



Exploring changes in cigar smoking patterns and motivations to quit cigars among black young adults in the time of COVID-19

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ABSTRACT

Introduction: The COVID-19 pandemic has disproportionately impacted the Black/African American communities in the U.S. The objective of this study is to understand the change in cigar smoking patterns and motivations to quit cigars during the COVID-19 pandemic among Black young adult cigar smokers.

Methods: During May–June 2020, in-depth telephone interviews were conducted to investigate cigar (i.e., large cigars, cigarillos, filtered cigars, and blunts) smoking behaviors during the pandemic among self-identified, non-Hispanic Black/African American young adult cigar smokers (n = 40; ages 21–29). Interviews were audio-recorded, transcribed verbatim, and coded separately by three coders. Thematic analysis was used to assess thematic patterns arising from the interviews.

Results: Most participants reported smoking cigarillos and blunts in higher frequency and quantity to cope with COVID-19-induced stress, anxiety, loneliness, and boredom due to economic losses and physical isolation. Some also reported contextual changes in cigarillo and blunt smoking, including smoking around the clock, smoking immediately after waking up, and smoking an entire cigarillo or blunt in one setting. Very few participants reported motivations to quit cigars during the pandemic. Perceiving higher risks of progressed COVID-19 outcomes did not prompt participants' increased motivations for quitting cigars.

Conclusions: Black young adults in this study increasingly smoked cigarillos and blunts during the COVID-19 pandemic, mainly attributed to daily life stressors. Participants did not have increased motivations for quitting cigars to reduce COVID-19-related risks. Promoting contextually appropriate healthy coping and cigar smoking cessation may minimize COVID-19-related health consequences of cigar smoking and reduce health disparities among Black young adults.

1. Introduction

The coronavirus disease 2019 (COVID-19) pandemic has disproportionately impacted Black/African Americans in the U.S. Evidence from local and national COVID-19 surveillance systems suggests that Blacks have a higher prevalence of contracting and severe health consequences from COVID-19 (Millett et al., 2020; The Centers for Disease Control and Prevention, 2020). As of August 2020, they are 2.6 times, 4.7 times, and 2.1 times more likely to experience COVID-19 infection, hospitalization, and death than Whites, respectively (CDC, 2020). COVID-19-related

disparities among Blacks may be explained by this group's disproportionately higher rates of respiratory and cardiovascular diseases compared to other racial and ethnic groups, in part, from using tobacco products (Hooper, Nápoles, & Pérez-Stable, 2020; Patanavanich & Glantz, 2020).

Evidence from the U.S. and other countries has demonstrated that tobacco use is associated with COVID-19 progression, including higher mortality rates from COVID-19 (Patanavanich & Glantz, 2020), prompting health authorities to strongly urge the public to quit tobacco smoking during the pandemic (Australian Government Department of

Abbreviations: COVID-19, The coronavirus disease 2019.

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Health, 2020; National Cancer Institute, 2020; World Health Organization, 2020). Recent research has indicated increased intentions of quitting tobacco among current consumers to avoid having progressed COVID-19 outcomes (Klemperer, West, Peasley-Miklus, & Villanti, 2020; Kowitz et al., 2020; Yach, 2020).

Conversely, the COVID-19 pandemic may lead to increased tobacco consumption as smokers use more tobacco to cope with pandemic-induced stress and anxiety (Kowitz et al., 2020; Luk, Zhao, Weng, Wong, Wu, Ho, Lam, & Wang, 2020; Rolland et al., 2020; Yach, 2020). Former studies have shown that experiencing traumatic life events (e.g., the September 11 attacks) may lead to acute stress disorders (Biggs et al., 2010), and those events have significant influences on increased tobacco and substance use behavior and dependence over time (Biggs et al., 2010; Bruns & Geist, 1984; Parslow & Jorm, 2006). Additionally, smokers may be more likely to experience excessive stress from traumatic life events compared to non-smokers, further increasing their vulnerability to consuming an increased amount of tobacco to cope with exacerbating mental health conditions (Lopez, Konrath, & Seng, 2011).

To date, however, there is a lack of evidence demonstrating whether or how the COVID-19 pandemic has impacted cigar smoking among Black communities. Evidence suggests that Blacks have a higher prevalence of past-30-day cigar smoking, especially smoking cigarillos (Chen-Sankey et al., 2020; Corey et al., 2014; Sterling, Berg, Thomas, Glantz, & Ahluwalia, 2013), and smoke cigars more frequently and in larger amounts (Chen-Sankey et al., 2020). Specifically, between 2015 and 2016, non-Hispanic Blacks are about 2.3 times, 2.7 times, and 2.0 times more likely than non-Hispanic Whites to have smoke cigars in the past 30 days, every day, and to have smoked “fairly regularly” (Chen-Sankey et al., 2020). They are also about 2.2 times as likely to smoke blunts, defined as hollowed-out cigars replaced with marijuana (Chen-Sankey et al., 2020). Additionally, among non-Hispanic Blacks, cigar smoking is more prevalent among younger adults aged 18–30 years than older adults (Cullen et al., 2011; Sterling et al., 2013).

