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Tobacco Retail Outlet Density and Young Adult Tobacco Initiation

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Abstract

Background: A growing body of evidence indicates that the density of tobacco retail outlets around the home residence may influence tobacco use among youth and adults. The purpose of this study was to examine the impact of neighborhood tobacco retail outlet density on young adult initiation of different tobacco product types.

Methods: Cross-sectional data from a 2013 nationally representative sample of young adults aged 18–34 was examined in relation to a 2012 geocoded listing of all outlets likely to sell tobacco in the United States. Separate multivariable logistic regression analyses examined associations between neighborhood outlet density and past 6 months first use of cigarettes, non-cigarette combustible products, and noncombustible products among adults aged 18–24 and 25–34.

Results: Outlet density was significantly associated with recent initiation of cigarettes and other combustibles, but this impact varied for younger and older groups. Increased density was significantly associated with a higher likelihood of initiating cigarette use among adults aged 25–34 (*OR* = 3.75, 95% CI = 1.18, 11.90), and of initiating non-cigarette combustible use among 18–24 year olds (*OR* = 3.16, 95% CI = 1.03, 9.74). There was no impact of outlet density on recent noncombustible product initiation among either group.

Conclusion: This study is the first to examine the impact of tobacco outlet density on young adult initiation of cigarettes and other tobacco products. Findings demonstrate that residential neighborhood outlet density is associated with recent initiation of combustible products and this effect varies by product type and age. The tobacco outlet environment may be a critical factor in promoting young adult tobacco use initiation.

Introduction

Retail outlets are a primary source of sales for a wide variety of tobacco products. In 2012, global cigarette retail values were worth $697 billion. Sales of other combustible and noncombustible tobacco products are rising rapidly: from 2000 to 2011, cigar sales in the United States increased by 221%[1] while smokeless sales rose nearly 50%.[2] Globally, smokeless tobacco such as chewing tobacco and dip accounts for a growing portion of tobacco use,[3] while small cigar sales and e-cigarette sales were estimated at approximately $2 billion each at the end of 2013.[4,5] The large majority of sales for these products occur in convenience stores, gas stations, and

supermarkets—stores that are ubiquitous in communities worldwide[6] and accessible to individuals of all ages. The widespread availability of tobacco products in retails outlets, along with extensive marketing at the retail point-of-sale,[2,7] is designed to attract new tobacco users, discourage quitting and create a normative environment that makes tobacco use acceptable and even desirable.[8]

Recent years have seen a growing interest in reducing tobacco availability via retail outlets,[9] along with growing evidence that the distribution of outlets may impact tobacco use behavior. Studies have found that outlet density is associated with increased cigarette smoking among youth,[10–14] while outlet proximity[15–18] is associated with reduced smoking cessation among adults. However, evidence examining the impact of outlets on cigarette smoking or use of other tobacco products among young adults is scarce. One exception is a study by Novak et al.,[11] which found that tract-level outlet density increased the likelihood of cigarette smoking similarly for both 11–17 year olds and 18–23 year olds.

Young adults are an increasingly important target audience for the tobacco industry worldwide[19,20] and are considered a source of new and long-term tobacco users. Tobacco industry strategists are acutely aware that young adults often experiment with smoking and other tobacco use during this life stage and that experimentation may progress to regular use.[20] In the United States, evidence suggests that smoking initiation occurs during young adulthood[21] and initiation rates during this time of life may be increasing across countries.[22,23] Compared with the general population, young adults may also be at increased risk for use of non-cigarette tobacco products. A 2012 national study found relatively high rates of ever use of a variety of tobacco products among a young adult sample, ranging from 5% to 10% for e-cigarettes, chewing tobacco, dip, and snus, to 17% for hookah, and 26%–30% for cigars, little cigars, and cigarillos. Further, the mean age of initiation was older than age 18 for several of these products.[24]

Evidence from the fields of genetic[25–29] and social epidemiology[30–32] demonstrates the importance of social and environmental factors on health behaviors. Some suggest that contextual factors may be more important for promoting smoking initiation than regular use.[27–29] Given the accessible and increasingly diverse supply of tobacco products in retail outlets throughout the United States coupled with a growing trend of tobacco experimentation and initiation among young adults,[22] this study seeks to examine the impact of neighborhood-level tobacco outlet density on young adult tobacco use initiation. Associations were examined separately for 18–24 versus 25–34 year olds given that adults older than age 25 are in a life stage where they are less likely to experiment with novel substances,[33] including tobacco products,[34] and, therefore may be less influenced by tobacco availability or retail advertising.

