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Perceptions of Alternative Tobacco Products, Anti-tobacco Media, and Tobacco Regulation among Young Adults: A Qualitative Study

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Abstract

Objectives: With increased alternative tobacco product (ATP) use and lagging public health action, we explored perceptions of ATPs, anti-tobacco messaging, and tobacco regulation among young adults.

Methods: Semi-structured interviews were conducted with 60 Georgia college students aged 18–25 using: (1) cigarettes, little cigars/cigarillos (LCCs), smokeless tobacco, or e-cigarettes 15 days

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Human Subjects Approval Statement

Project DECOY was approved by the Emory University Institutional Review Board (IRB00069042) as well as those of ICF and the participating colleges and universities. Informed consent was obtained from all participants in the research.

Conflict of Interest Disclosure Statement

The authors declare no conflicts of interest.

of the past 30; or (2) hookah 10 of the past 30 days (due to lower frequency of use). Of 99 participants recruited, 80 consented, and 60 participated.

Results: Participants were on average 21.01 years old ($SD = 2.07$), 56.7% women, and 65.0% black; 56.7% reported current use of cigarettes, 43.3% LCCs, 26.7% smokeless tobacco, 45.0% e-cigarettes, and 41.7% hookah. Cigarettes were perceived as most harmful to health and most addictive. E-cigarettes and hookah were generally regarded as lowest risk. Many indicated that ATP risk information was limited or inaccessible and that most anti-tobacco campaigns were irrelevant to ATPs. Participants requested more research and dissemination of evidence regarding ATP risks and need for ATP regulation.

Conclusions: In light of low risk perceptions regarding ATPs among young adults, research, anti-tobacco campaigns, and regulation must address their known and potential risks.

Keywords

young adults; risk factors; tobacco use; risk perceptions; electronic cigarettes

Tobacco use is the leading cause of morbidity and mortality in the United States (US), accounting for almost half a million deaths per year.^{1,2} With the decline of cigarette smoking among adults, tobacco companies have focused on marketing newer tobacco products.^{1,3–7} Alternative tobacco products (ATPs) such as little cigars/cigarillos (LCCs), smokeless tobacco, e-cigarettes, and hookah have grown in popularity. In particular, this shift in ATP awareness, experimentation, and use has been pronounced among young adults.^{1,3,8–12} Estimates from 2017 indicate that ever use rates of these products range from 5% (for smokeless tobacco) to 16% (for LCCs) and current (past 30-day) use rates of 1% (for smokeless tobacco) to 3% (for LCCs) among US young adults.¹³

There are differential risks associated with different tobacco products.¹⁴ Some of these products might be less harmful than cigarettes,^{15–18} and some – particularly e-cigarettes – may facilitate harm reduction in smokers.^{15,19–23} However, ATPs may have similar or greater risk than cigarettes if used at a similar rate.^{18,24–26} Comparative risks notwithstanding, abstinence is safer than any level of use.² Other concerns include current smokers using these products as an alternative to cessation^{27,28} or use of these products leading to relapse among former smokers.²⁹ Moreover, nonsmokers, particularly young adults who experiment with these products, may become regular or addicted users^{28,30,31} or polytobacco users.^{29,31–34} A related concern is that these products may especially appeal to young adults due to the marketing strategies used to promote them, such as attractive packaging, flavoring, dissolvable delivery systems,²⁹ and social appeal.^{35–37}

Individual perceptions regarding risks associated with engaging in specific behaviors are critical predictors of behavior in most theoretical models of health behavior (eg, Social Cognitive theory,³⁸ Health Belief Model,³⁹ theory of Planned Behavior⁴⁰). Risk perceptions related to tobacco use are particularly relevant, as previous studies among youth have shown low risk perception to be a predictor of cigarette experimentation and use.^{41–43} ATPs show similar associations; for example, low perceived risk regarding the use of e-cigarettes has been associated with e-cigarette use.^{11,23,44} Despite the risks associated with using ATPs,

young adults perceive the health risks and risk of addiction related to the range of ATPs to be minimal.^{3,45,46} For example, both users and nonusers of tobacco perceive little cigars/cigarillos (LCCs), e-cigarettes, and hookah as less harmful than cigarettes.^{3,10,11,46–49} However, other studies have indicated that LCCs and smokeless tobacco have been regarded as roughly equally harmful in relation to cigarettes.^{45,47,50}

