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Message and Delivery Preferences for Online Tobacco Education among Adolescents and Young Adults

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Abstract

Use of cigarettes and non-cigarette tobacco products (NCTPs) among adolescents and young adults remains high. Strategies to communicate the risks of cigarettes and NCTPs are needed. Online tobacco education is one such strategy; however, there is little guidance for message development. We conducted four focus groups ($n=39$) with adolescent and young adult to identify message and delivery preferences for online tobacco education. Participants evaluated three existing tobacco education websites. Transcripts were coded for preferred tobacco education message content, delivery, and willingness to use online tobacco education. Participants preferred novel, concise facts, embedded links to credible sources, and an anti-industry tone for website messages. Participants expressed an aversion to message strategies that relied on scare tactics or attempted to simulate youth media trends (e.g., overuse of hashtags). To increase exposure, participants recommended using social media to drive engagement. Results serve as guidelines for *what* information adolescents and young adults desire, as well as *how* they want this information communicated with online tobacco education. Our findings – youth prefer new, fact-based information that is conveyed concisely, with sources, without authoritative tones, and delivered via social media – provides guidance for how to develop online tobacco education for this at-risk population.

Keywords

Media; Non-cigarette tobacco products; Electronic nicotine delivery systems; Prevention; Tobacco control

INTRODUCTION

Over the past 50 years, approximately 20 million people have prematurely lost their lives to tobacco-related illness (US Department of Health and Human Services, 2014). Smoking is linked to congenital malformations, ectopic pregnancies, and diseases of nearly every organ system in the body (US Department of Health and Human Services, 2014). Adult cigarette has decreased use from 42% in 1965 to 18% in 2012 due to successful tobacco control policies and programs (US Department of Health and Human Services, 2014). Cigarette smoking rates among adolescents have decreased from their peak of 36.4% in 1997 to 15.7% in 2013 (Office on Smoking and Health, 2016). Despite this progress, there is a continued need for tobacco education to reach youth, as 87% of people begin smoking cigarettes before age 18, and 98% begin before age 26.

Tobacco use broadly, including cigarettes and non-cigarette tobacco product (NCTPs), remains problematic among the nation's youth. Despite declines in cigarette use, the use of NCTPs, including cigarillos/little cigars, waterpipe (also known as hookah), and e-cigarettes, are rising among adolescents and young adults (Arrazola et al., 2015; Johnston, O'Malley, Bachman, JE, & Miech, 2015; Johnston, O'Malley, Miech, Bachman, & JE, 2015; US Department of Health and Human Services, 2014). From 2011 to 2015, high school students had increased use of e-cigarettes (1.5%–16%), and waterpipe (4.1%–7.2%; Arrazola et al., 2015). In 2014, 23% of twelfth graders reported using waterpipe in the past year, and 19% reported using little cigars (Johnston, O'Malley, Miech, et al., 2015). In 2014, 23.3% of young adults also reported using waterpipe and 18.6% of this age group reported using little cigars within the past year (Dai & Hao, 2016; Johnston, O'Malley, Bachman, et al., 2015). Through use of cigarettes and NCTPs, approximately 5.6 million under the age of 18 are projected to suffer premature deaths (US Department of Health and Human Services 2014).

Part of the increased popularity of NCTP use is rooted in the common belief that these products are less dangerous than cigarettes (Cornacchione et al., 2016; Wackowski, Bover Manderski, & Delnevo, 2015; Wagoner et al., 2016). In reality, however, all combustible tobacco products have been linked to both acute and chronic health conditions traditionally associated with cigarettes (e.g. cancer, heart disease, chronic bronchitis, etc.; Aboaziza & Eissenberg, 2014; El-Zaatari, Chami, & Zaatari, 2015; US Department of Health and Human Services, 1998). Smoke from combustible NCTPs contain many of the same toxins found in cigarette smoke, such as carbon monoxide, tobacco-specific nitrosamines, and heavy metals (US Department of Health and Human Services, 1998; Shihadeh et al., 2015). Additionally, although the specifics are unknown, e-cigarettes are not without short- and potentially long-term risks from aerosolized constituents (Cobb, Byron, Abrams, & Shields, 2010; Grana, Benowitz, & Glantz, 2014). Despite the large body of evidence regarding the dangers of cigarettes and NCTPs, use continues and misperceptions abound (E. Akl et al., 2015; E. A. Akl, Jawad, Lam, Obeid, & Irani, 2013; Aljarrah, Ababneh, & Al-Delaimy, 2009; Cavazos-Rehg, Krauss, Kim, & Emery, 2015; Cornacchione et al., 2016; Sutfin et al., 2011).

