



Caregiver restrictions on child access to tobacco in the home and home Smoking/Vaping bans among Black/African American women caregivers who smoke and live in Resource-limited, rural areas

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ABSTRACT

Objective: This study examined relationships between home smoking/vaping bans and caregiver restrictions on child access to tobacco in the home among rural, Black/African American caregivers who smoke.

Methods: Data were from the baseline survey of a randomized trial conducted in 2020–2022 among caregivers who smoke cigarettes and/or little cigars/cigarillos (N = 188). Logistic regressions examined associations between independent variables (tobacco product-specific and comprehensive home smoking/vaping bans) and dependent variables (caregiver keeps tobacco in the home; among caregivers with tobacco at home, caregiver restricts child tobacco access at home). Models were adjusted for caregiver tobacco use, income, and additional covariates based on stepwise selection.

Results: Compared to caregivers with no bans, caregivers with full bans on cigar smoking and vaping were less likely to keep cigars and e-cigarettes at home, respectively. Caregivers with full bans across all tobacco products and no/partial bans across some products were less likely than those with lesser bans to keep e-cigarettes and “other tobacco products” (hookah, pipe, smokeless tobacco, IQOS) at home. Among caregivers with cigarettes at home, those with partial cigarette smoking bans were more likely than those with no bans to restrict child cigarette access at home. Among caregivers with e-cigarettes at home, those with no/partial bans on some products were less likely than those with lesser bans to restrict child e-cigarette access at home.

Conclusions: Interventions addressing intergenerational tobacco use among socially-disadvantaged groups may benefit by supporting the implementation of home smoking/vaping bans and caregiver restrictions on child access to tobacco in the home.

1. Introduction

Cigarette smoking in Arkansas has persistently exceeded US averages. (Initiative, 2019; Campaign, 2022) Data from 2020 to 2021 indicate that 21.5% of Arkansas women currently smoke compared to 12.5% of US women, (United Health Foundation, 2024) with slightly higher smoking rates among Black/African American women in Arkansas (13.2%) compared to the national average among Black/African

American women (11.9%). (United Health Foundation, 2022) Smoking rates among rural women (26.8%) and women with low income (34.7%) are higher in Arkansas compared to their respective national averages. (United Health Foundation, 2024; United Health Foundation, 2024) Further, 2020–2021 data show that 20% of Arkansas children live in households where someone smokes compared to the national average of 14%. (United Health Foundation, 2022) Within Arkansas, smoking disparities exist, particularly in the Delta region. (University of

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Wisconsin Population Health Institute, 2022; University of Wisconsin Population Health Institute, 2022) For example, in Lee and Phillips counties, where 53–61% of residents are Black/African American, smoking rates (26–28%) and child poverty rates (45–53%) are higher relative to other counties. (University of Wisconsin Population Health Institute, 2022; University of Wisconsin Population Health Institute, 2022) Poverty, suboptimal tobacco control and prevention policies and resources, inadequate access to healthcare and tobacco services, and systemic racism contribute to tobacco-related disparities in Arkansas. (Association, 2022).

The high smoking prevalence among women in Arkansas may elevate the risk for environmental tobacco smoke exposure (ETSe) among children in the home and increase access to tobacco. Children's ETSe is driven by secondhand (i.e., exposure to smoke from others smoking) and thirdhand (i.e., exposure to residue from others smoking) smoke exposure. (Jacob et al., 2017) Caregiver smoking increases the risk for child ETSe and tobacco/ nicotine use (TU) initiation. (U.S. Department of Health and Human Services, 2014) A meta-analysis found that youth's exposure to smoking in the home is responsible for 13–17% of new smokers aged ≤ 15 (Leonardi-Bee et al., 2011), suggesting that children's observational learning of smoking and youth's access to tobacco may contribute to the intergenerational transmission of TU. (DiFranza and Coleman, 2001; Doubeni et al., 2009; Bandura, 2004; Clawson et al., 2018; Vuolo and Staff, 2013).

Home-based interventions such as home smoking bans and home tobacco access restrictions could protect youth from ETSe (although remediation for thirdhand smoke would also be needed) and TU initiation as well increase the likelihood of caregiver quitting behaviors. (Parks et al., 2018; Gorini et al., 2016; Jackson and Henriksen, 1997; Jackson and Dickinson, 2003; Jackson and Dickinson, 2006; Matt et al., 2023; Hyland et al., 2009; Kahende et al., 2011; Haardörfer et al., 2018; Yuan et al., 2019; Nabi-Burza et al., 2021) Qualitative data from rural Black/African American caregivers who smoke suggests that they understand how their smoking increases their child's risk for smoking and believe that quitting smoking, not smoking around their children, and restricting their children's access to tobacco would help to prevent their children from starting to smoke. (Butler et al., 2009) However, among white and Black/African American caregivers who smoke, the majority do not restrict their children's access to tobacco at home, which could potentially be associated with rules about smoking in the home. (Clark et al., 1999) Home smoking bans are associated with reduced odds of child TU and lower child ETSe among children living in households where a caregiver smokes. (Parks et al., 2018; Gorini et al., 2016) Further, prior work documented that home smoking bans were associated greater perceptions about the importance of preventing child TU among caregivers who smoke. (Clawson et al., 2018) However, it is not known if smoking bans are associated with restricting child access to tobacco in the home.

This study is the first to examine the association of home smoking bans with caregiver restrictions on child access to tobacco at home, investigating two types of caregiver restrictions. We examine whether caregivers keep tobacco at home (versus not), and if caregivers who keep tobacco at home restrict child access to tobacco within the home (versus not). Our study is focused on Black/African American caregivers of children aged 6 months-14 years who smoke and live in resource-limited, rural areas. This is important because Black/African American, resource-limited, and rural families are less likely to have home smoking bans (Stillman et al., 2018; McMillen et al., 2004; Zhang et al., 2015) and have higher rates of child ETSe relative to other racialized families, families with greater socioeconomic advantage, and urban families. (McMillen et al., 2004; Brody et al., 2019; Mantey et al., 2021) The current study identifies 1) the sociodemographic and tobacco-related characteristics associated with caregivers' restrictions on children's access to tobacco in the home and 2) if having home smoking/vaping bans are related to caregivers' restrictions on child access to tobacco at home.

2. Methods

2.1. Setting

Participants (N = 188) enrolled in the Families Rising to Enforce Smokefree Homes Study between 2020–2022 and completed the baseline assessment prior to randomization (clinical trial #NCT03476837). This trial compared the influence of motivational counseling and culturally-relevant educational materials on the implementation of home smoke-free policies among Black/African American women caregivers who smoke cigarettes and/or little cigars/cigarillos and reside in Lee and Phillips counties in rural Arkansas.

2.2. Sample selection

Participants were recruited using non-probability sampling techniques for recruiting historically marginalized populations that interventions do not often reach. (Bonevski et al., 2014) Research staff and community health workers hosted recruitment events and used multiple methods to advertise the study (word of mouth; flyers; media). This study was approved by the University of Arkansas for Medical Sciences Institutional Review Board (#207306). Inclusion criteria were: self-identified as a Black/African American woman; was 18–50 years old; resided in Lee or Phillips counties; spoke English; provided consent; had a phone, address, and email; was the primary caregiver (parent/ legal guardian) to a child aged 6 months-14 years old; was the primary decision maker in the home; endorsed \geq one low income indicator; (Jones et al., 2021) and smoked cigarettes and/or little cigars/cigarillos for ≥ 1 year and in the past month. (Jones et al., 2021; Jones et al., 2022) Women with carbon monoxide < 5 ppm were excluded. Details are reported elsewhere. (Jones et al., 2021; Jones et al., 2022) The CONSORT diagram is in the [Supplementary Materials](#).

