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Adolescent and Young Adult Perceptions of Hookah and Little Cigars/Cigarillos: Implications for Risk Messages

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Abstract

Use of hookah and little cigars/cigarillos (LCCs) is high among adolescents and young adults. Although these products have health effects similar to cigarettes, adolescents and young adults believe them to be safer. This study examined adolescent and young adult perceptions of hookah and LCCs to develop risk messages aimed at discouraging use among users and at-risk nonusers. Ten focus groups with 77 adolescents and young adults were conducted to explore their perceptions about the perceived risks and benefits of hookah and LCC use. Participants were users of other (non-cigarette) tobacco products (n=47) and susceptible nonusers (n=30). Transcripts were coded for emergent themes on participants' perceptions of hookah and LCCs. Participants did not perceive health effects associated with hookah and LCC use to be serious or likely to happen given their infrequency of use and perceptions that they are less harmful than cigarettes. Participants generally had positive associations with smoking hookah and LCCs for several reasons, including that they are used in social gatherings, come in various flavors, and can be used to perform smoke tricks. Because adolescents and young adults underestimate and discount the long-term risks associated with hookah and LCC use, effective messages may be those that focus on the acute/immediate health and cosmetic effects.

Keywords

health communication; hookah; little cigars/cigarillos

Among adolescents and young adults, the use of non-cigarette tobacco products, often referred to as other tobacco products (OTPs), is increasing (Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2015; Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2015). Two products, hookah and little cigars/cigarillos (LCCs), are of particular concern because prevalence rates are high and there are significant health effects associated with

their use. Hookah is a waterpipe used to smoke specially-flavored tobacco called *shisha*, which is heated with charcoal and filtered through the water-filled body of the pipe before being inhaled. LCCs contain pipe tobacco wrapped in tobacco leaves, come in flavored varieties, and are available with and without a filter and/or tip. Little cigars are about the same size as cigarettes, whereas cigarillos resemble full-sized cigars, but are thinner and shorter. See Figures 1 and 2 for product images. Smoking tobacco in a hookah and use of LCCs is high among adolescents and young adults, even among those who do not smoke cigarettes (Arrazola et al., 2015; Lee, Hebert, Nonnemaker, & Kim, 2015; Maziak, 2013). Recent data from the nationally representative Monitoring the Future survey show that among twelfth graders, 22.9% reported hookah use and 18.9% reported small cigar use in the past year (Johnston, O'Malley, Miech, et al., 2015). This same survey reported high rates of use among young adults (ages 19–30), with 23.3% reporting hookah use and 18.6% reporting small cigar use in the past year (Johnston, O'Malley, Bachman, et al., 2015). Use of these products is often associated with dual- or poly-tobacco use, including cigarette use (Cavazos, Krauss, Kim, & Emery, 2015; Cohn, Cobb, Niaura, & Richardson, 2015). Cigars and cigarettes are the most common two-product combination among young adults over 18, with 3.5% reporting current dual-use of these two products (Lee et al., 2015).

Hookah and LCCs cause many acute and chronic health consequences, including many of the same as cigarette smoking, such as cancer, heart disease, chronic bronchitis, and nicotine addiction (e.g., Aboaziza & Eissenberg, 2014; El-Zaatari, Chami, & Zaatari, 2015; NCI, 2010). Additionally, many of the toxic constituents in cigarette smoke also exist in hookah and LCC smoke, such as carbon monoxide, tobacco-specific nitrosamines, and heavy metals, and are often found at higher levels than in cigarette smoke (NCI, 2010; Shihadeh et al., 2015). However, adolescents and young adults erroneously believe hookah and LCCs to be less harmful and less addictive than cigarettes, and these misperceptions are positively associated with current use of these products (e.g., Primack et al., 2008; Smith et al., 2007; Sutfin et al., 2011).