With adolescents and young adults increasingly turning to the internet for health information, one fitting response to counter tobacco use and misperceptions is online tobacco education (e.g., websites), a cost-effective and interactive approach (Lin & Hullman,

2005; Ribisl, 2003). Most U.S. teens (84%) report accessing health information online, and 25% say that they received “a lot” of health information via the internet (Wartella, Rideout, Montague, Beaudoin-Ryan, & Lauricella, 2016). While ample information about the dangers of cigarette use is available online, exposure to NCTP online marketing and messages may renormalize and promote tobacco use among youth. Over 6 millions high school students are exposed to online e-cigarette advertisements annually (Centers for Disease Control and Prevention, 2016), and YouTube videos with millions of combined views positively portray waterpipe and cigarillo smoking (Carroll, Shensa, & Primack, 2012; Richardson & Vallone, 2012). The evidence-based link between pro-tobacco online message exposure and use among youth across many products makes it necessary to educate about the dangers of all tobacco products (Cavazos-Rehg, Krauss, Spitznagel, Grucza, & Bierut, 2013; Depue, Southwell, Betzner, & Walsh, 2015; US Department of Health and Human Services, 2012).

To optimize online tobacco messages effectiveness, however, it is imperative to understand how adolescents and young adults are willing to use the internet as a source for tobacco education. While mass media campaigns have proven to be effective at increasing anti-tobacco sentiments (US Department of Health and Human Services, 2010), little information is available to guide the development of online tobacco communication, especially for NCTPs. Theory should be used to identify factors most likely to lead to desired attitudinal and behavioral outcomes (Worden & Slater, 2004). Tobacco use is largely the outcome of social influences (e.g. peers, media, marketing) and prevention and control efforts focused on changing attitudes through cognitive variables have been effective among adolescents and young adults (Brinn, Carson, Esterman, Chang, & Smith, 2010). The elaboration likelihood model (ELM) indicates if a message is to have an enduring impact on attitudes it must be attended to and engaged with by the target audience (Petty & Cacioppo, 1986). For individuals to do so, they must have the ability (e.g., time, access) and motivation, generally determined by perceived relevance and argument strength (Briñol & Petty, 2006; Briñol & Petty, 2015). Particularly important for mobile-first, digitally-connected generations, we need to determine ideal formats for sharing (and re-sharing) relevant, compelling information to have the greatest reach and impact on attitudes (Young, 2015). Thus, this study aimed to identify features and content of existing tobacco education websites that engage adolescents and young adults. Specifically, we sought to identify *what* adolescents and young adults are interested in learning from online tobacco education messages, *how* they want this information communicated, and their *willingness* to engage with tobacco information online.

METHODS

Four focus groups were used to assess adolescent and young adults’ receptivity to existing tobacco education websites and uncover insights to inform the development of future online communicate about the risks of cigarettes and NCTPs (Krueger, 2009).

Participants & Recruitment

We recruited 39 participants for four focus groups in January and February of 2016 through university listservs that reach students and employees, visits to local high schools, and

Craigslist ads. Participants were from [location blinded for review]. Participants had to be between 16 and 26 years of age and either users (current or lifetime) or susceptible nonusers (i.e., at risk) of cigarillos or little cigars, waterpipe, or e-cigarettes to be eligible. Current users were defined as individual who had used cigarillos or little cigars, waterpipe, or e-cigarettes in the past 30 days. A participant was defined as a lifetime user if he or she responded “yes, in the past year, but more than one month ago,” or “yes but more than a year ago” to the question, “Have you ever used any of the following tobacco products, even just one time?” (King, Patel, Nguyen, & Dube, 2014). A participant was defined as susceptible to future use if he or she had never used cigarillos or little cigars, waterpipe, or e-cigarettes and responded “definitely yes,” “probably yes,” or “probably no” to at least one of three questions about NCTPs: “Do you think you will use [any NCTP] soon?”; “Do you think you will use [any NCTP] in the next year?”; or “If one of your best friend were to offer you a [any NCTP], would you use it?” (Pierce, Choi, Gilpin, Farkas, & Merritt, 1996). To create homogenous groups, participants were recruited for one of the four focus groups based on their age (adolescent or young adult) and NCTP user status (user or susceptible nonuser). For adolescents, lifetime users were included in the user group to aid recruitment; all young adults users were current users.