2.3. Measures

2.3.1. Caregiver Restrictions on Children's Access to Tobacco at Home (Dependent Variables)

The survey assessed caregiver restrictions on child access to tobacco products at home ("Do you keep [product] in a place where children cannot reach?"), including cigarettes, cigars, hookah, pipe, IQOS, electronic cigarettes (e-cigarettes/ vapes), and smokeless tobacco. For each product, responses included: "I do not have this in my home", "Yes (have it in home but kept where children cannot reach)", or "No (have it in home and where children can reach)". We created two variables for each tobacco product to categorize two types of caregiver restrictions on child tobacco access. The first variable identified if caregivers kept the product at home (versus not); the second focused on caregivers who kept the product at home and identified if caregivers restricted child access to the product within the home (versus not).

We created a composite measure of caregiver restrictions on child access to other tobacco products (i.e., IQOS, hookah, pipe, and smokeless tobacco) due to low use of these products. Responses were, "keep all other products away from children," "keep some of these other products away from children," "do not restrict child access to any of these other products," and "do not have any of these products in the home." Two variables were created from these options identifying: 1) if caregivers kept any other tobacco products at home (versus not) and 2) among caregivers who kept other tobacco products at home, if they restricted child access to some or all of the other tobacco products at home (versus not).

2.3.2. Tobacco Product-specific and Comprehensive Home Smoking/Vaping Bans (Primary Independent Variables)

Caregivers self-reported the presence of home smoking/vaping bans (full/partial/no ban) for cigarettes, cigars, e-cigarettes, IQOS, hookahs, and pipes. We created a comprehensive home smoking/vaping ban

variable based on all tobacco product-specific ban variables, with these options: 1) full ban on all products, 2) no/ partial bans on some products, and 3) no/ partial bans on all products.

2.3.3. Sociodemographic and Health Characteristics

We assessed caregiver age, race (Black/African American only or biracial/multiracial), educational attainment, annual household income, employment status, insurance status, sexual orientation, and marital status. We also assessed the ages of children in the home and child history of a healthcare provider diagnosis of asthma, earaches, allergies, respiratory illness, cancer, heart problem, or poor lung function (yes/ no).

2.3.4. Caregiver Tobacco and Blunt Use

We assessed how often caregivers now used these tobacco products (among those with lifetime use): cigarettes, regular/large cigars, cigarillos/little cigars, e-cigarettes, hookah, pipe, chew, and IQOS (every day/ some days/ not at all). Caregiver's current blunt use (every day/ some days/ not at all) was also assessed, regardless of lifetime use.

We created a composite current TU variable that was included in all adjusted regression models and had these categories (cigarette and/or cigar use was captured in all categories given the study inclusion criteria): 1) sole cigarette use; 2) sole big cigar, little cigar, or blunt use; 3) dual use of cigarettes and big cigars, little cigars, or blunts; 4) dual use of cigarettes or cigars or blunts and another tobacco product (i.e., e-cigarettes, hookah, pipe, chew, and IQOS; 2 tobacco products used); and 5) Use of cigarettes and/or cigars and/or blunts and 1–2 other tobacco products (i.e., ≥ 3 types of tobacco used).

2.3.5. Time To Caregiver First Cigarette/Little Cigar Use

Caregivers reported on their time to first cigarette/little cigar/cigarillo (≤ 5 vs. > 5 min). (Jones et al., 2021).

2.3.6. Cigarette Quit Attempt History

Number of past year cigarette quit attempts (1, 2–3, and 4 +) was assessed among those with a past year quit attempt.

2.3.7. Household Tobacco Exposure

The quantity and source of other tobacco exposure in the caregiver's home was assessed by asking the number (0, 1, 2, ≥ 3) of people who smoked in the home (besides the caregiver) and frequency (every day/ some days/ not at all) of cigarette use among others in the home. Caregivers indicated who currently smoked cigarettes or cigars in the caregiver's home (yes/no): Spouse/partner; boyfriend/girlfriend; mother/stepmother; father/stepfather; sibling; aunt/uncle; cousin; grandparent; roommate; child/niece/nephew/grandchild aged < 18 years; and child/niece/nephew/grandchild aged ≥ 18 years. Using these variables, we created a composite variable describing non-caregiver TU in the home: 1) spouse, partner, sibling, roommate, or family members < 18 ; 2) other people; and 3) others do not smoke at home.

2.4. Statistical analyses

Dependent variables included caregiver restrictions on child access to specific tobacco products in the home, with restrictions on child access to cigarettes, cigars, e-cigarettes, and "other tobacco products" treated as separate outcomes in separate models. Primary independent variables included comprehensive and tobacco-product specific home smoking/vaping bans. Bivariate analyses (Pearson's chi-square, Fisher's exact, Kruskal-Wallis tests) were used to identify the associations between the multicategorical dependent variables and 1) sociodemographic and tobacco-related characteristics and 2) primary independent variables (Model Set 1).

In Model Set 2, logistic regressions assessed the relationships between primary independent variables. The first binary dependent

variable identified if caregivers kept the tobacco product at home (versus not; referent); the second focused on those who kept tobacco at home and identified if caregivers restricted child access to the product within the home (versus not; referent). For the independent variables of home smoking/vaping bans, "No ban" was the referent. Separate models assessed the associations between the product-specific bans and comprehensive bans for each outcome. Stepwise procedures were used to select covariates for the final models. (Hocking, 1976) For the covariate selection, all sociodemographic and tobacco-related characteristics were initially examined; a p of 0.5 was required for a variable to enter the model and a p of 0.2 was required for a variable to be retained in the model. Primary independent variables, income, and the composite caregiver TU variable were included in all models. When examining restrictions on specific tobacco products, we included the corresponding smoking/vaping ban and examined its association with the corresponding caregiver restrictions (e.g., when restrictions on child cigarette access was the outcome, cigarette home ban was the predictor). When examining restrictions on "other tobacco products", separate models examined associations related to IQOS, hookah, and pipe bans. Adjusted odds ratios (AOR) and 95% confidence intervals (CI) are reported. Analyses were conducted in SAS 9.4.

3. Results

3.1. Sociodemographic Characteristics by Caregiver Restrictions on Child Tobacco at Home

Table 1 describes the prevalence of restrictions by sociodemographic characteristics. Most caregivers kept cigarettes (66.8%) and cigars (48.7%) at home but had restrictions on child access to them; alternatively, most caregivers did not have e-cigarettes (76.5%) or other tobacco products at home (75.4%).

Caregivers with an annual income $\geq \$10,000$ were more likely (vs. $< \$10,000$; $p = 0.02$) to have cigarette-free homes (i.e., no cigarettes kept in home) and have cigarettes at home but inaccessible to children. Similar results were observed for caregiver restrictions on child access to e-cigarettes ($p = 0.001$) and other tobacco products ($p < 0.0001$). Caregivers who were employed full-time and part-time were more likely to have cigarette-free homes relative to caregivers who were not working for pay ($p = 0.04$), and less likely to have cigarettes accessible to children.

3.2. Tobacco-related characteristics by caregiver restrictions on child tobacco access at home

3.2.1. Caregiver Tobacco Use and Past Year Quit Attempts

Table 2 reports tobacco-related characteristics, including household TU, by caregiver restrictions on child tobacco access. Caregiver's overall TU pattern was associated with restrictions on child access to each tobacco product ($ps < 0.001$ to 0.002); the most common TU pattern was sole cigarette use (51.6%). Among caregivers who were sole cigarette users, 70.8% kept cigarettes at home but inaccessible to children. Most did not have cigars (63.5%), e-cigarettes (80.2%), and other tobacco products (80.0%) at home.

3.2.2. Household Tobacco Exposure

Caregivers living with other people who smoke were less likely to have cigarette-free homes compared to those not living with people who smoke ($p = 0.03$) and were more likely to keep cigarettes and cigars at home but inaccessible to children. Table 2 demonstrates the associations between caregiver restrictions on child tobacco access and others smoking in the caregiver's home.

Table 1
Sociodemographic characteristics by caregiver restrictions on child access to tobacco in the home among Black/ African American women caregivers who smoke and live in rural, resource-limited areas in Arkansas in 2020–2022.