The disproportionately high use of cigar products among non-Hispanic Black young adults may exacerbate existing health disparities experienced by the Black communities. Cigar use is associated with negative health consequences such as lung and oral cancer,^{3,4} as well as increased morbidities and mortalities (Chang, Corey, Rostron, & Apelberg, 2015). Certain cigar products (large cigars and cigarillos) can contain higher levels of nicotine and carcinogens than cigarette products (Baker et al., 2000; National Cancer Institute, 1998; Nonnemaker, Rostron, Hall, MacMonegle, & Apelberg, 2014), leading to increased health risks (Nonnemaker et al., 2014). Additionally, blunt use is an addictive behavior associated with an increased dependence to both nicotine and marijuana (Fairman, 2015). Understanding the influence of the pandemic on tobacco use among the Black population is critical since tobacco use has profoundly contributed to Black and White differences in health disparity outcomes and life expectancies in the U.S. (Chen, 1993; Ho & Elo, 2013; O’Keefe, Meltzer, & Bethea, 2015). Therefore, this type of research informs health researchers, practitioners, and policymakers on how the pandemic may exacerbate tobacco-related health disparities.

We conducted a qualitative in-depth interview study among Black young adult cigar smokers to explore the following questions: (1) How the COVID-19 pandemic has impacted daily life; (2) How the pandemic has impacted cigar smoking behaviors; (3) How the access to cigar products has changed during the pandemic; and (4) How perceived risks of COVID-19 progression have motivated cigar cessation. The expected findings can guide effective public health interventions and messages to reduce pandemic-induced health disparities.

2. Methods

2.1. Participants and study procedures

We conducted telephone in-depth interviews among a sample of 40,

self-identified non-Hispanic Black young adult cigar smokers. Participants were recruited through social media sites (Instagram, Craigslist, and Facebook) by the research team. The social media posts predominantly targeted participants residing in the Washington D.C. metropolitan area. Eligibility criteria were: (1) self-identified as non-Hispanic Black or African American; (2) 21 to 29 years old; (3) a current cigar smoker (defined as smoking premium cigars, cigarillos, or little cigars \geq 4 times in the last 2 weeks) (Chen-Sankey et al., 2019; Mead, Chen, Kirchner, Butler, & Feldman, 2018); and (4) able to read and speak English. The research team members screened the interested individuals through the phone and emailed eligible participants a link to an online survey. Eligible participants provided informed consent at the beginning of the survey. The survey included questions on socio-demographic characteristics and tobacco use history. Those who completed the survey were then scheduled for phone interviews. Participants received a \$100 Amazon gift card after completing both the survey and the interview. The study was determined by the National Institutes of Health Office of Human Subjects Research Protection to be exempted from a review by the Institutional Review Board.

2.2. Interview instrument and structure

The first author, who had prior experience in moderating in-depth interviews on topics of tobacco use and its context, conducted all of the interviews. Qualitative in-depth interviews are an effective method of centering the perspective of the interviewee and exploring their experiences with depth and honesty (Kvale, 1983). Participants were asked to discuss the impact of the COVID-19 pandemic on their daily life, cigar smoking behavior, access to cigar products, and perceived risks of contracting COVID-19. The interview guide also included questions related to cigar smoking behavior and context of cigar smoking. Post-interview notes documented key points from each interview and were used to confirm data saturation, defined as no new information being garnered from the interviews (Patton 1990). Although data saturation was reached around interview #30, additional interviews were conducted to confirm that saturation had been reached. The interviews lasted between 45 and 60 min. They started on May 15, 2020, two months after the U.S. White House declared COVID-19 as a national emergency, and ended on June 29, 2020, shortly after COVID-19 cases reached two million in the country.

2.3. Data analysis and reporting

Phone interviews were audio-recorded and transcribed verbatim. Interview transcripts were de-identified and analyzed on the web-based qualitative data management application Dedoose (Los Angeles, CA: SocioCultural Research Consultants, LLC). The coders used thematic analysis to analyze and organize the interview data by generating and applying codes for topics of interest and identifying emergent themes (Braun & Clarke, 2006; Vaismoradi, Turunen, & Bondas, 2013). Four study team members developed the initial codebook based on the interview guide and transcripts, and three coders underwent training to familiarize themselves with the codebook and applied the codes to five interview transcripts. Several new codes were generated during initial coding and were added to the codebook and consistently applied to all transcripts. Codes specific to the use, access, and perceptions of cigar products were classified by product type (large cigars, cigarillos, filtered cigars, and blunts). Each transcript was independently coded by two coders who then met with the first author to reconcile any coding disagreements. The percentage agreement of the codes used for this analysis was moderate to high (81–95%), demonstrating satisfactory inter-coder reliability (Golafshani, 2003). An estimated frequency of participants reporting various themes and subthemes was recorded during thematic analysis as “all,” “almost all,” “most,” “the majority,” “some,” and “a few” (Berg et al., 2020; Sandelowski, Voils, & Knafel, 2009). Additionally, participants’ socio-demographic backgrounds and tobacco

use history were analyzed using Stata 16.0 (College Station, TX: Stata-Corp LLC).