Because of the importance of risk perceptions in predicting behavior, anti-tobacco campaigns have targeted risk perceptions to reduce youth uptake and use of tobacco. Past studies have examined reactions to and impact of risk messaging as it appears on tobacco product packaging,^{9,51} as well as campaigns such as the Truth campaign,⁵² the CDC Tips campaign,⁵³ and the Real Cost campaign.⁵⁴ Unfortunately, most of these messaging strategies and anti-tobacco campaigns have lacked or had limited focus on the ATPs in the US market. Compounding the concerns regarding this gap in communications regarding risks of ATP use is lacking regulation of them to date. thus, these products may be appealing to youth because of low perceived risk of harm and addiction due to limited anti-tobacco messaging specific to these ATPs or previous regulation of ATPs. However, in May 2016, the Food and Drug Administration (FDA) announced its Deeming Regulation, which is a critical step toward potentially altering risk perceptions of ATPs.

In summary, ATPs have changed the ways in which tobacco is used in the US, particularly among young adults. Moreover, the speed with which ATPs emerged has led to a gap in health communication regarding their potential risks, both through health warnings or anti-tobacco campaigns addressing ATPs and by ATPs being regulated (eg, via substantial equivalence marketing order). However, research has not examined how young adults are interpreting the existing anti-tobacco media campaigns, largely void of messages regarding ATPs, nor their understanding of FDA regulations on ATPs. As such, this study aimed to explore perceptions of risks of ATP use (including risks to health and of addiction), perceptions of existing anti-tobacco campaigns, and attitudes regarding regulation of ATPs among young adult tobacco users.

METHODS

Participants and Procedures

The current qualitative study was conducted as part of a larger study, Project DECOY (Documenting Experiences with Cigarettes and Other Tobacco in Young Adults). Project DECOY was a 2-year, 6-wave longitudinal cohort study involving 3418 racially/ethnically diverse students (ages 18 to 25) from 7 colleges and universities in Georgia. Schools are located in both rural and urban settings and include 2 public universities/colleges, 2 private universities, 2 community/technical colleges, and one historically black university. Data collection began during fall 2014; it consisted of self-report assessments obtained via an online survey offered every 4 months for 2 years (during fall, spring, and summer). To provide additional context for the settings of this study, 2 campuses had existing comprehensive smoke-free air policies established prior to the launch of the study (one in 2009 and one in 2012); 3 implemented such policies in October 2014; one implemented such a policy during fall 2015; and one remains without a comprehensive smoke-free air policy.

Detailed information on sampling and recruitment of the parent study, Project DECOY, is described elsewhere⁵⁵ and briefly summarized here. The registrar's office from each campus provided e-mail addresses for English-speaking students ages 18–25. We randomly selected 3000 email addresses from each of the 3 largest campuses and emailed a census of students at the 4 smaller campuses with fewer than 3000 students. Response rates at the campuses ranged from 12.0% to 59.4%. The overall response rate of 22.9% (N = 3574/15,607), albeit low, was obtained over a short time frame (24 hours at the private schools to 7 days at the technical colleges) and met the sampling quota targets.⁵⁵ Our intent was to enroll participants who were engaged in email and were potentially more likely to be retained in the subsequent waves of the larger, multi-wave longitudinal project. The sociodemographic characteristics of the baseline sample were largely reflective of the student bodies of the college campuses included in this study; however, the sample was disproportionately women.⁵⁵