	Overall Sample	Caregiver Restrictions on Child Access to Tobacco in the Home (N = 188)												
		Keep Cigarettes Away from Children in Home			Keep Cigars Away from Children in Home			Keep E-Cigarettes Away from Children in Home			Keep Other Tobacco Products Away from Children in Home ^a			
		Yes (n = 125, 66.8%)	No (n = 36, 19.3%)	Don't Have in Home (n = 26, 13.9%)	Yes (n = 91, 48.7%)	No (n = 24, 12.8%)	Don't Have in Home (n = 72, 38.5%)	Yes (n = 22, 11.8%)	No (n = 22, 11.8%)	Don't Have in Home (n = 143, 76.5%)	Yes: All Other Products (n = 11, 6.0%)	Some Other Products (n = 14, 7.7%)	No (n = 20, 10.9%)	Don't Have Other Products in Home (n = 138, 75.4%)
Sociodemographic Variables														
Age in years [Mean ± SD]	33.6 (8.9)	34.0 ± 8.5 ^c	33.5 ± 10.2	31.9 ± 9.2	32.5 ± 8.7 ^c	32.8 ± 9.4	35.3 ± 8.9	32.9 ± 7.7 ^c	30.6 ± 7.8	34.2 ± 9.2	33.2 ± 8.8 ^c	30.4 ± 7.5	30.5 ± 8.1	34.4 ± 9.1
Race [n (%)]														
Black/ African American only	179 (95.7)	122 (68.2) ^d	33 (18.4)	24 (13.4)	86 (48.0)*, ^d	21 (11.7)	72 (40.2)	20 (11.2) ^d	20 (11.2)	139 (77.7)	10 (5.7) ^d	14 (8.0)	17 (9.7)	134 (76.6)
Biracial/ Multiracial/Others	8 (4.3)	3 (37.5)	3 (37.5)	2 (25.0)	5 (62.5)	3 (37.5)	0 (0)	2 (25.0)	2 (25.0)	4 (50.0)	1 (12.5)	0 (0)	3 (37.5)	4 (50.0)
Highest level of education [n (%)]														
Less than high school	49 (26.2)	35 (71.4)	9 (18.4)	5 (10.2)	27 (55.1)	8 (16.3)	14 (28.6)	5 (10.2)	8 (16.3)	36 (73.5)	3 (6.1) ^d	4 (8.2)	7 (14.3)	35 (71.4)
High school or equivalent	93 (49.7)	63 (67.7)	20 (21.5)	10 (10.8)	40 (43.0)	10 (10.8)	43 (46.2)	11 (11.8)	10 (10.8)	72 (77.4)	6 (6.5)	6 (6.5)	10 (10.9)	70 (76.1)
More than high school	45 (24.1)	27 (60.0)	7 (15.6)	11 (24.4)	24 (53.3)	6 (13.3)	15 (33.3)	6 (13.3)	4 (8.9)	35 (77.8)	2 (4.8)	4 (9.5)	3 (7.1)	33 (78.6)
Annual household income [n (%)]														
<\$10,000	122 (65.2)	79 (64.8)*	30 (24.6)	13 (10.7)	59 (48.4)	19 (15.6)	44 (36.1)	15 (12.3)**	22 (18.0)	85 (69.7)	10 (8.3)***, ^d	7 (5.8)	20 (16.7)	83 (69.2)
≥\$10,000	65 (34.8)	46 (70.8)	6 (9.2)	13 (20.0)	32 (49.2)	5 (7.7)	28 (43.1)	7 (10.8)	0 (0)	58 (89.2)	1 (1.6)	7 (11.1)	0 (0)	55 (87.3)
Employment Status [n (%)]														
Full-time	40 (21.4)	26 (65.0)*	5 (12.5)	9 (22.5)	19 (47.5)	6 (15.0)	15 (37.5)	5 (12.5) ^d	4 (10.0)	31 (77.5)	2 (5.1) ^d	4 (10.3)	3 (7.7)	30 (76.9)
Part-time	32 (17.1)	18 (56.3)	6 (18.8)	8 (25.0)	19 (59.4)	3 (9.4)	10 (31.3)	5 (15.6)	4 (12.5)	23 (71.9)	3 (9.4)	3 (9.4)	4 (12.5)	22 (68.8)
Not currently working for pay	115 (61.5)	81 (70.4)	25 (21.7)	9 (7.8)	53 (46.1)	15 (13.0)	47 (40.9)	12 (10.4)	14 (12.2)	89 (77.4)	6 (5.4)	7 (6.3)	13 (11.6)	86 (76.8)
Insurance Status [n (%)]														
Insured	149 (80.5)	101 (67.8)	26 (17.5)	22 (14.8)	70 (47.0)	16 (10.7)	63 (42.3)	19 (12.8) ^d	14 (9.4)	116 (77.9)	10 (6.9) ^d	10 (6.9)	12 (8.3)	113 (78.0)
Uninsured	36 (19.5)	22 (61.1)	10 (27.8)	4 (11.1)	19 (52.8)	8 (22.2)	9 (25.0)	3 (8.3)	8 (22.2)	25 (69.4)	1 (2.8)	4 (11.1)	8 (22.2)	23 (63.9)
Sexual Orientation [n (%)]														
Heterosexual/ straight	140 (79.1)	96 (68.6)	25 (17.9)	19 (13.6)	65 (46.4)	17 (12.1)	58 (41.4)	12 (8.5)**, ^d	12 (8.6)	116 (82.9)	7 (5.1)***, ^d	5 (3.6)	12 (8.7)	114 (82.6)
Gay/Lesbian/ Bisexual/ Other	37 (20.9)	26 (70.3)	5 (13.5)	6 (16.2)	22 (59.5)	3 (8.1)	12 (32.4)	8 (21.6)	7 (18.9)	22 (59.5)	4 (11.1)	8 (22.2)	5 (13.9)	19 (52.8)

(continued on next page)

Table 1 (continued)

