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Youth Acquisition and Situational Use of Cigars, Cigarillos, and Little Cigars: A Cross-sectional Study

Erika S. Trapl, PhD¹, Danielle O'Rourke-Suchoff, MD, MPH¹, Laura D. Yoder, MPH², Leslie E. Cofie, MPH³, Jean L. Frank, MPH¹, and Craig S. Fryer, DrPH, MPH⁴

¹Prevention Research Center for Healthy Neighborhoods, Department of Epidemiology and Biostatistics, Case Western Reserve University, Cleveland, Ohio ²Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, Michigan ³Department of Health Behavior, Gillings School of Global Public Health, University of North Carolina, Chapel Hill, North Carolina ⁴Maryland Center for Health Equity, Department of Behavioral and Community Health, University of Maryland, College Park, Maryland

Abstract

Introduction—Although adolescent use of cigars, cigarillos, and little cigars (CCLCs) has been increasing, little research has been conducted to understand how adolescents acquire CCLCs and the situations in which they smoke CCLCs. Thus, this study aims to understand how adolescent smokers acquire CCLCs and the situations in which they smoke them.

Methods—Data were drawn from the 2011 Cuyahoga County Youth Risk Behavior Survey. Current CCLC smoking was assessed; analysis was limited to current smokers (n=1,337). Current users were asked to identify situations in which they use cigars and ways in which they get cigars. Bivariate analyses assessed differences by sex, race, and concurrent substance use. Data were analyzed in 2014.

Results—Youth acquired CCLCs most commonly by buying (64.2%). CCLC smokers also reported high rates of social use (81.1%). There were no significant differences is situational use across sexes, but female adolescents were significantly more likely than male adolescents to share CCLCs and significantly less likely to buy or take CCLCs. Conversely, significant differences were seen for situational use by race/ethnicity, with whites significantly more likely to use in social situations and less likely to use in solitary situations versus blacks and Hispanics. Finally, significant differences were observed in both acquisition and use for youth who concurrently used CCLCs and cigarettes compared with CCLCs only; fewer differences were noted among those who concurrently used CCLCs and marijuana compared with CCLCs only.

Conclusions—These findings highlight how adolescents acquire and use CCLCs and can inform tobacco control strategies to prevent and reduce CCLC use.

Address correspondence to: Erika S. Trapl, PhD, Prevention Research Center for Healthy Neighborhoods, Department of Epidemiology and Biostatistics, Case Western Reserve University, 10900 Euclid Avenue, Cleveland OH 44106-7069. erika.trapl@case.edu.

INTRODUCTION

Over the past decade, cigarette smoking rates among youth have declined owing to extensive tobacco control measures targeting cigarettes. Additionally, research guiding smoking interventions and policy development has been focused on cigarettes, leading to school-based smoking prevention interventions, increased cigarette taxation, and regulations on cigarette placement and sales. Although cigarette use has declined, use of other tobacco products, particularly cigars, cigarillos, and little cigars (CCLCs) has remained steady and is climbing in some populations. Further, little research has been done to inform tobacco control strategies to reduce initiation and use of CCLCs among youth. This is of particular relevance given the U.S. Food and Drug Administration (FDA) decision in 2016 to extend regulatory authority to all tobacco products, including CCLCs.

Substantial research has been conducted to understand adolescent acquisition and use of cigarettes, 7–12 including differences by gender and race/ethnicity, 13,14 which has subsequently informed tobacco control strategies contributing to the decline in cigarette use among youth observed over the past 2 decades. 4,15 Policy and education interventions for tobacco prevention and cessation among youth have been largely focused on how adolescents get tobacco and the situations in which cigarettes are used. 16 Research demonstrating high rates of youth cigarette initiation and continued use in social situations contributed to the inclusion of refusal skills in smoking prevention curricula 17–25 and family-based programs. 26 Increased understanding of the life situation of youth tobacco users led to development of alternative coping skills in other smoking prevention and cessation programs. 19

Research has also identified several points of intervention beyond the individual adolescent based on an understanding of youth acquisition of cigarettes. ²⁷ Early research identified vending machines as an accessible and unmonitored opportunity for youth to purchase tobacco; vending machine sales of tobacco have since been banned (except in adult-only facilities) in all 50 states. ^{28,29} Although the legal age to purchase tobacco in most states is 18 years, data from Synar reports tracking tobacco sales to youth indicate that some tobacco vendors are not compliant, which has contributed to development of vendor trainings and active enforcement of retailer sales laws. ^{30,31} Excise taxes have also been increased as a deterrent to youth smoking. ³²

Additionally, social access has been identified as a key avenue for cigarette access among youth, both from parents and friends as a source of tobacco.^{7,9,14,33} Youth have frequently reported taking cigarettes from parents who smoke, generally without their knowledge.^{34,35} This has presented opportunities for media campaigns encouraging parents to talk with their children about expectations around smoking.^{36–38}

Finally, there is growing research documenting con-current use of CCLCs with cigarettes or marijuana. ^{39–45} Studies suggest these users may have unique demographic risk profiles, and understanding CCLC acquisition and use in the context of other substances is pertinent to inform future poly-use interventions.

The absence of research examining CCLC situational use and access is a significant gap in the literature. Given current rates of CCLC use, and opportunities presented by the FDA's recent decision to extend regulatory authority to CCLCs, understanding of situational use and access could inform strategies to prevent and reduce adolescent CCLC use. Thus, the current study examines acquisition and situational use of CCLCs among high school CCLC users overall, by sex and race/ethnicity, and by current cigarette and marijuana use.