For this qualitative study, we recruited via email users of each tobacco product (cigarettes, LCCs, smokeless tobacco, e-cigarettes, hookah) identified at Wave 2 of Project DECOY to participate in semi-structured interviews during summer 2015. Based on the distributions of past-30-day use of each product, we established eligibility criteria to get representation from men and women and racial/ethnic diversity to the extent possible among the most frequent users in each tobacco product category. As a result of examining distributions, eligibility criteria for this portion of the study were: (1) used cigarettes, LCCs, smokeless tobacco, or e-cigarettes 15 days out of the past 30 days; or (2) used hookah 10 days out of the past 30 days (due to the lower frequency of use in this product category). Note that a sizeable proportion of participants consisted of dual or polytobacco users. Of the 99 participants recruited, 80 (80.8%) consented, and 60 (60.6%) participated in this portion of the study, at which point, saturation had been reached. Portions of this qualitative study have been published previously.^{56–58}

Qualitative Semi-structured Interviews

The COREQ (COnsolidated criteria for REporting Qualitative research) guidelines were used to guide the implementation and analyses of the semistructured interviews.⁵⁹ We conducted interviews via telephone after obtaining online consents obtained via email. The interviews were facilitated by 3 female MPH graduate students trained in qualitative data collection and lasted about 45 minutes. They were audio-recorded for subsequent coding. Participants were debriefed and compensated with a \$40 Amazon e-gift card following completion of the interview.

Data Collection

We used baseline and Wave 2 data to describe participants. The semi-structured interview guide was developed by the study team (3 School of Public Health faculty, MPH project coordinator) and explored perceptions of ATPs, perceptions of anti-tobacco media campaigns, and attitudes regarding regulation of tobacco products (Table 1). The initial interview guide was piloted through mock interviews in a sample of 3 graduate research assistants wherein we tested the clarity of the questions, which probes may be needed, and whether the phrasing of the questions allowed participants to expand their answers. The

interview guide was revised after the first 3 interviews to ensure clarity and comprehensiveness.

Data Analysis

All interviews were audio-recorded and the audio recordings were uploaded to a secure, password-protected computer, and then transcribed verbatim by a contracted professional transcription service. Qualitative data were analyzed using MAXQDA 12 (Berlin, Germany: <http://www.maxqda.com/>) and thematic analyses. Two members of the authorship team (trained MPH-level study personnel) independently reviewed all transcripts, which they then used to generate preliminary codes using deductive and inductive coding methods. All codes were compiled and developed into a code-book for analysis. Primary (ie, major topics) and secondary codes (ie, recurrent themes within primary topics) were established. Then, 2 additional MPH graduate students fully and independently from one another coded all transcripts using the developed codebook. During the second round of review by these coders, any new codes that arose during coding (which were minimal) were added to the codebook and applied to all transcripts. At this second round of coding, codes were compared, and consensus for coding was reached (Kappa = 93.3%). Final codes were used to identify the most common themes, and relevant and representative quotes were chosen. Additionally, descriptive statistics were conducted to characterize the qualitative study sample, using SPSS 23.0.

RESULTS

Participants in this qualitative study were on average 21.01 years old (SD = 2.07), 56.7% (N = 34) women, and 65.0% (N = 39) black (Table 2). In terms of tobacco product use, 56.7% (N = 34) reported current (past 30-day) cigarette use, 43.3% (N = 26) LCC use, 26.7% (N = 16) smokeless tobacco use, 45.0% (N = 27) e-cigarette use, and 41.7% (N = 25) hookah use.

Table 3 summarizes the major topic areas and themes observed. Participants described the range of health risks and risks of addiction related to the various tobacco products, reactions to and suggestions for future anti-tobacco messaging, and attitudes toward regulation of the various tobacco products.

Perceptions of Risks to Health and of Addiction

The major themes regarding the *health risks* of the cigarettes, cigar products, and smokeless tobacco involved risk of *cancer* as well as *dental problems*. Cigarettes and cigar products also were reported commonly as risk factors for *cardiovascular disease and respiratory diseases*. Smokeless tobacco was less commonly reported to be linked to cardiovascular or respiratory disease risks. Below we provide some examples of quotes that represent these perspectives. For example, one white male smokeless tobacco and e-cigarette user said:

“So, I’m aware of several different types of cancer, and emphysema, and then the diseases involved with the inhalation of tar and other chemicals found in cigarettes. Those are all pretty well documented at this point....”

