

# Tobacco Use among Rural African American Young Adult Males

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## Abstract

**Objective.** Tobacco-related disease is a primary source of mortality for African American men. Recent studies suggest that alternative tobacco products may have supplanted cigarettes as the most common products used by young African Americans. Effective cessation strategies require community-specific prevalence data. This project measures the prevalence of 9 tobacco products among young African American men in rural Alabama.

**Study Design.** Principles of community-based participatory research were used to design a verbally administered tobacco product survey to measure the prevalence and behavioral factors influencing use.

**Setting.** Black Belt counties of rural Alabama.

**Subjects and Methods.** African American men aged 19 to 30 years were recruited from the target counties. Participants were stratified by income and education level. Prevalence rates for 9 products were determined, and logistic regression analysis was performed.

**Results.** A total of 415 participants completed surveys. Cigarettes were the most common product ever (54%) and currently (39.9%) used. Participants who attended school for more than 12 years or attended religious services were less likely to use cigarettes. Marijuana and blunts were used next most commonly. Only 35 respondents (8.9%) currently used mini-cigars. Other products, bidis/kreteks, smokeless tobacco, and pipes were used uncommonly in this sample.

**Conclusions.** Cigarettes remain the dominant tobacco product used by young African American men in rural Alabama. Cigarette prevalence far exceeds that measured statewide for African American men of the same age. Alternative products were not commonly used in this study population. Effective community-based intervention must target cigarette initiation and cessation in this vulnerable population.

## Keywords

tobacco use, alternative tobacco products, marijuana use, African American men, rural areas

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African Americans bear a disproportionate burden of tobacco-related disease. Cancer, cardiovascular disease, and chronic lung disease are leading causes of mortality among African Americans and are causally linked to tobacco use.<sup>1-3</sup> Disparities in incidence, stage of presentation, and mortality of head and neck squamous cell cancer are particularly evident among African American men.<sup>4,5</sup> The mortality rate for African American men with laryngeal cancer, for example, is more than double the rates for white men (4.6 vs 2.0/100,000).<sup>5</sup>

While the tobacco-related disease burden is higher in African American adults, prevalence rates of tobacco use among young African American teens are surprisingly lower than those reported for whites.<sup>4,6,7</sup> This picture changes in early adulthood. According to the National Survey on Drug Use and Health conducted between 2002 and 2005, 29.7% of white men 18 years of age and older reported smoking cigarettes in the past 30 days as compared with 33.6% of African American men.<sup>8</sup> In a recent study among low-income African Americans in Tennessee, 59.3% of African American men

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reported being current smokers.<sup>9</sup> This study also found that cigarette smoking prevalence and number of cigarettes smoked per day increased with age.<sup>9</sup>

Young people, and particularly young African Americans, appear to be increasingly using alternative (nongarette) tobacco products as opposed to cigarettes. In New Jersey, the rate of cigar use among high school males was twice that reported for adult men.<sup>10</sup> According to the National Household Survey on Drug Use and Health, 10.4% of young adults between the ages of 18 and 25 years reported smoking cigars within the past month as compared with 4.7% among individuals 26 years of age and older.<sup>11</sup> A survey of African American college freshmen found that 74% of respondents reported cigar use while only 44% reported cigarette use.<sup>12</sup> Richter et al explored the use of alternative forms of tobacco among young adult smokers and found that cigars were the most common alternative form of tobacco used by whites, Hispanics, and African Americans and were most frequently used by African Americans.<sup>13</sup> The patterns of tobacco product use in early adulthood are changing, scarcely documented, and variable by sociocultural setting.

The primary aim of the current study was to determine the prevalence of a range of tobacco product and marijuana use in young adult African American men between the ages of 19 and 30 years residing in 5 rural "Black Belt" counties in Alabama. The Black Belt counties are named for the rich dark soil that supported the agricultural industry of an earlier era. These counties are predominantly African American, among the poorest counties in the United States, and are characterized by striking health disparities when compared with the remainder of the state and the nation as a whole.<sup>14,15</sup> Context-specific data are needed to implement effective prevention and cessation strategies. The prevalence data reported here are being used to design relevant community-based interventions for young African American men who have not yet developed severe tobacco-related disease and have much to gain from prevention/cessation efforts.