3. Results

3.1. Participant characteristics

Slightly more than half of the participants were females (n = 23), and the average age of the participants was 26 years (Table 1). The majority of participants reported smoking cigarillos (n = 36) in the past 30 days, followed by large cigars (n = 24), blunts (n = 23), and filtered cigars (n = 7). Blunts were reported as the most frequently smoked cigar product in the past 30 days by close to half of the participants (n = 18), followed by cigarillos (n = 16), large cigars (n = 4), and filtered cigars (n = 2). Table 2 presents interview questions and corresponding themes and subthemes, as well as representative quotes from themes and subthemes are labeled by participants' age and biological sex.

Table 1
Participant characteristics (n = 40).

	n	%
Age (mean, SD)	26.0	2.4
Biological Sex		
Male	17	42.5%
Female	23	57.5%
Education Level		
≤GED or high school	7	17.5%
Some or completed technical school	9	22.5%
Some college	15	37.5%
≥Bachelor's degree	9	22.5%
Employment Status		
Full time	19	47.5%
Part time	7	17.5%
Unemployed	11	27.5%
Others	3	7.5%
Financial Situation		
Live comfortably	13	32.5%
Meet needs with a little left	15	37.5%
Just meet basic expenses	12	30.0%
Self-reported Mental Health Status		
Excellent	14	35.0%
Very good	8	20.0%
Good	8	20.0%
Fair	10	25.0%
Cigar Smoking in the Past 30 Days		
Large cigars	24	60.0%
Cigarillos	36	90.0%
Filtered cigars	7	17.5%
Blunts	23	57.5%
Number of Cigar Products Smoked in the Past 30 Days		
One product	4	10.0%
Two products	16	40.0%
Three products	11	27.5%
Four products	9	22.5%
Most Frequently Smoked Cigar Product in the Past 30 Days		
Large cigars	4	10.0%
Cigarillos	16	40.0%
Filtered cigars	2	5.0%
Blunts	18	45.0%
Use of Other Tobacco Products in the Past 30 Days		
Cigarettes	23	57.5%
E-cigarettes	26	65.0%
Hookah	27	67.5%

Note: The survey asked the participants to described "current" employment and financial situation and tobacco use status. However, it is unclear whether the participants reported temporary status changed since the COVID-19 pandemic.

Table 2
Interview questions, emerging themes, and representative quotes from participants by themes.

Interview Questions	Themes	Subthemes	Participant Quotes
How has COVID-19 pandemic affected your life so far? Are you currently working? Are you staying at home most of the time?	The Influence of the COVID-19 in General	The Influence of COVID-19 on Life	"I'm struggling with paying bills right now, and paying rent." (Male, 28) "Pretty much I'm unemployed right now because you don't feel safe having physical contact, and my job pretty much relied on being physically contacted with someone." (Female, 25) "I'm currently working from home like the majority of the people in the world. Can't go to the gym. I really don't drive as much. I haven't seen my family." (Female, 28)
		The Influence of COVID-19 on Mental Health	"When the bills come up that I owe on. Thinking about how much they're adding up." (Male, 28) "I have more of a lonely feeling. You're missing the physical presence of being around everybody, living the life you are used to. Not being able to see people, especially my family members and friends. It's sad." (Female, 25) "I could easily be bringing things home and still having to take care of me as a single parent and my kids. It's hard. It is scary." (Female, 23)
Has your cigar smoking changed at all since the pandemic? Did you find yourself smoke differently than before? How has it changed? How difficult have you found it to purchase cigars during the pandemic?	The Influence of COVID-19 on Cigar Smoking	Escalated Smoking of Cigarillo and Blunts	"There was a point for maybe like, I would say almost a month, and I smoked every day and it would be sometimes multiple times a day." (Male, 28) "Before I probably was smoking, let's see, one, two cigarillos a day. Now today, the pandemic, I'm probably smoking about five cigarillos, two Black & Milds, two cigarettes." (Male, 22) "I think I do a little bit more because it used to be two to three a day. Like I said, now it's like

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Table 2 (continued)

Interview Questions	Themes	Subthemes	Participant Quotes
		Increased Mental Health Burdens and Cigarillo and Blunt Smoking	<p>five a day.” (Female, 21)</p> <p>“I’ve come to see that I’ve been smoking a little bit more because of the stress level that’s there. It’s kind of a release because of that nicotine.” (Male, 29)</p> <p>“There’s nothing really to do, so smoking mellows me out so I’m chill, I’m not stressed out about not having anything else to do. Nothing’s open.” (Female, 22)</p> <p>Like I said earlier, I’m not really the biggest fan of smoking during the day, but there would be times where I would wake up and just like, ‘Oh, let me smoke,’ and then, I would want to do it again maybe by the end of the day, just because I didn’t really have anything else to do.” (Female 26)</p> <p>“I would say as a reliever and to relax, and to calm myself down because my mind and my thoughts race a lot.” (Male, 25)</p>
		Access and Purchasing of Cigarillos	<p>“I still feel like I have ample access to the brands I like, and I am surrounded by four or five gas stations within a quarter mile radius from my house.” (Male, 25)</p> <p>“It’s like as soon as it comes out, as fast as it comes out, it’s gone.” (Female, 27)</p> <p>“Three dollars is not gonna pay the bill.” (Female, 26)</p>
		Change in Cigarillo and Blunt Smoking Context	<p>“When the world was before it broke, going outside and things like that, honestly, I wouldn’t smoke first thing in the morning because I’ll be going up and doing things and I smoked in the afternoons or right when I get back home at night.” (Male, 23)</p> <p>“Usually, you have a routine before the pandemic, you</p>