Focus Group Procedures

Prior to each focus group, participants were provided a hard copy of the informed consent to read. The moderator then read the informed consent out loud to ensure participants understood prior to participating. Moderators were provided a detailed script to guide the structured discussion. Participants were scheduled in sessions by age, with two sessions held for adolescents (16–17 years) and two held for young adults (18–26 years), divided by use status. Sessions lasted approximately two hours with 8–11 participants per group.

After completing informed consent/assent, participants were given time to explore one of three tobacco education websites individually on iPads prior to discussing each website as a group. During the discussions, participants provided their impressions of the website, what they liked and disliked about the content and delivery of information, the perceived effectiveness of the website, and their willingness to engage with the website. This process was repeated with three different tobacco education sites – www.therealcost.com, part of the FDA’s youth tobacco prevention campaign; www.thetruth.com, part the Truth Initiative’s® (previously known as the American Legacy Foundation) national anti-tobacco campaign; and www.stillblowingsmoke.org, part of a campaign developed by the California Department of Public Health to warn about the risks of e-cigarettes. These websites were selected for their national impact or novel contributions to tobacco control efforts (Duke et al., 2015; Farrelly, Niederdeppe, & Yarsevich, 2003; Huang et al., 2017; Niederdeppe, Farrelly, & Haviland, 2004). Each tobacco website featured multiple pages for information on the health effects of tobacco use and other facts (Figure 1). Lastly, participants were asked to answer a brief questionnaire to gather demographic data. The Institutional Review Board at [university blinded for review] approved this project.

Analysis

We used a thematic content analysis approach to analyze the focus group interviews (Joffe & Yardley, 2004). All focus groups were digitally recorded and transcribed verbatim. Team members then developed a codebook that was applied to each transcript. Each transcript was coded by two independent coders. Any discrepancies in coding were settled by a third team member. Following the initial coding process, the analysis team met to identify common themes and sub-themes from each of the focus group discussions that provided insight into adolescent and young adult perceptions of tobacco education websites.

RESULTS

Table 1 displays the demographic characteristics and tobacco use of study participants. Participants were 16–26 years old and were predominantly female (59%), non-Hispanic (92.3%) and White (64.1%). Focus groups included: young adult current users (Focus group 1), young adult susceptible nonusers (Focus group 2), adolescent susceptible nonusers (Focus group 3), and adolescent current and lifetime users (Focus group 4). Emergent themes from the focus groups included information about preferred 1) message content, 2) message delivery, and 3) willingness to engage with online tobacco education, with similar sentiments for each theme among the four focus groups.

Message Content

Participants consistently expressed a strong interest in novel facts as engaging content. This new information presented in the facts was consistently mentioned as what initially caught their attention with the website, highlighted by two adolescent susceptible nonusers, “*at the beginning of the site it’s great cause you get all of those facts,*” and “*the facts themselves are pretty shocking.*” Specifically, facts with novel associations or consequences of tobacco use were also noted as intriguing. For example, one adolescent susceptible nonuser noted, “*some of the words like, I was scrolling through them and like I saw ones that I expected to see like hookah and nicotine. But then you have like hummus and penis and I’m kind of like how on earth does that connect?*”

Concisely written facts were desired, and websites were perceived as better when participants could read important information quickly. This preference was expressed by one adolescent user, “*The one thing...I did like was that whatever it had on there text-wise was very limited, and it got straight to the point.*” Another adolescent user appreciated s/he “*could get the facts by just skimming, which is something I usually do when I’m on a random website.*” One adolescent susceptible nonuser expressed the same sentiment, “*At the beginning of the site it’s great cause you get all those facts, but once you get into that wordy stuff...it just doesn’t flow at all. It just feels like I am reading a paper.*”

Participants discussed wanting facts on a variety of themes in tobacco messages. Themes that were discussed as potentially effective ranged from information on individual effects – such as health effects, financial costs, and social implications of tobacco use – to tobacco industry to product-specific information – such as facts about the chemical in products or product comparisons.