## Methods

Interviewer-administered surveys were completed among self-identified African American men, aged 19 to 30 years, in 5 of the Black Belt counties of rural Alabama. The inclusion criteria were chosen because (1) tobacco use and tobacco-related health disparities are more prevalent in men; (2) African Americans typically initiate use in their late teens, and usage patterns are well established by the late 20s; (3) the Black Belt counties have disparately high rates for tobacco-related disease; and (4) the 5 selected counties are demographically representative of the Black Belt region.

Sample size calculations assumed a prevalence rate of 25% and determined that 400 subjects would provide 95% confidence intervals of 20.8% to 29.2%.<sup>16</sup> Participants were stratified by income (above and below poverty level) and educational level (12th grade above/below), with target representation in the stratification table informed by United States census data for the Black Belt counties. Distribution of survey participants within the stratification table was monitored to ensure representative sampling of the Black Belt counties.

## Survey Development

Survey questions included (1) demographic items, (2) product use items (frequency, products, patterns of use), and (3) items to explore social and cultural factors associated with product use. Many survey items originated from the Centers for Disease Control and Prevention (CDC)—maintained Question Inventory on Tobacco (QIT), which lists more than 3400 validated and previously administered survey items.<sup>17</sup> Tobacco products included in the survey were cigarettes, cigars, minicigars, blunts, marijuana, bidis, kreteks, pipes, and smokeless tobacco. Respondents answered a series of parallel questions about each product used. We initially conducted cognitive pretesting of a draft questionnaire with 6 participants who met inclusion criteria. The pretest participants provided feedback to evaluate interpretation, intelligibility, and duration of the survey. Following pretesting, the questionnaire was refined and finalized. The final survey contained 290 items that queried demographic, prevalence, and behavioral factors relevant to tobacco product use. Participants answered only those items relevant to their tobacco product exposure.

Twenty-five randomly selected participants were retested 10 to 14 days after initial survey completion to evaluate test-retest reliability. Responses were evaluated using  $\chi^2$  and  $t$  tests to reveal differences between administrations. The comparisons did not reveal any significant differences on products ever used, products used in the past 12 months, products used in the past 7 days, amount of products used per week, and number of products used, demonstrating that participants were consistent in their responses. Retest data were excluded from final prevalence calculations.

## Data Collection

Data collection used the infrastructure of the National Cancer Institute–sponsored Deep South Network for Cancer Control (DSN). The DSN is a community-based participatory research project and trains community health advisors (CHAs) in the Black Belt counties to promote cancer awareness and encourage cancer screening.<sup>18</sup> We have learned from our experience working with African Americans in rural counties that having trusted individuals who reside in these communities is crucial to project success. Selected CHAs underwent didactic training, online institutional review board (IRB) training, project-specific role-play sessions, and ongoing supervision by university-based staff. The research team collected surveys at regular intervals to ensure protocol fidelity. Retraining of volunteers was implemented as needed.

The CHAs identified young men from their respective communities who would fit the inclusion criteria. The educational levels and employment status of the CHAs is known by University of Alabama at Birmingham (UAB) program administrators, and the selected CHAs represented a reasonable cross section of the target communities. By these means, the recruitment strategy using natural acquaintances provided a reasonable cross-sectional sample of the target communities. Advertising and census tract-based recruiting were deemed unnecessary. CHAs recruited survey participants, administered the surveys verbally, face to face,

**Table 1.** Demographics of Sample (N = 415)

	n	%
Age, y		
19-21	141	34.0
22-24	101	24.3
25-27	98	23.6
28-30	75	18.1
Years of school completed		
8-11	63	15.2
12	216	67.2
13-15	105	25.3
16 or more	31	7.5
Employment status		
Working full-time	146	35.6
Working part-time	61	14.9
Not working	116	28.3
Student	49	12.0
Other	38	9.2
Poverty status		
Below poverty level	181	43.6
Above poverty level	139	33.5
Unknown	95	22.9
Marital status		
Single	301	73.8
Living together	62	15.2
Married	33	8.1
Other	12	2.9

and recorded responses in the survey booklet. Verbal administration was employed to offset differences in participant literacy. Survey completion required 20 to 40 minutes. Participants and CHAs received gift cards for each survey completed. The UAB IRB approved all research practices and survey instruments.

Statistical analyses were conducted using SPSS 14.0 software (SPSS Inc, an IBM Company, Chicago, Illinois). Descriptive statistics were calculated to provide prevalence rates and sample characteristics. Bivariate analyses used  $\chi^2$  and *t* tests to examine group differences. Multivariate analyses used logistic regression to examine odds ratios for significant factors associated with product use.