Table 2 (continued)

Interview Questions	Themes	Subthemes	Participant Quotes
		Reduced Large Cigar Smoking and Change in Context	<p>would have work. You can’t smoke at your job. You can smoke maybe one or two cigarettes or a cigar before you go to work. Then you come back and on your lunch break, you find yourself smoking. Now, I have nothing but time so I’m going to smoke. At this point, I just roll up whenever.” (Male, 26)</p> <p>“Not as frequently anymore. Typically, I would smoke them with my dad because he has this whole every Sunday. I am seeing him once a week compared to seeing him three times a week.” (Female, 25)</p> <p>“We’re not going to the lounge anymore and that’s where we normally purchase from. (Female, 27)</p> <p>“As far as going to the lounge after work, when the quarantine first started they closed the lounge. Now, that’s not happening at all. Now I don’t have my social crew to do it with. I would say I’m smoking the cigars less.” (Male, 25)</p> <p>“It’s a very social thing for me, so not going out to lounges and everything.... I’ve smoked a lot more at home than I typically would.” (Female, 26)</p> <p>“When the world was before it broke, going outside and things like that, honestly, I wouldn’t smoke first thing in the morning because I’ll be going up and doing things and I smoked in the afternoons or right when I get back home at night.” (Female, 29)</p> <p>“These days, by myself, but traditionally, before everything that’s going on right now, it would be mostly with friends.” (Male, 22)</p>

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Table 2 (continued)

Interview Questions	Themes	Subthemes	Participant Quotes
What are your risks of having severe health outcomes from the coronavirus compared to other people?	Perceived Risks of COVID-19 in Relation to Cigar Smoking	Perceived Risks of COVID-19 Progression	<p>"I think at first, I was a little bit wary to continue smoking because of what coronavirus was and how it affects your lungs and the body. But then I also realized I am taking safety measures, even if other people aren't." (Female, 24)</p> <p>"It's not the same, because there are people out here with underlying conditions that I don't have. I mean I guess it's not the same in that matter but other than that I think I have just as much as a chance of catching it as anybody else." (Male, 23)</p> <p>"I would say my risk would be the same because I'm doing the same thing as other people as far as bleaching and sanitizing my areas and making sure I wear a face protection mask when I'm out and things of course and stuff like that." (Female, 21)</p>
		Quitting Cigars Due to COVID-19	<p>"I'm more vulnerable because I'm not supposed to be smoking but I'm not going to stop any time soon." (Female, 23)</p> <p>"The damage is already done from years of smoking. There's probably already damage done." (Female, 28)</p> <p>"It hasn't scared me or anything. It didn't put any fear in me. It's just because honestly, we've heard so many different reported facts that are so different." (Male, 25)</p>

3.2. The influence of COVID-19 in general

3.2.1. The influence of COVID-19 on life

When asked how the COVID-19 pandemic has affected their lives so far, most participants mentioned job loss, reduced work hours, or a pay cut. Most participants also reported staying home most of the time, practicing social distancing, and wearing masks in public. Some participants mentioned that losing their job or working from home

disrupted their old daily routine, and that they no longer had a daily schedule to follow during the pandemic. A few also reported being designated an "essential worker" during the pandemic, leading to an increase in work hours.

3.2.2. The influence of COVID-19 on mental health

Almost all participants discussed the influence of the COVID-19 pandemic on their mental health. Most mentioned heightened stress from the pandemic, especially as it related to their economic losses from unemployment or reduced income. The majority of participants also reported excessive boredom from not working, a lack of entertaining activities due to business shutdowns, and staying at home all of the time. Some discussed the feeling of loneliness from practicing social distancing and not seeing friends and family, including their cigar-smoking companions. A few participants expressed increased anxiety related to the fear of contracting COVID-19 and uncertainties about the future.

3.3. The influence of COVID-19 on cigar smoking

3.3.1. Escalated smoking of cigarillos and blunts

When asked about whether and how their cigar smoking behavior has changed during the pandemic, most participants indicated that they had smoked cigar products, especially cigarillos and blunts, more frequently and/or in a larger quantity on days smoked compared to their cigar smoking behavior before the pandemic. Some discussed that they were smoking cigarillos and/or blunts one or two days more each week, while others reported doubling the quantity of cigarillos and/or blunts smoked daily.

3.3.2. Increased mental health burdens and cigarillo and blunt smoking

Most participants indicated that they smoked more cigarillos and blunts related to increased stress, boredom, and anxiety experienced during the pandemic. Specifically, many mentioned they smoked more to relieve elevated stress, "keep the mind off things," and "calm themselves down." Boredom and "having nothing else to do" also frequently triggered more cigarillo and blunt smoking episodes.

