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Young adults' cigarillo risk perceptions, attention to warning labels and perceptions of proposed pictorial warnings – a focus group study.

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3 Young adults' cigarillo risk perceptions, attention to warning labels and perceptions of proposed
4 pictorial warnings – a focus group study.
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ABSTRACT

Objective: Although cigars pose similar health risks to cigarettes, they are not uniformly required to carry a warning label on their packaging in the United States. The US Food and Drug Administration's 2016 deeming rule established a cigar warning requirement, but it was challenged in federal court for failing to document warning effects on prevention/cessation, thus necessitating an evidentiary base for such requirements. We sought to explore young adult users' understanding of cigarillo risks and addictiveness, as well as their perceptions of current (voluntary) and proposed cigar warning labels.

Design: In December 2020–January 2021, we conducted eight focus groups with young adult cigarillo smokers. We asked participants their first associations of cigarillos and beliefs about product harms/addictiveness, and then discussed existing warning labels and examples of potential pictorial warnings.

Setting: Focus groups were conducted remotely via the Adobe Connect platform, with participants from 20 US states.

Participants: Participants included 42 young adults (ages 18-29; 50% male), who were recent cigarillo users (i.e., past 30 days) or less frequent users (i.e., past 12 months).

Results: Participants frequently used cigarillos as blunts and often conveyed uncertainty about cigarillo risks and addictiveness, in general and relative to cigarettes. Participants typically paid little attention to current text warnings, but many expressed that pictorial warnings would more effectively promote knowledge of product risks and discourage use among prospective users.

Conclusions: US young adult cigarillo users may lack knowledge about product risks and addictiveness. Standardized warning requirements, particularly pictorial labels, may help address this knowledge gap and deter use.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- This paper helps to address a research gap regarding the need for standard cigar warning label requirements in the US, by exploring current young adult users' understanding of product risks/addictiveness and the potential utility of uniform (possibly pictorial) warning labels.
- Strengths of this study include a focus on young adults (a key demographic for US cigarillo consumption) and inclusion of both frequent/recent and less frequent users.
- A potential limitation of the study is the generalizability of our findings, as we used a relatively small convenience sample that was not demographically representative of the overall cigarillo smoking population.
- The study was conducted online, which may have influenced the natural flow of discussion typically occurring during in-person focus groups, but this allowed us to recruit a more geographically diverse participant sample, representing 20 US states.

INTRODUCTION

Cigar smoking, like cigarette smoking, is associated with health risks including cancer, coronary heart disease, and all-cause mortality.[1, 2] Cigar products, and cigarillos in particular, are popular among minority groups[3-6] and young adults, the latter of whom cite features such as affordability and flavors (which increase product appeal and reduce perceived addictiveness[7]) as reasons for smoking.[3, 4, 8, 9] Some also misperceive cigarillos as more natural and less harmful than cigarettes and/or characterize health effects as less serious and less likely to occur.[10-12]

Warning labels are important tools in disseminating information about tobacco risks, and can increase risk knowledge[13] and encourage tobacco use cessation.[14, 15] Yet their effectiveness relies on prompting attention and cognitive processing.[16] Pictorial warnings on cigarette and e-cigarette packs can be effective in sparking attention, recall and desired changes in attitudes and intentions,[17, 18] including among young adults.[19] Research about cigarillo warnings is more limited, but some studies support greater success of pictorials, especially graphic ones, versus text warnings in eliciting attention and stronger reactions.[20, 21]

While cigarette packs have been required for decades to display warning labels,[22, 23] cigar packaging is not uniformly subject to such requirements. In 2016, the US Food and Drug Administration's (FDA) deeming rule for cigars established a requirement for text warnings on *all* cigar packaging. But this was challenged in federal court for failing to document warning effects on prevention/cessation, indicating a need to build this scientific evidence base.[24]

While some companies voluntarily comply with FDA's warning guidance, the lack of

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3 enforcement ability has resulted in non-uniform warnings (e.g., regarding presence/absence, size)
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5 across brands and channels.[25-27]
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10 Given the need for a robust evidence base regarding cigar warning label requirements and factors
11 that influence their efficacy,[28] we conducted a series of focus groups exploring young adult
12 cigarillo users' perceptions of cigarillos and their risks, and thoughts about cigarillo warning
13 labels. This paper describes participants' experiences and beliefs pertaining to cigarillo risks and
14 addictiveness, attention/reactions to current cigarillo warning labels, and opinions regarding
15 possible pictorial warnings.
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26 **METHODS**

27 **Participants and recruitment**

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31 Between December 2020 and January 2021, we conducted eight online focus groups with a
32 convenience sample of young adults (ages 18-29), each group ranging from 4-7 participants.
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34 Four groups included recent cigarillo users (i.e., past 30 days), and four included less frequent
35 users (i.e., past 12 months). Participants were recruited electronically and screened for eligibility
36
37 by a contracted research company (The Research Associates), which also hosted the online
38 platform (Adobe Connect) used for sessions. Consent letters were sent to participants before
39
40 group sessions, and the moderator reiterated participants' rights and confidentiality at the
41 beginning of sessions. The research company instructed when a sufficient number of participants
42 had signed up for each focus group; no participants dropped out after their focus group
43
44 commenced. Prior to group sessions, participants completed a brief survey including measures
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46 on demographics, tobacco use, and cigarillo perceptions. There were no repeat interviews.
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Study procedures

Data presented in this manuscript are based on a subset of topics explored in the focus groups. Each session lasted about 75 minutes and was moderated by the study's Principal Investigator (OAW¹) and recorded. Research team members (who took notes) and research company personnel joined the groups but were not visible to participants. Participants were told there are no right/wrong answers, as the moderator was interested in their perspectives on cigarillos and potential warning labels. After participant introductions, the moderator briefly showed images of different cigar product types (including cigarillos, traditional, and filtered cigars) and explained that the session would focus on cigarillos. The moderator then asked what first comes to mind when participants think of cigarillos. Next, participants were asked what they had heard about health risks of smoking cigarillos, and whether they think cigarillos are addictive. The next question asked how much participants noticed or paid attention to current warning labels on cigarillo packs or ads. Then, participants viewed, rated and discussed three cigar warning statements that were paired with a variety of test pictorial images (results regarding these images are *not* included in this manuscript). Lastly, the moderator asked participants what they thought about moving from text-only to pictorial cigarillo warnings. All study procedures were reviewed and approved by the Rutgers Biomedical and Health Sciences Institutional Review Board (Reference: Pro2020000397).

Data analysis

¹ OAW, PhD, MPH, is a female Associate Professor with training in focus group moderation and prior experience moderating 24 focus groups and 50 interviews. OAW had no prior relationship to participants.

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3 After session transcripts were checked for accuracy and cleaned, data were coded and analyzed
4 using a thematic analysis approach,[29] consistent with previous qualitative research on this
5 topic.[21, 28] Research team members cleaned and validated the transcripts, which were not
6 returned to participants. The research team agreed that the groups achieved sufficient data
7 saturation, with no substantive unique themes emerging by the last group. Two research team
8 members (OAW, ZS) developed a coding guide based on questions in the moderator guide
9 (which was based on our research questions and prior experience/literature, and included topics
10 such as warning attention and perceived addictiveness), repeated transcript readings, and
11 preliminary research memos and notes based on these readings. During this process, large
12 samples of transcript text were included in the memos and annotated (by OAW) with draft codes
13 to exemplify their use. The coding guide organized these codes per major categories of inquiry
14 (first associations, cigarillo risk perceptions, addiction perceptions, warning attention, support for
15 pictorial warnings).

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35 After discussion and agreement (by OAW and ZS) on these codes and their guide definitions and
36 application in the sampled text extracts, the codes were applied to the full transcripts using
37 Atlas.ti software. Drafts of results were then further developed and refined based on reviews of
38 coded transcripts (by OAW and ZS) and agreement that the results narrative fairly represented
39 the data. Additional project team members (SKG, MJ, AKS) reviewed these draft findings
40 (participants did not review results), which initially included numerous example quotes, to
41 further validate the descriptions in the results narrative and provide input on final quotes selected
42 (sometimes edited for brevity and clarity).

Patient or Public Involvement

Patients or the public were not involved in the design, conduct, reporting or dissemination plans of our research.

RESULTS

Participant Characteristics

Forty-two young adults (mean age=23) from 20 US states participated in study sessions. Table 1 describes participant demographics, cigarillo use, and cigarillo/warning label perceptions and intentions, as reported in the pre-session participant survey. All recent users, and about one-quarter of less frequent users, indicated being very or extremely likely to use cigarillos in the next six months.