Methods

Sample

The sample for this study was the Legacy Young Adult Cohort Study, a longitudinal cohort designed to examine tobacco use trajectories among a young adult population aged 18–34. The cohort is based on a nationally representative sample drawn from GfK's KnowledgePanel, a probability-based panel of adults aged 18 and older that covers both the online and offline populations in the United States. GfK collected online consent from participants before survey self-administration and Chesapeake Institutional Review Board, Inc. approved the study. Further details of study recruitment and methods have been published elsewhere.[24] This analysis is based on Wave 4 (n = 4288) of the study, collected January 2013, which included geographic identifiers of each respondent's census tract at the time of the survey. Post-stratification weights were used to offset any nonresponse or noncoverage bias.

Tobacco Outlet Locations

A database of tobacco outlets across the 50 states was created using the 2012 North American Industry Classification Systems (NAICS) codes (www.naics.com).[35,36] NAICS was developed by The Office of Management and Budget for use by federal statistical agencies in publishing statistical data related to the US business economy.[37] Geocoded data was obtained from the NAICS Association for all businesses likely to sell tobacco products based on their primary classification code, including supermarkets and other grocery stores, convenience stores, beer/wine/liquor stores, pharmacies and drug stores, gas stations with convenience stores, other gasoline stations and tobacco stores (n = 295 710). Of total outlets, 1340 were missing latitude/longitude coordinates for geocoding. Environmental Research Systems Research Institute's ArcGIS software version 10.1[38] was used to batch geocode the 1340 outlets based on physical address, utilizing an address locator through ArcGIS Online geocoding services. Ninety percent of the 1340 were matched with a score greater than 80, leaving a geocoded outlet sample of 295 576. Pharmacies in cities that had banned pharmacy tobacco sales as of 2012 and exact duplicates were eliminated, for a final sample of 294 014 outlets.

Measures

Three outcomes were constructed based on two questions: "Which of the following tobacco products have you ever used or tried? (For cigarettes, cigars, cigarillos, and e-cigarettes, "even 1 puff.") Please select all that apply" with response options for 10 tobacco products (cigarettes, cigars, little cigars/cigarillos/bidis, hookah/shisha, pipe, e-cigarettes, dip/snuff, chewing tobacco, snus and dissolvables); and "Which of the following products have you tried for the first time in the past 6 months?" with the same response options. Brand examples were provided for most products. Three outcomes were constructed: initiation of cigarettes in the past 6 months versus no cigarette use ever; initiation of any non-cigarette combustible use (cigars, little cigars/cigarillos/bidis, hookah, pipe) in the past 6 months versus no non-cigarette combustible use ever; and initiation of any noncombustible products (dip/snuff, chewing tobacco, snus, dissolvables and electronic ["e"]-cigarettes) in the past 6 months versus no noncombustible tobacco use ever.

Demographic correlates included age, dichotomized as 18–24 versus 25–34, gender, race/ethnicity (White non-Hispanic, Black non-Hispanic, Other non-Hispanic, Hispanic), and educational attainment (less than high school, high school, some college, college or more). Previous research has demonstrated that tobacco retailer densities are significantly higher among smokers with severe mental illness compared with the general population.[39] Thus, we examined whether mental illness, as assessed by the PHQ-2 scale[40] was associated with tobacco outlet density and the outcomes and thus a potential confounding factor. The PHQ-2 scale measures major depressive disorder based on the question, "How often over the last 2 weeks have you been bothered by any of the following problems?" with items for "little interest or pleasure in doing things" and "feeling down, depressed or hopeless." Response options were based on a scale from "not at all" to "nearly every day," and scores

ranged from 0–6. A score of 3 or above was considered depressed. We found that outlet density was significantly higher among individuals with major depression (mean logged density 0.29 vs. 0.26, $P < .05$) and that major depression was significantly associated with each of the initiation outcomes among each age group, with recent initiation being 2–3 times higher among those with depression versus those without. Thus we included depression as a covariate in the analysis.