	Overall Sample	Caregiver Restrictions on Child Access to Tobacco in the Home (N = 188)												
		Keep Cigarettes Away from Children in Home			Keep Cigars Away from Children in Home			Keep E-Cigarettes Away from Children in Home			Keep Other Tobacco Products Away from Children in Home ^a			
		Yes (n = 125, 66.8%)	No (n = 36, 19.3%)	Don't Have in Home (n = 26, 13.9%)	Yes (n = 91, 48.7%)	No (n = 24, 12.8%)	Don't Have in Home (n = 72, 38.5%)	Yes (n = 22, 11.8%)	No (n = 22, 11.8%)	Don't Have in Home (n = 143, 76.5%)	Yes: All Other Products (n = 11, 6.0%)	Some Other Products (n = 14, 7.7%)	No (n = 20, 10.9%)	Don't Have Other Products in Home (n = 138, 75.4%)
Marital Status [n (%)]														
Married	41 (22.0)	33 (80.5) ^d	7 (17.1)	1 (2.4)	25 (61.0)	4 (9.8)	12 (29.3)	3 (7.3) ^d	3 (7.3)	35 (85.4)	2 (5.1) ^d	1 (2.6)	2 (5.1)	34 (87.2)
Living with partner	29 (15.6)	19 (65.5)	7 (24.1)	3 (10.3)	9 (31.0)	5 (17.2)	15 (51.7)	3 (10.3)	5 (17.2)	21 (72.4)	2 (7.1)	1 (3.6)	4 (14.3)	21 (75.0)
Never married	91 (48.9)	55 (60.4)	17 (18.7)	19 (20.9)	44 (48.4)	13 (14.3)	34 (37.4)	12 (13.2)	12 (13.2)	67 (73.6)	5 (5.5)	9 (9.9)	12 (13.2)	65 (71.4)
Divorced/separated/widowed	25 (13.4)	17 (68.0)	5 (20.0)	3 (12.0)	13 (52.0)	2 (8.0)	10 (40.0)	4 (16.0)	2 (8.0)	19 (76.0)	2 (8.3)	3 (12.5)	2 (8.3)	17 (70.8)
Ages of children in the home (Yes/no) [n (%)]														
0–5 yrs.	104 (55.3)	65 (62.5)	22 (21.2)	17 (16.4)	53 (51.0)	16 (15.4)	35 (33.7)	10 (9.6)	12 (11.5)	82 (78.9)	6 (5.9)	6 (5.9)	11 (10.9)	78 (77.2)
6–14 yrs.	123 (65.4)	88 (71.5)	22 (17.9)	13 (10.6)	58 (47.2)	15 (12.2)	50 (40.7)	14 (11.4)	14 (11.4)	95 (77.2)	6 (5.0) ^d	11 (9.2)	12 (10.0)	91 (75.8)
15–17 yrs.	12 (6.4)	8 (66.7) ^d	2 (16.7)	2 (16.7)	3 (25.0) ^d	1 (8.3)	8 (66.7)	1 (8.3) ^d	0 (0)	11 (91.7)	1 (9.1) ^d	0 (0)	0 (0)	10 (90.9)
18 + yrs.	6 (3.2)	4 (66.7) ^d	0 (0)	2 (33.3)	2 (33.3) ^d	0 (0)	4 (66.7)	1 (16.7) ^d	0 (0)	5 (83.3)	1 (16.7) ^d	0 (0)	0 (0)	5 (83.3)
Child history of illness ^b [n (%)]														
Yes	49 (26.2)	31 (63.3)	11 (22.5)	7 (14.3)	26 (53.1)	5 (10.2)	18 (36.7)	5 (10.2)	3 (6.1)	41 (83.7)	4 (8.3) ^d	2 (4.2)	4 (8.3)	38 (79.2)
No	138 (73.8)	94 (68.1)	25 (18.1)	19 (13.8)	65 (47.1)	19 (13.8)	54 (39.1)	17 (12.3)	19 (13.8)	102 (73.9)	7 (5.2)	12 (8.9)	16 (11.9)	100 (74.1)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. † $p < 0.10$. Unless otherwise note, Pearson's chi-square tests were used. ^a Other Tobacco Products included IQOS, hookah, pipes, and smokeless tobacco. ^b Child has history of a healthcare provider diagnosis of asthma, earaches, allergies, respiratory illness, cancer, heart problem, or poor lung function. ^c Kruskal-Wallis test. ^d Fisher's exact test.

Table 2

Tobacco-related characteristics by caregiver restrictions on child access to tobacco in the home among Black/ African American women caregivers who smoke and live in rural, resource-limited areas in Arkansas in 2020–2022.

	Overall Sample n (%)	Caregiver Restrictions on Child Access to Tobacco in the Home (N = 188)												
		Keep Cigarettes Away from Children in Home			Keep Cigars Away from Children in Home			Keep E-Cigarettes Away from Children in Home			Keep Other Tobacco Products Away from Children in Home ^a			
		Yes (n = 128) n (%)	No (n = 36) n (%)	Don't Have in Home (n = 26) n (%)	Yes (n = 91) n (%)	No (n = 24) n (%)	Don't Have in Home (n = 72) n (%)	Yes (n = 22) n (%)	No (n = 22) n (%)	Don't Have in Home (n = 143) n (%)	Yes: All Other Products (n = 11) n (%)	Some Other Products (n = 14) n (%)	No (n = 20) n (%)	Don't Have Other Products in Home (n = 138) n (%)
Caregiver Tobacco and Blunt Use														
Overall current tobacco use														
Sole cigarette use	96 (51.6)	68 (70.8) **, ^d	20 (20.8)	8 (8.3)	28 (29.2) ***, ^d	7 (7.3)	61 (63.5)	8 (8.3) **, ^d	11 (11.5)	77 (80.2)	3 (3.2) ^{***}	5 (5.3)	11 (11.6)	76 (80.0)
Sole cigar/blunt use	33 (17.8)	16 (48.5)	5 (15.2)	12 (36.4)	22 (66.7)	8 (24.2)	3 (9.1)	0 (0.0)	5 (15.2)	28 (84.9)	0 (0.0)	0 (0.0)	4 (12.5)	28 (87.5)
Dual cigarette and cigar/blunt use	34 (18.4)	24 (70.6)	9 (26.5)	1 (2.9)	24 (70.6)	6 (17.7)	4 (11.8)	5 (14.7)	4 (11.8)	25 (73.5)	4 (12.1)	2 (6.1)	3 (9.1)	24 (72.7)
Dual use of cigarettes or cigars/blunts and 1 other tobacco product (2 tobacco products used)	12 (6.5)	7 (58.3)	1 (8.3)	4 (33.3)	8 (66.7)	2 (16.7)	2 (16.7)	4 (33.3)	2 (16.7)	6 (50.0)	2 (16.7)	3 (25.0)	2 (16.7)	5 (41.7)
Use of cigarettes and/or cigars and/or blunts and 1–2 other tobacco products (≥3 types of tobacco used)	10 (5.4)	9 (90.0)	1 (10.0)	0 (0)	8 (80.0)	1 (10.0)	1 (10.0)	5 (50.0)	0 (0.0)	5 (50.0)	2 (22.2)	4 (44.4)	0 (0.0)	3 (33.3)
Time to first cigarette or cigarillo/little cigar ^b														
≤ 5 min	74 (50.0)	48 (64.9)	21 (28.4)	5 (6.8)	30 (40.5)	10 (13.5)	34 (46.0)	10 (13.5)	12 (16.2)	52 (70.3)	7 (9.5)	4 (5.4)	11 (14.9)	52 (70.3)
> 5 min	74 (50.0)	58 (79.5)	10 (13.7)	5 (6.9)	33 (45.2)	6 (8.2)	34 (46.6)	8 (11.0)	5 (6.9)	60 (82.2)	3 (4.3)	7 (10.0)	5 (7.1)	55 (78.6)
Number of Past Year Cigarette Quit Attempt														
1	18 (42.9)	14 (77.8) ^d	2 (11.1)	2 (11.1)	10 (55.6) ^d	0 (0)	8 (44.4)	5 (27.8) *, ^d	0 (0)	13 (72.2)	4 (22.2) ^d	1 (5.6)	0 (0)	13 (72.2)
2–3	21 (50.0)	16 (76.2)	3 (14.3)	2 (9.5)	9 (42.9)	2 (9.5)	10 (47.6)	0 (0)	4 (19.1)	17 (81.0)	0 (0)	2 (9.5)	3 (14.3)	16 (76.2)
4 or more	3 (7.1)	3 (100)	0 (0)	0 (0)	2 (66.7)	0 (0)	1 (33.3)	1 (33.3)	0 (0)	2 (66.7)	0 (0)	1 (33.3)	0 (0)	2 (66.7)
Household Tobacco Exposure														
Does anyone (other than you) in your home smoke cigarettes														
Every day	100 (53.2)	71 (71.7)	21 (21.2)	7 (7.1)	44 (44.4)	12 (12.1)	43 (43.4)	9 (9.1) ^d	13 (13.1)	77 (77.8)	7 (7.1) ^d	4 (4.1)	13 (13.3)	74 (75.5)
Some days	28 (14.9)	20 (71.4)	4 (14.3)	4 (14.3)	18 (64.3)	2 (7.1)	8 (28.6)	6 (21.4)	2 (7.1)	20 (71.4)	3 (11.5)	6 (23.1)	0 (0.0)	17 (65.4)
Not at all	60 (31.9)	34 (56.7)	11 (18.3)	15 (25.0)	29 (48.3)	10 (16.7)	21 (35.0)	7 (11.7)	7 (11.7)	46 (76.7)	1 (1.7)	4 (6.8)	7 (11.9)	47 (79.7)
Number of people smoke in the past 7 days														
1	65 (34.6)	40 (62.5)	12 (18.8)	12 (18.8)	31 (48.4)	7 (10.9)	26 (40.6)	8 (12.5)	8 (12.5)	48 (75.0)	3 (4.8) ^d	6 (9.5)	7 (11.1)	47 (74.6)
2	46 (24.5)	36 (78.3)	8 (17.4)	2 (4.4)	28 (60.9)	6 (13.0)	12 (26.1)	11 (23.9)	7 (15.2)	28 (60.9)	6 (13.3)	7 (15.6)	6 (13.3)	26 (57.8)
≥3	34 (18.1)	23 (67.7)	8 (23.5)	3 (8.8)	17 (50.0)	4 (11.8)	13 (38.2)	1 (2.9)	2 (5.9)	31 (91.2)	1 (2.9)	1 (2.9)	3 (8.8)	29 (85.3)
None	43 (22.9)	26 (60.5)	8 (18.6)	9 (20.9)	15 (34.9)	7 (16.3)	21 (48.8)	2 (4.7)	5 (11.6)	36 (83.7)	1 (2.4)	0 (0.0)	4 (9.8)	36 (87.8)
People who Smoke Cigarettes or Cigars in the Home (yes/no)														
Husband/wife/partner	52 (28.6)	37 (71.2)	10 (19.2)	5 (9.6)	28 (53.9)	7 (13.5)	17 (32.7)	9 (17.3)*	10 (19.2)	33 (63.5)	5 (10.0) ^d	5 (10.0)	8 (16.0)	32 (64.0)