There is limited research on adolescent and young adult perceptions of hookah and LCCs, and few studies have used qualitative methods (Akl et al., 2015). Qualitative methods facilitate discussion in which opinions and beliefs are expressed that might not be discovered using quantitative study designs. Most research regarding attitudes and beliefs about hookah and LCCs has focused on why individuals use these products, such as the social nature of use, flavors available, and perceived lower health risks (Akl et al., 2015; Wray et al., 2012). However, what is not yet known is how adolescents' and young adults' attitudes and beliefs impact their perceptions about *specific* health issues (such as cancer) associated with using these products. Understanding attitudes and beliefs about specific health issues associated with LCCs and hookah is important for developing effective messages to discourage use.

In April 2014, the Food and Drug Administration (FDA) proposed a Deeming Rule that would extend FDA's regulatory authority to cover all tobacco products meeting the statutory definition, including hookah and LCCs. As part of the proposed rule, the FDA will require the display of a health warning message directly on product packages and advertisements, to be implemented 24 months after the proposed rule is final. Additionally, the FDA will be responsible for communicating the risks of these products to the public (FDA Proposed

Rule, 2014). Therefore, this study examines adolescent and young adult perceptions of hookah and LCCs and their health effects to inform messaging themes to effectively communicate the risks of using these products.

Methods

Participants and Recruitment

We conducted 10 focus groups with 77 adolescent (ages 13–17) and young adult (ages 18–25) OTP users ($n=47$) and susceptible (at-risk) nonusers ($n=30$) from February to April 2014. Focus groups were stratified by age group and user status, with groups ranging in size from four to 13 ($M = 7.7$, $SD = 3.1$). We defined current users as those who reported OTP use (electronic cigarettes, hookah tobacco, cigarillos, cigars, pipe tobacco or smokeless tobacco) in the past 30 days. We included those who had used or were susceptible to use any one or multiple OTPs because dual/poly tobacco use is high among this population (Lee et al., 2015; Richardson et al., 2014), and because other tobacco products were also discussed (Wagoner et al., 2016). Nonusers who reported that they were willing to try any OTP were categorized as susceptible nonusers (Pierce et al., 1996). Given the stratification of group composition, we had at least one group type discussing each product: adolescent OTP users, adolescent susceptible nonusers, young adult OTP users, and young adult susceptible nonusers.

We recruited participants through purposive sampling methods across the Triangle region (Raleigh, Durham, Chapel Hill) of North Carolina. Individuals were encouraged to visit the recruitment website and sign up to participate in a focus group session through several recruitment methods, including emails to various listservs, Craigslist, advertisements in college and local newspapers, local flyers, social media, radio and TV advertisements, and in-person recruitment. In-person recruitment was conducted at tobacco retail outlets, recreation centers, bars, coffee shops, colleges, and high schools. The recruitment website supplied interested people with detailed information about the study, contact information, and the option to complete an eligibility screener. Focus group participants were selected from the recruitment screener according to age and OTP use status. A research team member contacted individuals who were eligible based on the screener to confirm eligibility, and upon confirmation they were invited to the next available focus group.

Focus Group Procedures

Before the focus groups occurred, parents of adolescents were sent an informational letter about the study and given five days to respond if they did not want their child to participate. Before each focus group began, participants provided written informed consent or assent (adolescents). The focus groups lasted approximately 90 minutes and were facilitated by a three-person research team consisting of a moderator, co-moderator, and note taker. Half of the focus groups focused on hookah ($k=5$) and the other half focused on LCCs ($k=5$). Participants also discussed OTP constituents and electronic nicotine delivery systems in all focus groups; those data are reported elsewhere (see Wagoner et al., 2016; Wiseman et al., 2016). At the conclusion of each focus group, we provided participants a handout about the harms of using hookah and LCCs, as well as resources (e.g., website URLs) for quitting

tobacco (adapted from the Campaign for Tobacco-Free Kids, American Lung Association, American Cancer Society, and National Cancer Institute). Participants received a \$50 Amazon gift card for their participation. The Institutional Review Boards at the University of North Carolina at Chapel Hill and Wake Forest School of Medicine approved this study. Additional privacy protection was secured by the issuance of a Certificate of Confidentiality by the Department of Health and Human Services.