Tract-level outlet density was calculated utilizing the Spatial Join tool in ArcGIS, which joins the polygons (buffers) to points (outlets) and creates a count for the number of outlets that fall within each buffer. The count of outlets was divided by the total sum length of all roadways in the census tract area and scaled to produce a count per 10 kilometers of roadway for each tract, a common measure which has been used in previous research.[41] This measure along with tract-level population land density was log transformed to reduce positive skew. Data from the US census Summary File 1 2010 was utilized for tract-level proportion of persons below poverty, proportion Hispanic and proportion non-Hispanic black. These variables were scaled and centered so that a one-unit increase in the outcome corresponds to a 10% increase in proportion of the population with the specific characteristics. A variable for metropolitan area status was included, which was defined as a core urban area with a population of 50 000 persons or more.

State-level factors and policy indicators included state smoking prevalence,[42,43] and levels of state clean indoor air legislation measured in percentage of state population covered as of 2013[44] for all US states and the District of Columbia. All policy variables were included as continuous variables.

Statistical Analysis

All analyses were performed using Stata IC 12.1 in 2013 and 2014.[45] Since there was some clustering of individuals within states and counties, likelihood ratio tests were conducted for each outcome with state or county as a random intercept compared with a model without a state or county-level random intercept. All tests indicated variance components were not significant and thus a single level logistic regression model was preferable. Multivariate logistic regression models were then conducted to estimate the influence of tract-level density on past 6 month first experimentation with cigarettes, non-cigarette combustibles, and noncombustibles. Separate models were run for each of the three dependent variables and all models were stratified by age for 18–24 and 25–34 year olds. Models were adjusted for individual factors associated with tobacco use, as well as tract and state factors that have been associated with tobacco use and/or outlet density. All analyses were weighted. We also conducted a sensitivity analysis examining the effects of potential misclassification of outlets as tobacco sellers. We examined whether estimates of outlet density either over-estimated true tobacco outlet density by 10%–30% (ie, outlets were classified as selling tobacco when they did not) or under-estimated true tobacco outlet density by 10%–30% (ie, outlets were not classified as selling tobacco whey they did).

Results

Table 1 shows weighted baseline sociodemographic information, as well as the tract and state level variables for the sample overall and stratified by age groups for 18–24 versus 25–34 year olds. The sample was split evenly among men and women and was representative of major racial/ethnic groups. Approximately 14.4% had a major depressive disorder. The mean number of outlets per 10 kilometers of roadway within a tract was less than one outlet.

Overall, prevalence of first use of products in the past 6 months was indicated 6.0% of 18–24 year olds and 9.0% of 25–34 year olds initiated cigarette use, 9.6% of 18–24 year olds and 5.8% of 25–34 year olds initiated non-cigarette combustible use, and 4.6% of 18–24 year olds and 4.7% of 25–34 year olds initiated noncombustible product initiation.

Table 2 presents multivariable models for the three outcomes stratified by age. Results indicate that 25–34 year olds were nearly four times more likely to have first used cigarettes in the past 6 months with every one-unit increase in the log odds of tract-level outlet density, and this effect was significant. For 18–24 year olds, the odds ratio for the association between density and cigarette initiation was not significant. However, the 18–24 year olds were over three times more likely to have recently initiated non-cigarette combustible products if they resided in tracts with greater outlet density. Among the 25–34 year old adults, the odds ratio for non-cigarette combustible initiation was positive but not significant. Past 6-month use of noncombustible products was not significantly associated with tract-level outlet density among the younger or older adults. Sensitivity analyses examining over- or under-estimation of outlet density by 10%–30% demonstrated the effects to be robust for all models. While coefficients varied somewhat across models, the significance (or nonsignificance) of the outlet effect for initiation of the different tobacco products for each age group did not change.

Discussion

This study is the first to examine the impact of tobacco retail outlet density on tobacco use behaviors among a national sample of young adults, and the first to examine associations between outlet density and use of tobacco products other than cigarettes. Although prevalence of past 6 month first time product use was relatively low overall, results indicated that outlet density had a significant and positive impact on initiation of cigarettes and other combustibles, but this impact varied by age. Adults aged 25–34 living in areas with greater outlet density were more likely to have tried cigarettes for the first time in the past 6 months, while there was a positive but nonsignificant trend for initiation among 18–24 year olds. In contrast, only the younger group was more likely to have tried non-cigarette combustible products in the past 6 months if they lived in a community with a greater density of outlets. There was no impact of outlet density on recent noncombustible product use among either age group. Findings suggest that the density of outlets around young adults' residence may stimulate experimentation of cigarette and non-cigarette combustible tobacco products, which are increasingly prevalent and heavily promoted in outlets worldwide.[6,46,47]