3.3.3. Access and Purchasing of cigarillos

When asked about whether it was difficult to access cigarillo products during the pandemic, almost all participants mentioned that it was still very easy to find the cigarillo brands and flavors they usually smoked mainly because cigarillos were sold "everywhere" in their neighborhoods, and the cigar retailers were essential businesses (e.g., gas stations, corner stores). Some mentioned that although their income reduced due to the pandemic, they did not cut their spending on cigarillos because cigarillos were extremely affordable, and money saved from not smoking them would not help "pay the bills."

3.3.4. Change in cigarillo and blunt smoking context

The most frequently mentioned change in the smoking context was that participants became more likely to smoke cigarillos and blunts by themselves instead of with others, and became more likely to smoke them in and around the house instead of in public places such as parks and bars. Some participants also indicated that during the pandemic, they have become more likely to smoke an entire cigarillo or blunt in one setting instead of multiple settings. Some also reported more frequently smoking cigarillos or blunts in the morning after waking up. Some participants mentioned during the pandemic, they constantly smoking cigarillos and blunts around the clock instead of around their daily routine (e.g., driving to work or smoking breaks). A few participants had started to mix more tobacco in blunts to ration marijuana to save money.

3.3.5. Reduced large cigar smoking and change in context

Those who smoked large cigars before the pandemic mostly reported that they had decreased the frequency or quantity of large cigar

smoking. Some even completely stopped smoking large cigars after losing access to these products. Many of them reported that because of cigar lounge closure, they could no longer access large cigar products as before. Some mentioned that due to social distancing, they could not acquire large cigars from friends and family who had been the primary sources of these products before the pandemic. For those who still smoked large cigars during the pandemic, most of them reported that they smoked by themselves instead of with others.

3.4. Perceived risks of COVID-19 and motivations of quitting cigars

3.4.1. Perceived risks of COVID-19 progression

The majority of participants perceived their risks of having severe health consequences from COVID-19 to be the same or lower than the general public. The main reason given was that they perceived themselves to be healthy and they practiced preventive measures such as social distancing and wearing masks while others were not. Only a few participants heard that tobacco smoking might increase the chances of having severe health consequences from COVID-19. Those who perceived the heightened risks mentioned that smoking tobacco was the main reason they took precautions against contracting COVID-19.

3.4.2. Quitting cigars due to COVID-19

Among those who perceived heightened risk due to cigar smoking, no one stated that they would stop or cut down smoking cigars in general. Some of them explicitly mentioned they would not stop smoking cigars, especially cigarillos and blunts, because they were addicted to these products. Some reasoned that since smoking cigars had already caused damage to their health or lungs, stopping smoking now would not mitigate the consequences of COVID-19. Additionally, a few participants mentioned that they did not trust the health authorities or the COVID-19 related messages disseminated by health experts since official statements were often contradictory.

Since very few participants reported regular use of filtered cigars, this study did not generate sufficient data about the impact of the pandemic on smoking this product.

4. Discussion

This is one of the first studies to investigate the influence of the COVID-19 pandemic on tobacco use behavior among a population of Black Americans, a group disproportionately impacted by the pandemic. Our results highlight this group's escalated use of cigarillo and blunt products as well as the changing cigar smoking context during the pandemic. The study also indicated that pandemic-induced stress and other mental health burdens serve as the main impetus for increased cigar smoking. Finally, the study reflects participants' low motivation for cigar cessation, even when recognizing smoking is a risk factor of COVID-19 progression.

The driving force of cigar smoking increase and behavior change among participants was reported to be elevated mental health burdens, particularly heightened stress and boredom associated with COVID-19 and its consequences. These findings are consistent with recent research about pandemic-induced stress and increased tobacco and substance use behavior during the pandemic to cope stress and anxiety among consumers across the world (Kowitt et al., 2020; Luk et al., 2020; Rolland et al., 2020; Yach, 2020). Although there is no physiological evidence showing that tobacco use, including cigar smoking, can help relieve psychological stress or anxiety, our study and other research consistently found that cigar smokers, especially young adult and Black smokers, considered cigar smoking an effective way to relieve stress (Geronimus, Hicken, Keene, & Bound, 2006; Mead et al., 2017; Rosenthal & Lobel, 2011).

The pandemic-caused economic losses and undesirable life changes may have heightened the impact of the chronic and toxic stressors experienced by the Black communities (Schulz et al., 2006; Utsey,

Ponterotto, Reynolds, & Cancelli, 2000). Young adults, who often have entry-level jobs and fewer financial resources than older adults, may suffer more from the economic aftermath of the pandemic (Stein et al., 2013). Messages and programs aimed at reducing tobacco use may need to focus on introducing and reinforcing the positive effects of healthy coping strategies (e.g., physical activities) to help Black young adults cope with increased stressors during and after the COVID-19 pandemic.

The findings from our study also highlight the noticeable behavioral and contextual changes accompanying increased cigarillo and blunt smoking during the COVID-19 pandemic. Some of these changes, including smoking around the clock, smoking in and around the house, and smoking an entire cigar in one setting, may cause increased nicotine consumption and exposure to chemicals and carcinogens among smokers and others who live with them. Other changes in smoking behavior, including smoking immediately after waking up, may indicate smokers' escalated dependence on nicotine and/or marijuana possibly developed after the onset of the COVID-19 pandemic. More longitudinal evidence is needed to demonstrate whether the observed cigarillo and blunt smoking increase and its associated contextual changes persist after the pandemic and whether they have a long-lasting effect on behavioral patterns, nicotine addiction, and health outcomes associated with cigar smoking. More research is also needed to assess the behavioral consequence of prolonged and escalated marijuana use and its relationship with the use of tobacco products and other addictive substances among this particular group.