Measures

A semi-structured moderator's guide was used to facilitate consistent discussion across groups. Participants were asked questions regarding product familiarity, attitudes, and risks, such as, "What do you know about LCCs [or hookah]?" and "What are the good [or bad] things, if any, about smoking tobacco from a hookah [or LCCs]?" Next, participants were asked about a series of health effects resulting from use of these products, and if the possibility of these effects would discourage them from product use. For example, "If you found out that smoking LCCs causes cancer, how much would that discourage you from using, if at all?" Health effects questions were asked about cancer, heart attacks, addiction to nicotine, secondhand smoke exposure, likelihood of (transitioning to) smoking cigarettes, and cosmetic effects. Participants were then asked which, out of all of those effects, would be the most discouraging. Product pictures were used to ensure that participants knew exactly what product was being discussed.

Analysis

The primary aim of our focus groups was descriptive and focused on understanding participants' perceptions of LCCs and hookah. Thus, our analytic approach was similar to grounded theory methods (Charmaz, 2005; Glaser, 2002), in that the findings are 'grounded' in the data and developed inductively and in constant interaction with the data. Although we identified a priori research questions, we did not develop or test specific hypotheses.

Focus group discussions were digitally recorded and transcribed verbatim by an independent transcriptionist. A codebook was developed using the moderator's guide, with codes for each question. This codebook was tested among the qualitative data analysis team using two randomly selected transcripts. Adjustments were made to create the final codebook, which was used by two pairs of coders to independently code the 10 transcripts in Atlas.ti 7.0, a qualitative data software program. Each team of two coders coded five out of the ten transcripts. After the initial round of coding, the coders met and discussed all discrepancies to ensure consistent application of codes. After coding was complete, new files were created by extracting each code into individual files. The first author read through each file to identify emergent and recurrent themes, created written summaries of the themes related to each research question, and met with co-authors to discuss and synthesize themes across age group and OTP user status.

Results

Table 1 reports characteristics of the participants. Overall, 56% were female, 57% were white, and 26% were black. The mean age was 15.8 for adolescents (age range 14–17) and

20.5 for young adults (age range 14–25). Forty-seven participants (61%) were current users of OTPs and 30 (39%) were susceptible nonusers. Perceptions across focus groups (product, age, user status) were fairly consistent, with only a few differences noted below.

Perceptions of Hookah and LCCs

Social activity—Participants consistently discussed the social nature of using hookah and LCCs. These products are often used in social settings, such as parties, and their use brings people together. For example, one young adult OTP user said, *“I think it’s [hookah] more of a social thing. I don’t know if anybody like does it on their own but if we go to a party or to a bar or something with a group of friends.”* Another young adult OTP user said, *“It was more of like a group activity, like friends would go to stop at a gas station, pick up a couple Black and Milds and just chill out in the parking lot or something.”*

Participants also discussed these products being used concurrently with alcohol. A young adult OTP user said, *“You can make a social event out of it [smoking hookah]; you can drink while you’re doing it. It’s just fun.”* An adolescent OTP user said, *“...when you drink, you just crave cigarettes or something to smoke on. Usually, they just smoke cigarettes or these [LCCs].”* Participants said they often go to hookah bars to smoke with others rather than smoking alone, and that they meet new people there. Young adults, regardless of OTP use status, said that hookah bars were a fun place to go for those too young for traditional bars serving alcohol.

Participants also reported that hookah and LCCs are used for smoke tricks. An adolescent OTP user said, *“Lots of people, when smoking it [hookah], they prefer using this for smoke tricks because it’s more smoke to get let out so it’s easier for that.”* Participants stated that they liked to post videos of their smoke tricks on social media websites. A young adult OTP user said, *“They’re [LCCs] used for tricks...you can always get a lot of smoke in your mouth...someone takes a picture with a nice camera and there’s a picture with you on Facebook with smoke coming out of your mouth and your nose and you’re like, ‘Oh, I’ve made it.’”*