For health effects, participants consistently expressed a desire for new information, not simply content that expressed smoking is unhealthy. One adolescent tobacco user, pointed to an example attention-grabbing fact that, *“tells you something you need to know, like, the part about hookah is connected to bladder cancer. I didn’t know that. It’s the first time I heard about that.”* Similarly, according to a young adult tobacco nonuser, novel health effect information was desired, *“Well my biggest thing was that um it had information that we didn’t already know. Like we already know on those other two websites about like the health and what it does to your body... but then this goes into like how it affects kids... people would be more likely to go through it because it is giving you new information.”* Participants also preferred specific health effect information to vague references to negative health consequences. *“If I know that something is going to hurt a certain part of my body than it kind of wakes me up more, it’s like whoa that’s kind of serious,”* stated one adolescent user.

Some participants pointed out that unique non-health information, such as financial information, might be more influential to discourage tobacco use. When one young adult user commented that s/he needed to see more physical, financial, and mental reasons not to try tobacco products, another user stated, *“I would like to see more financial. That is what has been missing from every single one of them is a financial aspect.”* Ideas for interactive messaging strategies such as cost calculators or equivalency data (e.g., vaping “x” amount is equivalent to buying “x”) were suggested as novel approaches to tobacco education messaging that would be particularly relevant to those early in their career without large financial resources.

Participants repeatedly expressed interest in facts about actual product of NCTPs. Some wanted to know more about chemicals (sometimes called “constituents”) in tobacco products. For example, one adolescent susceptible nonuser was struck by the gross fact that *“there’s ingredients found in sewage and paint that you can find in these hookahs and e-cigarettes.”* Participants also desired product comparisons, with interest in understanding the differences between different sub-types of e-cigarettes products, such as comparisons between cig-a-likes and new generation models, among adolescents. One adolescent susceptible nonuser expressed a shared belief, *“I think of those [vape pens] as different than e-cigarettes because I think of vape pens as just vape, and then e-cigarettes it’s like smokers who were trying to quit and want the nicotine.”*

Participants were broadly interested in information that dispelled misperceptions about NCTPs. A young adult susceptible nonuser shared the belief that vapor consisted of *“vegetable glycerin [and] water...I didn’t understand why it was bad, I thought that was pretty healthy, so that was just something I wanted to learn more about.”* Another adolescent susceptible nonuser echoed this idea and was confused that vape pens were classified as tobacco products, *“cigarettes, tobacco products, cigarillos...and then vape pens... how does vape fit in to all this cause I didn’t know that it had like nicotine in it.”* Many agreed when another adolescent susceptible nonuser announced, *“I honestly thought vape pens were just like flavored water vapor. I had no idea.”*

Participants highlighted the lack of information about NCTPs on the existing websites they reviewed. One adolescent susceptible nonuser highlighted this, *“there was a little bit about*

smokeless tobacco and the other types of tobacco, [but] this was mainly focused on cigarettes. I mean I had to go digging to find anything about hookah or cigarillos or e-cigarettes or any of that.” Other adolescent susceptible nonusers brought up how NCTP information, when shown, was more attention-getting: *“I was more shocked by this [NCTP] information than the anti-cigarette information”* and *“In school and stuff we definitely learn more about regular cigarettes and I don’t know that much about e-cigarettes or whatever, so it was more interesting to me at least.”*