METHODS

Study Sample

Data were drawn from the 2011 Cuyahoga County Youth Risk Behavior Survey; sampling methodology can be found elsewhere. ⁴⁶ Of the 54 high schools that were approached, 40 (74%) agreed to participate. A total of 15,844 students were eligible to complete the survey; 13,945 students participated. Questionnaires that failed quality control standards as established by the Centers for Disease Control and Prevention were removed from the data set (*n*=1,196), yielding 12,749 surveys (80.5%). ⁴⁷ Student non-response was due to student refusal, absence on the day of survey administration, or parental refusal. The overall response rate was 60%.

The current analyses were restricted to those students self-identifying as non-Hispanic white, non-Hispanic black, or Hispanic owing to the small numbers of other racial/ethnic students who were surveyed (n=11,247). An additional 1,149 cases were removed from the sample because smoking status could not be determined. This resulted in a sample size of 10,098. From this sample, the analyses were restricted to students who were identified as current CCLC smokers (n=1,337, 13.2%). The study was approved by the IRB at Case Western Reserve University.

Measures

Student self-report of sex (i.e., male or female); grade level (i.e., 9, 10, 11, or 12); race/ethnicity; and SES were assessed as demographic characteristics.

Students were asked two questions to determine race/ethnicity. The first question asked whether a student was Hispanic or Latino, and the second asked, *What is your race?*Students were instructed to select one or more responses, including American Indian or Alaska Native, Asian, black or African American, Native Hawaiian or other Pacific Islander, and white. Students who reported that they were Hispanic or Latino were coded as such regardless of their response to the second question. Students who reported that they were not Hispanic or Latino were separated into one of three categories: non-Hispanic white, non-Hispanic black, and other/multiple races. Analyses were restricted to those identifying as Hispanic, non-Hispanic white, and non-Hispanic black.

The Family Affluence Scale was used as a proxy for SES.^{48,49} It sums responses from the following four items yielding a range from 0 to 9: sharing a bedroom, family car ownership, family computer ownership, and number of family vacations in a year. In this study, family affluence (further referred to as SES) was categorized as low (0–4); medium (5–6); and high (7–9).

Students were asked, *During the past 30 days, on how many days did you smoke cigarettes?* Respondents were considered current users if they reported use on 1 days.

Students were asked, *During the past 30 days, how many times did you use marijuana?* Respondents were considered current users if they reported use at least once in the past 30 days.

Students were asked, *During the past 30 days, on how many days did you smoke cigars, cigarillos, little cigars, or flavored cigars, such as Black & Milds, Swisher Sweets, or Phillies?* A survey item that includes cigar brand names has been shown to yield greater endorsement among minority youth. ^{50–53} Respondents were considered current CCLC users if they reported use on 1 days.

Participants were asked, *How do you usually get your own cigars?* Response options were modeled after the National Youth Tobacco Survey⁵⁴ and included the following

- 1. I bought them at a store such as a convenience store, supermarket, discount store, or gas station.
- **2.** I bought them from another person (not from a store).
- **3.** I gave someone else money to buy them for me.
- **4.** I borrowed or shared with someone else.
- **5.** A person 18 or older gave them to me.
- **6.** I took them from a store.
- 7. I took them from a family member.
- **8.** I got them some other way.

Participants could select all appropriate responses.

Acquisition of cigars was further categorized into "bought product" (Responses 1–3); "shared product" (Responses 4 and 5); and "took product" (Responses 6 and 7).

Students were asked, *In which of the following situations do you use cigars?* Response options included the following:

- 1. when I am with friends;
- 2. when I am at a party;
- **3.** when I drink alcohol;
- **4.** just before or after school;
- **5.** when I study;
- **6.** around my parents;
- **7.** when I wake up;
- **8.** before bed:

- **9.** when I feel hungry; and
- 10. after I eat.

Students could select all appropriate responses.

Situational use was then collapsed into "social use" (Responses 1 and 2) and "solitary use" (Responses 5, 7, 8, 9, and 10). Use around parents and with alcohol use remained separate categories.

Statistical Analysis

Data were analyzed in 2014. The SPSS, version 23, complex samples analyses were used to obtain weighted estimates and account for the complex sampling design. Univariate analyses were used to describe demographic characteristics for the sample. To explore differences in demographic characteristic and concurrent substance use, bivariate analyses were conducted using SPSS complex samples cross-tabulation to provide prevalence estimates and 95% CIs. SPSS complex samples crosstab produces chi-square and likelihood ratio tests to assess significant differences at p < 0.05.

RESULTS

Of the 1,337 CCLC smokers in the sample, more than half were male (62.3%) and white (55.5%), with fairly equal distributions across grade. As shown in Table 1, 52.9% currently smoke cigarettes and nearly three quarters (74.1%) had recently used marijuana; 41.6% used cigarettes, CCLCs, and marijuana, whereas 11.3% used cigarettes, CCLCs, and no marijuana (not shown).

Table 2 illustrates how youth acquire CCLCs and situations in which they use CCLCs. A majority of youth report acquiring CCLCs by purchasing them, which included purchasing at a store (36.7%), buying from another person (9.4%), and giving someone else money to buy them (25.4%). Notably, youth aged <18 years reported buying as the most common way they acquired CCLCs, with >25% of youth aged <18 years reporting purchasing at a store. More than a third of youth overall reported accessing CCLCs through borrowing, sharing with friends, or receiving from someone aged 18 years. Very few youth reported taking them from a store or family member (5.4% overall).