While the tobacco industry has traditionally focused on the retail environment to market cigarettes to young adults,[48,49] information on retail merchandising and point-of-sale advertising of other non-cigarette tobacco products is limited. The strong positive association between density and recent cigarette and non-cigarette combustible product experimentation and the null association with recent noncombustible experimentation may be due either to varying availability of these products in outlets or differences in advertising at the point-of-sale. Although there is little data on variations in the availability of cigarettes, non-cigarette combustibles and noncombustibles across outlets, with some exceptions,[50–52] over 90% of cigarette marketing expenditures in the United States in 2011[7] were focused

Table 1. Demographic Characteristics and Smoking Behavior Among Young Adults Age 18–24 and 25–34 (Weighted)

	Age		
	18–24 (*n* = 1609)	25–34 (*n* = 2679)	Total (*n* = 4288)
		(% or mean [*SE*])	
Gender			
Male	49.6	49.6	49.6
Female	50.4	50.4	50.4
Race			
White, non-Hispanic	54.8	59.6	57.7
Black, non-Hispanic	13.6	12.1	12.7
Hispanic	21.9	19.9	20.7
Other	9.7	8.4	8.9
Education			
Less than high school	17.1	8.9	12.1
High school diploma/GED	36.3	22.1	27.6
Some college/tech or associate's degree	38.5	33.1	35.2
At least a college degree	8.1	35.9	25.1
Major depressive disorder			
High	15.1	14.0	14.4
Low	84.9	86.0	85.6
# of outlets per 10 kilometers of roadway	0.37 (0.02)	0.39 (0.02)	0.38 (0.01)
Tract % of non-Hispanic Black population	12.3 (0.01)	12.7 (0.01)	12.5 (0.01)
Tract % of Hispanic population	17.7 (0.01)	17.3 (0.01)	17.5 (0.01)
Tract % of population in poverty	14.6 (0.01)	15.2 (0.01)	15.0 (0.01)
# of population per square mile	4994.08 (337.6)	5751.9 (360.3)	5458.1 (256.7)
MSA status			
Metro	86.0	87.5	86.9
Nonmetro	14.0	12.5	13.1
State level smoking prevalence	17.8 (0.1)	18.0 (0.1)	17.9 (0.1)
State level clean indoor air laws index			
<100% smoke free	23.2	29.2	26.9
100% smoke free	76.8	70.8	73.1

Note. GED = graduate equivalency degree; MSA = metropolitan statistical area; *SE* = standard error.

on the point-of sale environment compared with only 56% of noncombustible advertising dollars, which includes spending for chewing tobacco, dip/snuff, snus and dissolvables.[2] To reach the young adult population, relatively more resources for noncombustible marketing may be aimed toward sponsorships at bar nights and concerts.[53–56] In fact, evidence indicates that advertising expenditures for smokeless product event sponsorship have increased in recent years in the United States[2] while noncombustible point-of-sale advertising has declined.[2,57] Industry spending on point-of-sale advertising for e-cigarettes (which were included in the noncombustible category in this analysis) is not systematically tracked, but these products were relatively new in the retail environment at the time of this study[58,59] and thus they may not have yet reached the same level of saturation as other tobacco products. Further, motivations for experimenting with e-cigarettes versus other noncombustible products may differ if young adult combustible users are initiating e-cigarette use to help them quit other combustibles. Overall, lower availability or less advertising for any noncombustible products in retail outlets would reduce the influence of retail density on young adult noncombustible use, although it is not clear how the impact of outlet density on initiation might vary by motivations for use. Although there are no comparable data for retail advertising spent on non-cigarette combustibles, such as cigars, little cigars, cigarillos, and shisha, one recent study found higher levels of exterior advertising and lower prices of little cigars and cigarillos in neighborhoods with a greater proportion of young adults.[50]

The strong association between outlet density and recent cigarette initiation among the older group of young adults was unexpected. While research indicates increasing cigarette initiation among young adults, the majority who initiate at this age do so between the ages of 18–24.[22] However, a recent systematic review found that age of smoking initiation among young adults can range from 18–36 years old.[22] Individuals who initiate cigarette use at older ages may be more likely to start smoking to manage stress or feel less depressed compared with younger initiators, who often start smoking because their friends smoke.[60] The 18–24 year olds may acquire their first cigarettes from friends and other social sources rather than purchasing cigarettes at stores, thus making them less vulnerable to retail density in their communities for cigarette initiation. In contrast, 25–34 year old young adults may be more likely to purchase these products and thus would be more influenced by cigarette accessibility and advertising via outlets in their neighborhoods.