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Table 2 (continued)

	Overall Sample n (%)	Caregiver Restrictions on Child Access to Tobacco in the Home (N = 188)												
		Keep Cigarettes Away from Children in Home			Keep Cigars Away from Children in Home			Keep E-Cigarettes Away from Children in Home			Keep Other Tobacco Products Away from Children in Home ^a			
		Yes (n = 128) n (%)	No (n = 36) n (%)	Don't Have in Home (n = 26) n (%)	Yes (n = 91) n (%)	No (n = 24) n (%)	Don't Have in Home (n = 72) n (%)	Yes (n = 22) n (%)	No (n = 22) n (%)	Don't Have in Home (n = 143) n (%)	Yes: All Other Products (n = 11) n (%)	Some Other Products (n = 14) n (%)	No (n = 20) n (%)	Don't Have Other Products in Home (n = 138) n (%)
Boyfriend/girlfriend	72 (39.6)	50 (69.4)	16 (22.2)	6 (8.3)	44 (61.1) *	6 (8.3)	22 (30.6)	11 (15.3)	7 (9.7)	54 (75.0)	4 (5.7) ^d	7 (10.0)	6 (8.6)	53 (75.7)
Mother/stepmother	59 (32.8)	42 (71.2)	11 (18.6)	6 (10.2)	33 (55.9)	6 (10.2)	20 (33.9)	10 (17.0)	8 (13.6)	41 (69.5)	6 (10.3) ^d	4 (6.9)	7 (12.1)	41 (70.7)
Father/stepfather	41 (22.9)	27 (65.9) [*]	12 (29.3)	2 (4.9)	18 (43.9) *	10 (24.4)	13 (31.7)	7 (17.1) *, ^d	8 (19.5)	26 (63.4)	5 (12.8) ^{*,d}	2 (5.1)	7 (18.0)	25 (64.1)
Sibling	87 (47.5)	61 (70.1)	19 (21.8)	7 (8.1)	44 (50.6)	10 (11.5)	33 (37.9)	13 (14.9)	11 (12.6)	63 (72.4)	6 (7.1)	7 (8.2)	10 (11.8)	62 (72.9)
Aunt/uncle	88 (49.2)	60 (68.2)	20 (22.7)	8 (9.1)	42 (47.7)	12 (13.6)	34 (38.6)	14 (15.9)	10 (11.4)	64 (72.7)	7 (8.1)	8 (9.3)	10 (11.6)	61 (70.9)
Cousin	105 (57.4)	72 (68.6) [*]	24 (22.9)	9 (8.6)	52 (49.5)	14 (13.3)	39 (37.1)	15 (14.3)	11 (10.5)	79 (75.2)	8 (7.8)	8 (7.8)	11 (10.7)	76 (73.8)
Grandmother/grandfather	25 (14.1)	17 (68.0) _d	7 (28.0)	1 (4.0)	13 (52.0)	3 (12.0)	9 (36.0)	3 (12.0) _d	3 (12.0)	19 (76.0)	3 (12.5) ^d	0 (0)	3 (12.5)	18 (75.0)
Roommate	25 (14.2)	20 (80.0) _d	5 (20.0)	0 (0)	15 (60.0)	3 (12.0)	7 (28.0)	5 (20.0) _d	1 (4.0)	19 (76.0)	4 (16.7) ^d	1 (4.2)	1 (4.2)	18 (75.0)
Child/niece/nephew/ grandchild < 18 years old	18 (10.2)	13 (72.2) _d	5 (27.8)	0 (0)	9 (50.0)	3 (16.7)	6 (33.3)	2 (11.1) _d	4 (22.2)	12 (66.7)	2 (11.1) ^d	2 (11.1)	3 (16.7)	11 (61.1)
Child/niece/nephew/ grandchild ≥ 18 years old	25 (14.0)	17 (68.0) _d	7 (28.0)	1 (4.0)	10 (40.0)	4 (16.0)	11 (44.0)	2 (8.0) ^d	2 (8.0)	21 (84.0)	2 (8.0) ^d	2 (8.0)	2 (8.0)	19 (76.0)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. [†] $p < 0.10$. Unless otherwise note, Pearson's chi-square tests were used. ^a Other Tobacco Products included IQOS, hookah, pipes, and smokeless tobacco. ^b Only people who a lifetime history of use answered this question. ^c All participants answered these questions. ^d Fisher's exact test.

Table 3
Home smoking bans by caregiver restrictions on child access to tobacco in the home among Black/ African American women caregivers who smoke and live in rural, resource-limited areas in Arkansas in 2020–2022.