An overwhelming majority of youth reported use in social situations (81.1%), including with friends (71.3%) or at a party (43.2%). Nearly a third reported use with alcohol. Fewer youth reported use in more-solitary situations (19.8%) and before or after school (17.8%), with use before bedtime (11.8%) and after waking up (10.0%) being the most common. A small group of youth (5.2%) reported use of CCLCs around their parents. Notably, 46.5% reported that they use CCLCs in other situations.

Differences in acquisition and situational use by sex and race/ethnicity were examined (Table 3). Within sexes, female youth were less likely than male youth to buy CCLCs (59.8% vs 66.9%) and take CCLCs (3.3% vs 6.7%), but were more likely than male adolescents to share (40.8% vs 30.2%). There were no differences in situational use by sex.

Hispanic youth were more likely than white or black youth to take CCLCs (17.9% vs 4.3% and 5.3%, respectively). All three groups were significantly different from one another regarding use in social situations and use in solitary situations, with whites more likely to use in social situations and Hispanics more likely to use in solitary situations. Hispanic youth were significantly more likely to use around parents compared with both white and black youth. White youth were more likely to use with alcohol than black youth.

Table 4 examines differences in acquisition and use by current cigarette use and current marijuana use. Youth who reported concurrent use of CCLCs and cigarettes were more likely to report buying and taking compared with youth who reported only using CCLCs. Similarly, youth who reported current use of CCLCs and marijuana were more likely to report buying than youth reporting only using CCLCs.

Youth reporting concurrent CCLC and cigarette use were more likely to report use in solitary situations, with alcohol, with parents, and in some other way compared with youth who only used CCLCs. Youth reporting concurrent CCLC and marijuana use were more likely to report use with alcohol and in some other way compared with those who reported only CCLC use.

DISCUSSION

This study contributes to the extant tobacco control literature by offering insight into adolescent CCLC use through examining how youth access and in what situations they choose to use CCLCs. To the authors' knowledge, these results are the first to highlight settings and ways youth access CCLCs, providing an opportunity to inform strategies to prevent and reduce tobacco use among adolescents through intervention programming, social influences, and policy.

These findings regarding CCLC acquisition and use are similar to other published studies in the literature examining cigarettes. 6–13 Most adolescent CCLC users purchased CCLCs, and most frequently used these products in social situations. These trends held up in both sex and race/ethnicity subgroups. Girls were more likely than boys to share CCLCs, a pattern consistent with other literature suggesting girls more frequently share tobacco products than boys. 8,14 Thus, current tobacco prevention strategies that focus on interpersonal peer group relationships, refusal skills, and social norm change may be quite valid for prevention of CCLC use. However, Hispanic and black youth were significantly more likely than white youth to smoke CCLCs in solitary situations. More research is needed to better understand the role of cultural norms on the context of and reasons for solitary use among these groups.

Recently, tobacco control advocates have suggested raising the minimum age to purchase tobacco to 21 years to further reduce youth access to tobacco. 34,55 Such a law has been adopted in more than 130 cities as of February 2016, as well as in the state of Hawaii. Not only does this law directly affect the buyer, but social sources of tobacco access are also affected. A report from the Institute of Medicine on the impact of increasing the legal age to purchase found that raising the age to 21 years could reduce smoking initiation rates of those aged younger than 15 years by 15% and reduce rates among youth aged 15–17 years by

25%.⁵⁵ Given the high rates of youth directly purchasing and socially sharing found in this study, this policy is likely to have an impact on CCLC use.

This study also found high rates of CCLC use with alcohol consumption. Other studies have found high rates of concurrent use of alcohol and tobacco and suggest that interventions to reduce youth access to and use of alcohol may also reduce youth tobacco use. ⁵⁶ Further, Vu and colleagues ¹⁴ found that marijuana users were more likely to buy than non-users, echoing the present finding that concurrent CCLC and marijuana users were more likely to buy CCLCs.

The authors identified several differences in situational use between CCLCs only and concurrent CCLC and cigarette users; CCLCs were more frequently used in solitary situations, with alcohol, and with parents by concurrent CCLC and cigarette users compared with CCLC-only users. Concurrent CCLC and cigarette users were also more likely to buy and take CCLCs. Use of multiple tobacco products is associated with higher nicotine dependence; thus, it is possible that use is higher owing to greater nicotine dependence among concurrent CCLC and cigarette smokers. Current measures of nicotine dependence used with adolescents are designed to particularly measure cigarette use; there are no measures of nicotine dependence that include or particularly focus on CCLCs. Future research to develop measures of dependence for youth who are CCLC users or users of multiple types of tobacco would allow a better understanding of nicotine dependence among CCLC users.

Perhaps because of lack of research, CCLCs are treated differently than cigarettes under the law. Given that CCLC situational use and acquisition is similar to the published literature on cigarettes, 6–13 results of this study support policy equivalence as a way to reduce or prevent CCLC use. An important first step was the decision of the FDA Center for Tobacco Products (CTP) to enact its regulatory authority over CCLCs, effective August 2016. This allows FDA CTP to enact regulations on product placement, advertising, packaging, product content, and health and risk messages for CCLCs.

Further, CCLCs are noticeably absent from federally funded anti-smoking campaigns. The FDA CTP's current youth anti-smoking campaign, "The Real Cost," focuses exclusively on cigarette risk messages. By enacting regulatory authority over CCLCs, FDA CTP now has a significant opportunity to frame CCLC risk messages to youth through current and future media campaigns.