Additional differences in product acquisition patterns among the older and younger groups may further shape the influence of the outlet environment on recent initiation of specific product groups. There is little research on product purchasing patterns for cigarettes and alternative tobacco products for young adults. However, price and tax differentials make cigarettes more expensive than other combustibles in the United States[61–64] and this may influence which groups purchase cigarettes or non-cigarette combustibles at retail outlets

Table 2. Odds Ratios (ORs) and Confidence Intervals (CIs) of Multivariate Models of Tobacco Initiation Outcomes and Outlet Density, Controlling for Covariates

	Cigarette initiation		Non-cigarette combustible initiation		Noncombustible initiation	
	18–24	25–34	18–24	25–34	18–24	25–34
	*OR*s and CI's					
Outlets per 10 kilometers of roadway (logged)	0.98 (0.14, 6.99)	**3.75* (1.18, 11.90)**	**3.16* (1.03, 9.75)**	1.79 (0.53, 6.05)	0.47 (0.09, 2.53)	0.57 (0.16, 2.05)
Gender						
Female	1.24 (0.62, 2.48)	0.94 (0.53, 1.67)	0.83 (0.44, 1.58)	**0.40** (0.21, 0.77)**	1.46 (0.71, 2.99)	0.70 (0.40, 1.22)
Race						
Black, Non-Hispanic	0.97 (0.22, 4.18)	0.65 (0.21, 1.97)	**3.36* (1.19, 9.49)**	0.49 (0.16, 1.50)	1.46 (0.35, 6.05)	0.35 (0.05, 2.33)
Hispanic	1.07 (0.36, 3.21)	0.35 (0.10, 1.18)	1.67 (0.53, 5.29)	0.71 (0.24, 2.15)	0.49 (0.19, 1.28)	0.36 (0.12, 1.08)
Other	**0.27* (0.07, 0.98)**	**0.27* (0.09, 0.84)**	0.38 (0.13, 1.16)	1.11 (0.40, 3.08)	0.27 (0.05, 1.44)	0.75 (0.25, 2.23)
Education						
HS diploma/GED	1.00 (0.40, 2.47)	**0.22** (0.08, 0.66)**	**0.40* (0.16, 0.99)**	0.82 (0.25, 2.69)	1.01 (0.32, 3.24)	0.45 (0.12, 1.67)
Some college/tech or associate's degree	0.60 (0.24, 1.52)	**0.17*** (0.06, 0.46)**	0.67 (0.29, 1.58)	0.87 (0.29, 2.59)	1.05 (0.36, 3.07)	0.37 (0.11, 1.25)
At least a college degree	1.15 (0.30, 4.49)	**0.05*** (0.01, 0.17)**	0.58 (0.17, 1.99)	0.61 (0.18, 2.11)	0.83 (0.18, 3.88)	**0.19* (0.05, 0.72)**
Major depressive disorder						
High	**3.69** (1.63, 8.33)**	**2.44* (1.14, 5.26)**	**2.98** (1.49, 5.97)**	1.81 (0.80, 4.11)	**6.45***(3.27, 12.71)**	**3.00***(1.60, 5.63)**
Tract % of population in poverty	0.76 (0.46, 1.23)	1.14 (0.94, 1.39)	0.99 (0.74, 1.32)	0.93 (0.73, 1.18)	1.15 (0.80, 1.66)	1.37 (0.94, 1.99)
Tract % of Hispanic population	0.98 (0.81, 1.20)	**0.76** (0.61, 0.93)**	0.96 (0.80, 1.16)	1.08 (0.89, 1.32)	0.84 (0.68, 1.04)	**0.75**(0.61, 0.93)**
Tract % of non-Hispanic Black population	0.96 (0.70, 1.32)	1.03 (0.87, 1.22)	0.88 (0.70, 1.12)	1.01 (0.85, 1.21)	0.87 (0.69, 1.10)	0.81 (0.63, 1.04)
Log population density	1.00 (0.76, 1.32)	0.97 (0.77, 1.22)	0.94 (0.69, 1.28)	1.10 (0.82, 1.47)	1.10 (0.85, 1.42)	**1.25* (1.03, 1.50)**
MSA status						
Metro	1.08 (0.36, 3.24)	1.17 (0.44, 3.08)	2.92 (0.80, 10.66)	0.49 (0.19, 1.27)	0.94 (0.29, 3.10)	1.02 (0.46, 2.28)
State level smoking prevalence	0.94 (0.83, 1.06)	0.93 (0.84, 1.03)	0.97 (0.86, 1.10)	1.01 (0.90, 1.13)	0.96 (0.82, 1.12)	1.01 (0.93, 1.10)
State level clean indoor air laws index						
100% smoke free	0.83 (0.37, 1.86)	0.90 (0.40, 2.02)	1.11 (0.51, 2.42)	1.10 (0.47, 2.57)	1.44 (0.47, 4.34)	0.78 (0.38, 1.61)