In reference to cigar products, one white female cigarette user said:

“[Cigars have] probably the same risks that are associated with cigarettes. They can hurt your breathing and cause cancer and just make you have heart problems or lung problems.”

Some participants reported that using cigars was potentially more harmful than cigarettes in relation to respiratory disease risk. One white male cigarette, smokeless tobacco, and hookah user noted:

“If you inhale the cigar, the smoke from it, it’ll affect your lungs a lot faster than even cigarettes, because it’s much stronger smoke that’s going in.”

The same participant then added:

“I’ve always been told that, if you smoke cigars, just don’t inhale. It’ll sort of minimize the risk if you don’t inhale.”

As mentioned above, participants emphasized mouth cancer as a risk of smokeless tobacco use but were less certain of other types of cancers, cardiovascular disease risk, or respiratory diseases. For example, one black female cigarette user said:

“I know that smokeless tobacco has a higher risk of mouth cancer rather than lung cancer, and also with like gum disease. I think it’s just mostly because it’s more directly to your mouth, but I still don’t know all of its effects on your lungs, but I would think they were less.”

Similarly, a white male; cigarette, LCC, and smokeless tobacco user noted:

“Since you don’t smoke it, I would say it’s probably not going to have as much effect on your lungs and stuff, but I know it’s obviously in your mouth, so you’re going to have mouth related risks and throat and stomach related risks if you happen to swallow it.”

In relation to dental implications, one white female cigarette user noted:

“[Cigarette smoking] messes up your teeth, and your gums, and things like that.”

A white male smokeless tobacco user noted dental implications from cigar product use:

“The same health risks that would be associated with cigarettes being tongue and mouth cancer, loss of teeth, gum damage, gum diseases, throat cancer, lung cancer, anything tied to that.”

Particularly noteworthy, there was a broader range of perspectives regarding health risks in relation to e-cigarettes and hookah. Most participants were largely uncertain of whether e-cigarette or hookah use was associated with any of these health risks, largely because of the lack of available and easily accessible information about their health effects. A substantial proportion of participants indicated that they believed that e-cigarettes and hookah were less harmful than cigarettes, particularly related to beliefs that these products had less toxic contents than cigarettes and because they felt that water vaporization rather than combustion reduced risk. For example, one black female cigarette user said:

“I know it’s better for your lungs because it’s all just water, but it’s just the nicotine that you get, so it may be a bit safer than actually using cigarettes, because you

don't get the toxins that go in your body when you inhale. I think there's probably a lesser risk of cancer, but I'm not quite sure."

Similarly, one black female hookah user said:

"I love to think that there aren't any [health risks], but I'm pretty sure there are. It's probably going to lower your lung capacity and stuff like that, but I wouldn't say it would kill you or nothing like that. I just think it might be a little bit more negative than just consuming fresh oxygen."

Another white female cigarette, LCC, and e-cigarette user, said:

"I feel that [hookahs] are harmful, especially depending on what you put in it. I do feel, however, that they are a little bit lighter in harmfulness for the human body compared to cigarettes and dip. I feel that it's possibly better for you because of the water filtering out some of the ingredients. You can see after you're done smoking in the water like the filtration."

Only a couple of participants believed that e-cigarettes or hookah were as harmful as or more harmful than cigarettes. For example, one white female cigarette, LCC, and e-cigarette user said:

"[E-cigarettes] very harmful. There are chemicals that they're not telling you, that they are saying are water vapors. Of course, there are chemicals in there."