The finding that youth are purchasing CCLCs from stores supports taxation and store placement as a potential area to intervene in youth tobacco use. This study also found that polysubstance users were more likely to purchase CCLCs, implying some users may be more motivated to circumvent policies restricting access and stronger enforcement is needed. CCLCs are cheaper and taxed at a lower rate than cigarettes despite the fact that models have shown that an increase in taxes potentially would lead to a reduction in rates of cigar use. ^{57,58} Further, most states continue to have significantly lower excise taxes for CCLCs compared with cigarettes. ⁵⁹ Future research is needed to fully understand the interaction among CCLC sales to youth and cost, advertisements, and product placement.

Limitations

There are limitations to the current study that should be noted. First, the sample is limited to one urban county in the Midwest experiencing similar rates of cigarette use, but higher rates of CCLC use compared to national data. 46,60 Second, smoking status was unable to be determined for 10.2% of the overall population, potentially excluding some CCLC users from the analysis. Third, the study did not assess if youth lived with a smoker, which would have direct impact on their access. Living with a CCLC smoker, and thus increased access to CCLCs, may explain why high rates of Hispanic youth who take CCLCs were seen.

Additionally, the item used to assess CCLC use combined cigars, cigarillos, and little cigars into a single item. Recent research has found that youth and young adults identify these as unique products used in different situations. ^{61,62} There may be differences in acquisition and situational use among subtypes of users or by demographic characteristics that cannot be detected owing to CCLC measurement. Despite these limitations, this work allows for examination of CCLC acquisition and situational use within a population, a topic necessary for determining evidence-based interventions and policies for CCLCs.

CONCLUSIONS

Youth are smoking CCLCs in social situations. Surprisingly, they are purchasing CCLCs directly from stores. CCLCs are used in similar ways and obtained through similar means as cigarettes. By equalizing policy and regulation across all tobacco products, the authors expect to see an immediate impact on products not currently regulated or taxed in the same way as cigarettes. Additionally, CCLCs should be integrated into anti-tobacco messaging and media campaigns, to raise awareness of risk perceptions among youth.

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References

- Centers for Disease Control and Prevention (CDC). Current tobacco use among middle and high school students—United States, 2011. MMWR Morb Mortal Wkly Rep. 2012; 61(31):581–585.
 [PubMed: 22874835]
- 2. Thomas RE, McLellan J, Perera R. School-based programmes for preventing smoking. Cochrane Database Syst Rev. 2013; 4:CD001293. http://dx.doi.org/10.1002/ebch.1937.
- 3. Farrelly MC, Loomis BR, Han B, et al. A comprehensive examination of the influence of state tobacco control programs and policies on youth smoking. Am J Public Health. 2013; 103(3):549–555. http://dx.doi.org/10.2105/AJPH.2012.300948. [PubMed: 23327252]
- Centers for Disease Control and Prevention (CDC). Best Practices for Comprehensive Tobacco Control Programs—2014. Atlanta, GA: CDC; 2014.

 Symm B, Morgan MV, Blackshear Y, Tinsley S. Cigar smoking: an ignored public health threat. J Prim Prev. 2005; 26(4):363–375. http://dx.doi.org/10.1007/s10935-005-5389-z. [PubMed: 15995804]

- 6. Food and Drug Administration. Deeming tobacco products to be subject to the Federal Food, Drug, and Cosmetic Act, as amended by the Family Smoking Prevention and Tobacco Control Act; Restrictions on the sale and distribution of tobacco products and required warning statements for tobacco products. Fed Regist. 2016; 81:28974–29106. Codified at 21 CFR Parts 1100, 1140, and 1143.
- Castrucci BC, Gerlach KK, Kaufman NJ, Orleans CT. Adolescents' acquisition of cigarettes through noncommercial sources. J Adolesc Health. 2002; 31(4):322–326. http://dx.doi.org/10.1016/ S1054-139X(02)00393-2. [PubMed: 12359377]
- 8. Seo D-C, Huang Y. Systematic review of social network analysis in adolescent cigarette smoking behavior. J Sch Health. 2012; 82(1):21–27. http://dx.doi.org/10.1111/j.1746-1561.2011.00663.x. [PubMed: 22142171]
- 9. Kaestle CE. How girls and boys get tobacco: adults and other sources. J Adolesc Health. 2009; 45(2):208–210. http://dx.doi.org/10.1016/j.jadohealth.2009.02.010. [PubMed: 19628150]
- Hahn G, Charlin VL, Sussman S, et al. Adolescents' first and most recent use situations of smokeless tobacco and cigarettes: similarities and differences. Addict Behav. 1990; 15(5):439– 448. http://dx.doi.org/10.1016/0306-4603(90)90030-2. [PubMed: 2248117]
- Sussman S, Hahn G, Dent CW, Stacy AW, Burton D, Flay BR. Naturalistic observation of adolescent tobacco use. Int J Addict. 2009; 28(9):803–811. http://dx.doi.org/ 10.3109/10826089309039657.
- Acosta MC, Eissenberg T, Nichter M, Nichter M, Balster RL. Characterizing early cigarette use episodes in novice smokers. Addict Behav. 2008; 33(1):106–121. http://dx.doi.org/10.1016/ j.addbeh.2007.09.005. [PubMed: 17913378]
- Proctor C, Barnett JA, Muilenburg J. Investigating race, gender, and access to cigarettes in an adolescent population. Am J Health Behav. 2012; 36(4):513–521. http://dx.doi.org/10.5993/AJHB. 36.4.8. [PubMed: 22488401]
- 14. Vu M, Leatherdale ST, Ahmed R. Examining correlates of different cigarette access behaviours among Canadian youth: data from the Canadian Youth Smoking Survey (2006). Addict Behav. 2011; 36(12):1313–1316. http://dx.doi.org/10.1016/j.addbeh.2011.07.010. [PubMed: 21821363]
- 15. Centers for Disease Control and Prevention (CDC). Consumption of cigarettes and combustible tobacco—United States, 2000–2011. MMWR Morb Mortal Wkly Rep. 2012; 61(30):565–580. [PubMed: 22854624]
- 16. U.S. DHHS. Preventing Tobacco Use among Youth and Young Adults: A Report of the Surgeon General. Atlanta, GA: 2012.
- Friedman LS, Lichtenstein E, Biglan A. Smoking onset among teens: an empirical analysis of initial situations. Addict Behav. 1985; 10(1):1–13. http://dx.doi.org/ 10.1016/0306-4603(85)90048-6. [PubMed: 4003131]
- 18. Biglan A, McConnell S, Severson HH, Bavry J, Ary D. A situational analysis of adolescent smoking. J Behav Med. 1984; 7(1):109–114. http://dx.doi.org/10.1007/BF00845349. [PubMed: 6716467]
- 19. Botvin G. Preventing drug abuse in schools: social and competence enhancement approaches targeting individual-level etiologic factors. Addict Behav. 2000; 25(6):887–897. http://dx.doi.org/10.1016/S0306-4603(00)00119-2. [PubMed: 11125777]
- Sussman S, Dent CW, Stacy AW, et al. Project towards no tobacco use: 1-year behavior outcomes. Am J Public Health. 1993; 83(9):1245–1250. http://dx.doi.org/10.2105/AJPH.83.9.1245. [PubMed: 8362999]
- Powers Noland M, Kryscio RJ, Riggs RS, Linville LH, Ford VY, Tucker TC. The effectiveness of a tobacco prevention program with adolescents living in a tobacco-producing region. Am J Public Health. 1998; 88(12):1862–1865. [PubMed: 9842390]
- 22. Prokhorov AV, Kelder SH, Shegog R, et al. Impact of A Smoking Prevention Interactive Experience (ASPIRE), an interactive, multimedia smoking prevention and cessation curriculum for