Participants regularly reported their desire for better disclosure of sources of information, or commented on how they appreciated sources of information when included on the website. One adolescent user said, *“Because if you don’t have that sort of citation, in my mind, it could be coming from anywhere. I’m not going to believe something unless it’s got proof to back it up.”* An adolescent susceptible nonuser highlighted the importance of sourcing for believability said, *“There’s no sources for any of the other facts on the other pages so if I’m looking at this why would I believe anything they’re saying if they don’t have any proof behind it?”* A young adult susceptible nonuser highlighted the importance of sourcing expressed a similar opinion, *“I love the sources, cause that’s one of the first things I look for in a lot of articles, cause like in such a digital media age, everything’s just taken at face value.”*

Message Delivery

Beyond specific message content, participants discussed how they perceived the delivery of information and its influence on their user engagement and behavior. Participants discussed message tone, or the presumed voice of the message, and generally agreed that messages should avoid scary, threatening, aggressive, or authoritative language. Participants were quick to point out perceived scare tactics, noting these were not well received from an educational website. One adolescent user said, *“It seems like they’re trying to use scare tactics rather than just facts.”* Another adolescent user followed with, *“I’m a more logical person, so you can’t scare someone into doing something. That’s not very convincing.”* Furthermore, the detection of scare tactics led many participants to believe the website messages were designed for a much younger audience. One adolescent user said, *“it seems like [it is designed for] little kids because that’s who scare tactics are effective on...little kids, like 9–10 [years old].”*

Many participants disliked an aggressive tone. One adolescent susceptible nonuser found it off-putting and a barrier to message content, *“I don’t want to continue reading cause I’m turned off by the aggressiveness of it.”* According to another adolescent susceptible nonuser, *“one thing about this is it’s kind of intimidating because its like this is a problem and you shouldn’t get hooked on the problem, but if you already are there’s not really a lot of I don’t know, like encouragement. It’s more like you’re doomed.”*

Participants also discussed their dislike for message tone, words, and phrases that attempted to simulate adolescent or young adults trends. One adolescent user referred this when s/he said, *“But I didn’t like that some of the stuff tries to be like the cool dad aspect... It’s like, ‘Sign up to find more out about the cool truth.’ It’s trying too hard.”* An adolescent susceptible nonuser echoed this opinion when discussing who might have created the site, *“I*

think it was like moms and dads trying to create a site for kids, but they don't really know how to use hashtags."

Readability and an informal tone were discussed as well-liked among participants. As one adolescent user stated, *"I did like how they were kind of informal with the language. It wasn't like, you know, scientific and too hard to understand."* Or as another adolescent susceptible nonuser put it, *"it said like real facts about real things with like real words."* Tones that empowered users were also appreciated. As stated by one susceptible adolescent nonuser, *"I think it would give that feeling. I'm not sure to what extent, but I think it's still like oh wait, if I decide to quit, I'm not alone in this and I can join this movement."* Sarcasm was also inviting when done well, as one young adult susceptible user stated, *"I liked the sarcasm. I thought it was funny. It made me laugh and I wanted to keep reading to see what else they would say."*

Lastly, participants discussed how they appreciated anti-industry focused messages, as this hybrid of tone and content shifted the focus from the individual to society-level problems. As one adolescent user stated, anti-industry information *"makes this site better... this one isn't attacking you as a person, but now it's addressing the root of the problem."* Users also cared about exposing industry-marketing tactics they disagreed with. As one adolescent user stated, *"I kind of wanted to pay attention more to like the star thing in the corner; it said, 'Large companies are targeting small children...' I felt like angry with that because it's true, but no one acknowledges it."* Another young-adult nonuser stated *"I like the incorporation of the big tobacco header cause none of the other sites had incorporated that... I think the adding how the Big Tobacco companies do manipulate you... because if people don't realize they're being manipulated it would cause them to maybe be manipulated."*

Willingness to Use Online Tobacco Education

Although many participants perceived the websites' messages to be effective for discouraging tobacco use, there were mixed feelings about how they would influence users in the real world. As one susceptible adolescent nonuser said, *"I see it as effective but I also don't really see teens going to the site on their own. They would probably have to be in health class or something for them to...click through this [website]."* Indeed, most participants reported they would not revisit or share many of the tobacco education websites.

