 27)

“From what I’ve been told, hookah doesn’t contain all the other additives that are put into cigarettes, and also, I guess, because it’s, like, different, more vaporized.” (Female, 27)

Six participants were unsure if hookah was more harmful to health than cigarettes:

“I don’t know. I think it’s when my friends played it out, it just came off as it’s not as bad, so I just accepted it, but I never actually looked into it.” (Female, 26)

Perceived addictiveness

One participant stated that they would not be able to quit smoking hookah at any time. Two participants had felt like they really needed to smoke hookah. Eight participants have had a strong craving to smoke hookah. When asked if hookah was addictive, the majority of participants (n=16) believed that hookah was addictive, mostly due to tobacco or nicotine. However, the six participants that did not find hookah to be addictive had various explanations as to why:

“I have the willpower to say no.” (Female, 20)

“Not to me. I’ve never noticed any addictive traits. It’s hard for me to tell if it’s the hookah itself or the social aspect because most of the people I know who smoke frequently do it with a group of people, and I hang out with a group of people every day. We just choose not to smoke hookah, so I don’t know if that’s necessarily...the shisha itself. It’s more the situation, I think.” (Male, 27)

One participant was unsure about the addictive properties of hookah because of added flavors and was unaware of how addiction felt:

“I don’t know because I think the fruit aspects of it, having a flavor-for me, that’s why I don’t notice it as much. I don’t know. I don’t smoke cigarettes or anything so I’m not sure how the addiction is supposed to feel for it. But I think that’s what throws me off with, oh, it can’t be too bad because of the flavors but probably is.” (Female, 26)

Discussion

The current study expands on the literature focusing on hookah use and risk perceptions by evaluating a sample of young adults not currently attending college. Young adults in the present study reported similar motivating factors and hookah risk perceptions as those reported by their college-attending counterparts. Other findings, such as using hookah alone and hookah device ownership, appear to be influential in hookah use behaviors among participants in this study, which indicates the need to include non-college attending young adults within research studies. These findings imply focusing prevention efforts on hookah use towards all young adults, regardless of education status.

Several findings, such as motivational factors, other tobacco and substance use, and flavors, corroborated previous findings in the literature. Although several participants used hookah for social purposes, many participants indicated that using hookah was more than just a casual, social activity. Socializing is also a common motivational factor found in college student hookah users [30,31]. Along with the social aspect, any alcohol use while using hookah (n=17) as well as other tobacco use (n=10) and smoking marijuana in a hookah device (n=8) were common among participants. This is expected, as cigarette, alcohol, and marijuana use are more predominant in hookah users in comparison to non-users [3]. Additionally, flavored tobacco in hookah was also an important component of using a hookah device for participants in this sample. Many participants stated that they were unsure or would not continue to use hookah if flavored hookah was not available. Flavors have been shown to be more popular among young adults in comparison to older adults [32] and could be an effective target for policy changes.

In this sample, the perceived risks of hookah were an important finding and support similar results in college student samples. The majority of participants believed that hookah was harmful to health, which included all nine participants who reported having at least one adverse health effect due to hookah use. However, some participants (n=6) were unsure or did not perceive hookah to be harmful at all. Even more participants (n=14) were unsure or did not believe hookah was more harmful to health when compared to conventional cigarettes. Many of these participants seemed to believe that cigarettes were more harmful, since there was more cigarette research that has been widely disseminated for decades. Further, seven participants were unsure or did not believe that hookah was addictive, mostly since they did not believe that they had any addiction to hookah themselves. Only one participant, who was a daily hookah user, believed that s/he would have trouble quitting at any time, which is similar to beliefs in college student users [20]. Hookah users may not be aware of the effects of tobacco, especially when used in a hookah device. Health communications, such as through warning labels, could target hookah users of potential health effects, including the possibility of addiction to hookah tobacco, in order to disseminate facts on hookah to users.