- culturally diverse high-school students. Nicotine Tob Res. 2008; 10(9):1477–1485. http://dx.doi.org/10.1080/14622200802323183. [PubMed: 19023839]
- 23. Davis SM, Lambert LC, Cunningham-Sabo L, Skipper BJ. Tobacco use: baseline results from Pathways to Health, a school-based project for southwestern American Indian youth. Prev Med (Baltim). 1995; 24(5):454–460. http://dx.doi.org/10.1006/pmed.1995.1073.
- 24. Perry CL, Kelder SH, Murray DM, Klepp KI. Communitywide smoking prevention: long-term outcomes of the Minnesota Heart Health Program and the Class of 1989 Study. Am J Public Health. 1992; 82(9):1210–1216. http://dx.doi.org/10.2105/AJPH.82.9.1210. [PubMed: 1503159]
- 25. Elder JP, Wildey M, de Moor C, et al. The long-term prevention of tobacco use among junior high school students: classroom and telephone interventions. Am J Public Health. 1993; 83(9):1239–1244. http://dx.doi.org/10.2105/AJPH.83.9.1239. [PubMed: 8362998]
- Bauman KE, Foshee VA, Ennett ST, et al. The influence of a family program on adolescent tobacco and alcohol use. Am J Public Health. 2001; 91(4):604–610. http://dx.doi.org/10.2105/AJPH. 91.4.604. [PubMed: 11291373]
- Lantz PM. Investing in youth tobacco control: a review of smoking prevention and control strategies. Tob Control. 2000; 9(1):47–63. http://dx.doi.org/10.1136/tc.9.1.47. [PubMed: 10691758]
- 28. Accessibility of tobacco products to youths aged 12–17 years—United States, 1989 and 1993. MMWR Morb Mortal Wkly Rep. 1996; 45(6):125–130. [PubMed: 8622620]
- 29. FDA. [Accessed April 7, 2015] Regulations Restricting the Sale and Distribution of Cigarettes and Smokeless Tobacco to Protect Children and Adolescents. www.gpo.gov/fdsys/pkg/ FR-2010-03-19/pdf/2010-6087.pdf
- Substance Abuse and Mental Health Services Administration (SAMHSA). [Accessed August 19, 2015] 2013 Annual Synar Reports: Tobacco Sales to Youth. http://store.samhsa.gov/product/2013-Annual-Synar-Reports-Tobacco-Sales-to-Youth/SYNAR-14. Published December 2014
- 31. Zaza, S.Briss, P., Harris, K., editors. The Guide to Community Preventive Services: What Works to Promote Health?. Oxford: Oxford University Press; 2005.
- 32. Chaloupka FJ, Straif K, Leon ME. Effectiveness of tax and price policies in tobacco control. Tob Control. 2011; 20(3):235–238. http://dx.doi.org/10.1136/tc.2010.039982. [PubMed: 21115556]
- 33. Forster J. Social exchange of cigarettes by youth. Tob Control. 2003; 12(2):148–154. http://dx.doi.org/10.1136/tc.12.2.148. [PubMed: 12773724]
- 34. DiFranza JR, Coleman M. Sources of tobacco for youths in communities with strong enforcement of youth access laws. Tob Control. 2001; 10(4):323–328. http://dx.doi.org/10.1136/tc.10.4.323. [PubMed: 11740022]
- 35. Lenk KM, Toomey TL, Shi Q, Erickson DJ, Forster JL. Do sources of cigarettes among adolescents vary by age over time? J Child Adolesc Subst Abuse. 2014; 23(2):137–143. http://dx.doi.org/10.1080/1067828X.2012.750972. [PubMed: 24563604]
- Wakefield M, Terry-McElrath Y, Emery S, et al. Effect of televised, tobacco company-funded smoking prevention advertising on youth smoking-related beliefs, intentions, and behavior. Am J Public Health. 2006; 96(12):2154–2160. http://dx.doi.org/10.2105/AJPH.2005.083352. [PubMed: 17077405]
- 37. U.S. DHHS. Preventing Tobacco Use Among Youth and Young Adults: A Report of the Surgeon General. Washington, DC: U.S. DHHS; 2012.
- 38. Biglan A. A randomised controlled trial of a community intervention to prevent adolescent tobacco use. Tob Control. 2000; 9(1):24–32. http://dx.doi.org/10.1136/tc.9.1.24. [PubMed: 10691755]
- 39. Cohn A, Cobb CO, Niaura RS, Richardson A. The other combustible products: prevalence and correlates of little cigar/cigarillo use among cigarette smokers. Nicotine Tob Res. 2015; 17(12): 1473–1481. http://dx.doi.org/10.1093/ntr/ntv022. [PubMed: 25634932]
- 40. Cohn A, Villanti A, Richardson A, et al. The association between alcohol, marijuana use, new and emerging tobacco products in a young adult population. Addict Behav. 2015; 48:79–88. http://dx.doi.org/10.1016/j.addbeh.2015.02.005. [PubMed: 26042613]
- 41. Rait MA, Prochaska JJ, Rubinstein ML. Reporting of cigar use among adolescent tobacco smokers. Addict Behav. 2016; 53:206–209. http://dx.doi.org/10.1016/j.addbeh.2015.06.035. [PubMed: 26575823]