Table 1. Focus group participant demographics

	Recent (Past 30 Day) Cigarillo Users (n=19, 4 focus groups)	Infrequent (Past 12 month) Cigarillo Users (n=23, 4 focus groups)	Total (n=42, 8 focus groups)
Sex			
Male	52.6%	47.8%	50%
Female	47.4%	52.2%	50%
Average Age (and Range)	23 (19-26)	23 (19-29)	23 (19-29)
18-20	10.5%	21.7%	16.7%
21-25	84.2%	69.6%	76.2%
26-29	5.3%	8.7%	7.1%
Race/Ethnicity			
White	68.4%	60.9%	64.3%
Black/African American	15.8%	17.4%	16.7%
Asian	5.3%	13.0%	9.5%
Hispanic	10.5%	4.3%	7.1%
Other	0	4.3%	2.4%
Highest Education Level			
High school degree/GED	5.2%	4.3%	4.8%

Some college/technical school	47.4%	47.8%	47.6%
College degree or higher	47.4%	47.8%	47.6%
Other Tobacco Use			
Smoked cigarette (ever)	84.2%	65.2%	73.8%
Smoked cigarette (in past 30 days)	57.9%	30.4%	42.9%
Used e-cigarette/vape (ever)	94.7%	73.9%	83.3%
Used e-cigarette/vape (in past 30 days)	84.2%	34.8%	57.1%
Cigarillo Brands Used			
Swisher Sweets	78.9%	65.2%	71.4%
Black & Mild	42.1%	30.4%	35.7%
White Owl	36.8%	30.4%	33.3%
Backwoods	42.1%	8.7%	23.8%
Dutch Masters	42.1%	4.3%	21.4%
Game	26.3%	4.3%	14.3%
Other	42.1%	13.0%	16.7%
Perceived Harm of Cigarillos Compared to Cigarettes			
Less harmful	31.6%	21.7%	26.2%
About the same	47.4%	60.9%	54.8%
More harmful	15.8%	13.0%	14.3%
I don't know	5.3%	4.3%	4.8%
Frequency of Noticing Health Warning on Cigarillo Packs in Past 30 Days			
Never	5.3%	21.7%	14.3%
Rarely	21.0%	17.4%	19.0%
Sometimes	31.6%	26.1%	28.6%
Often	21.0%	30.4%	26.2%
Very often	21.0%	4.3%	11.9%
Likelihood of Using a Cigarillo in Next 6 Months			
Not at all or not very likely	0	34.8%	19.0%
Somewhat likely	0	39.1%	59.5%
Very or extremely likely	100%	26.1%	21.4%
*Participants came from the following 20 states in the US: AZ (1), CA (4), CO (2), FL (2), GA (2), IL (6), MA (3), MD (1), MI (1), MN (1), MS, (1), NJ (2), NY (2), NC (1), OH (1), TX (8),			

UT (1), VA (1), WV (1), WI (1)

First Associations

When asked what *first* comes to mind when thinking of cigarillo products, participants across groups commonly referred to marijuana and/or smoking blunts. Many indicated typically using cigarillos for blunts, with all tobacco removed. Participants occasionally indicated smoking cigarillos as intended:

- “...That’s the only thing I’m using them for [marijuana, blunts]...I also smoke them for tobacco sometimes, but rarely.” (female past-30 day user)

Some participants mentioned specific brands (e.g., Swisher Sweets, Black & Mild), as well as cigarillos’ availability in different flavors. Participants also referenced the cheap price of cigarillos and their easy/convenient access:

- “...That’s the first thing I think of, convenient price.” (female past-30 day user)
- “...Convenient, you can almost...get them at any corner super easily, you know, convenience shops...” (male past-30 day user)

Cigarillo Risk Perceptions

When asked what they had heard/thought about health risks of cigarillos, participants offered a wide range of responses, sometimes expressing uncertainty. Participants generally did not describe specific risks, but referenced cigarillos as being “bad”/“not good for you”, and/or compared them to cigarettes. Across groups, several participants stated they assumed cigarillos have the same/similar health risks as cigarettes. Some thought cigarillos/cigars might be somewhat more harmful, potentially because they are unfiltered:

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3 • “Yeah, I mean I’ve gotten the impression that cigarillos are a bigger health risk just
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5 because there’s no filters...” (male past-30 day user)
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8 However, others across groups noted that they heard/believed smoking cigarillos was less
9
10 harmful than cigarettes (a belief also endorsed by 26% of participants in the pre-session survey).
11
12 These beliefs were sometimes influenced by how the product was used/modified (i.e., as blunts),
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14 or by perceptions that cigarillos were smoked less frequently. Participants also believed
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16 cigars/cigarillos were more natural and had fewer chemicals and additives than cigarettes, which
17
18 they thought could make cigarillos less harmful:
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- 21
22 • “...A little bit more natural. There’s less paper involved, so it’s more so just the leaves
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24 and so there’s less, you know, chemicals, paper, like that. And it’s more or so, you know,
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26 wholesome.” (male past-30 day user)
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31 Overall, though, several participants expressed uncertainty and lack of knowledge. This included
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33 hesitation and qualifier language (e.g., “not really sure”), as well as explicit statements indicating
34
35 they lacked knowledge about cigarillos and/or their risks compared to cigarettes. Some
36
37 mentioned not having thought about potential health risks before:
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- 40
41 • “...I haven’t really heard as much of the risks as like, say cigarettes because I feel like
42
43 that’s maybe been around for longer and people have, like, done more research on like
44
45 the risks of that.” (female past-12 month user)
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47
48 • “...I used them mostly for the wraps, so I’ve not considered the health risk much of like,
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50 actually, just smoking them...” (female past-30 day user)
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54 **Cigarillo Addictiveness Perceptions**

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3 Perceptions of cigarillo addictiveness varied widely. Several participants across groups believed
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5 cigarillos could be addictive because they are tobacco products and/or because they contain
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7 nicotine. Yet others doubted cigarillo addictiveness or thought they were less addictive than
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9 cigarettes, citing patterns of product use that seemed inconsistent with addiction, like “not
10
11 inhaling” smoke, not using them as frequently, and/or using them primarily as blunts. Others
12
13 were unsure about whether cigarillos contained nicotine (including in the wrapper) and/or
14
15 thought the nicotine was removed when taking the tobacco out for blunts:
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19 • “...I personally don’t think it’s addictive. It’s like if you’re using it for weed, it shouldn’t
20
21 be. I mean, like the nicotine, the addictive substance, is taken out...” (male past-12 month
22
23 user)
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26 Beliefs that cigarillos were less addictive than cigarettes or not addictive were also driven by
27
28 participants’ perceptions that they were not personally addicted and/or not knowing others
29
30 addicted to cigarillos:
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- 33
34 • “...I’ve never personally known anyone who has been addicted to just smoking
35
36 cigarillos. So, I don’t think that they’re addictive...Or as addictive as like a [normal]
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38 cigarette...” (female past-30 day user)
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42 **Cigarillo Warning Attention**

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44 Participants were asked how much they noticed or paid attention to warning labels on cigarillo
45
46 packs and/or ads. Some indicated they had noticed/still notice warnings. Yet, participants across
47
48 groups generally expressed that they paid little to no attention to warning labels, largely because
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50 they had seen and/or read the same ones before, knew what they said, and were not getting
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52 “new” information from them. Similarly, participants expressed being desensitized to warnings,
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3 either because of repeated exposure over time or because they did not find the warnings
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5 personally relevant due to their own usage patterns (e.g., infrequent use, use as blunts):
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8 • “I see them, but I don’t pay attention to it. I don't think I've ever actually read one.” (male
9
10 past-30 day user)
- 11
12 • “...Towards the beginning when I first started buying them, yes, I was more conscious
13
14 about it. But now, it’s like, it’s just the same thing every time. So, I don’t really pay
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16 attention to it anymore.” (female past-30 day user)
- 17
18 • “I personally don’t really pay attention to them much. I’m just using it for the wrap.”
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21 (female past-30 day user)
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24 Further, one participant stated she had not seen any warning labels on the single stick cigarillos
25
26 she purchased:
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29 • “...whenever I purchased Black & Mild, I only purchased them like singles and I’ve
30
31 never seen any kind of warning label on the single ones.” (female past-12 month user)
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36 Participants also indicated that cigar warning labels are not attention grabbing relative to other
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38 parts of cigarillo packs or more distinct product warning labels. Some commented that the
39
40 current warning was not visually noticeable, while several described having seen pictorial
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42 warnings, which were stronger and more noticeable, on cigarette packs in other countries:
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46 • “...Everything else, you know, on the labels, it kind of stands out more than that because,
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48 you know, it’s normally just a white label or yellow label and you kind of have it
49
50 disappear compared to the other things...” (male past-30 day user)
- 51
52 • “...In the Netherlands...all of their cigarettes and all of their products were like
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55 distinctively, like disgusting images, then you’re kind of reminded every second of what
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3 you're smoking versus like the Swisher Sweets and the packages are colorful. Like they
4 make it look fun and inviting versus, you know, the alternative." (female past-30 day
5 user)
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11 **Support for and Perceived Effectiveness of Cigarillo Pictorial Warning Labels**