Regarding the *potential for addiction*, the vast majority of participants believed that cigarettes, cigar products, and smokeless tobacco were highly addictive. In reference to smokeless tobacco, one white male cigarette, LCC, and smokeless tobacco user noted:

"I would say that [smokeless tobacco] could be worse, because with a cigarette, it's a couple of minutes and it's done, but generally with smokeless tobacco, it's up to a half an hour. I would say you're probably getting more nicotine into your system, so you're probably going to have more effects from that."

The sentiment regarding whether *e-cigarettes and hookah was more varied*. For e-cigarettes, while one person commented on the fact that e-cigarettes can now be smoked in more places than cigarettes, which may be conducive to addiction, a couple of participants indicated that it depended upon whether the e-liquids contained nicotine or not. For example, one White male cigarette, smokeless tobacco and hookah user said:

"I guess it's variable with what juice is being bought with it. The e-cig is just the instrument and it doesn't actually have a specific nicotine level associated with it. I'd say it depends on what kind is purchased. But it ranges from as strong as traditional tobacco to no nicotine at all, so varying, I guess."

Hookahs were perceived to be less addictive than cigarettes, with 2 major themes arising in relation to this. First, the *lack of convenience of hookahs* made them less addictive. For example, one black female cigarette and LCC user said:

"Well, everything can be addictive, but I would say hookah [is the least], because you don't really see people smoking hookahs on a daily basis. It's not convenient to smoke a hookah. You have to actually take your time out to sit down and set it up."

Second, several participants indicated that the *social aspect* of hookah use made them less addictive. One black female LCC and e-cigarette user said:

“I feel like hookahs are more like a social thing, so I don’t really feel that hookah is all that addicting.”

Perceptions of Anti-tobacco Media

In terms of tobacco use prevention and cessation campaigns, some participants indicated how *impactful using graphic gruesome imagery* can be in deterring nonusers or users from wanting to smoke cigarettes or quit smoking, respectively. For example, one white male LCC and smokeless tobacco user noted:

“The [commercials] where the people are in the hospital and talking through tubes and stuff – that made me really not want to smoke cigarettes.”

In addition, a black female cigarette smoker highlighted the *importance of early exposure* to those types of messages, saying:

“The smoking ads where the girl goes in, she has to peel off her skin to give to the cashier. I would say, if I wasn’t already smoking, it would be pretty effective for me, and that would be it.”

In contrast, several felt like graphic messages were not impactful, especially to seasoned smokers who were aware of the health effects of smoking. Instead, several participants indicated that personal *social influences* were more important. One white male cigarette and smokeless tobacco user said:

“If you see it on TV and you don’t think about it, it’s going to go in one ear and out the other for the most part. If it’s somebody like a family member or close friend or coworker who has smoked for a long time and they have some sort of health-related issue that comes down from that, then that’s going to have a bigger effect on you than an ad campaign.”

In addition, most participants indicated that messages would be more impactful if they were relevant to and appealed to young adults, their lifestyle, and their tobacco use patterns and characteristics. In particular, most participants reported that the current anti-tobacco campaigns seemed outdated, as they *focus only on cigarette smokers and not on ATP users*. One representative quote came from a white female hookah user:

“Well, I feel like most advertising, like the campaigns I see on TV nowadays, are aimed solely towards people smoking cigarettes. You don’t really see any ads against like hookah or vaping.”

Accordingly, many participants alluded to the fact that *more research on risks related to ATP use* needs to become available. For example, one white male smokeless tobacco user said:

“I feel like more people are starting to switch from smoking cigarettes to alternatives, e-cigs, chewing tobacco, etc., etc., and I feel like that’s kind of been a shift. Maybe there isn’t as much research done, and it’s not put out there as much as cigarettes, and I think people are starting to move away from that because of all the propaganda and not really as much towards the alternatives.”

Finally, many participants indicated the need to tap into *social media* as tools to relay anti-tobacco messaging. One white male cigarette, smokeless tobacco, and hookah user suggested:

“If stuff is put up on social media, younger kids who’re just getting into it would be exposed to [the ads], so targeting social media, like anti-tobacco ads on YouTube and Facebook and stuff [would help].”