Some outcomes of this study suggest that hookah users in this study may be unaware of risks related to hookah use. During participant initiation of hookah, only one participant smoked hookah alone. When asked about current hookah use, several participants (n=8 or 35%) used hookah alone, and the same number of participants had currently owned a hookah device. As

this is a qualitative study, the prevalence cannot be compared to quantitative findings. However, in quantitative studies of college students, where one study determined that only 12% of college student hookah users had ever used hookah alone [19]. Further, current hookah ownership in a nationwide sample of young adults was 27% [33]. These findings suggest that hookah use among young adults not currently in college is moving towards becoming more of a usual behavior for some users, rather than just an occasional social activity. Additionally, using hookah alone could potentially expose these users to more smoke, nicotine, and other toxicants that are harmful to health compared to those sharing a hookah device. Quantitative studies are necessary in order to compare young adults not enrolled in college with college students.

Limitations

There are a few limitations to note within this study. Even though all participants were screened to have used hookah within the past 90 days, only two participants were every day users and three participants were not current past 30-day users, which may inhibit results from being representative of current users in this population. Further, we did not acquire any perspectives from non-users, which could also be helpful for population-based prevention approaches. As participants were recruited through an online advertisement, the sample was not randomly selected, allowing the potential for selection bias where certain members of a population are less likely to participate than others [34]. Additionally, as this is a qualitative study that recruited participants in one city, the results may not generalize to other young adults, especially those who are currently attending college. However, the results from this pilot study suggest some potential differences in hookah use and perceptions among non-college versus college-attending young adults, which requires support from longitudinal, quantitative studies. This includes collecting important information

Conclusions

This study provides insights from young adults not currently enrolled in college on their hookah use behaviors and perceptions of harm and addictiveness. As hookah use continues to rise, understanding patterns of hookah use and perceptions is important for prevention efforts, including providing information for the development of warning labels. The results from this study warrant the need to increase research on non-college attending young adults, as their hookah use may be different from young adults attending college. Some findings were unique in this study, such as the practice of using hookah alone, and could be characteristics of hookah users in the non-college attending young adult population. Importantly, policy changes and prevention tools, such as health communications, need to be directed towards non-college attending young adults in addition to those enrolled in college, as misperceptions of harm and addictiveness may be common among young adult populations. Further research is necessary in this population, including research on receptivity to warning labels in response to hookah misperceptions.

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Table 1:

Interview questions on hookah use behaviors and perceptions of hookah concepts

Concepts	Elicitation Questions
Hookah use	How often do you smoke hookah? On how many days of the past 30 days have you smoked a hookah as intended (i.e. with tobacco)? Have you ever smoked hookah with friends? Have you ever smoked hookah alone? Have you tried using hookah at a restaurant or bar? On average, how long do your hookah sessions last? What influences you to use hookah? (Motivational factors)
Initiation of hookah use	How old were you when you first smoked hookah? Who were you with when you smoked hookah for the first time? Why did you smoke hookah the first time?
Flavored hookah	When you first started smoking hookah, did you smoke flavored tobacco? If so, what flavor(s)? When you smoke tobacco in a hookah, is it usually flavored? If so, what flavor(s)? Would you continue smoking hookah as intended (i.e. with tobacco) if it were ONLY available in plain or molasses flavor?
Hookah ownership	Do you own your own hookah or have you ever owned a hookah? If respondent replies 'yes': How long have you owned a hookah? Do you prefer to use your own hookah or smoke hookah at an establishment? If respondent previously owned a hookah: Why do you no longer own a hookah? How long did you own a hookah device?
Other substance use	Do you use any other forms of tobacco? Do you drink alcoholic beverages while smoking hookah? If respondent replies 'yes': During a typical hookah session, how many alcoholic beverages will you drink, on average? Have you ever smoked marijuana in a hookah?
Perceived harm	Have you had any health effects from smoking hookah? Do you think hookah is harmful to health? Do you think hookah is more harmful to health than cigarettes?
Perceived addictiveness	Do you think you could quit smoking hookah at any time? Have you ever felt like you really needed to smoke hookah? Have you ever had a strong craving to smoke hookah? Do you think hookah is addictive?