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14 Although some participants noted the potential for pictorial warning labels (PWLs) to make
15 cigarillo packs more "crowded" or reduce the size of warning text, participants across groups
16 generally expressed support for the use of pictorials. Participants believed PWLs would be more
17 likely to grab their attention than text warnings, and could communicate messages more quickly
18 and effectively. Further, they expressed that PWLs could make cigarillo risks feel more
19 "realistic" and "personal", elicit stronger reactions by telling a story, and have more resonating
20 power:
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31 • "Yeah, I think it's totally a good idea to add images just because it's so easy to disregard
32 text. I mean most of the things that we buy, we don't read half of the information listed on
33 it. So, we're a very visual people. I think images speak louder than words in a lot of
34 senses." (male past-30 day user)
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40 • "...It definitely does better with the pictures. It resonates with me personally. Yeah, I
41 mean, like seeing another human being going through that, because that can be me one
42 day, you know, we say if I continued smoking or whatnot. But with the text, you know, I
43 mean, you can just bypass that..." (female past-30 day user)
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3 Some participants stated that PWLs could prompt consumers to reconsider their product use by
4 making them think about risks they might otherwise ignore; in fact, some noted PWLs might
5 subtly/“subconsciously” affect consumers by leaving an image in the “back of their minds”:
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- 10 • “Yeah, I think it’s a great strategy to try to gear people away from purchasing these or
11 just at least make them think...Because I think it will draw people’s attention and it could
12 make them rethink before purchasing or how frequently they do use them. I know for me,
13 it would.” (female past-12 month user)
14
- 15 • “...Even if I’m not like consciously thinking about it more, I feel like, I don’t know, the
16 images kind of like stick in your mind a little bit. So, it kind of just might be at the back
17 of [my] mind a little bit more which I guess ultimately could change how often I bought
18 them or something.” (female past-30 day user)
19
- 20 • “...I used to live in Canada and I had a friend who used rolling tobacco. And he had a
21 pack once that had a pretty gruesome image on it of brown lungs. And I feel like
22 subliminally, I was less likely to like accept his offer of a cigarette because there was that
23 image just around like in my mind sort of. So yeah, I think it is, I think it's very real...”
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25 (male past-30 day user)
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42 However, across groups, several participants indicated that for various reasons, they did not think
43 PWLs would deter them or other cigarillo smokers. Some specified that they already knew and
44 accepted the risks, were already addicted, used cigarillos infrequently, and/or primarily used
45 cigarillos for smoking marijuana. One person explained that for a warning to be effective for
46 more cigarillo smokers, it would have to be clearer that the warning applies to the entire product,
47 including the outside/wrapper:
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- “...images are much better than just the words. So, I think I’m definitely in favor of that. With that being said, this won’t change my mind at all because, you know, I’m already addicted so I’m going in to buy it.” (male past-30 day user)
 - “ I think also a large amount of people don't use these to smoke the tobacco inside of them and just use it for weed. So, the tobacco warnings aren't really deterrent at all.” (male past-12 month user)
 - “...[PWLs] would also have to be more targeted to like the whole of the product. So, when I think of these warnings, I think mainly of what’s inside, the tobacco inside it...” (female past-30 day user)

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Yet many participants also noted that even if PWLs would not personally stop them, they could be important for discouraging use among youth/young people, particularly those who had not started:

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- “... I feel like it [PWLs] would discourage a lot of like first time users. I think some people are already too addicted to probably even care about the image. But let's say it’s my first time smoking, I go buy me a cigarillo. And I look at it and I see the image on there. It may stop me from buying it.” (male past-12 month user)

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DISCUSSION

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This study presents the perspectives of young adult cigarillo users regarding cigarillo risks, current warning labels, and potential use of PWLs for cigarillos. Results suggest a general lack of knowledge about risks, inattention to existing warnings, and a preference for PWLs.

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Consistent with other research,[8] many participants indicated typically using cigarillos for

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3 blunts, which influenced their risk perceptions and attentiveness to warnings. Infrequent use also
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5 associated with lower perceived vulnerability and reduced attentiveness to warnings. Although
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7 less frequent product use may indeed be associated with lower health risks, it was notable that
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9 participants across groups conveyed a general lack of knowledge of cigarillo harms and
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11 infrequent thoughts about such harm. Common areas of uncertainty included nicotine presence in
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13 cigarillo wrappers, potential harm of cigarillos when used as blunts, and relative risks of
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15 cigarillos versus cigarettes, for which participants expressed disparate opinions. These findings
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17 highlight a need for strengthening cigar/cigarillo warning label standards to improve their
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19 efficacy as a tool for increasing understanding of product risks.
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26 The FDA has emphasized the importance of warning labels as a policy mechanism to promote
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28 product awareness and knowledge of risks.[30] While strengthening label standards may include
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30 strategies to improve attention to them, it may also entail the development of additional warning
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32 message statements to improve knowledge,[31] and/or more tailored versions of existing
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34 ones.[28] For example, even a slight adjustment to the current FDA recommended nicotine
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36 warning to explicitly include the wrapper (e.g., “This product, including the wrapper, contains
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38 nicotine...”) may be useful to address uncertainty and increase basic knowledge about
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40 cigar/cigarillo wrappers, which are made from tobacco.
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47 Our findings related to warning attention further underscore the need to optimize warnings.
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49 Participants commonly expressed inattentiveness to warnings because of low noticeability,
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51 desensitization to warnings, and/or feelings of low relevance based on use patterns. Some
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53 indicated that warnings were not very noticeable when compared to other pack features; this
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underscores a challenge that regulators face in implementing effective warning standards for cigars, in light of attractive, competing visual elements on packs (e.g., colors, promotions) that may overshadow and/or interact with warning labels. One participant highlighted the lack of any observed warnings on Black & Mild cigars sold as singles. This is concerning considering that users may not be getting relevant warning exposures on singles of popular brands like Black & Mild – which are typically smoked as a tobacco product (i.e., not as blunts) and account for a significant portion of product sales.[32, 33]

Despite overall inattention to warnings, participants across groups supported the use of PWLs on cigarillo packaging, even stating they were drawn to PWLs they previously encountered.

Consistent with broader PWL research, participants perceived PWLs as more attention getting and better able to elicit emotional/cognitive reactions than text warnings.[17, 20, 34] Indeed, several noted the stickiness of pictorials and their potential for subconscious influence by staying in the “back of [your] mind”; this hints at the utility of pictorials not just in gaining attention, but in sparking cognitive processing, which is crucial for persuasive effects.[35, 36] Of consequence, even though many participants did not see PWLs as likely to influence them, several attested that PWLs would be important for vulnerable populations/susceptible non-users, including youth, and could hinder initiation.

This study has some limitations that warrant discussion. First the generalizability of our findings may be somewhat limited by the use of a relatively small convenience sample, which overrepresented White participants and underrepresented Black participants relative to population estimates of cigarillo use. Second, due to COVID-19, groups were conducted online,

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3 which may have influenced the natural flow of discussion typically occurring during in-person
4 focus groups, though the moderator intentionally solicited feedback from all participants and
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6 incorporated opportunities to share additional feedback. Third, our groups included a mix of
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8 participants who did and did not also smoke cigarettes; groups were not stratified by cigarette
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10 smoking status. In the context of designing effective warning messages for cigarillos, future
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12 research may benefit from a more focused examination of how cigarillo risk and relative risk
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14 perceptions may differ based on poly-tobacco use.
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21
22 In summary, our findings point to important avenues for future research and health warning
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24 strategies for addressing cigarillo risk-related knowledge gaps and use behaviors among young
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26 people; moreover, they may help inform FDA regulation of cigar/cigarillo warnings. Future
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28 research should further examine making labels more salient, (e.g., color contrast, pictorial
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30 elements)[37, 38] and communicating risks of the “whole” product (i.e., including the wrapper),
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32 and should test the interaction of potential labels with other pack features. From a regulatory
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34 standpoint, it may be important to pursue some minimum standards that would apply to all
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36 cigar/cigarillo products and incorporate best practices to target different user types. This could
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38 encompass considerations of pack size (e.g., warnings for all cigar pack sizes; potentially
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40 banning sales of singles), tailored label content (e.g., acknowledging risks to occasional users),
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42 and use of pictorials, among other options. More broadly, some of the issues raised here, such as
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44 perspectives of infrequent and/or blunt-only users, could also be addressed through
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46 communication campaigns if warning standards cannot resolve all concerns. Ultimately,
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48 enhancing young adults’ knowledge of cigarillo products and their risks – and discouraging
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initiation/use – will likely warrant targeted public health campaign efforts as well as regulatory action to strengthen and standardize cigar/cigarillo warning label requirements.