Black young adult cigar smokers in our study have low awareness of tobacco smoking as a risk factor of COVID-19 complications and do not consider themselves to be at higher risk of COVID-19 progression compared to the general public. The results further indicate that perceiving higher risks related to COVID-19 because of cigar smoking does not prompt increased motivation to quit or cut down on cigar smoking. This finding differs from recent research showing that cigarette smokers and e-cigarette users have become increasingly motivated to quit tobacco products amid the COVID-19 pandemic (Kowitt et al., 2020; Yach, 2020). This inconsistency may be explained by lower interests in quitting cigars in general or the different contexts and triggers of cigar smoking than other tobacco products. Alternatively, participants may not perceive messages related to quitting cigarettes or e-cigarettes as relevant to their own cigar smoking behavior, or may hold skepticism and distrust of health authorities' messages (Cordasco, Eisenman, Glik, Golden, & Asch, 2007; Jacobs, Rolle, Ferrans, Whitaker, & Warnecke, 2006). More research is needed to investigate the facilitators (e.g., motivations) and barriers (e.g., lack of evidence-based methods) of cigar cessation behavior among Black cigar smokers to reduce cigar smoking among this group.

Lastly, this study suggests that more stringent cigar regulations may help reduce cigar smoking, especially cigarillo smoking, among Black young adults. For example, the results showed that high cigar retail density in participants' neighborhoods has facilitated the easy purchase of cigarillos during the pandemic. The affordability of cigarillos encourages Black young adults to maintain and increase cigar smoking even when experiencing economic losses during the pandemic. Much evidence has already shown that these targeted marketing tactics have contributed to the disproportionately high use of cigarillo products among Black communities (Cantrell et al., 2013; Smiley et al., 2019). Therefore, local-level tobacco regulations, including increased cigar minimal pricing, restrictions on price promotions, and reduced tobacco retailer density are greatly needed to minimize the influence of pervasive and targeted marketing to reduce cigar smoking-caused disparities among Black communities.

4.1. Limitations

Our study results should be considered with the following limitations. First, this study used a regional sample with most of the participants residing in the Washington D.C. metropolitan area. The degree of

the pandemic's influence on health-related behavior and economic impact may differ across the country, leaving differential influence on cigar behavior change. Second, our data were collected during the initial stage of the pandemic with strict local policies on business closure and social distancing. Therefore, our results may not reflect cigar smoking behavior change after business re-openings and the relaxing of social distancing.

4.2. Implications

Our in-depth interview data allow for robust explanations of the patterns and context of cigar smoking change among Black young adults during the COVID-19 pandemic. The results indicate that the pandemic has likely magnified the detrimental impact of underlying causes of smoking-related health disparities, including the social, cultural, and commercial determinants of health and economic disadvantages among Black communities. These results point to the need for integrating various socioeconomic and mental health risk factors when assessing the impact of COVID-19 on the health behavior and outcomes of the Black population. Public health and medical initiatives to reduce the health impact of the pandemic among the Black population should provide greater access for treating the escalated use of tobacco products and potentially other addictive and harmful substances.

5. Conclusion

This study highlights the influence of the COVID-19 pandemic on escalated cigarillo and blunt smoking, and worsened mental health as the primary pathway to increased consumption, among Black young adult cigar smokers. The study calls for promoting contextually-appropriate healthy coping strategies and cigar smoking cessation as well as local cigar regulations aimed at increasing minimum pricing and curtailing pervasive cigar sales in Black communities. Finally, this study reveals the urgent need to address the underlying social and behavioral risk factors of tobacco use-related disparities in order to improve health outcomes among Black communities.

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CRediT authorship contribution statement

Julia C. Chen-Sankey: Conceptualization, Methodology, Formal analysis, Writing - original draft, Writing - review & editing, Project administration. **Aaron Broun:** . **Danielle A. Duarte:** Formal analysis, Writing - review & editing. **Ajith Aniruddh:** Formal analysis, Writing - review & editing. **Bambi Jewett:** Methodology, Writing - review & editing. **Sabrina L. Smiley:** Writing - review & editing. **Erin L. Mead-Morse:** Conceptualization, Methodology, Writing - review & editing. **Mignon C. Guy:** Conceptualization, Methodology, Writing - review & editing. **Kelvin Choi:** Conceptualization, Methodology, Supervision, Writing - review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