Perceptions Regarding Regulation of Tobacco Products

Several participants across different products expressed a *need to regulate the range of tobacco products*. Many participants were concerned about the chemical composition of ATPs and wanted more related information and regulation. For example, one white male cigarette and smokeless tobacco user said:

“I think that the tobacco industry should be regulated to the point that they shouldn’t be able to put whatever they want to into their product. I think the FDA should definitely want to have a role in that.”

Additionally, a handful of participants indicated that, if the information on the product is readily available, then it is *up to the consumer* to make the decision to use or not use a tobacco product. One white male LCC and smokeless tobacco user said:

“The industry is already pretty much regulated, and they have to put on the products about the health risks and stuff like that, so the rest of the decision is up to the consumer, and the consumer has the power and the will to make their own decisions about what they ingest.”

Moreover, a few participants felt that tobacco *products that pose minimal health risk should be minimally regulated*; one white male smokeless tobacco user said:

“I don’t think there’s really a need for hookah or cigars or anything like that to be regulated, just because I don’t think that they are as much of a risk. I guess you don’t really hear about people having health issues from hookah or cigars as much.”

Concerning additional regulations, a few participants suggested *increasing the legal age* to purchase tobacco products to 21 years, to avoid teen initiation. One black female cigarette user said:

“I think they need to up the age. It needs to be 21 to smoke. They need to up the age with alcohol. A lot of teenagers wouldn’t be smoking.”

DISCUSSION

Most theoretical models of health behavior^{38–40} indicate the importance of individual risk perceptions as determinants of behavior. The current findings contribute to the growing evidence that young adults have low risk perceptions to most ATPs, particularly relative to cigarettes. Moreover, these results highlight the need for anti-tobacco campaigns and health education efforts to address the risks of using the various ATPs, as well as regulation of these products to protect young adults from the potential risks.

In terms of the health effects of ATPs, there was a range of risk perceptions to health regarding use of LCCs and smokeless tobacco products, as indicated in the literature.^{50,60–62} However, in line with existing literature,^{3,10,11,45–49} participants in this study consistently regarded e-cigarettes and hookah as less harmful than cigarettes. A major theme that emerged regarding reasons for lower harm perceptions was related to the mechanisms of use of these 2 products (ie, water-based) and lack of knowledge regarding the actual make-up of these products, which determine their toxicity. In addition, these products, particularly e-cigarettes, may be used to reduce harm (ie, quit or reduce the use of combustible tobacco products).^{15,19–22} In terms of addictiveness, this sample generally perceived e-cigarettes and hookah to be less addictive than cigarettes, with a broader range of perspectives in relation to LCCs and smokeless tobacco.^{10,45,61} These issues regarding perceived risk, including both harm to health and potential for addiction, are further complicated by the fact that both e-cigarettes and hookah can be used with liquids that do not contain nicotine, which was noted by some participants. This area warrants research, particularly given evidence of the presence of toxicants and carcinogens in all products, similar to those found in cigarettes.^{63–66} Specifically, it is unknown the extent of harm attributable to the remainder of the chemicals and constituents in these non-nicotine liquids that could result in harm regardless.

Additionally, whereas almost all participants were able to name specific diseases associated with using cigarettes, as well as some related to LCCs and smokeless tobacco, participants were largely unsure about any health-related concerns from using e-cigarettes or hookah. This could be due to the scarcity of published and conclusive evidence regarding the health effects associated with short- or long-term use of ATPs, particularly hookah and e-cigarettes. These products have emerged more recently in the US market and thus, have fewer long-term research results to provide data regarding risks.