## Results

Between December 2008 and March 2009, 427 participants completed surveys. Ten were excluded due to wrong age and 2 failed to record age, leaving 415 surveys (97.2%) available for analysis.

### Demographics

All respondents were African American men aged 19 to 30 years. Most respondents (97.3%) consider the Black Belt region their permanent residence. Most had completed high school, about half were employed, and two thirds had some form of health insurance. Two thirds of participants disclosed income. Of those, 56% were living below poverty level (**Table 1**).

**Table 2.** Prevalence of Ever Use and Current Use for 9 Products<sup>a</sup>

Product	Ever Used		Used in Past Week	
	n	%	n	%
Cigarettes (n = 398)	215	54.0	164	39.9
Cigars (n = 394)	58	14.7	31	7.9
Mini-cigars (n = 394)	68	17.3	35	8.9
Blunts (n = 394)	76	19.3	47	11.9
Bidis or kreteks (n = 393)	12	3.1	1	0.3
Marijuana (n = 393)	118	30.0	64	16.3
Smokeless tobacco (n = 394)	11	2.8	4	1.0
Pipes (n = 394)	6	1.8	0	0.0
Any product		61.4		48.4

<sup>a</sup>Bidis and kreteks are combined in reporting.

### Prevalence

Prevalence data were collected for 9 products (**Table 2**). Cigarettes were used most commonly ( $P < .001$ ). Two hundred fifteen respondents (54%) had used cigarettes in their lifetime (ever use), and 164 (39.9%) had used cigarettes in the past 7 days (current use). Once initiated, 74% of ever-users also reported current use, significantly higher than all other products ( $P < .001$ ). The number of cigarettes smoked ranged from a few weekly to 2 packs daily. The mean and median weekly use was 61.4 and 49 cigarettes, respectively.

Marijuana was the second most commonly used product, with 118 respondents (30%) reporting ever use and 64 (16.3%) reporting current use. Blunts (hollowed cigars or leaf tobacco filled with marijuana) were the third most commonly used product. Blunt and marijuana users overlapped significantly, with 80% of current blunt users also reporting marijuana use.

Only 35 respondents (8.9%) reported current mini-cigar use. When combined with users of regular-sized cigars, only 66 (16.8%) reported current use. Bidis/kreteks, smokeless tobacco, and pipes were used infrequently.

Most respondents who used tobacco (61.7%) used only one product. Marijuana and blunt users were most likely to use multiple tobacco products ( $P < .001$ ) and were most likely to also use cigarettes ( $P < .001$ ). The first product used by respondents was overwhelmingly cigarettes (71.1%). The age at tobacco product initiation ranged from 8 to 30 years. Interestingly, the mean age for product initiation was lowest for marijuana (15.9 years).

Logistic regression analysis (**Table 3**) demonstrated that cigarette use was significantly less likely among respondents who attend more years of school or frequently attend religious services. Specifically, 64.5% of respondents with 12 or fewer years of school have ever smoked cigarettes, compared with 35.5% of those with 13 or more years of school ( $\chi^2 = 33.93$ ,  $df = 1$ ,  $P < .001$ ). Marijuana and blunt use was significantly less likely for respondents who did not smoke cigarettes and was more likely for older and single respondents.

**Table 3.** Adjusted Odds Ratios for Current Use of Alternative Tobacco Products<sup>a</sup>

	Cigarettes (n = 360)	Cigars (n = 338)	Mini-cigars (n = 331)	Blunts (n = 334)	Marijuana (n = 338)
	OR (CI)	OR (CI)	OR (CI)	OR (CI)	OR (CI)
Marital status					
Single	0.94 (0.53-1.66)	0.82 (0.31-2.19)	0.90 (0.34-2.43)	3.03 (0.97-9.43)	<b>3.13 (1.14-8.57)</b>
Partnered	Referent	Referent	Referent		Referent
Employment					
Employed	0.80 (0.49-1.29)	0.93 (0.38-2.30)	1.01 (0.41-2.52)	0.48 (0.20-1.12)	0.56 (0.26-1.18)
Not employed	Referent	Referent	Referent	Referent	Referent
Years of school	<b>0.71 (0.59-0.86)</b>	0.91 (0.66-1.25)	0.85 (0.63-1.14)	1.25 (0.93-1.69)	1.07 (0.82-1.38)
Attend religious services	<b>0.73 (0.54-0.99)</b>	0.72 (0.43-1.22)	0.61 (0.37-1.01)	0.65 (0.40-1.07)	0.72 (0.47-1.11)
Poverty status					
Above	Referent	Referent	Referent	Referent	Referent
Below	1.19 (0.66-2.13)	0.59 (0.21-1.60)	0.39 (0.14-1.12)	1.63 (0.63-4.26)	1.33 (0.55-3.22)
Unknown	0.91 (0.48-1.76)	<b>0.10 (0.01-0.85)</b>	0.28 (0.07-1.08)	0.42 (0.10-1.68)	0.78 (0.26-2.33)
Age	1.03 (0.96-1.11)	1.08 (0.95-1.22)	1.08 (0.95-1.22)	<b>1.13 (1.01-1.27)</b>	<b>1.13 (1.01-1.26)</b>
Current cigarette use					
Yes	—	Referent	Referent	Referent	Referent
No	—	<b>0.32 (0.13-0.80)</b>	0.96 (0.40-2.28)	<b>0.17 (0.41-0.76)</b>	<b>0.20 (0.37-0.63)</b>