- Australian Government Department of Health (2020). Australian Health Protection Principal Committee (AHPPC) statement on tobacco use, e-cigarette use and COVID-19. Accessed from: <https://www.health.gov.au/news/australian-health-protection-principal-committee-ahppc-statement-on-tobacco-use-e-cigarette-use-and-covid-19>.
- Baker, F., Ainsworth, S. R., Dye, J. T., Crammer, C., Thun, M. J., Hoffmann, D., ... Pinney, J., et al. (2000). Health risks associated with cigar smoking. *JAMA*, *284*(6), 735–740.
- Berg, C. J., Barker, D. C., Sussman, S., Getachew, B., Pulvers, K., Wagener, T. L., ... Henriksen, L. (2020). Vape shop owners/managers' opinions about FDA regulation of e-cigarettes. *Nicotine & Tobacco Research*, *ntaa138*.
- Biggs, Q. M., Fullerton, C. S., Reeves, J. J., Grieger, T. A., Reissman, D., & Ursano, R. J. (2010). Acute stress disorder, depression, and tobacco use in disaster workers following 9/11. *American Journal of Orthopsychiatry*, *80*(4), 586.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101.
- Bruns, C., & Geist, C. S. (1984). Stressful life events and drug use among adolescents. *Journal of Human Stress*, *10*(3), 135–139.
- Cantrell, J., Kreslake, J. M., Ganz, O., Pearson, J. L., Vallone, D., Anesetti-Rothermel, A., ... Kirchner, T. R. (2013). Marketing little cigars and cigarillos: Advertising, price, and associations with neighborhood demographics. *American Journal of Public Health*, *103*(10), 1902–1909.
- Chang, C. M., Corey, C. G., Rostron, B. L., & Apelberg, B. J. (2015). Systematic review of cigar smoking and all cause and smoking related mortality. *BMC Public Health*, *15*(1), 390.
- Chen, V. W. (1993). Smoking and the health gap in minorities. *Annals of Epidemiology*, *3*(2), 159–164.
- Chen-Sankey, J. C., Choi, K., Kirchner, T. R., Feldman, R. H., Butler, J., III, & Mead, E. L. (2019). Flavored cigar smoking among African American young adult dual users: An ecological momentary assessment. *Drug and Alcohol Dependence*, *196*, 79–85.
- Chen-Sankey, J. C., Mead, E. L., Le, D., Quisenberry, A., Delnevo, C., & Choi, K. (2020). Cigar smoking patterns and disparities by product type and race/ethnicity—A nationally representative study among U.S. adults (In Press). *American Journal of Preventive Medicine*.
- Cordasco, K. M., Eisenman, D. P., Glik, D. C., Golden, J. F., & Asch, S. M. (2007). "They blew the levee": Distrust of authorities among hurricane Katrina evacuees. *Journal of Health Care for the Poor and Underserved*, *18*(2), 277–282.
- Corey, C. G., King, B. A., Coleman, B. N., Delnevo, C. D., Husten, C. G., Ambrose, B. K., & Apelberg, B. J. (2014). Little filtered cigar, cigarillo, and premium cigar smoking among adults—United States, 2012–2013. *MMWR. Morbidity and Mortality Weekly Report*, *63*(30), 650.
- Cullen, J., Mowery, P., Delnevo, C., Allen, J. A., Sokol, N., Byron, M. J., & Thornton-Bullock, A. (2011). Seven-year patterns in US cigar use epidemiology among young adults aged 18–25 years: A focus on race/ethnicity and brand. *American Journal of Public Health*, *101*(10), 1955–1962.
- Fairman, B. J. (2015). Cannabis problem experiences among users of the tobacco-cannabis combination known as blunts. *Drug and Alcohol Dependence*, *150*, 77–84.
- Geronimus, A. T., Hicken, M., Keene, D., & Bound, J. (2006). "Weathering" and age patterns of allostatic load scores among blacks and whites in the United States. *American Journal of Public Health*, *96*(5), 826–833.
- Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report*, *8*(4), 597–607.
- Ho, J. Y., & Elo, I. T. (2013). The contribution of smoking to black-white differences in US mortality. *Demography*, *50*(2), 545–568.
- Hooper, M. W., Nápoles, A. M., & Pérez-Stable, E. J. (2020). COVID-19 and racial/ethnic disparities. *JAMA*, *323*(24), 2466–2467.
- Jacobs, E. A., Rolle, I., Ferrans, C. E., Whitaker, E. E., & Warnecke, R. B. (2006). Understanding African Americans' views of the trustworthiness of physicians. *Journal of General Internal Medicine*, *21*(6), 642.
- Klemperer, E. M., West, J. C., Peasley-Miklus, C., & Villanti, A. C. (2020). Change in tobacco and electronic cigarette use and motivation to quit in response to COVID-19. *Nicotine & Tobacco Research*, *22*(9), 1662–1663.
- Kowitz, S. D., Cornacchione Ross, J., Jarman, K. L., Kistler, C. E., Lazard, A. J., Ranney, L. M., ... Goldstein, A. O. (2020). Tobacco quit intentions and behaviors among cigar smokers in the United States in response to COVID-19. *International Journal of Environmental Research and Public Health*, *17*(15), 5368.
- Kvale, S. (1983). The qualitative research interview: A phenomenological and a hermeneutical mode of understanding. *Journal of Phenomenological Psychology*, *14*(2), 171.