For peer review only

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Competing Interests

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Contributorship Statement

SKG contributed to focus group observation and note taking, transcript cleaning/validating, review of findings, interpretation of data, paper writing and paper editing. MJ contributed to focus group observation and note taking, review of findings, interpretation of data and paper editing. AKS contributed to interpretation of data, paper writing and paper editing. ZS contributed to coding guide development, full transcript coding, drafting of results, interpretation of data and paper editing. AAS and CDD contributed to paper editing. OAW conceptualized the study, moderated the focus groups, and contributed to coding guide development, drafting of results, interpretation of data, paper writing and paper editing.

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3 **Data Sharing Statement**
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5 Data may be made available by the authors upon review of reasonable request.
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10 **Ethics Statement**
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12 The Rutgers Biomedical and Health Sciences Institutional Review Board approved this study
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14 (Reference: Pro2020000397).
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19 **Research Reporting Checklist**
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21 This manuscript reports results of focus groups, and the COREQ reporting checklist is attached.
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Research Reporting Checklist

Table 1: Consolidated criteria for reporting qualitative studies (COREQ): 32-item Checklist		
No.	Item	Guide Questions/Description
Domain 1: Research team and reflexivity		
Personal Characteristics		
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group? OAW, the Principal Investigator, served as the focus group moderator (p. 6)
2.	Credentials	What were the researcher's credentials? PhD, MPH (p. 6)
3.	Occupation	What was their occupation at the time of the study? Associate Professor (p. 6)
4.	Gender	Was the researcher male or female? Female (p. 6)
5.	Experience and training	What experience or training did the researcher have? Prior to this study, the researcher had previously attended a 4-day training of Focus Group Moderation and had moderated 24 focus groups and 50 individual interviews. (p. 6)
Relationship with participants		
6.	Relationship established	Was a relationship established prior to study commencement? There was no relationship with participants prior to study commencement. (p. 6)
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? The participants were told the researcher's (moderator's) name and the purpose of the study (to assess participant reactions, as cigarillo smokers, to images that could potentially be used for warning labels on cigarillo packs in the future). (p. 6)
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? The moderator reported her first name and the purpose of the study, and she instructed that her interest was in participant opinions about the subject material, as there were no right/wrong answers. (p. 6)
Domain 2: Study Design		
Theoretical framework		
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? We used a thematic analysis approach to analyze the focus group data. (p. 5-6)
Participant selection		

10.	Sampling	How were participants selected? Participants were identified via a convenience sample by the contracted research company (The Research Associates). (p. 5)
11.	Method of approach	How were participants approached? Participants were contacted electronically by the contracted research company. The company recruited participants from the US who met eligibility criteria regarding cigarillo use (i.e., past-30 day use for recent and past-12 month use for less frequent users). (p. 5)
12.	Sample size	How many participants were in the study? 42 participants were in the study. (p. 7)
13.	Non-participation	How many people refused to participate or dropped out? Reasons? The contracted research company notified the researchers when a sufficient number of participants had signed up for each focus group. No participants dropped out after their focus group commenced. (p. 5)
Setting		
14.	Setting of data collection	Where was the data collected? Eight focus groups were conducted online, via the Adobe Connect platform. Participants could join from any location from which they could access the virtual platform. (p. 5)
15.	Presence of non-participants	Was anyone else present besides the participants and researchers? Additional members of the research team joined each focus group but did not participate. Representatives of the contracted research company were present to provide technical assistance, as needed. These additional members were present on the online platform on the back-end only, and could not be seen or heard by participants. (p. 6)
16.	Description of sample	What are the important characteristics of the sample? 42 participants from 20 US states each took part in one of eight focus groups conducted between December 2020 and January 2021. Each group included either recent users (i.e., past-30 days) or less frequent users (i.e., past-12 months). 50% of participants were male. (p. 8-9, including Table 1)
Data collection		
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested? The moderator utilized a focus group guide with specific prompts for each set of questions, in order to ensure consistency among the eight groups. The guide

		was developed based on our research questions, our previous experience with similar focus groups, and the literature on the topic of our groups. (p.7)
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many? No repeat interviews were carried out. (p.5)
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data? The virtual focus groups utilized audio/visual recording, and the contracted research company provided the research team with access to the recordings following completion of the groups. (p. 6)
20.	Field notes	Were field notes made during and/or after the interview or focus group? Yes, research team members observing the focus groups took notes during the groups. (p. 6)
21.	Duration	What was the duration of the interviews or focus group? The focus groups were conducted between December 2020 and January 2021, and each group lasted approximately one hour and 15 minutes. (p. 5-6)
22.	Data saturation	Was data saturation discussed? Yes. No substantive unique themes/patterns were emerging by the 8 th focus group. (p. 7)
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction? Transcripts were not returned to participants for comment and/or correction. The contracted research company provided initial transcription of the groups; each transcript was then reviewed and updated by a member of the research team who had observed that respective group. (p. 7)
Domain 3: Analysis and Findings		
Data analysis		
24.	Number of data coders	How many data coders coded the data? Two research team members (OAW and ZS) developed the coding guide and applied it to sampled text extracts from the focus group transcripts. Then, one team member used software to apply the codes to the full text. (p. 7)
25.	Description of the coding tree	Did authors provide a description of the coding tree? We state that we used a coding guide, which organized the codes we developed per major categories of inquiry (first associations, cigarillo risk perceptions, addiction perceptions, warning attention, support for pictorial warnings). Our results are also organized in this way. (p. 7)

26.	Derivation of themes	<p>Were themes identified in advance or derived from the data?</p> <p>Both. The coding guide was developed based on questions in the moderator guide, as well as those derived from the data (based on repeated transcript readings, and preliminary research memos based on these readings). (p. 7)</p>
27.	Software	<p>What software, if applicable, was used to manage the data?</p> <p>Codes were applied to the full transcripts using Atlas.ti software. (p. 7)</p>
28.	Participant checking	<p>Did participants provide feedback on the findings?</p> <p>Participants did not provide feedback on the findings. (p. 7)</p>
Reporting		
29.	Quotations presented	<p>Were participant quotations presented to illustrate the themes / findings? Was each quotation identified?</p> <p>Yes, participant quotations were presented to illustrate each theme/key finding. Quotations were identified by participant sex and participant cigarillo smoking status. (p. 10-16)</p>
30.	Data and findings consistent	<p>Was there consistency between the data presented and the findings?</p> <p>Yes, each finding was directly tied to the data and example quotations. The initial results write-up was based upon review of coded transcripts by two research team members (OAW and ZS), who reached agreement that the results fairly represented the data. Results were then reviewed, refined, and validated by additional team members (SKG, MJ, AKS), who also provided input on the final selection of quotes. (p. 7, 10-16)</p>
31.	Clarity of major themes	<p>Were major themes clearly presented in the findings?</p> <p>Yes, results were grouped by topical area, with one to two key points included in each paragraph and supported with participant quotations. (p. 10-16)</p>
32.	Clarity of minor themes	<p>Is there a description of diverse cases or discussion of minor themes?</p> <p>Minor themes were presented, as applicable, with identification in the write-up of results and specification that one or a few participants raised the point. (p. 13, 15-16)</p>

BMJ Open

Young adults' cigarillo risk perceptions, attention to warning labels and perceptions of proposed pictorial warnings – a focus group study.

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ABSTRACT

Objective: Although cigars pose similar health risks to cigarettes, they are not uniformly required to carry a warning label on their packaging in the United States. The US Food and Drug Administration's 2016 deeming rule established a cigar warning requirement, but it was challenged in federal court for failing to document warning effects on prevention/cessation, thus necessitating an evidentiary base for such requirements. We sought to explore young adult users' understanding of cigarillo risks and addictiveness, as well as their perceptions of current (voluntary) and proposed cigar warning labels.

Design: In December 2020–January 2021, we conducted eight focus groups with young adult cigarillo smokers. We asked participants their first associations of cigarillos and beliefs about product harms/addictiveness, and then discussed existing warning labels and examples of potential pictorial warnings.

Setting: Focus groups were conducted remotely via the Adobe Connect platform, with participants from 20 US states.

Participants: Participants included 42 young adults (ages 18-29; 50% male), who were recent cigarillo users (i.e., past 30 days) or less frequent users (i.e., past 12 months).

Results: Participants frequently used cigarillos as blunts and often conveyed uncertainty about cigarillo risks and addictiveness, in general and relative to cigarettes. Participants typically paid little attention to current text warnings, but many expressed that pictorial warnings would more effectively promote knowledge of product risks and discourage use among prospective users.