Flavors—Adolescent OTP users and young adult OTP users and nonusers discussed the variety of available flavors for hookah and LCCs, listing several kinds they had tried or had heard of, such as wine, chocolate, and fruit. Adolescents especially liked that LCCs came in flavors, making them more enjoyable than smoking cigarettes. For example, one adolescent OTP user said, *“Honestly, Swisher Sweets or Black & Milds are probably more enjoyable than cigarettes because cigarettes really put an awful taste in your mouth, and at least you have a flavor type thing.”*

LCC-specific themes—Unique themes emerged that were specific to LCCs. All groups except adolescent nonusers discussed liking that LCCs can be *purchased in small quantities*, such as buying one or two at a time, and that they are relatively *inexpensive*. A young adult nonuser said, *“There are some people that don’t want to go buy a whole pack of cigarettes. They just want to smoke something. They’ll go buy that [LCCs].”* LCCs are also believed to last longer than cigarettes because people usually do not smoke an entire LCC at one time. A young adult OTP user said,

“Like when they do [smoke], it’s generally like a much kind of measured pace. Like I’ll watch my friend who smokes Black & Milds...he’ll have one and he’ll short it when he’s about halfway and won’t take it all the way down and he’ll do it [smoke] in multiple settings; I’ve noticed that with numerous people who smoke cigarillos or little cigars, is that they get what they need out of it and they short it and then they’ll relight later.”

Young adult OTP users discussed LCCs as being *substitutes for cigarettes* when people run out of cigarettes. One person said *“I know a lot of people that substitute Black & Milds for cigarettes. If they run out of cigarettes, they’ll go and buy Black & Milds until the next day.”*

Because participants were asked to discuss both the good and bad things associated with these products, some of the responses were contradictory within and across focus groups. Although many participants said they liked the flavors and social nature of LCCs, some adolescent and young adult OTP users also said that LCCs are just generally “gross” and have a bad taste. One adolescent OTP user said *“It was gross. I was like, this is not fun, so I didn’t even finish it.”*

Health Effects and Potential for Discouraging Use of Hookah and LCCs

All participants brought up health effects as “bad” things associated with using hookah and LCCs. An adolescent OTP user said, *“Just the fact that if you do it [smoke LCCs] too much, it will probably kill your lungs. Well, not kill them but seriously mess them up.”* In general, participants understood that smoking tobacco in any form is bad for their long-term health. However, they said that because hookah and LCCs are smoked infrequently, they did not perceive health effects to be a big concern. For example, a young adult OTP user said, *“I feel like it depends on how frequently you use it [hookah]. If you’re like an everyday user then you have a little bit—well not a problem but you’ve got to slow down a bit if you’re worried about your health so it just depends on how frequently you use it.”*

The smoke from both hookah and LCCs was discussed extensively by all participants, especially adolescents, as a negative aspect of the products that oftentimes leads to immediate health effects, such as lightheadedness, nausea, and headaches. Some people discussed that they get lightheaded while smoking hookah because they smoke too much and are sitting in a “hazy” room full of smoke. Participants also talked about the smoke from LCCs as being unfiltered and very heavy and strong, especially compared to cigarettes. Participants discussed whether people are supposed to inhale LCC smoke, and what happens when they do inhale. A young adult nonuser said, *“I don’t know if you’re actually supposed to inhale these or not. Cigars, I believe, are meant to be held in your mouth and that cigarettes go down that hatch.”*

Adolescent users and young adult users and nonusers also discussed that they perceived the products to be less dangerous than cigarettes, such as having fewer or less severe health effects. Adolescents discussed this more extensively for LCCs. One adolescent said, *“It [LCCs] seems like it’s less bad for you because when you smoke a cigarette, I genuinely feel like I’m destroying my lungs. But when I smoke these, it didn’t seem as bad.”* One young adult user said, *“It’s [hookah] definitely filtered, though, more so than a cigarette. If you do*

it right there's not supposed to be a direct flame on the tobacco. It's supposed to heat it up and vaporize it as opposed to directly burning it, I guess lessening the tar." People discussed hookah as being "pure" without the added ingredients and chemicals that are in cigarettes, leading them to conclude that hookah is healthier. For example, one young adult nonuser said,

"It has less additives. I'm pretty sure it's just--I remember reading like different packets of it with my friend who had a hookah and she'd always try to put flavors stuff in it, it wasn't --I mean it still had like [a] warning on it, but it didn't have like as many additives. And I guess another thing; maybe you're not like burning paper and inhaling paper, too."