Abbreviations: CI, confidence interval; OR, odds ratio.

<sup>a</sup>Values in bold indicate statistical significance.

## Discussion

Tobacco-related disease disparities are magnified in the rural counties of the Black Belt region.<sup>15,19</sup> The goal of this project was collection of community-specific prevalence data on tobacco-related product use among young African American men. The data obtained appear to represent a valid and generalizable sample of young African American men of the Black Belt counties.

Cigarettes were overwhelmingly the product used most commonly. More than half of the respondents (54%) had ever used cigarettes, and 164 (39.9%) were current cigarette users. In contrast, the prevalence measured by the Behavioral Risk Factor Surveillance System (BRFSS) for African American men in the same age bracket in the state of Alabama was 15.5%.<sup>20</sup> This discrepancy illustrates the need for community-specific data. Other investigators have emphasized the increasing prevalence of alternative tobacco product use among young African Americans.<sup>12,21,22</sup> The current study suggests that cigarettes remain the dominant tobacco product in this specific group.

Marijuana and blunt use were also common among respondents. These products were included because focus group studies in the Black Belt indicated frequent use (unpublished data). Vaughn and others<sup>23</sup> have studied marijuana and cigarette use among African American youth, finding that marijuana use often preceded cigarette use. The relationship between illicit drug use and cigarette use, however, is complex. While tobacco does not appear to be a gateway product for marijuana use, marijuana may indeed be a gateway product for tobacco use in young African Americans.<sup>24</sup> Polyuse analysis predictably demonstrated significant cross-product use between marijuana and blunts. Marijuana and blunt use was significantly less likely among those who did not smoke cigarettes.

The low prevalence of mini-cigar use was surprising. Others have noted that mini-cigar use may be more prevalent than cigarette use among young African Americans.<sup>12,25,26</sup> In the current survey, only 8.9% were current users. Even when combined with participants who used regular cigars, rates for cigar use were significantly lower than for cigarettes. Respondents from these Black Belt counties rarely used the other products surveyed.

The strengths of this study include sampling of a tightly defined sociocultural group. The demographic data are similar to US census data for the targeted rural counties, raising the probability that the prevalence results are generalizable for young African American men in the Black Belt counties. Following the principles of community-based participatory research in design and involving CHAs in recruitment and survey administration improved the likelihood of valid participant responses. One weakness of the project is the focused survey sample (only African American men aged 19 to 30 years). The results may not be generalized for women, older adults, or youth. Although the specific prevalence findings apply only to the Black Belt region and cannot be generalized, the methods used in this project are widely applicable for cessation/prevention programs in other minority communities.

In summary, cigarettes are the primary source of tobacco exposure among young African American men in the Black Belt counties of Alabama. The prevalence of cigarette use in this specific community far exceeds that measured statewide among African American men of the same age. Although alternative product use is detected in this group, effective intervention strategies clearly must address cigarette use. These prevalence data will ultimately be coupled with behavioral data to design culturally relevant intervention programs to diminish tobacco-related disease.



## Author Contributions

**William R. Carroll**, corresponding author, design, oversight, data collection, article preparation; **Herman R. Foushee Jr**, design, data collection, article revision; **Claudia M. Hardy**, training of volunteers, oversight of data collection; **Tammi Floyd**, training of volunteers, oversight of data collection; **Catherine F. Sinclair**, article preparation and revisions; **Isabel Scarinci**, design, oversight, data collection, article.

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