Conclusions: US young adult cigarillo users may lack knowledge about product risks and addictiveness. Standardized warning requirements, particularly pictorial labels, may help address this knowledge gap and deter use.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- This paper helps to address a research gap regarding the need for standard cigar warning label requirements in the US, by exploring current young adult users' understanding of product risks/addictiveness and the potential utility of uniform (possibly pictorial) warning labels.
- Strengths of this study include a focus on young adults (a key demographic for US cigarillo consumption) and inclusion of both frequent/recent and less frequent users, as well as consideration of results based on patterns/type of product use (e.g., for blunts).
- A potential limitation of the study is the generalizability of our findings, as we used a relatively small convenience sample that was not demographically representative of the overall cigarillo smoking population.
- The study was conducted online, which may have influenced the natural flow of discussion typically occurring during in-person focus groups, but this allowed us to recruit a more geographically diverse participant sample, representing 20 US states.

INTRODUCTION

Cigar smoking, like cigarette smoking, is associated with health risks including cancer, coronary heart disease, and all-cause mortality.[1, 2] Cigar products, and cigarillos in particular, are popular among minority groups[3-6] and young adults, the latter of whom cite features such as affordability and flavors (which increase product appeal and reduce perceived addictiveness[7]) as reasons for smoking.[3, 4, 8, 9] Some also misperceive cigarillos as more natural and less harmful than cigarettes and/or characterize health effects as less serious and less likely to occur. [10-12] Research suggests that some of these perceptions can be influenced by product use patterns and modifications (e.g., for use as blunts),[13] though cigarillo risk perception studies do not consistently consider such patterns.

Warning labels are important tools in disseminating information about tobacco risks, and can increase risk knowledge[14] and encourage tobacco use cessation.[15, 16] Yet their effectiveness relies on prompting attention and cognitive processing.[17] Pictorial warnings on cigarette and e-cigarette packs can be effective in sparking attention, recall and desired changes in attitudes and intentions,[18, 19] including among young adults.[20] Research about cigarillo warnings is more limited, but some studies support greater success of pictorials, especially graphic ones, versus text warnings in eliciting attention and stronger reactions.[21, 22]

While cigarette packs have been required for decades to display warning labels,[23, 24] cigar packaging is not uniformly subject to such requirements. In 2016, the US Food and Drug Administration's (FDA) deeming rule for cigars established a requirement for text warnings on *all* cigar packaging. But this was challenged in federal court for failing to document warning

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3 effects on prevention/cessation, indicating a need to build this scientific evidence base.[25]

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5 While some companies voluntarily comply with FDA's warning guidance, the lack of
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7 enforcement ability has resulted in non-uniform warnings (e.g., regarding presence/absence, size)
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9 across brands and channels.[26-28]

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14 Given the need for a robust evidence base regarding cigar warning label requirements and factors
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16 that influence their efficacy,[29] we conducted a series of focus groups exploring young adult
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18 cigarillo users' perceptions of cigarillos and their risks, and thoughts about cigarillo warning
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20 labels. This paper describes participants' experiences and beliefs pertaining to cigarillo risks and
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22 addictiveness (including variations in risk perceptions based on type of use, such as
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24 modifications for use as blunts), attention/reactions to current cigarillo warning labels, and
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26 opinions regarding possible pictorial warnings.
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33 **METHODS**

34 **Participants and recruitment**

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36 Between December 2020 and January 2021, we conducted eight online focus groups with a
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38 convenience sample of young adults (ages 18-29), each group ranging from 4-7 participants.
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40 Four groups included recent cigarillo users (i.e., past 30 days), and four included less frequent
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42 users (i.e., past 12 months). Participants were recruited electronically and screened for eligibility
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44 by a contracted research company (The Research Associates), which also hosted the online
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46 platform (Adobe Connect) used for sessions. Consent letters were sent to participants before
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48 group sessions for review, and the moderator reiterated participants' rights and confidentiality at
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50 the beginning of sessions, at which point participants provided verbal/visual consent (raised
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3 hands) that they wished to proceed with participation. The research company instructed when a
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5 sufficient number of participants had signed up for each focus group; no participants dropped out
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7 after their focus group commenced. Prior to group sessions, participants completed a brief survey
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9 including measures on demographics, tobacco use, and cigarillo perceptions. There were no
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11 repeat interviews.
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17 **Study procedures**

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19 Data presented in this manuscript are based on a subset of topics explored in the focus groups.
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21 Each session lasted about 75 minutes and was moderated by the study's Principal Investigator
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23 (OAW¹) and recorded. Research team members (who took notes) and research company
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25 personnel joined the groups but were not visible to participants. Participants were told there are
26
27 no right/wrong answers, as the moderator was interested in their perspectives on cigarillos and
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29 potential warning labels. After participant introductions, the moderator briefly showed images of
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31 different cigar product types (including cigarillos, traditional, and filtered cigars) and explained
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33 that the session would focus on cigarillos. The moderator then asked what first comes to mind
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35 when participants think of cigarillos. Next, participants were asked what they had heard about
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37 health risks of smoking cigarillos, and whether they think cigarillos are addictive. The next
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39 question asked how much participants noticed or paid attention to current warning labels on
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41 cigarillo packs or ads. Then, participants viewed, rated and discussed three of seven cigar
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43 warning statements put forth by the FDA (see Supplementary Table S1)[25] (statements were
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45 split across groups) that were paired with a variety of test pictorial images (results regarding
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47 these specific statements/images are *not* included in this manuscript). Lastly, the moderator
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54 ¹ OAW, PhD, MPH, is a female Associate Professor with training in focus group moderation and prior
55 experience moderating 24 focus groups and 50 interviews. OAW had no prior relationship to participants.
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3 asked participants what they thought about moving from text-only to pictorial cigarillo warnings.
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5 All study procedures were reviewed and approved by the Rutgers Biomedical and Health
6 Sciences Institutional Review Board (Reference: Pro2020000397).
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11 **Data analysis**

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14 After session transcripts were checked for accuracy and cleaned, data were coded and analyzed
15 using a thematic analysis approach,[30] consistent with previous qualitative research on this
16 topic.[22, 29] Research team members cleaned and validated the transcripts, which were not
17 returned to participants. The research team agreed that the groups achieved sufficient data
18 saturation, with no substantive unique themes emerging by the last group. Two research team
19 members (OAW, ZS) developed a coding guide based on questions in the moderator guide
20 (which was based on our research questions and prior experience/literature, and included topics
21 such as warning attention and perceived addictiveness), repeated transcript readings, and
22 preliminary research memos and notes based on these readings. During this process, large
23 samples of transcript text were included in the memos and annotated (by OAW) with draft codes
24 to exemplify their use. The coding guide organized these codes per major categories of inquiry
25 (first associations, cigarillo risk perceptions, addiction perceptions, warning attention, support for
26 pictorial warnings).
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47 After discussion and agreement (by OAW and ZS) on these codes and their guide definitions and
48 application in the sampled text extracts, the codes were applied to the full transcripts using
49 Atlas.ti software. Drafts of results were then further developed and refined based on reviews of
50 coded transcripts (by OAW and ZS) and agreement that the results narrative fairly represented
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the data. Additional project team members (SKG, MJ, AKS) reviewed these draft findings (participants did not review results), which initially included numerous example quotes, to further validate the descriptions in the results narrative and provide input on final quotes selected (sometimes edited for brevity and clarity).

Patient or Public Involvement

Patients or the public were not involved in the design, conduct, reporting or dissemination plans of our research.

RESULTS

Participant Characteristics

Forty-two young adults from 20 US states participated in study sessions. Table 1 describes participant demographics, tobacco use history, and likelihood of product use within the next six months, as reported in the pre-session participant survey. It also presents pre-session survey results on cigarillo harm perceptions and frequency of noticing warning labels on cigarillo packs.

Table 1. Focus group participant demographics			
	Recent (Past 30 Day) Cigarillo Users (n=19, 4 focus groups)	Infrequent (Past 12 month) Cigarillo Users (n=23, 4 focus groups)	Total (n=42, 8 focus groups)
Sex			
Male	52.6%	47.8%	50%
Female	47.4%	52.2%	50%
Average Age (and Range)	23 (19-26)	23 (19-29)	23 (19-29)
18-20	10.5%	21.7%	16.7%
21-25	84.2%	69.6%	76.2%
26-29	5.3%	8.7%	7.1%
Race/Ethnicity			

White	68.4%	60.9%	64.3%
Black/African American	15.8%	17.4%	16.7%
Asian	5.3%	13.0%	9.5%
Hispanic	10.5%	4.3%	7.1%
Other	0	4.3%	2.4%
Highest Education Level			
High school degree/GED	5.2%	4.3%	4.8%
Some college/technical school	47.4%	47.8%	47.6%
College degree or higher	47.4%	47.8%	47.6%
Other Tobacco Use			
Smoked cigarette (ever)	84.2%	65.2%	73.8%
Smoked cigarette (in past 30 days)	57.9%	30.4%	42.9%
Used e-cigarette/vape (ever)	94.7%	73.9%	83.3%
Used e-cigarette/vape (in past 30 days)	84.2%	34.8%	57.1%
Cigarillo Brands Used			
Swisher Sweets	78.9%	65.2%	71.4%
Black & Mild	42.1%	30.4%	35.7%
White Owl	36.8%	30.4%	33.3%
Backwoods	42.1%	8.7%	23.8%
Dutch Masters	42.1%	4.3%	21.4%
Game	26.3%	4.3%	14.3%
Other	42.1%	13.0%	16.7%
Perceived Harm of Cigarillos Compared to Cigarettes			
Less harmful	31.6%	21.7%	26.2%
About the same	47.4%	60.9%	54.8%
More harmful	15.8%	13.0%	14.3%
I don't know	5.3%	4.3%	4.8%
Frequency of Noticing Health Warning on Cigarillo Packs in Past 30 Days			
Never	5.3%	21.7%	14.3%
Rarely	21.0%	17.4%	19.0%
Sometimes	31.6%	26.1%	28.6%
Often	21.0%	30.4%	26.2%
Very often	21.0%	4.3%	11.9%