Perceptions of discouragement—We were interested in how adolescents and young adults thought about specific health consequences of smoking hookah and LCCs, and if the possibility of those effects would discourage them from product use.

Cosmetic effects: Overall, participants indicated that the potential for cosmetic effects, such as wrinkled skin and yellow teeth, would most discourage their use because these effects are more immediate compared to chronic health conditions. One young adult OTP user stated, *"That [cosmetic effects] would discourage me because I want to look as young as I can for as long as I can."* Adolescents discussed fears about looking older than their actual age. One nonuser said, *"I don't want to age—like look like I'm thirty when I'm twenty. That doesn't sound like fun."* Young adults also discussed ways to mitigate cosmetic effects, such as using shea butter lotion and teeth whitener. A young adult OTP user said, *"That [cosmetic effects] already bothers me, but then I just keep gum and then I whiten my teeth every day."*

Cancer & heart attacks: Participants had similar beliefs about the potential risks of both cancer and heart attacks, and said these potential risks would not discourage them from product use of hookah and LCCs. This was because of the *infrequency of use* and beliefs that they are *too young* to experience these health conditions. One young adult OTP user said, *"I don't think anyone smokes them [LCCs] often enough."* An adolescent OTP user said, *"I'm 16. I don't really think about having a heart attack. I know that might sound ignorant, but you don't really hear about people our age having heart attacks. I know it's a long term thing, but I just don't think that far ahead."* Participants said the potential for cancer specifically would not discourage them from using hookah and LCCs because they are constantly told that many different products and health behaviors cause cancer. An adolescent OTP user said, *"Wouldn't do it [discourage] that much. Because you hear almost everything causes cancer these days. Everything; that causes cancer and that causes cancer, and it will be a water bottle or something."*

Participants also discussed ways to *mitigate the risk* of having a heart attack. A young adult nonuser said, *"... And I feel like I do other stuff like eat right and work out and stuff, so it would kind of balance it out I guess."* Specific to LCCs, young adult OTP users said that they can mitigate risk by not inhaling the smoke. Additionally, participants believed that heart attacks would only happen if there was a family history of heart disease.

Nicotine addiction & gateway to smoking cigarettes: Nonusers of OTPs said that the potential for addiction or leading to cigarette smoking would discourage them from using the products. One young adult said, *“It would probably totally discourage me because I wouldn’t smoke cigarettes. So if they potentially have the same effect, then I wouldn’t smoke cigar or cigarillo or what have you.”* Participants who self-identified as dual users (cigarettes and OTP) were not worried because they were already addicted to nicotine. Others believed the products are not used frequently enough to cause nicotine addiction. One young adult nonuser said, *“I don’t ever feel myself craving it [LCCs] or anything like that. It’s just something to do, like if I’m drinking or something, it’s something to do. But it’s never like, oh, God, I need a Black cigarette...”*

Secondhand smoke exposure: Participants were mixed in their perceptions of secondhand smoke exposure effects and discouragement from using hookah and LCCs. They discussed that the smoke from both hookah and LCCs smelled good. Additionally, they said that the point of a hookah bar is to be in the smoky atmosphere, and that hookah is not usually used in public places except for hookah bars. The mixed feelings about secondhand smoke exposure were particularly salient for LCCs. OTP users stated that they were not concerned about exposing others because people know the risks associated with secondhand smoke, so they should avoid groups of smokers in public. An adolescent said, *“They would just walk away I guess. If you don’t want it, then just stand away.”* A young adult said,

“I mean, I feel like people that are around you while you’re smoking know; I think everyone knows the risks of secondhand smoke, it’s pretty publicized. So if they’re around you, then they know the risks and they’re taking the risks themselves, and they’re probably smoking with you, honestly.”