Participants in this study perceived that current anti-tobacco messaging as directed to cigarette smokers, potentially implying the safety of ATPs. Whereas some work is being done to develop messaging relevant to ATP users, this highlights an important gap in current risk messaging strategies. This also points to a critical public health problem as new products are introduced in the market, alongside strong marketing efforts, without data indicating their safety. Thus, public health researchers are left without data to inform cautionary messages until rigorous research can be conducted and conclusive findings can be aggregated. This lag also leaves public health professionals uncertain about what information can appropriately be conveyed about potential but not definitively proven risks of new products such as ATPs in the interim. As a result, the population is inherently susceptible to penetration of new tobacco and nicotine products, such as the rapid penetration of the “Juul” e-cigarette to the US.⁶⁷ Prevention strategies for new products should be developed, based on the notion that the “absence of evidence is not the evidence of absence of risk.”

In terms of messaging strategies, several participants indicated the importance of data, as they become available, being provided in consumer-friendly and relevant ways, including tailored messaging or messaging delivered by peers. Indeed, such strategies have shown to increase engagement with health behavior messaging, including tobacco cessation.^{68–71} Additional comments regarding communication channels suggested tapping more

strategically into social media as an option for disseminating anti-tobacco messaging; indeed, about 90% of young adults acquire information from social media.^{72,73} Studies show the utilization of social media to engage young adults in a variety of positive health behavior promotion strategies including anti-tobacco messaging.^{74–77} However, more can be done to leverage social media and other types of new media to address public health issues, particularly relevant to young people. Moreover, using social media also may bring more attention to these products; thus, messaging and targeting strategies should be carefully considered.

This study has implications for research and practice. In terms of research, rigorous programs of research are needed to determine the risks to health and risks for addiction related to using the various ATPs, as well as to replicate findings enabling development of a more conclusive literature regarding such risks. Additionally, for empirically-supported health risks, research is needed to develop and examine the persuasiveness and relevance of messages relaying such risks to young adults. However, the industry also should bear the burden of proof regarding the effects of products introduced into the market.⁷⁸ In terms of practice, public health practitioners need to leverage the existing evidence-base to address the known risks of ATP use and to highlight that no use is clearly safer than any use of any tobacco product. Finally, public health practitioners need to work to regulate the types of messages and communication channels that can be used to advertise ATPs. The FDA Deeming Rule is the first strong step toward strengthening these types of regulations. Because the FDA Deeming Rule includes critical regulatory changes, its implementation provides a critical time for examining compliance with these regulations over time among ATP manufacturers.

Limitations

The following limitations should be considered when interpreting results from this study. First, these are qualitative findings from a small sample of tobacco-using college students in Georgia, with the sample of smokeless tobacco users being particularly small. It is important to note that this sample did not include non-users of tobacco, which could have provided data regarding perceptions of the various tobacco products, impact of anti-tobacco campaigns, and attitudes toward regulation. These perspectives could be helpful in informing prevention strategies. Second, these findings are limited to a specific adult age range (18–25 years) and to a college-educated population. These findings are not intended to be generalizable; however, these findings may be transferable to other contexts and can inform future generalizable studies.⁷⁹ In addition, future studies could seek to identify and compare themes among tobacco non-users, adolescents, and/or older adult tobacco users.

Conclusions

It took several decades of research to develop the evidence base and develop and implement successful strategies to communicate the risks associated with cigarette smoking.¹ Likewise, today ATP use is burgeoning and outpacing empirical research on short- and long-term health effects of use as well as their addictiveness. This, in turn, has left young adult users to develop perceptions regarding ATPs based on other sources, potentially ATP marketing, media, and social influences.⁸⁰ the pending FDA regulation of these products make this a

critical time to improve understanding of young adult risk perceptions and ATP use – to evaluate and inform regulations and their enforcement, as well as to inform anti-tobacco campaigning that also addresses ATPs.

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Table 1**Example Semi-structured Interview Guide Questions****Personal Tobacco Use**

- What tobacco products have you ever used in your entire lifetime? [Probe for each.]
- *If yes:*
- Tell me about that.
- What product did you use first in your lifetime? Tell me about that experience.
- How old were you when you tried each of these products? Tell me about that.
- How often do you currently use them?
- In what situations do you use [each product] most often? Why?
- To what extent has your level of use of these products changed over time? What happened that made your use change? Why?
- How did you learn about the product(s) you currently use?
- Why did you start using [each product they have used]? Tell me more about that.