Likelihood of Using a Cigarillo in Next 6 Months			
Not at all or not very likely	0	34.8%	19.0%
Somewhat likely	0	39.1%	59.5%
Very or extremely likely	100%	26.1%	21.4%

*Participants came from the following 20 states in the US: AZ (1), CA (4), CO (2), FL (2), GA (2), IL (6), MA (3), MD (1), MI (1), MN (1), MS, (1), NJ (2), NY (2), NC (1), OH (1), TX (8), UT (1), VA (1), WV (1), WI (1)

First Associations

When asked what *first* comes to mind when thinking of cigarillo products, participants across groups commonly referred to marijuana and/or smoking blunts. Many indicated typically using cigarillos for blunts, with all tobacco removed. Participants occasionally indicated smoking cigarillos as intended:

- “...That’s the only thing I’m using them for [marijuana, blunts]...I also smoke them for tobacco sometimes, but rarely.” (female past-30 day user)

Some participants mentioned specific brands (e.g., Swisher Sweets, Black & Mild), as well as cigarillos’ availability in different flavors. Participants also referenced the cheap price of cigarillos and their easy/convenient access:

- “...That’s the first thing I think of, convenient price.” (female past-30 day user)
- “...Convenient, you can almost...get them at any corner super easily, you know, convenience shops...” (male past-30 day user)

Cigarillo Risk Perceptions

When asked what they had heard/thought about health risks of cigarillos, participants offered a wide range of responses, sometimes expressing uncertainty. Participants generally did not

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3 describe specific risks, but referenced cigarillos as being “bad”/“not good for you”, and/or
4 compared them to cigarettes. Across groups, several participants stated they assumed cigarillos
5 have the same/similar health risks as cigarettes. Some thought cigarillos/cigars might be
6 somewhat more harmful, potentially because they are unfiltered:
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- 11 • “Yeah, I mean I’ve gotten the impression that cigarillos are a bigger health risk just
12 because there’s no filters...” (male past-30 day user)
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16 However, others across groups noted that they heard/believed smoking cigarillos was less
17 harmful than cigarettes (a belief also endorsed by 26% of participants in the pre-session survey).
18 These beliefs were sometimes influenced by how the product was used/modified (i.e., as blunts,
19 with removal of the tobacco inside):
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- 25 • “I don’t think a cigarillo would be as bad as like a cigarette...you take the inside out”
26 (male past-12 month user)
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31 Participants also believed cigars/cigarillos were more natural and had fewer chemicals and
32 additives than cigarettes, which they thought could make cigarillos less harmful:
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- 35 • “...A little bit more natural. There’s less paper involved, so it’s more so just the leaves
36 and so there’s less, you know, chemicals, paper, like that. And it’s more or so, you know,
37 wholesome.” (male past-30 day user)
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- 41 • “...If it is the actual leaf itself, you know, it’s nothing artificial, so, it might not cause as
42 much harm as something, you know, made in a factory.” (male past-12 month user)
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- 46 • “Along the same lines, I guess like why I’m more okay with cigarillos from smoking
47 cigarettes is from what I’ve heard and read. Cigarettes have like more just chemicals
48 sprayed on them and more things added that you know, lead to more tar or that works on
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3 your lungs. As far as I heard that cigars and cigarillos either with just the tobacco or they
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5 just have less other stuff added to it.” (male past-30 day user)
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8 Overall, though, several participants expressed uncertainty and lack of knowledge. This included
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10 hesitation and qualifier language (e.g., “not really sure”), as well as explicit statements indicating
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12 they lacked knowledge about cigarillos and/or their risks compared to cigarettes. One person
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14 mentioned not knowing that the outside wrapper was made out of tobacco when they first started
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16 using cigarillos. Some mentioned not having thought about potential health risks before, because
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18 for example, they had not heard much about cigarillo risks, or because they used the product
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20 mostly for blunts:
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24 • “...I haven’t really heard as much of the risks as like, say cigarettes because I feel like
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26 that’s maybe been around for longer and people have, like, done more research on like
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28 the risks of that.” (female past-12 month user)
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31 • “...I used them mostly for the wraps, so I’ve not considered the health risk much of like,
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33 actually, just smoking them...” (female past-30 day user)
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38 **Cigarillo Addictiveness Perceptions**

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40 Perceptions of cigarillo addictiveness varied widely. Several participants across groups believed
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42 cigarillos could be addictive because they are tobacco products and/or because they contain
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44 nicotine. Yet others doubted cigarillo addictiveness or thought they were less addictive than
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46 cigarettes, citing patterns of product use that seemed inconsistent with addiction, like “not
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48 inhaling” smoke, not using them as frequently, and/or using them primarily as blunts. Others
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50 were unsure about whether cigarillos contained nicotine (including in the wrapper) and/or
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52 thought the nicotine was removed when taking the tobacco out for blunts:
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- “...I personally don’t think it’s addictive. It’s like if you’re using it for weed, it shouldn’t be. I mean, like the nicotine, the addictive substance, is taken out...” (male past-12 month user)

10 Beliefs that cigarillos were less addictive than cigarettes or not addictive were also driven by
11 participants’ perceptions that they were not personally addicted and/or not knowing others
12 addicted to cigarillos:
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- “...I’ve never personally known anyone who has been addicted to just smoking cigarillos. So, I don’t think that they’re addictive...Or as addictive as like a [normal] cigarette...” (female past-30 day user)

26 **Cigarillo Warning Attention**

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28 Participants were asked how much they noticed or paid attention to warning labels on cigarillo
29 packs and/or ads. Some indicated they had noticed/still notice warnings. Yet, participants across
30 groups generally expressed that they paid little to no attention to warning labels, largely because
31 they had seen and/or read the same ones before, knew what they said, and were not getting
32 “new” information from them. Similarly, participants expressed being desensitized to warnings,
33 either because of repeated exposure over time or because they did not find the warnings
34 personally relevant due to their own usage patterns (e.g., infrequent use, use as blunts):
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- “I see them, but I don’t pay attention to it. I don’t think I’ve ever actually read one.” (male past-30 day user)
 - “...Towards the beginning when I first started buying them, yes, I was more conscious about it. But now, it’s like, it’s just the same thing every time. So, I don’t really pay attention to it anymore.” (female past-30 day user)

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3 • “I personally don’t really pay attention to them much. I’m just using it for the wrap.”
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5 (female past-30 day user)
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8 Further, one participant stated she had not seen any warning labels on the single stick cigarillos
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10 she purchased:

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12 • “...whenever I purchased Black & Mild, I only purchased them like singles and I’ve
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14 never seen any kind of warning label on the single ones.” (female past-12 month user)
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19 Participants also indicated that cigar warning labels are not attention grabbing relative to other
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21 parts of cigarillo packs or more distinct product warning labels. Some commented that the
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23 current warning was not visually noticeable, while several described having seen pictorial
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25 warnings, which were stronger and more noticeable, on cigarette packs in other countries:
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29 • “...Everything else, you know, on the labels, it kind of stands out more than that because,
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31 you know, it’s normally just a white label or yellow label and you kind of have it
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33 disappear compared to the other things...” (male past-30 day user)
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36 • “...In the Netherlands...all of their cigarettes and all of their products were like
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38 distinctively, like disgusting images, then you’re kind of reminded every second of what
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40 you’re smoking versus like the Swisher Sweets and the packages are colorful. Like they
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42 make it look fun and inviting versus, you know, the alternative.” (female past-30 day
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44 user)
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49 **Support for and Perceived Effectiveness of Cigarillo Pictorial Warning Labels**