The few who expressed interest in sharing the websites suggested they would share with people who might not know the information, such as younger individuals, peers who have never tried tobacco, or anyone trying to quit using tobacco. One adolescent user said, *"I would. It has a lot of information on it and maybe they [friends] don't know what you know."* Another adolescent added s/he would *"maybe [share with] my younger siblings."* An adolescent susceptible nonuser would share the website, *"Probably just for the e-cig factor because I know a lot of people who do use the e-cigs and they do have the wrong facts...I just know that they think it's safer than dipping or anything like that so, I would probably share it just for the e-cig."*

To engage users, participants widely suggested using social media. One adolescent susceptible nonuser recommended, *"one-click ads either on Facebook, Twitter, or Instagram"*

where it would just have like a fact or something where it would make you wanna like investigate a little further cause I, I feel like that's the only reason you would go to this site." Another adolescent susceptible nonuser agreed, "*linking it to social media would help cause I don't know anyone who would just like Google this on their own.*"

DISCUSSION

Online tobacco education (e.g., websites) is an efficient, and potentially effective, communication strategy to educate adolescents and young adults – those most susceptible to forming life-long tobacco habits – about the dangers of tobacco use. While researchers have highlighted effective themes to discourage cigarette use (Brennan, Gibson, Kybert-Momjian, Liu, & Hornik, 2017; Pechmann, Zhao, Goldberg, & Reibling, 2003), there is little guidance for how these messages should be conveyed or expanded to include NCTPs. To provide evidence-based insights for the development of broader online tobacco education, inclusive of cigarettes and NCTPs, we conducted focus groups with adolescents and young adults to better understand their reactions to current websites to identify elements that increase their ability and motivation to engage with online tobacco information.

Adolescents and young adults in our study repeatedly reported their desire for novel facts – new, unknown information with the potential to change current beliefs (Fishbein & Yzer, 2003). Whether it was specifics for how each tobacco product harms the body or debunking misperceptions (e.g., chemicals in e-cigarettes) – both of great interest – hearing something new was desired. Mirroring previous research for effective anti-tobacco themes, we also found that messages for specific negative impacts on ones' life circumstances or social disapproval may be salient among youth (Brennan et al., 2017; Pechmann et al., 2003; Sutfin, Szykman, & Moore, 2008). Our participants were familiar with the harms of smoking cigarettes and do not want these messages repeated. They were genuinely interested in *new*, product-specific information to dispel myths and differentiate products – new themes that may prove important as relative risk perceptions are associated with use (Wackowski & Delnevo, 2016).

Short, concise facts that provided more than "tobacco is bad" increased message relevance and captured the adolescents' and young adults' attention in this study – two critical factors for engaged processing (Briñol & Petty, 2006). Brevity was key. Our participants repeatedly mentioned preferences for limited text. This finding reflects media consumption trends in our distraction-heavy, digital environment; youth are increasing their multitasking and giving less sustained attention to any one task (Levine, Waite, & Bowman, 2007).

Another finding was that all facts – novel or otherwise – must have sources. Our participants wanted at-a-glance source cues, as well as the ability to access the original source. Participants visited linked sources to verify facts and learn more during our focus group sessions. They are looking for authorities worth listening to; information sources can function as a processing cue or indicator of argument strength (Petty, Briñol, & Priester, 2009). Interestingly, this overwhelming desire for sources does not align with evidence for what people actually do; many people who claim they attend to sources only remember online news sources half the time, or less (Mitchell, Gottfried, Barthel, & Shearer, 2016).

Moreover, adolescents and young adults rarely verify source information for websites, in general (Metzger, 2007; Metzger, Flanagin, & Zwarun, 2003), and for health websites in particular (Hansen, Derry, Resnick, & Richardson, 2003; Morahan-Martin, 2004). This paradox begs the question of how much sourcing is needed to satisfying the audiences' desires. It may simply be the existence of source cues that is important to convey perceptions of credible information.