Perceived Health Risks

- What health risks do you think are associated with using [each product]?
- Which of these products do you believe have less health risks than traditional cigarettes? Why?
- Which of these do you think have the least health risks? Why?
- Which of these do you think have the greatest health risks? Why?

Perceived Addictiveness

- Do you think alternative tobacco products are addictive? Why do you think they are or aren't addictive?
- How addictive do you think [each product] is?
- Which of these products do you believe have the least risk of addiction? Why?
- Which of these products do you believe have the greatest risk of addiction? Why?

Perceptions of Anti-Tobacco Campaigns/Messaging Strategies

- What forms of anti-tobacco messaging made an impact on you in the past?
- *If none:*
- Why do you think that none of the anti-tobacco messages used in the past were impactful?
- What forms of messaging do you suggest would be impactful?
- If provides an answer:
- Can you give us some examples? Why have these messages been effective?

Perceptions of FDA Regulation of Tobacco Products

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• Cigarettes are regulated by the FDA and governments in the way they are allowed to advertise, to whom they can be marketed, how they are sold, what ingredients and warning labels they must include on packaging, and other ways.

• Do you think that alternative tobacco products such as cigars, e-cigarettes, and hookah should be regulated by some entity? Why or why not? If so, then who?

Table 2

Participant Characteristics, N = 60

Variable	M (SD) or N (%)
<i>Sociodemographics</i>	
Age (SD)	21.01 (2.07)
Sex (%)	
Female	34 (56.7)
Male	26 (43.3)
Race/Ethnicity (%)	
White	21 (35.0)
Black	39 (65.0)
School Type (%)	
Public university	18 (30.0)
Private college/university	11 (18.3)
Historically black college or university	9 (15.0)
Technical college	22 (36.7)
Residence Type	
Dorm/residence hall	13 (21.7)
At home/with parents	14 (23.3)
Other off-campus apartment or house	33 (55.0)
Employment	
Not employed	18 (30.0)
Employed part-time	33 (55.0)
Employed full-time	9 (15.0)
<i>Tobacco Use</i>	
Past 30-day Tobacco Use (%)	
Cigarettes	34 (56.7)
LCCs	26 (43.3)
Smokeless tobacco	16 (26.7)
E-cigarettes	27 (45.0)
Hookah	25 (41.7)
<i>Social Factors</i>	
Parental Use of Cigarettes (%)	21 (35.0)
Sibling Use of Cigarettes (%)	14 (23.3)
Friend Use of Cigarettes (%)	42 (70.0)
Substance Use & Mental Health	
Number of Days Alcohol Use, Past 30 Days (SD)	7.65 (7.86)
Any Marijuana Use, Past 30 Days (%)	26 (43.3)

Table 3

Themes Regarding Perceptions of Tobacco Products, Anti-tobacco Messaging, and Regulation of Tobacco among Young Adults

Risk Perceptions of Tobacco Products

Perceived Health Risks

- Cancer – cigarettes, cigar products, smokeless tobacco
- Cardiovascular disease – cigarettes, cigar products
- Respiratory disease – cigarettes, cigar products
- Dental problems – cigarettes, cigar products, smokeless tobacco
- Unsure – e-cigarettes, hookah

Perceived Addictiveness

- Highly addictive – cigarettes, cigar products, smokeless tobacco
- Unsure/less addictive than cigarettes – e-cigarettes, hookah

Perceptions of Anti-Tobacco Media

- Gruesome imagery in campaigns impactful
- Importance of early exposure to anti-tobacco campaigns
- Importance of personal social influences in deterring tobacco use
- Need to address ATPs in anti-tobacco campaigns
- Need to utilize social media to expand reach

Perceptions Regarding Regulations of Tobacco Products

- Information about product content necessary
- Consumers responsible for making decisions about use
- Minimal risk so minimal regulation
- Increasing legal age