42. Cohn A, Johnson A, Ehlke S, Villanti AC. Characterizing substance use and mental health profiles of cigar, blunt, and non-blunt marijuana users from the National Survey of Drug Use and Health. Drug Alcohol Depend. 2015; 160:105–111. http://dx.doi.org/10.1016/j.drugalcdep.2015.12.017. [PubMed: 26803718]

- 43. Creamer MR, Portillo GV, Clendennen SL, Perry CL. Is adolescent poly-tobacco use associated with alcohol and other drug use? Am J Health Behav. 2016; 40(1):117–122. http://dx.doi.org/10.5993/AJHB.40.1.13. [PubMed: 26685820]
- 44. Creamer MR, Perry CL, Harrell MB, Diamond PM. Trends in multiple tobacco product use among high school students. Tob Regul Sci. 2015; 1(3):204–214. http://dx.doi.org/10.18001/TRS.1.3.2. [PubMed: 26478907]
- 45. Ali M, Gray TR, Martinez DJ, Curry LE, Horn KA. Risk profiles of youth single, dual, and poly tobacco users. Nicotine Tob Res. 2016; 18(7):1614–1621. http://dx.doi.org/10.1093/ntr/ntw028. [PubMed: 26896162]
- 46. Prevention Research Center for Healthy Neighborhoods (PRCHN). 2011 Cuyahoga County High School Youth Risk Behavior Survey (YRBS) Report: Grades 9–12. Cleveland, OH: PRCHN, Department of Epidemiology and Biostatistics, Case Western Reserve University; 2012. www.prchn.org/Downloads/2011%20Cuyahoga%20County%20HS%20YRBS%20Report.pdf
- 47. Centers for Disease Control and Prevention (CDC). [Accessed May 25, 2016] Methodology of the Youth Risk Behavior Surveillance System—2013. www.cdc.gov/mmwr/preview/mmwrhtml/rr6201a1.htm
- 48. Boyce W, Torsheim T, Currie C, Zambon A. The Family Affluence Scale as a measure of national wealth: validation of an adolescent self-report measure. Soc Indic Res. 2006; 78(3):473–487. http://dx.doi.org/10.1007/s11205-005-1607-6.
- 49. Currie C, Molcho M, Boyce W. Researching health inequalities in adolescents: the development of the Health Behaviour in School-Aged Children (HBSC) family affluence scale. Soc Sci Med. 2008; 66(6):1429–1436. http://dx.doi.org/10.1016/j.socscimed.2007.11.024. [PubMed: 18179852]
- 50. Trapl ES, Terchek JJ, Danosky L, Cofie L, Brooks-Russell A, Frank SH. Complexity of measuring "cigar use" in adolescents: results from a split sample experiment. Nicotine Tob Res. 2011; 13(4): 291–295. http://dx.doi.org/10.1093/ntr/ntq247. [PubMed: 21330280]
- 51. Terchek JJ, Larkin EMG, Male ML, Frank SH. Measuring cigar use in adolescents: inclusion of a brand-specific item. Nicotine Tob Res. 2009; 11(7):842–846. http://dx.doi.org/10.1093/ntr/ntp074. [PubMed: 19474182]
- 52. Nasim A, Blank MD, Berry BM, Eissenberg T. Cigar use misreporting among youth: data from the 2009 Youth Tobacco Survey, Virginia. Prev Chronic Dis. 2012; 9:E42. [PubMed: 22261252]
- 53. Corey CG, Dube SR, Ambrose BK, King BA, Apelberg BJ, Husten CG. Cigar smoking among U.S. students: reported use after adding brands to survey items. Am J Prev Med. 2014; 47(2 suppl 1):S28–S35. http://dx.doi.org/10.1016/j.amepre.2014.05.004. [PubMed: 25044193]
- Centers for Disease Control and Prevention (CDC). National Youth Tobacco Survey. www.cdc.gov/ tobacco/data_statistics/surveys/nyts/index.htm. Published 2011
- 55. Institute of Medicine. [Accessed April 8, 2015] Public health implications of raising the minimum age of legal access to tobacco products. http://nationalacademies.org/HMD/Reports/2015/ TobaccoMinimumAgeReport.aspx. Published March 12, 2015
- Leatherdale ST, Ahmed R. Alcohol, marijuana, and tobacco use among Canadian youth: do we need more multi-substance prevention programming? J Prim Prev. 2010; 31(3):99–108. http:// dx.doi.org/10.1007/s10935-010-0211-y. [PubMed: 20352492]
- Ringel JS, Wasserman J, Andreyeva T. Effects of public policy on adolescents' cigar use: evidence from the National Youth Tobacco Survey. Am J Public Health. 2005; 95(6):995–998. http:// dx.doi.org/10.2105/AJPH.2003.030411. [PubMed: 15914822]
- 58. Tworek C, Yamaguchi R, Kloska DD, et al. State-level tobacco control policies and youth smoking cessation measures. Health Policy. 2010; 97(2–3):136–144. http://dx.doi.org/10.1016/j.healthpol. 2010.04.009. [PubMed: 20483500]
- 59. Campaign for Tobacco Free Kids. State excise tax rates for non-cigarette tobacco products. www.tobaccofreekids.org/research/factsheets/pdf/0169.pdf. Published 2015