Note. GED = graduate equivalency degree; HS = high school; MSA = metropolitan statistical area.
*$P \leq .05$; **$P \leq .01$; ***$P \leq .001$.

versus obtaining these products from other sources. Cigarettes are only available in packs of 20 and are subject to relatively high state and local taxes, with an average pack costing approximately $5.98.[65] In contrast, non-cigarette combustibles such as cigars are available in pack sizes as small as 1 or 2, making the overall cost as low as $1.00 or less.[50] The older adults are more likely to be working and have higher incomes than the younger group and thus may be able to afford to purchase cigarettes. In contrast, the younger group may obtain cigarettes from friends who smoke while utilizing retail sources for non-cigarette combustibles, given lower retail prices for these products.

Given the link between tobacco retail density, mental illness, and smoking in prior research[39] and in this study, we conducted post hoc analyses of major depressive disorder as a potential mediating variable on the causal pathway between outlet density and the outcomes[66,67] for each age group. However, we did not find consistent effects indicating that major depression served as a mediator rather than a confounding variable. This analysis is not conclusive, however, given the limitations of this cross-sectional data. The possibility of depression as a mediator of density and tobacco initiation is an issue that should be examined further in longitudinal data.

This study has several limitations. First, this is a cross-sectional study so causality cannot be determined. Second, the NAICS database may not include all possible tobacco outlets or may incorrectly identify outlets that do not sell tobacco (ie, certain non-chain pharmacies). However, Rodriguez et al.[68] found a high level of correspondence between census tract density calculated based on a state-level business license list versus density based on the NAICS secondary data source. Other studies have noted good to very good sensitivity and positive predictive value of secondary commercial lists compared with field-verified lists as well as positive and significant correlations between field-verified and secondary data lists on census tract density measures.[69] For national studies such as this, a national outlet listing may be the most feasible option compared with direct observation of all outlets nationwide or obtaining state and local licensing lists, which are not uniformly available across states or localities. The NAICS list has been used previously for similar studies.[15] Third, these analyses were not able to distinguish between the impact of tobacco product availability in outlets and outlet advertising on young adult behaviors. However, this is a limitation for all studies of outlet density and proximity in countries and geographic areas where point-of-sale advertising is allowed. Research has found associations between outlet proximity on tobacco use behaviors in countries where point-of-sale advertising is prohibited,[16] suggesting that the outlet environment is an important contextual factor separate from outlet advertising. Further, cigarette initiation rates were significantly higher in the 25–34 year old population relative to some national surveillance data. It is not clear if these differences are due to the way questions are asked, mode used, sampling frame or limitations in representativeness that may limit generalizability. Lastly, there were no data on young adults' travel routes or amount of time spent in the neighborhood, which may influence the impact of outlet density on use patterns. These areas are ripe for future research on young adult tobacco use initiation patterns.

This research provides the first information on the impact of tobacco outlet density on young adult initiation of cigarettes and alternative tobacco products. Findings demonstrate that residential tobacco outlet density is associated with recent experimentation of tobacco products, and this effect varies by product type and age. The current outlet environment may be a critical component in promoting young adult tobacco product initiation. The pervasive availability of a multiplying array of tobacco products in local retail outlets globally, coupled with a growing body of evidence on the impact of outlets on smoking behavior,[10–14,16–18] suggests that the current outlet environment may be a contributing factor in promoting adult tobacco product experimentation and initiation. Licensing and zoning policies to restrict tobacco outlet density may be instrumental in reducing tobacco use initiation.

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Declaration of Interests

None declared.

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