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51 Although some participants noted the potential for pictorial warning labels (PWLs) to make
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53 cigarillo packs more “crowded” or reduce the size of warning text, participants across groups
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3 generally expressed support for the use of pictorials. Participants believed PWLs would be more
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5 likely to grab their attention than text warnings, and could communicate messages more quickly
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7 and effectively. Further, they expressed that PWLs could make cigarillo risks feel more
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9 “realistic” and “personal”, elicit stronger reactions by telling a story, and have more resonating
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11 power:
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- 14 • “Yeah, I think it’s totally a good idea to add images just because it's so easy to disregard
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16 text. I mean most of the things that we buy, we don't read half of the information listed on
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18 it. So, we’re a very visual people. I think images speak louder than words in a lot of
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20 senses.” (male past-30 day user)
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- 23 • “...It definitely does better with the pictures. It resonates with me personally. Yeah, I
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25 mean, like seeing another human being going through that, because that can be me one
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27 day, you know, we say if I continued smoking or whatnot. But with the text, you know, I
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29 mean, you can just bypass that...” (female past-30 day user)
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36 Some participants stated that PWLs could prompt consumers to reconsider their product use by
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38 making them think about risks they might otherwise ignore; in fact, some noted PWLs might
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40 subtly/“subconsciously” affect consumers by leaving an image in the “back of their minds”:
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- 43 • “Yeah, I think it’s a great strategy to try to gear people away from purchasing these or
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45 just at least make them think...Because I think it will draw people’s attention and it could
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47 make them rethink before purchasing or how frequently they do use them. I know for me,
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49 it would.” (female past-12 month user)
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- 52 • “...Even if I’m not like consciously thinking about it more, I feel like, I don’t know, the
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54 images kind of like stick in your mind a little bit. So, it kind of just might be at the back
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3 of [my] mind a little bit more which I guess ultimately could change how often I bought
4 them or something.” (female past-30 day user)

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8 • “...I used to live in Canada and I had a friend who used rolling tobacco. And he had a
9 pack once that had a pretty gruesome image on it of brown lungs. And I feel like
10 subliminally, I was less likely to like accept his offer of a cigarette because there was that
11 image just around like in my mind sort of. So yeah, I think it is, I think it's very real...”
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17 (male past-30 day user)

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21 However, across groups, several participants indicated that for various reasons, they did not think
22 PWLs would deter them or other cigarillo smokers. Some specified that they already knew and
23 accepted the risks, were already addicted, used cigarillos infrequently, and/or primarily used
24 cigarillos for smoking marijuana. One person explained that for a warning to be effective for
25 more cigarillo smokers, it would have to be clearer that the warning applies to the entire product,
26 including the outside/wrapper:
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35 • “...images are much better than just the words. So, I think I’m definitely in favor of that.
36 With that being said, this won’t change my mind at all because, you know, I’m already
37 addicted so I’m going in to buy it.” (male past-30 day user)
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42 • “ I think also a large amount of people don't use these to smoke the tobacco inside of
43 them and just use it for weed. So, the tobacco warnings aren't really deterrent at all.”
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47 (male past-12 month user)
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49 • “...[PWLs] would also have to be more targeted to like the whole of the product. So,
50 when I think of these warnings, I think mainly of what’s inside, the tobacco inside it...”
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54 (female past-30 day user)
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5 Yet many participants also noted that even if PWLs would not personally stop them, they could
6 be important for discouraging use among youth/young people, particularly those who had not
7 started:
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12 • "... I feel like it [PWLs] would discourage a lot of like first time users. I think some
13 people are already too addicted to probably even care about the image. But let's say it's
14 my first time smoking, I go buy me a cigarillo. And I look at it and I see the image on
15 there. It may stop me from buying it." (male past-12 month user)
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24 **DISCUSSION**

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26 This study presents the perspectives of young adult cigarillo users regarding cigarillo risks,
27 current warning labels, and potential use of PWLs for cigarillos. In addition to some perceptions
28 that cigarillos are more "natural" types of tobacco, results suggest a general lack of knowledge
29 about risks, inattention to existing warnings, and a preference for PWLs. Consistent with other
30 research,[8] many participants indicated typically using cigarillos for blunts, which influenced
31 their risk perceptions and attentiveness to warnings. This shows that the manner in which
32 cigarillos are used (e.g., for blunts) is directly relevant to risk perceptions, a finding that expands
33 prior research in this area. Infrequent use also associated with lower perceived vulnerability and
34 reduced attentiveness to warnings. Although less frequent product use may indeed be associated
35 with lower health risks, it was notable that participants across groups conveyed a general lack of
36 knowledge of cigarillo harms and infrequent thoughts about such harm. Common areas of
37 uncertainty included nicotine presence in cigarillo wrappers, potential harm of cigarillos when
38 used as blunts, and relative risks of cigarillos versus cigarettes, for which participants expressed
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3 disparate opinions. These findings indicate potential confusion regarding overall cigarillo risks
4 and risks of smoking a whole cigarillo or part (e.g., the wrap). They also highlight a need for
5 strengthening cigar/cigarillo warning label standards to improve their efficacy as a tool for
6 increasing understanding of product risks.
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14 The FDA has emphasized the importance of warning labels as a policy mechanism to promote
15 product awareness and knowledge of risks.[31] While strengthening label standards may include
16 strategies to improve attention to them, it may also entail the development of additional warning
17 message statements to improve knowledge,[32] and/or more tailored versions of existing
18 ones.[13, 29] For example, even a slight adjustment to the current FDA recommended nicotine
19 warning to explicitly include the wrapper (e.g., “This product, including the wrapper, contains
20 nicotine...”) may be useful to address uncertainty and increase basic knowledge about
21 cigar/cigarillo wrappers, which are made from tobacco.
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35 Our findings related to warning attention further underscore the need to optimize warnings.
36 Participants commonly expressed inattentiveness to warnings because of low noticeability,
37 desensitization to warnings, and/or feelings of low relevance based on use patterns. Some also
38 indicated that warnings were not very noticeable when compared to other pack features; this
39 underscores a challenge that regulators face in implementing effective warning standards for
40 cigars, in light of attractive, competing visual elements on packs (e.g., colors, promotions) that
41 may overshadow and/or interact with warning labels. One participant highlighted the lack of any
42 observed warnings on Black & Mild cigars sold as singles. This is concerning considering that
43 users may not be getting relevant warning exposures on singles of popular brands like Black &
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3 Mild – which are typically smoked as a tobacco product (i.e., not as blunts) and account for a
4 significant portion of product sales.[33, 34] Many of these issues around warning noticeability
5 could also apply to cigarette and other tobacco packaging, yet in this context, they highlight
6 concerns about the inconsistent application of cigar warnings and the need for uniform
7 regulations like those applied to cigarettes. Recent survey research has found high cigarillo harm
8 perceptions among users who more frequently noticed warnings,[13] but relatively low levels of
9 noticing cigarillo warnings.[35]
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21 Despite overall inattention to warnings, participants across groups supported the use of PWLs on
22 cigarillo packaging, even stating they were drawn to PWLs they previously encountered.
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24 Consistent with broader PWL research, participants perceived PWLs as more attention getting
25 and better able to elicit emotional/cognitive reactions than text warnings.[18, 21, 36] Indeed,
26 several noted the stickiness of pictorials and their potential for subconscious influence by staying
27 in the “back of [your] mind”; this hints at the utility of pictorials not just in gaining attention, but
28 in sparking cognitive processing, which is crucial for persuasive effects.[37, 38] Of consequence,
29 even though many participants did not see PWLs as likely to influence them, several attested that
30 PWLs would be important for vulnerable populations/susceptible non-users, including youth, and
31 could hinder initiation. The results regarding PWLs further underscore that many of the same
32 issues regarding tobacco labeling in general affect cigarillo labeling, and reinforce the
33 importance of making cigar warning standards commensurate with those of cigarettes.
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51 This study has some limitations that warrant discussion. First the generalizability of our findings
52 may be limited by the use of a relatively small convenience sample, which overrepresented
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3 White participants and underrepresented Black participants relative to population estimates of
4 cigarillo use. This may have influenced the dearth of discussion about “freaking” (or removing
5 the filter paper from Black & Mild cigarillos), which has been documented as popular among
6 young people, particularly Black and Hispanic youth,[39] although this was a practice about
7 which we did not specifically probe participants. Second, due to COVID-19, groups were
8 conducted online, which may have influenced the natural flow of discussion typically occurring
9 during in-person focus groups, though the moderator intentionally solicited feedback from all
10 participants and incorporated opportunities to share additional feedback. Third, our groups
11 included a mix of participants who did and did not also smoke cigarettes; groups were not
12 stratified by cigarette smoking status. In the context of designing effective warning messages for
13 cigarillos, future research may benefit from a more focused examination of how cigarillo risk
14 and relative risk perceptions may differ based on poly-tobacco use.
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33 In summary, our findings point to important avenues for future research and health warning
34 strategies for addressing cigarillo risk-related knowledge gaps and use behaviors among young
35 people; moreover, they may help inform FDA regulation of cigar/cigarillo warnings. Future
36 research should further examine making labels more salient, (e.g., color contrast, pictorial
37 elements)[40, 41] and communicating risks of the “whole” product (i.e., including the wrapper),
38 and should test the interaction of potential labels with other pack features (e.g., pack size, colors,
39 “natural” descriptors). From a regulatory standpoint, it may be important to pursue some
40 minimum standards that would apply to all cigar/cigarillo products and incorporate best practices
41 to target different user types. This could encompass considerations of pack size (e.g., warnings
42 for all cigar pack sizes; potentially banning sales of singles), tailored label content (e.g.,
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3 acknowledging risks to occasional users), and use of pictorials, among other options. More
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5 broadly, some of the issues raised here, such as perspectives of infrequent and/or blunt-only
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7 users that highlight potential effects of type of use/use modification on risk perceptions, could
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9 also be addressed through communication campaigns if warning standards cannot resolve all
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11 concerns. Ultimately, enhancing young adults' knowledge of cigarillo products and their risks –
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13 and discouraging initiation/use – will likely warrant targeted public health campaign efforts as
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15 well as regulatory action to strengthen and standardize cigar/cigarillo warning label
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17 requirements.
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Competing Interests

The authors have no conflicts of interest to disclose.