However, OTP users discussed avoiding smoking these products around children because they have less control over their environment.

Discussion

The purpose of this study was to understand adolescents’ and young adults’ perceptions about hookah and LCCs to inform strategies for developing messages to discourage use. Some of our findings echoed those of previous qualitative studies focused on these products, such as liking the flavors (e.g., Nakkash, Khalil, & Afifi, 2011; USDHHS, 1999), the social nature of using the products (e.g., Richter, Caraballo, Gupta, & Pederson, 2008), and general beliefs about health risks (e.g., Jolly, 2008; Roskin & Aveyard, 2009). However, several novel findings emerged from this study. For example, adolescents and young adults said they use LCCs and hookah concurrently with alcohol, and enjoy doing smoke tricks and posting videos of these tricks to social media. This suggests that the products are not necessarily used for nicotine consumption, but instead there is a perceived “coolness” to using them. Additionally, it raises concern for the co-use of both alcohol and OTPs, as extensive literature has demonstrated the reinforcing effects that alcohol and nicotine have on each other (e.g., Funk, Marinelli, & Lê, 2007). Additionally, the co-use of alcohol with these products reinforces the need for comprehensive smoke-free air laws. Participants also commented that hookah bars are an activity for those who are too young for traditional bars serving alcohol. Thus, social media platforms and hookah bars might be effective places to

implement risk messages, as these appear to be fruitful channels for reaching youth who use these products. These novel findings help us better understand how these products are used, and why they are appealing to some adolescents and young adults.

Our data have implications for risk communication strategies to inform message development by highlighting potential messaging themes for campaigns or warnings that may be effective in discouraging adolescents and young adults from using hookah and LCCs. First, messages could focus on correcting misperceptions by increasing knowledge and beliefs about the immediate risks and consequences of using hookah and LCCs even if used infrequently. This study focused on specific long-term health effects to better understand whether messages focused on health effects could discourage use of hookah and LCCs, which has not been addressed in previous research. In general, although they acknowledge the potential for health problems, participants were not worried about the potential long-term harms because hookah and LCCs are used infrequently. However, participants indicated that they get lightheaded from smoking and attributed it to being in a “hazy” room, but they may not attribute this symptom to carbon monoxide intoxication. Because we did not ask about the acute effects during the focus groups, additional research is needed to determine the effectiveness of this message theme, and compare it to messages focused on long-term health effects to help researchers better understand what strategy will be most effective at reducing hookah/LCC use among adolescents and young adults.

A second messaging theme is cosmetic effects of using OTPs. Participants said that messages around cosmetic effects may be effective because yellow teeth and wrinkled skin are more immediate and salient effects than other outcomes, such as cancer. Campaigns focused on cosmetic effects have shown promise in preventing and decreasing cigarette use among adolescents and young adults (Brennan, Gibson, Momjian, & Hornik, 2013a; Brennan et al., 2013b), although other studies have reported that messages with cosmetic themes are ineffective (e.g., Goldman & Glantz, 1998; Pechmann et al., 2003). The FDA’s *The Real Cost* campaign has focused several advertisements on highlighting the cosmetic effects associated with cigarette smoking, and evaluation of that campaign is currently underway (Duke et al., 2015).

Third, messages could focus on the dangerous chemicals in OTP smoke. Compared to cigarettes, participants generally perceived the products as more pure with fewer additives. Messages focused around the toxic chemicals in OTP smoke could correct the misperceptions that these products are generally safer than cigarettes.

In addition to providing potential messaging themes, this study highlighted that more research is needed to identify effective warnings for hookah and LCC packaging and industry advertisements that would discourage use for all people. A recent meta-analysis indicated that warnings on cigarette packs that contain graphic imagery (compared to text-only warnings) have greater effects on credibility, negative brand attitudes, and intention to not start smoking, among many other outcomes (Noar et al., 2015). Although most studies have focused on adults, some studies do indicate similar effects for adolescents and young adults (e.g., White, Webster, & Wakefield, 2008). In addition to eliciting a strong, negative emotional response, one reason why pictorial warnings may be effective is because they

supplement the knowledge that many individuals already have about the risks associated with smoking cigarettes with images that may make those negative consequences seem more concrete and real. If people do not perceive hookah/LCCs to be risky because they are used infrequently, then the addition of pictorial warnings may be ineffective. However, it is also possible putting pictorial warnings on LCCs or hookah may underscore that they are just as harmful as cigarettes since our participants used cigarettes as a threshold for risk.