- Lopez, W. D., Konrath, S. H., & Seng, J. S. (2011). Abuse-related post-traumatic stress, coping, and tobacco use in pregnancy. *Journal of Obstetric, Gynecologic & Neonatal Nursing, 40*(4), 422–431.
- Luk, T. T., Zhao, S., Weng, X., Wong, J. Y.-H., Wu, Y. S., Ho, S. Y., Lam, T. H., & Wang, M. P. (2020). Exposure to health misinformation about COVID-19 and increased tobacco and alcohol use: A population-based survey in Hong Kong. *Tobacco Control*. Published Online First: 27 August 2020. doi: 10.1136/tobaccocontrol-2020-055960.
- Mead, E. L., Chen, J. C., Kirchner, T. R., Butler, J., III, & Feldman, R. (2018). An ecological momentary assessment of cigarette and cigar dual use among African American young adults. *Nicotine & Tobacco Research, 20*(suppl_1), S12–S21.
- Mead, E. L., Lindstrom Johnson, S., Siddiqui, J., Butler, J., III, Kirchner, T., & Feldman, R. H. (2017). Beyond blunts: Reasons for cigarette and cigar use among African American young adult dual users. *Addiction Research & Theory, 26*(5), 349–360.
- Millett, G. A., Jones, A. T., Benkeser, D., Baral, S., Mercer, L., Beyrer, C., ... Crowley, J. S. (2020). Assessing differential impacts of COVID-19 on Black communities. *Annals of Epidemiology, 37*, 37–44.
- National Cancer Institute (1998). *Cigars: Health Effects and Trends Tobacco Control Monograph 9*. Accessed from: <https://cancercontrol.cancer.gov/brp/tcrb/monographs/monograph-09>.
- National Cancer Institute (2020). *Smoking and COVID-19*. Accessed from: <https://smokefree.gov/quit-smoking/smoking-and-covid19>.
- Nonnemaker, J., Rostron, B., Hall, P., MacMonegle, A., & Apelberg, B. (2014). Mortality and economic costs from regular cigar use in the United States, 2010. *American Journal of Public Health, 104*(9), e86–e91.
- O’Keefe, E. B., Meltzer, J. P., & Bethea, T. N. (2015). Health disparities and cancer: Racial disparities in cancer mortality in the United States, 2000–2010. *Frontiers in Public Health, 3*, 51.
- Parslow, R. A., & Jorm, A. F. (2006). Tobacco use after experiencing a major natural disaster: Analysis of a longitudinal study of 2063 young adults. *Addiction, 101*(7), 1044–1050.
- Patanavanich, R., & Glantz, S. A. (2020). Smoking is associated with COVID-19 progression: A meta-analysis. *Nicotine & Tobacco Research, 22*(9), 1653–1656.
- Rolland, B., Haesebaert, F., Zante, E., Benyamina, A., Haesebaert, J., & Franck, N. (2020). Global Changes and Factors of Increase in Caloric/Salty Food Intake, Screen Use, and Substance Use During the Early COVID-19 Containment Phase in the General Population in France: Survey Study. *JMIR Public Health and Surveillance, 6*(3), e19630.
- Rosenthal, L., & Lobel, M. (2011). Explaining racial disparities in adverse birth outcomes: Unique sources of stress for Black American women. *Social Science & Medicine, 72*(6), 977–983.
- Sandelowski, M., Voils, C. I., & Knafl, G. (2009). On quantizing. *Journal of Mixed Methods Research, 3*(3), 208–222.
- Schulz, A. J., Gravlee, C. C., Williams, D. R., Israel, B. A., Mentz, G., & Rowe, Z. (2006). Discrimination, symptoms of depression, and self-rated health among African American women in Detroit: Results from a longitudinal analysis. *American Journal of Public Health, 96*(7), 1265–1270.
- Smiley, S. L., Kintz, N., Rodriguez, Y. L., Barahona, R., Sussman, S., Cruz, T. B., ... Baezconde-Garbanati, L. (2019). Disparities in retail marketing for little cigars and cigarillos in Los Angeles, California. *Addictive Behaviors Reports, 9*, 100149.
- Stein, C. H., Hoffmann, E., Bonar, E. E., Leith, J. E., Abraham, K. M., Hamill, A. C., ... Fogo, W. R. (2013). The United States economic crisis: Young adults’ reports of economic pressures, financial and religious coping and psychological well-being. *Journal of Family and Economic Issues, 34*(2), 200–210.
- Sterling, K., Berg, C. J., Thomas, A. N., Glantz, S. A., & Ahluwalia, J. S. (2013). Factors associated with small cigar use among college students. *American Journal of Health Behavior, 37*(3), 325–333.
- The U.S. Centers for Disease Control and Prevention (2020). *Coronavirus Disease 2019 (COVID-19) in the U.S. Centers for Disease Control and Prevention*. Accessed from: <https://www.cdc.gov/covid-data-tracker>.
- Utsey, S. O., Ponterotto, J. G., Reynolds, A. L., & Cancelli, A. A. (2000). Racial discrimination, coping, life satisfaction, and self-esteem among African Americans. *Journal of Counseling & Development, 78*(1), 72–80.
- Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences, 15*(3), 398–405.
- World Health Organization (2020). *Q&A: Tobacco and COVID-19*. Accessed from: <https://www.who.int/westernpacific/news/q-a-detail/q-a-on-tobacco-and-covid-19>.
- Yach, D. (2020). Tobacco use patterns in five countries during the COVID-19 Lockdown. *Nicotine & Tobacco Research, 22*(9), 1671–1672.