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Contributorship Statement

SKG contributed to focus group observation and note taking, transcript cleaning/validating, review of findings, interpretation of data, paper writing and paper editing. MJ contributed to focus group observation and note taking, review of findings, interpretation of data and paper editing. AKS contributed to interpretation of data, paper writing and paper editing. ZS contributed to coding guide development, full transcript coding, drafting of results, interpretation of data and paper editing. AAS and CDD contributed to paper editing. OAW conceptualized the study, moderated the focus groups, and contributed to coding guide development, drafting of results, interpretation of data, paper writing and paper editing.

Data Sharing Statement

Data may be made available by the authors upon review of reasonable request.

Ethics Statement

The Rutgers Biomedical and Health Sciences Institutional Review Board approved this study
(Reference: Pro2020000397).

Research Reporting Checklist

This manuscript reports results of focus groups, and the COREQ reporting checklist is attached.

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Supplementary File

Supplementary Table S1: FDA Cigar Labeling and Warning Statement Requirements
WARNING: Cigar smoking can cause cancers of the mouth and throat, even if you do not inhale.
WARNING: Cigar smoking can cause lung cancer and heart disease.
WARNING: Cigars are not a safe alternative to cigarettes.
WARNING: Tobacco smoke increases the risk of lung cancer and heart disease, even in nonsmokers.
WARNING: Cigar use while pregnant can harm you and your baby. or SURGEON GENERAL WARNING: Tobacco Use Increases the Risk of Infertility, Stillbirth and Low Birth Weight.*
WARNING: This product contains nicotine. Nicotine is an addictive chemical.
Source: https://www.fda.gov/tobacco-products/labeling-and-warning-statements-tobacco-products/cigar-labeling-and-warning-statement-requirements#statements

Research Reporting Checklist

Table 1: Consolidated criteria for reporting qualitative studies (COREQ): 32-item Checklist		
No.	Item	Guide Questions/Description
Domain 1: Research team and reflexivity		
Personal Characteristics		
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group? OAW, the Principal Investigator, served as the focus group moderator (p. 6)
2.	Credentials	What were the researcher's credentials? PhD, MPH (p. 6)
3.	Occupation	What was their occupation at the time of the study? Associate Professor (p. 6)
4.	Gender	Was the researcher male or female? Female (p. 6)
5.	Experience and training	What experience or training did the researcher have? Prior to this study, the researcher had previously attended a 4-day training of Focus Group Moderation and had moderated 24 focus groups and 50 individual interviews. (p. 6)
Relationship with participants		
6.	Relationship established	Was a relationship established prior to study commencement? There was no relationship with participants prior to study commencement. (p. 6)
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? The participants were told the researcher's (moderator's) name and the purpose of the study (to assess participant reactions, as cigarillo smokers, to images that could potentially be used for warning labels on cigarillo packs in the future). (p. 6)
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? The moderator reported her first name and the purpose of the study, and she instructed that her interest was in participant opinions about the subject material, as there were no right/wrong answers. (p. 6)
Domain 2: Study Design		
Theoretical framework		
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? We used a thematic analysis approach to analyze the focus group data. (p. 5-6)
Participant selection		

10.	Sampling	How were participants selected? Participants were identified via a convenience sample by the contracted research company (The Research Associates). (p. 5)
11.	Method of approach	How were participants approached? Participants were contacted electronically by the contracted research company. The company recruited participants from the US who met eligibility criteria regarding cigarillo use (i.e., past-30 day use for recent and past-12 month use for less frequent users). (p. 5)
12.	Sample size	How many participants were in the study? 42 participants were in the study. (p. 7)
13.	Non-participation	How many people refused to participate or dropped out? Reasons? The contracted research company notified the researchers when a sufficient number of participants had signed up for each focus group. No participants dropped out after their focus group commenced. (p. 5)
Setting		
14.	Setting of data collection	Where was the data collected? Eight focus groups were conducted online, via the Adobe Connect platform. Participants could join from any location from which they could access the virtual platform. (p. 5)
15.	Presence of non-participants	Was anyone else present besides the participants and researchers? Additional members of the research team joined each focus group but did not participate. Representatives of the contracted research company were present to provide technical assistance, as needed. These additional members were present on the online platform on the back-end only, and could not be seen or heard by participants. (p. 6)
16.	Description of sample	What are the important characteristics of the sample? 42 participants from 20 US states each took part in one of eight focus groups conducted between December 2020 and January 2021. Each group included either recent users (i.e., past-30 days) or less frequent users (i.e., past-12 months). 50% of participants were male. (p. 8-9, including Table 1)
Data collection		
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested? The moderator utilized a focus group guide with specific prompts for each set of questions, in order to ensure consistency among the eight groups. The guide

		was developed based on our research questions, our previous experience with similar focus groups, and the literature on the topic of our groups. (p.7)
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many? No repeat interviews were carried out. (p.5)
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data? The virtual focus groups utilized audio/visual recording, and the contracted research company provided the research team with access to the recordings following completion of the groups. (p. 6)
20.	Field notes	Were field notes made during and/or after the interview or focus group? Yes, research team members observing the focus groups took notes during the groups. (p. 6)
21.	Duration	What was the duration of the interviews or focus group? The focus groups were conducted between December 2020 and January 2021, and each group lasted approximately one hour and 15 minutes. (p. 5-6)
22.	Data saturation	Was data saturation discussed? Yes. No substantive unique themes/patterns were emerging by the 8 th focus group. (p. 7)
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction? Transcripts were not returned to participants for comment and/or correction. The contracted research company provided initial transcription of the groups; each transcript was then reviewed and updated by a member of the research team who had observed that respective group. (p. 7)
Domain 3: Analysis and Findings		
Data analysis		
24.	Number of data coders	How many data coders coded the data? Two research team members (OAW and ZS) developed the coding guide and applied it to sampled text extracts from the focus group transcripts. Then, one team member used software to apply the codes to the full text. (p. 7)
25.	Description of the coding tree	Did authors provide a description of the coding tree? We state that we used a coding guide, which organized the codes we developed per major categories of inquiry (first associations, cigarillo risk perceptions, addiction perceptions, warning attention, support for pictorial warnings). Our results are also organized in this way. (p. 7)

26.	Derivation of themes	<p>Were themes identified in advance or derived from the data?</p> <p>Both. The coding guide was developed based on questions in the moderator guide, as well as those derived from the data (based on repeated transcript readings, and preliminary research memos based on these readings). (p. 7)</p>
27.	Software	<p>What software, if applicable, was used to manage the data?</p> <p>Codes were applied to the full transcripts using Atlas.ti software. (p. 7)</p>
28.	Participant checking	<p>Did participants provide feedback on the findings?</p> <p>Participants did not provide feedback on the findings. (p. 7)</p>
Reporting		
29.	Quotations presented	<p>Were participant quotations presented to illustrate the themes / findings? Was each quotation identified?</p> <p>Yes, participant quotations were presented to illustrate each theme/key finding. Quotations were identified by participant sex and participant cigarillo smoking status. (p. 10-16)</p>
30.	Data and findings consistent	<p>Was there consistency between the data presented and the findings?</p> <p>Yes, each finding was directly tied to the data and example quotations. The initial results write-up was based upon review of coded transcripts by two research team members (OAW and ZS), who reached agreement that the results fairly represented the data. Results were then reviewed, refined, and validated by additional team members (SKG, MJ, AKS), who also provided input on the final selection of quotes. (p. 7, 10-16)</p>
31.	Clarity of major themes	<p>Were major themes clearly presented in the findings?</p> <p>Yes, results were grouped by topical area, with one to two key points included in each paragraph and supported with participant quotations. (p. 10-16)</p>
32.	Clarity of minor themes	<p>Is there a description of diverse cases or discussion of minor themes?</p> <p>Minor themes were presented, as applicable, with identification in the write-up of results and specification that one or a few participants raised the point. (p. 13, 15-16)</p>