	Overall Sample n (%)	Caregiver Restrictions on Child Access to Tobacco in the Home (N = 188)												
		Keep Cigarettes Away from Children in Home			Keep Cigars Away from Children in Home			Keep E-Cigarettes Away from Children in Home			Keep Other Tobacco Products Away from Children in Home ^a			
		Yes (n = 128) n (%)	No (n = 36) n (%)	Don't Have in Home (n = 26) n (%)	Yes (n = 91) n (%)	No (n = 24) n (%)	Don't Have in Home (n = 72) n (%)	Yes (n = 22) n (%)	No (n = 22) n (%)	Don't Have in Home (n = 143) n (%)	Yes: All Other Products (n = 11) n (%)	Some Other Products (n = 14) n (%)	No (n = 20) n (%)	Don't Have Other Products in Home (n = 138) n (%)
Home Smoking Bans														
Cigarette Smoking Ban														
Full ban	59 (31.6)	36 (61.0)*	10 (17.0)	13 (22.0)	29 (49.2)	9 (15.3)	21 (35.6)	9 (15.3) ^b	6 (10.2)	44 (74.6)	4 (6.9) ^b	7 (12.1)	7 (12.1)	40 (69.0)
Partial ban	98 (52.4)	70 (71.4)	16 (16.3)	12 (12.2)	51 (52.0)	11 (11.2)	36 (36.7)	7 (7.1)	13 (13.3)	78 (79.6)	3 (3.1)	6 (6.2)	11 (11.5)	76 (79.2)
No ban	30 (16.0)	19 (63.3)	10 (33.3)	1 (3.3)	11 (36.7)	4 (13.3)	15 (50.0)	6 (20.0)	3 (10.0)	21 (70.0)	4 (13.8)	1 (3.5)	2 (6.9)	22 (75.9)
Cigar Smoking Ban														
Full ban	102 (54.6)	69 (67.7) ^b	20 (19.6)	13 (12.8)	32 (31.4) ***	10 (9.8)	60 (58.8)	11 (10.8) b	10 (9.8)	81 (79.4)	6 (6.0) ^b	6 (6.0)	10 (10.0)	78 (78.0)
Partial ban	65 (34.8)	43 (66.2)	11 (16.9)	11 (16.9)	44 (67.7)	12 (18.5)	9 (13.9)	5 (7.7)	9 (13.9)	51 (78.5)	1 (1.6)	8 (12.7)	7 (11.1)	47 (74.6)
No ban	20 (10.7)	13 (65.0)	5 (25.0)	2 (10.0)	15 (75.0)	2 (10.0)	3 (15.0)	6 (30.0)	3 (15.0)	11 (55.0)	4 (20.0)	0 (0)	3 (15.0)	13 (65.0)
E-Cigarette Vaping Ban														
Full ban	143 (76.5)	95 (66.4) ^b	29 (20.3)	19 (13.3)	64 (44.8) *, b	17 (11.9)	62 (43.4)	12 (8.4) *, b	15 (10.5)	116 (81.1)	6 (4.3)**, ^b	7 (5.0)	13 (9.4)	113 (81.3)
Partial ban	28 (15.0)	16 (57.1)	6 (21.4)	6 (21.4)	15 (53.6)	7 (25.0)	6 (21.4)	4 (14.3)	5 (17.9)	19 (67.9)	1 (3.6)	6 (21.4)	5 (17.9)	16 (57.1)
No ban	16 (8.6)	14 (87.5)	1 (6.3)	1 (6.3)	12 (75.0)	0 (0)	4 (25.0)	6 (37.5)	2 (12.5)	8 (50.0)	4 (25.0)	1 (6.3)	2 (12.5)	9 (56.3)
IQOS Smoking Ban														
Full ban	151 (80.8)	105 (69.5) ^b	28 (18.5)	18 (11.9)	71 (47.0) ^b	17 (11.3)	63 (41.7)	14 (9.3) **, b	14 (9.3)	123 (81.5)	5 (3.4)**, ^b	10 (6.8)	13 (8.8)	120 (81.1)
Partial ban	21 (11.2)	9 (42.9)	6 (28.6)	6 (28.6)	10 (47.6)	6 (28.6)	5 (23.8)	3 (14.3)	5 (23.8)	13 (61.9)	2 (9.5)	4 (19.1)	5 (23.8)	10 (47.6)
No ban	15 (8.0)	11 (73.3)	2 (13.3)	2 (13.3)	10 (66.7)	1 (6.7)	4 (26.7)	5 (33.3)	3 (20.0)	7 (46.7)	4 (28.6)	0 (0)	2 (14.3)	8 (57.1)
Hookah Smoking Ban														
Full ban	150 (80.2)	102 (68.0) ^b	29 (19.3)	19 (12.7)	68 (45.3) *, b	18 (12.0)	64 (42.7)	12 (8.0) **, b	15 (10.0)	123 (82.0)	6 (4.1)**, ^b	7 (4.7)	14 (9.5)	120 (81.6)
Partial ban	25 (13.4)	13 (52.0)	6 (24.0)	6 (24.0)	15 (60.0)	6 (24.0)	4 (16.0)	5 (20.0)	6 (24.0)	14 (56.0)	1 (4.2)	7 (29.2)	5 (20.8)	11 (45.8)
No ban	12 (6.4)	10 (83.3)	1 (8.3)	1 (8.3)	8 (66.7)	0 (0)	4 (33.3)	5 (41.7)	1 (8.3)	6 (50.0)	4 (33.3)	0 (0)	1 (8.3)	7 (58.3)
Pipe Smoking Ban														
Full ban	161 (86.0)	108 (67.1) ^b	30 (18.6)	23 (14.3)	75 (46.6) *, b	19 (11.8)	67 (41.6)	15 (9.3) *, b	18 (11.2)	128 (79.5)	6 (3.8)**, ^b	11 (7.0)	17 (10.8)	124 (78.5)
Partial ban	14 (7.5)	7 (50.0)	5 (35.7)	2 (14.3)	8 (57.1)	5 (35.7)	1 (7.1)	3 (21.4)	3 (21.4)	8 (57.1)	1 (7.7)	3 (23.1)	2 (15.4)	7 (53.9)
No ban	12 (6.4)	10 (83.3)	1 (8.3)	1 (8.3)	8 (66.7)	0 (0)	4 (33.3)	4 (33.3)	1 (8.3)	7 (58.3)	4 (33.3)	0 (0)	1 (8.3)	7 (58.3)
Comprehensive Home Smoking/Vaping Ban														
Full ban on all products	47 (25.1)	32 (68.1) ^b	7 (14.9)	8 (17.0)	20 (42.6)	6 (12.8)	21 (44.7)	7 (14.9) **, b	3 (6.4)	37 (78.7)	4 (8.7)**, ^b	4 (8.7)	4 (8.7)	34 (73.9)
No bans or partial bans on some products	120 (64.2)	78 (65.0)	27 (22.5)	15 (12.5)	58 (48.3)	15 (12.5)	47 (39.2)	8 (6.7)	16 (13.3)	96 (80.0)	2 (1.7)	8 (6.8)	13 (11.0)	94 (80.3)
No bans or partial bans on all products	20 (10.7)	15 (75.0)	2 (10.0)	3 (15.0)	13 (65.0)	3 (15.0)	4 (20.0)	7 (35.0)	3 (15.0)	10 (50.0)	5 (25.0)	2 (10.0)	3 (15.0)	10 (50.0)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. ^a Other Tobacco Products included IQOS, hookah, pipes, and smokeless tobacco. ^b Fisher's exact test.

3.3. Model Set 1: Bivariate associations between home smoking/vaping bans and caregiver restrictions on child tobacco access at home

Table 3 reports home smoking/vaping bans by caregiver restrictions on child access to tobacco at home, using the multicategorical restrictions outcome. Relative to those with lesser bans, caregivers with a full cigarette or cigar home smoking bans were most likely to have cigarette- and cigar-free homes. Caregivers with no cigarette or cigar home smoking bans were most likely to have cigarettes or cigars accessible to children. E-cigarette ($p = 0.02$), hookah ($p = 0.04$), and pipe ($p = 0.01$) home bans were also associated with caregiver restrictions on child access to cigars at home.

3.4. Model Set 2: Multivariable models examining smoking/ vaping bans and caregiver restrictions on child tobacco access at home

Table 4 reports logistic regression models examining home smoking/vaping bans predicting two types of caregiver restrictions on child tobacco access (keeping tobacco at home versus not; if tobacco is kept at home, keeping it away from children).

3.4.1. Cigarette Restrictions

Neither having a home cigarette ban nor having a comprehensive home ban across all products were significantly associated with caregivers keeping cigarettes at home. Among caregivers with cigarettes at home, those with partial home cigarette smoking bans were more likely than those with no bans to restrict child access to cigarettes within the home relative to not restricting access (AOR: 3.29, 95% CI: 1.11–9.70), adjusting for income and caregiver TU and insurance status.

3.4.2. Cigar Restrictions

After adjusting for income and caregiver TU, caregivers with full home cigar smoking bans (AOR: 0.22, 95% CI: 0.05–0.96) were less likely than those with no bans to keep cigars at home relative to not keeping cigars at home.

3.4.3. E-Cigarette Restrictions

After adjusting for the number of people smoking at home, income, and caregiver TU, age, race, and sexual orientation, caregivers with full home vaping bans were less likely than those with no bans to keep e-cigarettes at home (AOR: 0.26, 95% CI: 0.07–.94). After adjusting for the number of people smoking at home, income, and caregiver TU, race, and sexual orientation, caregivers with full bans across all tobacco products (AOR: 0.19, 95% CI: 0.05–.79) and with no bans or partial bans on some products (AOR: 0.19, 95% CI: 0.06–.62) were less likely than those with no bans or partial bans on all products to keep e-cigarettes at home.

