# Personal Space Smoking Restrictions Among African Americans

Gary King, PhD, Robyn Mallett, PhD, Lynn Kozlowski, PhD, Robert B. Bendel, PhD, Sunny Nahata, MS

**Objectives:** This paper investigates the association between implementing a personal space smoking restriction for the home or automobile, and various sociodemographic, social, behavioral, and attitudinal variables.

**Methods:** Approximately 1000 African-American adults (aged >18 years) residing in non-institutionalized settings were randomly selected using a cross-sectional stratified cluster sample of ten U.S. congressional districts represented by African Americans.

**Results:** A 62.0% and 70.4% ban was found, respectively, on smoking in homes and cars. Multivariate analysis revealed that region, marital status, number of friends who smoked, beliefs about environmental tobacco smoke (ETS), and smoking status predicted home smoking bans, while age, number of children in household, number of friends who smoked, and beliefs about ETS and smoking status predicted car smoking bans.

**Conclusions:** Results suggest that a substantial segment of African Americans have accepted and translated public policy concerns about ETS into practice and reveal other variables that could be targeted in future interventions to increase implementation of personal space smoking restrictions.
(Am J Prev Med 2005;28(1):33–40) © 2005 American Journal of Preventive Medicine

## Introduction

The effect of environmental tobacco smoke (ETS) on public health has been well documented. Approximately 3000 lung cancer deaths annually are caused by ETS,[1] and according to one source ETS is the third leading cause of premature death and disability.[2] A recent review of ETS exposure and children estimated that between 20% and 50% of children reside in "homes with at least one adult smoker,"[3] and the proportion may be higher in lower-income households.[3,4] Childhood illnesses resulting from ETS exposure include lower respiratory tract infections, sudden infant death syndrome, reduced fetal growth, and exacerbation of asthma.[1,3] Early exposure to ETS during childhood and adolescence may lead to other health problems and risks as adults.[3–5]

In view of the significant health risks posed by ETS, legislation over the past 10 to 15 years has restricted smoking in public places and work settings, making legislation one of the more efficacious, widely implemented, and accepted social policies.[1,6] Adopting personal space smoking restrictions depends primarily on accepting beliefs about the adverse health effects of secondary smoke exposure and the voluntary efforts of individuals and families to establish and enforce social norms promoting smoke-free environments.[7,8]

The few studies that examine voluntary smoking restrictions among African Americans focus mainly on home smoking bans, and find that between 21% and 38% of African Americans adopt such personal policies. In the late 1980s, Koepke et al.[9] reported that a lower proportion of African-American parents in Los Angeles and San Diego did not allow smoking in the home (21.5%), compared to 39.4% of Asians, 41.3% of Hispanics, and 37.2% of Caucasians. Using data from the California Tobacco Survey (CTS), Gilpin et al.[10] concluded that 38% of African Americans indicated they maintained a home smoking ban. Brownson et al.[11] conducted a study in St. Louis and Kansas City on beliefs about the effects of smoking, and found a higher likelihood that African Americans, compared to Caucasians, believed that passive smoking was harmful to the health of young children and found passive smoking more bothersome. Recently, a predominately African-American study of inner-city smokers in Kansas City, Kansas revealed that 38.2% maintained a home smoking ban, and that home smoking bans were significantly related to the number of children in the household and a nonsmoking adult partner.[4] In one of the few studies on car smoking bans based on the CTS, Norman et al.[12]

From the Department of Biobehavioral Health (King, Kozlowski), and Department of Engineering (Nahata), Pennsylvania State University, University Park, Pennsylvania; Department of Psychology, University of Virginia (Mallett), Charlottesville, Virginia; and Intercollegiate College of Nursing, Washington State University (Bendel), Spokane, Washington

Address correspondence and reprint requests to: Gary King, PhD, Department of Biobehavorial Health, Penn State University, University Park PA 16802. E-mail: gxk14@psu.edu.

found that 54.8% of African Americans maintained a complete ban on smoking in their automobiles.