60. Arrazola RA, Singh T, Corey CG, et al. Tobacco use among middle and high school students— United States, 2011–2014. MMWR Morb Mortal Wkly Rep. 2015; 64(14):381–385. [PubMed: 25879896]

- 61. Koopman Gonzalez, SJ., Cofie, LE., Trapl, ES. "I just use it for weed": the modification of little cigars and cigarillos by young adult African American male users. J Ethn Subst Abuse. In press. Online December 7, 2015. http://dx.doi.org/10.1080/15332640.2015.1081117
- 62. Dickinson DM, Johnson SE, Coleman BN, Tworek C, Tessman GK, Alexander J. The language of cigar use: focus group findings on cigar product terminology. Nicotine Tob Res. 2016; 18(5):850–856. http://dx.doi.org/10.1093/ntr/ntv285. [PubMed: 26826209]

Table 1

Descriptive Characteristics of CCLC Smokers

Weighted % (95% CI) (n=1337)	Unweighted na
62.3 (58.6, 65.8)	795
37.6 (34.2, 41.4)	539
19.3 (14.4, 25.5)	299
23.4 (19.1, 28.3)	324
23.3 (19.3, 27.9)	329
34.0 (28.4, 40.0)	383
39.4 (35.4, 43.5)	462
55.5 (51.4, 59.5)	694
5.2 (4.1, 6.5)	181
28.5 (25.4, 31.9)	415
35.4 (31.8, 39.1)	462
36.1 (32.6, 39.8)	460
52.9 (49.1, 56.5)	649
74.1 (70.6, 77.3)	967
	62.3 (58.6, 65.8) 37.6 (34.2, 41.4) 19.3 (14.4, 25.5) 23.4 (19.1, 28.3) 23.3 (19.3, 27.9) 34.0 (28.4, 40.0) 39.4 (35.4, 43.5) 55.5 (51.4, 59.5) 5.2 (4.1, 6.5) 28.5 (25.4, 31.9) 36.1 (32.6, 39.8) 52.9 (49.1, 56.5)

^aMissing data are as follows: gender, 3; grade level, 2; race/ethnicity, 0; family affluence, 0; cigarette use, 142; marijuana use, 60. CCLCs, cigars, cigarillos, and little cigars.

Table 2

Youth Acquisition and Situational Use of CCLCs

Acquisition and Use	% (95% CI)	
Youth acquisition ^a		
Bought CCLCs	64.2 (60.6, 67.7)	
Under 18	58.5 (54.2, 62.6)	
Bought at store	36.7 (33.1, 40.4)	
Bought at store, under 18	25.4 (21.9, 29.1)	
Bought from another person	9.4 (7.7, 11.5)	
Gave someone money to buy	25.4 (22.2, 28.8)	
Shared product	36.6 (33.1, 40.2)	
Borrowed or shared	27.7 (24.6, 31.1)	
Received from person 18+ years	13.0 (10.9, 15.4)	
Took product	5.4 (4.1, 7.1)	
Took from a store	3.2 (2.2, 4.6)	
Took from a family member	3.4 (2.4, 4.9)	
Some other way	8.5 (6.6, 11.0)	
Situational use ^b		
Used CCLCs in social situation	81.1 (78.3, 83.6)	
With friend	71.3 (68.0, 74.4)	
At a party	43.2 (39.4, 47.0)	
Used CCLCs in solitary situation	19.8 (17.2, 22.5)	
When studying	5.2 (3.8, 7.0)	
After waking up	10.0 (8.0, 12.4)	
Before bed	11.8 (9.6, 14.4)	
When hungry	6.0 (4.4, 8.0)	
After eating	8.9 (7.1, 11.2)	
Used before or after school	17.8 (15.1, 20.8)	
Used CCLCs with alcohol	31.9 (28.6, 35.5)	
Used CCLCs around parents	5.2 (3.8, 7.0)	
Some other situation	46.5 (42.3, 50.7)	

a "How do you usually get your own cigars?" (choose all that apply).