Among caregivers who kept e-cigarettes at home, those with no or partial bans on some tobacco products were less likely than those with no or partial bans on all tobacco products to restrict child access to e-cigarettes within the home (AOR: 0.06, 95% CI: 0.003–.89), adjusting for income and caregiver TU.

“Other Tobacco” Restrictions (IQOS, hookah, pipe, and smokeless tobacco).

No product-specific smoking bans were associated with keeping other tobacco products at home or restricting child access to other tobacco products within the home. After adjusting for the number of people smoking at home, income, and caregiver TU, age, race, sexual orientation, and marital status, caregivers with full bans across all tobacco products (AOR: 0.23, 95% CI: 0.05–.99) and with no bans or partial bans on some products (AOR: 0.18, 95% CI: 0.05–.61) were less likely than those with no or partial bans across all products to keep other tobacco products at home relative to not keeping them at home.

4. Discussion

This study is the first to examine the association of home smoking/

Table 4

Multivariable analysis between caregiver tobacco access restrictions and home smoking/ vaping bans among Black/ African American women caregivers who smoke and live in rural, resource-limited areas in Arkansas in 2020–2022 (N = 188).

Smoking/ Vaping Bans	Keep Cigarettes Away from Children in the Home					
	Do you have product at home?			If you have product at home, do you keep them away from children?		
	Yes n (%)	Yes versus No AOR (95% CI)	p- value	Keep in home and keep away from child n (%)	Yes versus No AOR (95% CI)	p- value
Home cigarette smoking ban	161 (86.1)			125 (77.6)		
Full ban	46 (78.0)	0.54 (0.05, 5.76)	0.607 ^b	36 (78.3)	2.73 (0.79, 9.46)	0.114 ^c
Partial ban	86 (87.8)	0.96 (0.09, 9.95)	0.972	70 (81.4)	3.29 (1.11, 9.70)	0.031
No ban	29 (96.7)	Ref		19 (65.5)	Ref	
Comprehensive home smoking/ vaping ban	161 (86.1)			125 (77.6)		
Full ban on all products	39 (83.0)	0.71 (0.10, 4.99)	0.727 ^d	32 (82.1)	0.86 (0.13, 5.67)	0.875 ^e
Partial/No ban on some products	105 (87.5)	0.88 (0.16, 4.78)	0.878	78 (74.3)	0.37 (0.07, 1.84)	0.223
Partial/No ban on all products	17 (85.0)	Ref		15 (88.2)	Ref	
Home cigar smoking ban	115 (61.5)			91 (79.1)		
Full ban	42 (41.2)	0.22 (0.05, 0.96)	0.044 ^f	32 (76.2)	0.47 (0.07, 3.12)	0.437 ^g
Partial ban	56 (86.2)	0.94 (0.19, 4.77)	0.942	44 (78.6)	0.46 (0.08, 2.61)	0.380
No ban	17 (85.0)	Ref		15 (88.2)	Ref	
Comprehensive home smoking/ vaping ban	115 (61.5)			91 (79.1)		
Full ban on all products	26 (55.3)	0.48 (0.10, 2.16)	0.336 ^h	20 (76.9)	1.45 (0.21, 9.88)	0.703 ^g
Partial/No ban on some products	73 (60.8)	0.42 (0.10, 1.71)	0.226	58 (79.5)	1.16 (0.27, 5.13)	0.841
Partial/No ban on all products	16 (80.0)	Ref		13 (81.3)	Ref	
Home e-cigarette smoking ban	44 (23.5)			22 (50.0)		
Full ban	27 (18.9)	0.26 (0.07, 0.94)	0.040 ⁱ	12 (44.4)	0.21 (0.017, 2.62)	0.226 ^f
Partial ban	9 (32.1)	0.33 (0.06, 1.69)	0.183	4 (44.4)	0.05 (0.001, 1.80)	0.100
No ban	8 (50.0)	Ref		6 (75.0)	Ref	
Comprehensive home smoking/ vaping ban	44 (23.5)			22 (50.0)		

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Table 4 (continued)

Smoking/ Vaping Bans	Keep Cigarettes Away from Children in the Home					
	Do you have product at home?			If you have product at home, do you keep them away from children?		
	Yes n (%)	Yes versus No AOR (95% CI)	p-value	Keep in home and keep away from child n (%)	Yes versus No AOR (95% CI)	p-value
Full ban on all products	10 (21.3)	0.19 (0.05, 0.79)	0.022 ^j	7 (70.0)	2.58 (0.13, 52.48)	0.537 ^f
Partial/No ban on some products	24 (20.0)	0.19 (0.06, 0.62)	0.006	8 (33.3)	0.06 (0.003, 0.89)	0.041
Partial/No ban on all products	10 (50.0)	Ref		7 (70.0)	Ref	
Keep Other Tobacco Products Away from Children in the Home ^a						
Home IQOS smoking ban	45 (24.6)			25 (55.6)		
Full ban	28 (18.9)	0.53 (0.13, 2.14)	0.376 ⁱ	15 (53.6)	0.98 (0.06, 16.89)	0.569 ^f
Partial ban	11 (52.4)	4.18 (0.64, 27.23)	0.135	6 (54.6)	0.55 (0.07, 4.41)	0.991
No ban	6 (42.9)	Ref		4 (66.7)	Ref	
Home hookah smoking ban	45 (24.6)			25 (55.6)		
Full ban	27 (18.4)	0.53 (0.12, 2.36)	0.405 ^k	13 (48.2)	0.28 (0.02, 3.49)	0.323 ^f
Partial ban	13 (28.9)	5.64 (0.81, 39.40)	0.081	8 (61.5)	0.33 (0.02, 7.43)	0.486
No ban	5 (11.1)	Ref		4 (80.0)	Ref	
Home pipe smoking ban	45 (24.6)			25 (55.6)		
Full ban	34 (21.5)	0.61 (0.13, 2.89)	0.535 ⁱ	17 (50.0)	0.25 (0.02, 3.17)	0.283 ^f
Partial ban	6 (46.2)	3.70 (0.45, 30.38)	0.224	4 (66.7)	0.54 (0.02, 18.42)	0.735
No ban	5 (41.7)	Ref		4 (80.0)	Ref	
Comprehensive home smoking/vaping ban	45 (24.6)			25 (55.6)		
Full ban on all products	12 (26.1)	0.23 (0.05, 0.99)	0.049 ^l	8 (66.7)	3.25 (0.17, 62.67)	0.436 ^f
Partial/No ban on some products	23 (19.7)	0.18 (0.05, 0.61)	0.006	10 (43.5)	0.24 (0.03, 2.31)	0.216
Partial/No ban on all products	10 (50.0)	Ref		7 (70.0)	Ref	

Notes: Complete-case analysis was used; no imputation was performed. Stepwise procedures were used for covariate selection. Boldface indicates $p < 0.05$. All sociodemographic and tobacco-related characteristics were initially entered into the model; a p of 0.5 was required for a variable to enter the model and a p of 0.2 was required for a variable to be retained. Income and overall caregiver tobacco use were in all models. ^a Other Tobacco Products included IQOS, hookah, pipes, and smokeless tobacco. Additional Covariates in Models: ^b Caregiver employment and sexual orientation; family members who smoked in the home (husband/wife/partner/sibling/roommate/child < 18 smoke, other people smoke, and no one else smokes). ^c Caregiver insurance status. ^d Caregiver employment and sexual orientation; family members who smoked in the home. ^e Child history of diagnosis of asthma, earaches, allergies, respiratory illness, cancer, heart

problem, or poor lung function. ^f No additional covariates. ^g Caregiver age and insurance status. ^h Caregiver education and insurance status. ⁱ Caregiver age, race, sexual orientation; number of people who smoke in the home. ^j Caregiver race and sexual orientation; number of people who smoked in the home. ^k Caregiver age, race, and sexual orientation; number of people who smoke in the home and child history of illness. ^l Caregiver age, race, sexual orientation, marital status; number of people who smoke in the home. Separate models examined product-specific and comprehensive bans.