The proposed FDA Deeming Rule states that the FDA will require the display of a health warning message on packaging and advertising (WARNING: “This product contains nicotine derived from tobacco. Nicotine is an addictive chemical”) for OTPs. Our results suggest this warning might have differential impact depending on OTP use status. OTP users were not worried about addiction to nicotine because they were already addicted or using other nicotine products, whereas nonusers expressed more concern about the potential for nicotine addiction. The impact of this warning might be stronger for susceptible nonusers than users.

Our findings also have implications for FDA regulations regarding hookah and LCCs (and potentially other OTPs). Participants stated that they liked the different available flavors for hookah and LCCs. Flavored tobacco products are more popular among adolescents and young adults compared to older adults (Klein et al., 2008; Villanti, Richardson, Vallone, & Rath, 2013), so flavor bans, similar to those implemented for cigarettes under the Family Smoking Prevention and Tobacco Control Act, may reduce the appeal of these products to adolescents and young adults. Adolescents and young adults reported that LCCs are more affordable than a pack of cigarettes because they can be purchased in small quantities, which may encourage use. Increasing minimum pack sizes for LCCs would increase the cost, potentially reducing the appeal of LCCs to adolescents and young adults, who may have less spending money than adults. Increasing prices of cigarette packs has been a very effective tobacco control policy, leading to smoking cessation and prevention (Kostova, Chaloupka, & Shang, 2014).

Limitations

Our findings may have limited generalizability because the study was conducted in one region in North Carolina. Results may differ for people from different racial, geographic, economic, or socioeconomic backgrounds. However, some of our findings were similar to previous qualitative studies that included specific sub-populations, such as African Americans (Jolly, 2008) and urban communities (Malone, Yeger, & Pearson, 2001). Additionally, our sample was highly educated. Although education attainment was not measured, many young adult participants were college students, so findings may not translate to young adults who are not in college. Also, the focus groups were structured so that no groups talked about both hookah and LCCs, so these products were not directly compared. Finally, being a current OTP user did not necessarily mean being a current hookah or LCC user.

Conclusion

This study provides an enhanced understanding of adolescents' and young adults' perceptions about hookah and LCCs to inform risk communication message development to discourage use of these products. Overall, participants were not worried about the long-term health effects associated with hookah and LCCs, but were more worried about the immediate consequences. Future research should focus on ways to creatively and effectively deliver messages to correct misperceptions regarding the risks associated with hookah and LCCs by highlighting the acute/immediate consequences of using these products.

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Figure 1.
Cigar Product Types
Source: Wake Forest Baptist Health



Figure 2.
Waterpipe Apparatus
Source: Wake Forest Baptist Health

Table 1**Demographic and Tobacco Use Behaviors by Use Status and Age Group**

	Total (N=77)	Adolescent Nonusers (n=12)	Adolescent Users (n=9)	Young Adult Nonusers (n=18)	Young Adult Users (n=38)
Mean Age	19.2	16.0	15.6	20.8	20.3
Gender					
Female	43 (56%)	7	7	13	17
Male	34 (44%)	5	2	5	21
Ethnicity					
Non-Hispanic	70 (91%)	11	9	17	33
Hispanic	7 (9%)	1	0	1	5
Race					
White	44 (57%)	7	7	11	19
Black	20 (26%)	0	0	6	14
Other	13 (17%)	3	2	0	5
Current users of hookah/LCCs	20 (43%)*	-	5	-	15
Lifetime users of hookah/LCCs	37 (79%)*	-	5	-	32
Dual/Poly tobacco users	38 (81%)*	-	8	-	30

* Based on total number of participants in the user focus groups