CCLCs, cigars, cigarillos, and little cigars.

b... In which of the following situations do you use cigars?" (choose all that apply).

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Table 3

Acquisition and Situational Use of CCLCs by Gender and Race/Ethnicity

Acquisition and use Male, %	Male, % (95% CI)	Female, % (95% CI)	White (W), % (95% CI)	Black (B), % (95% CI)	(95% CI) Female, % (95% CI) White (W), % (95% CI) Black (B), % (95% CI) Hispanic (H), % (95% CI)	p<0.05
$Acquisition^a$						
Bought CCLCs	66.9 (62.5, 71.0)	59.8 (54.0, 65.4)	64.4 (59.9, 68.7)	63.7 (57.2, 69.7)	66.5 (56.2, 75.5)	MF
Shared CCLCs	30.2 (26.2, 34.6)	40.8 (34.9, 46.9)	34.3 (30.2, 38.8)	39.9 (33.5, 46.7)	35.4 (24.1, 48.5)	MF
Took CCLCs	6.7 (4.9, 9.3)	3.3 (2.1, 5.1)	4.3 (2.9, 6.4)	5.3 (3.5, 8.0)	17.9 (8.2, 34.7)	MF, WH, BH
Some other way	8.9 (6.4, 12.2)	7.7 (4.6, 12.9)	8.0 (5.6, 11.4)	9.0 (6.0, 13.4)	9.7 (5.4, 16.7)	
Situational use b						
Social situation	79.6 (75.9, 82.8)	83.8 (79.3, 87.5)	84.7 (81.3, 87.6)	78.4 (73.5, 82.5)	62.8 (51.4, 72.9)	WH, WB, BH
Solitary situation	17.7 (14.3, 21.7)	23.0 (17.9, 28.9)	15.4 (12.2, 19.3)	23.4 (19.6, 27.7)	38.4 (26.7, 51.5)	WB, WH, BH
Before/after school	17.7 (14.5, 21.4)	18.0 (13.4, 23.7)	13.5 (10.7, 17.0)	22.9 (18.1, 28.5)	24.3 (13.8, 29.1)	WB, WH
With alcohol	31.3 (26.8, 36.3)	33.0 (27.2, 29.4)	37.5 (32.8, 42.4)	23.7 (19.5, 28.4)	35.1 (24.0, 48.2)	WB
Around parents	5.6 (3.7, 8.4)	4.4 (2.7, 7.2)	4.8 (3.2, 7.1)	4.5 (2.7, 7.4)	14.2 (5.3, 32.8)	WH, BH
Some other way	46.7 (41.8, 51.8)	46.2 (39.8, 52.7)	46.2 (41.5, 51.0)	46.2 (38.7, 53.9)	51.9 (40.5, 63.2)	

Note: Boldfaces indicates significant difference at p < 0.05.

BH, difference between black and Hispanic; CCLCs, cigars, cigarillos, and little cigars; MF, difference between male and female; WB, difference between white and black; WH, difference between the properties of the properties o

 $[\]overset{a}{\cdot}$. How do you usually get your own cigars?" (choose all that apply).

 $b. {\rm In}$ which of the following situations do you use cigars?" (choose all that apply).

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Table 4

Acquisition and Situational Use of CCLCs by Concurrent Product Use

	Cigarette use		Marijuana use	
Acquisition and use	CCLCs only, % (95% CI)	CCLCs + cigarette, % (95% CI)	CCLCs only, % (95% CI)	CCLCs + marijuana, % (95% CI)
Acquisition ^a				
Bought CCLCs	60.8 (55.1, 66.3)	69.1 (64.2, 73.6)*	54.3 (47.1, 61.3)	67.9 (63.4, 72.1)**
Shared CCLCs	39.0 (33.4, 44.9)	33.9 (29.3, 38.8)	41.8 (35.1, 48.7)	35.2 (30.9, 39.8)
Took CCLCs	1.6 (0.8, 2.9)	7.7 (5.5, 10.5) ***	3.4 (2.0, 5.9)	5.9 (4.2, 8.1)
Some other way	9.6 (6.4, 14.1)	7.8 (5.3, 11.5)	5.5 (3.1, 9.6)	9.9 (7.3, 13.3)
Situational use ^b				
Social situation	82.6 (77.6, 86.7)	82.2 (78.6, 85.3)	81.2 (75.2, 86.0)	83.7 (80.4, 86.45)
Solitary situation	16.8 (13.2, 21.0)	22.8 (18.9, 27.2)*	15.0 (10.2, 21.5)	20.8 (17.7, 24.4)
Before/after School	16.9 (12.8, 21.4)	19.0 (15.5, 23.2)	11.2 (7.3, 16.7)	19.7 (16.4, 23.5)*
With alcohol	24.5 (20.1, 29.5)	41.3 (36.1, 46.8) ***	24.4 (18.4, 31.7)	35.8 (31.6, 40.2) **
Around parents	1.2 (0.6, 2.4)	7.9 (5.4, 11.3) ***	4.6 (2.6, 8.0)	5.4 (3.7, 7.8)
Some other way	40.4 (34.3, 46.8)	52.6 (47.3, 57.8) ***	37.3 (30.1, 45.2)	50.0 (44.7, 55.3) **

Note: Boldface indicates statistical significance (*p<0.05; **p<0.01; ***p<0.001).

CCLCs, cigars, cigarillos, and little cigars.

^a."How do you usually get your own cigars?" (choose all that apply).

b... In which of the following situations do you use cigars?" (choose all that apply).