The tone of the message was also important to adolescents and young adults in our study. Our participants did not respond well to messages that are authoritative, condescending, or instructional in tone (e.g., a lecture). Message tones that leave the viewer with "no choice" can illicit unintended reactance or counter arguing (Briñol & Petty, 2006). Our participants wanted information and wanted it simply put so they can make their own conclusions. Sarcasm, when used carefully for subtle humor, was appreciated; however, overt attempts at humor were not well received, mirroring previous research (Biener, Ji, Gilpin, & Albers, 2004; Sutfin et al., 2008). Perhaps most importantly, participants did not respond well to messages that they perceived as "blaming users." Participants preferred that blame – if any – be placed on the tobacco industry, effective in previous Truth Initiative® campaigns (Farrelly, Davis, Duke, & Messeri, 2009; Niederdeppe et al., 2004; Richardson, Green, Xiao, Sokol, & Vallone, 2010).

Our findings build on the limited guidance available for *how* tobacco message should be conveyed, indicating that message format should be an important consideration along with content. Our participant repeatedly offered guidance for how novel facts of varying severity should be delivered: with brevity, sources, and approved tones. Our findings do not suggest that messages should avoid effective, fear-evoking facts or themes, as health effects were appreciated across all groups (Biener et al., 2004); rather, our findings highlight the importance of sharing this information without authoritative tones or traditional scare tactics. These findings complement existing work that has identified promising themes or beliefs about tobacco use that are most likely to change behavior with suggestions of *how* they might be conveyed in online messages (Brennan et al., 2017)

Adolescents and young adults in this study generally agreed the websites would discourage tobacco use; however, many were not sure what would drive traffic to websites. Notably, although our participants were interested in learning and sharing tobacco education information, delivery via a website alone may not have the necessary reach to increase knowledge and change behavior. Our participants suggestion for social media sharing mirrors calls for tobacco control efforts to capitalize on peer-to-peer information sharing, a cost effective strategy that likely has broader reach than traditional websites or push media alone (Ribisl, 2003). Participants indicated they would share a link, especially if connecting from social media, with younger, non-tobacco users, friends trying to quit, and perhaps most importantly, to dispel myths held by peers. Our findings shed light on how increasing attention to and engagement with tobacco information is more complex than selecting content; tobacco control efforts should consider media channel (e.g., social media) preferences of adolescents and young adults – who overwhelmingly (92%) access the Internet daily, but not always in the same ways as older adults (Lenhart, 2015). Adolescents receive more news from social media than any other age demographic (Mitchell et al., 2016)

and social media messages disseminated by peers may have the greatest influence on youths' health beliefs and behaviors (Young, 2015). Thus, incorporating multiple channels (e.g., websites, social media platforms) in larger digital media strategies should be further explored in future campaigns.

Although we found consistent themes across our focus groups, which suggests these guidelines serve as potential “common denominator approaches” (Brennan et al., 2017), the findings from this study are limited to a convenience sample of four subgroups of adolescents and young adults in one region [location blinded for review]. Adolescents and young adults preferences for online tobacco education messaging may differ by region, racial, or socioeconomic backgrounds. Future studies should explore these questions with larger, and more diverse audiences in attempts to replicate and extend our findings.

CONCLUSION

Adolescent use of non-cigarette tobacco products (NCTPs), such as waterpipe, cigarillos, and e-cigarettes has increased in recent years, even as rates of combustible cigarettes have declined. Message guidelines to prevent youth initiation and reduce use of all tobacco products are needed. In this study, we identified *what* information adolescents and young adults are interested in learning from online tobacco education, as well as *how* they want this information communicated. Our findings revealed that adolescents and young adults are interested in novel facts – new, potentially myth-dispelling information that is conveyed concisely, with sources, and without authoritative tones – that can be shared easily through social media with peers.

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Figure 1.
Facts Pages from the Tobacco Education Websites Shown

Table 1.

Focus Group Participant Characteristics

	Focus Group				Total
	1	2	3	4	
Number of Participants	8	11	10	10	39
Age (<i>M</i>)	22.38	22.55	16.8	16.8	19
Gender					
Male	50%	36.4%	50%	30%	41.0%
Female	50%	63.6%	50%	70%	59%
Race					
Asian	--	9.1%	--	--	2.6%
Black or African American	37.5%	--	10%	20%	15.4%
White	50%	90.9%	90%	20%	64.1%
Other/Multi-Racial	12.5%	--	--	60%	17.9%
Ethnicity					
Non-Hispanic	100%	100%	100%	70%	92.3%
Hispanic	--	--	--	30%	7.7%