vaping bans with caregiver restrictions on child access to tobacco, and the first to investigate this question among Black/African American caregivers who smoke and live in resource-limited, rural areas. We provide preliminary evidence 1) that caregivers who smoke and have full home cigar and vaping bans are less likely to keep these products at home, respectively; 2) that caregivers with comprehensive smoking/vaping bans across tobacco products are less likely keep e-cigarettes and other tobacco products at home; and more tentatively, 3) that among caregivers with cigarettes at home, those with partial cigarette smoking bans are more likely to have home-based restrictions on child cigarette access. Our findings expand on previous research involving caregivers who smoke that indicated that home smoking bans were associated with greater perceptions of the importance of preventing child tobacco use. (Clawson et al., 2018). These findings are important because prior research has shown that 1) home smoking bans are associated with lower child ETSe among children living in households where a caregiver smokes (Parks et al., 2018; Gorini et al., 2016) and 2) both home smoking bans and restrictions on child access to tobacco reduce the risk of child TU initiation. (Parks et al., 2018; Doubeni et al., 2009; Bandura, 2004) Collectively, these findings suggest that interventions that seek to address child ETSe and TU initiation may benefit from supporting home smoke/vape bans and restrictions to child access to tobacco in the home.

Among caregivers who kept tobacco at home, the associations between home bans and caregiver restrictions to child tobacco access within the home were more limited and mixed. Among caregivers with cigarettes at home, those with partial cigarette smoking bans were more likely than those with no bans to restrict child access to cigarettes within the home. Though having a full cigarette smoking ban demonstrated a similar pattern, the association was nonsignificant. Full bans are optimal for decreasing ETSe, (Wakefield et al., 2000) yet this finding suggests some benefits to partial home bans among caregivers with cigarettes at home. This aligns with previous work with adults who called 211, a social needs referral source serving predominantly socioeconomically disadvantaged populations, that demonstrated that partial bans may support additional actions to reduce child ETSe. Individuals with partial bans were more likely to subsequently implement full bans, and often structured partials bans to protect children (e.g., 18% used them to prohibit smoking around children). (Kegler et al., 2016) Partial bans may reflect caregiver readiness to restrict child access to tobacco at home and implement full bans.

On the other hand, among caregivers with e-cigarettes at home, those with partial comprehensive bans on all products (i.e., no or partial bans on some products) were less likely to restrict child access to e-cigarettes at home. Results should be interpreted with caution since only 44 caregivers kept e-cigarettes at home. This finding contrasts with our other findings on partial product-specific and comprehensive bans, potentially suggesting something unique to e-cigarettes. It may reflect caregivers' uncertainty about risks from children's environmental and active exposure to e-cigarettes. (Rowa-Dewar et al., 2017; Nguyen et al., 2015; Garbutt et al., 2015; Weemer et al., 2021) Notably, caregivers who smoke, and adults who smoke or vape, are less likely to perceive child environmental and active exposure to e-cigarettes as harmful. (Nguyen et al., 2015; Weemer et al., 2021) This may hinder the implementation of comprehensive home smoking/vaping bans and restrictions on child access to all tobacco products among caregivers who smoke, especially if vaping is viewed as less harmful than smoking. (Rowa-Dewar et al., 2017; Weemer et al., 2021) For example, among caregivers living in

households where someone vapes, vapes were often used in the home and where smoking was not allowed, contributing to 41% of children in these homes observing daily vaping. (Garbutt et al., 2015) Future research in this area is needed, especially since home vaping bans and vape access restrictions can decrease risk for youth vaping (Buu et al., 2022; Kirkcaldy et al., 2019) and potentially reduce safety risks to children. (Tashakkori et al., 2023; How, 2024).

The complex pattern of results suggests the need for additional research. For example, there were limited and mixed findings when focusing on restrictions on child tobacco access within the home among caregivers who kept tobacco at home, and there was variability in if product-specific or comprehensive bans across all products were related to our outcomes. These findings may be influenced by the significant barriers that Black/African American caregivers who smoke face when implementing home smoking/vaping bans and child tobacco access restrictions, especially those living in resource-limited, rural areas. (Butler et al., 2009; Clark et al., 1999; Clawson et al., 2018; Warren et al., 2010; Zhang et al., 2015; Kegler et al., 2007; Hoehn et al., 2016) This is echoed in our findings of suboptimal rates of caregiver restrictions on child access to tobacco at home (e.g., only 14% had cigarette-free homes; 19% had cigarettes at home and accessible to children) and home smoking/vaping bans (e.g., only 25% had comprehensive home smoking/vaping bans across all tobacco products; only 32% had full cigarette smoking bans). Further, our bivariate findings demonstrated how caregiver blunt and TU, and greater socioeconomic disadvantage and household tobacco exposure, increase the likelihood that children have access to various tobacco products at home, thereby possibly increasing their risk for TU initiation. Our adjusted models controlled for caregiver current tobacco use and income along with additional sociodemographic (e.g., others smoking in the home) and tobacco-related covariates (e.g., time until first puff) identified by our modeling approach. However, larger scale research is needed to gain a comprehensive understanding of how home smoking/bans relate to caregiver restrictions on child tobacco access, as well as to identify other relevant covariates and potential effect modifiers, such as TU preferences.

Family-level tobacco prevention interventions for Black/African American families living in rural, resource-limited areas are needed to disrupt smoking across generations. (Cheng et al., 2016; Shenassa et al., 2003) Smokefree Kids is an evidence-based intervention aimed at increasing caregiver antismoking socialization, which includes home smoking bans and restrictions on child cigarette access at home, to prevent smoking among children whose parents smoke. (Jackson and Dickinson, 2003; Jackson and Dickinson, 2006) This intervention has also supported sustained quitting among caregivers. (Hayes et al., 2018) Future research should explore the acceptability, feasibility, and appropriateness of Smokefree Kids for Black/African American families living in low resource, rural areas.

5. Limitations

Our sampling approach allowed for the recruitment of caregivers often not adequately represented in tobacco research; (Bonevski et al., 2014) however, the generalizability of our findings may be limited. This study is also limited by our cross-sectional data and inability to assess causality. We did not assess caregiver motives related to restricting child access to tobacco or specifically how they restricted child access to tobacco at home (e.g., locked away). Future research should explore this and empirically test if intervening upon home smoking/vaping bans leads to greater implementation of restrictions on child tobacco access at home. Lower cell counts may have contributed to nonsignificant associations between home smoking/vaping bans and our outcomes.

6. Conclusions

Black/African American women caregivers who smoke and who have home smoking/vaping bans may be more likely to restrict

children's access to some tobacco products at home compared to those with lesser bans. Supporting the implementation of home smoking/vaping bans among these caregivers may increase caregiver restrictions on child access to tobacco at home, which in turn may protect against child TU initiation.

CRediT authorship contribution statement

Ashley H. Clawson: Writing – review & editing, Writing – original draft, Supervision, Investigation, Conceptualization. **Dina M. Jones:** Writing – review & editing, Writing – original draft, Methodology, Investigation. **Jing Jin:** Writing – review & editing, Writing – original draft, Formal analysis. **Ruofei Du:** Writing – review & editing, Writing – original draft, Supervision, Formal analysis. **Sandilyn Bullock:** Writing – review & editing, Supervision, Project administration, Methodology, Investigation. **Katherine Donald:** Writing – review & editing, Resources, Investigation. **Mohammed Orloff:** Writing – review & editing, Methodology, Investigation. **Wonda Miller:** Writing – review & editing, Investigation. **Sandra Cooper:** Writing – review & editing, Investigation. **Pebbles Fagan:** Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Methodology, Investigation, Funding acquisition, Conceptualization.

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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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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.pmedr.2024.102918>.

Data availability

Data will be made available on request.

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