Notwithstanding the important contributions of these studies, they have not represented the broad social and geographic diversity of African Americans, as they have been either limited to a particular state (i.e., California), an urban location, or have consisted of smokers only. The present study extends previous research by examining the associations between household, social, and attitudinal characteristics of a nationally dispersed probability sample of African Americans, and two ETS reduction behaviors: adopting home and car smoking bans. This research can be useful in understanding the prevalence of and motivation to adopt home and car smoking prohibitions. These results may also offer insight into ways to increase the practice of personal space smoking restrictions among African Americans.

## Methods

A cross-sectional sample of 37 U.S. congressional districts represented by African Americans was selected. The design consisted of a stratified cluster sample in which the four U.S. Census geographic regions that represented major strata and African-American congressional districts were purposefully chosen ($n = 4$) or selected at random ($n = 6$) from the number of qualified districts in a given region. Each of the ten districts constituted a cluster wherein a simple random sample of approximately 100 households was selected. Weighting was adjusted for multiple telephone lines, and the poststratification weights were adjusted so that the sample composition reflected the African-American age and gender distribution according to the 1997 U.S. Census Bureau estimates.

Certain sampling restrictions were imposed. First, only a single congressional district could be selected from each of the 21 states with African-American representatives. One congressional district represented by an African American (Oklahoma) was not included because it consisted of a small number of African Americans. Second, three districts were selected with certainty (Georgia 5th, Illinois 1st, New York 10th) to ensure representation of large metropolitan areas in the South, Midwest, and Northeast. Also, one of two districts (i.e., the first) in North Carolina was chosen at random so that the largest tobacco-producing state would be represented in the survey. Six districts were randomly selected (Washington, DC; Michigan 14th; California 32nd; Tennessee 9th; Alabama 7th; Texas 30th). When appropriate statistical weighting is applied, the results can be considered reflective of all U.S. congressional districts with African-American representatives.

Regions are defined as Northeast (New York, New Jersey, Pennsylvania, Maryland, Washington, DC); Midwest (Illinois, Missouri, Michigan, Ohio); West (California); Tobacco South (North Carolina, South Carolina, Tennessee, Virginia, Georgia); and Nontobacco South (Alabama, Louisiana, Texas, Mississippi, Florida). Additional information on the survey design is available in a previous publication.[13]

### Data Collection

Approximately 100 African Americans (aged ≥18 years) residing in noninstitutionalized settings were randomly selected from each of the ten study congressional districts ($n = 1000$). Computer-assisted telephone interviewing methodology was used, and data were collected between October 2000 and February 2001. A cross-sectional screening method was used to determine the eligibility of each selected telephone number (i.e., whether any member of the household was an African-American adult). Using the American Association of Political Opinion Research guidelines for calculating survey cooperation rates, the cooperation rate is 41%, which compares favorably with other random-digit-dialing studies involving urban African-American populations.[14,15]

### Variables

To assess the outcome variables of implementing smoking bans in the home and car, respondents were asked, "Do you allow smoking in your home/car?" For home and car smoking bans, response options included, "yes," "sometimes," and "never," with responses of "yes" or "sometimes" classified as not having smoking bans, and responses of "never" classified as having smoking bans. For car smoking bans, response options also included "I don't have a car," which was treated as missing.

Demographic predictors included age, gender, education, marital status, home ownership, number of children aged <18 living in the home, and region. Smoking-related predictors included: "Have you smoked at least 100 cigarettes in your entire life?" and "Do you smoke cigarettes every day, some days, or not at all?" Attitudinal predictors with Likert response categories ranging from strongly agree to strongly disagree included: "It is necessary to protect the public from secondhand smoke," "Greater enforcement of the law is needed to prevent youth under the age of 18 from buying cigarettes," and "In your opinion, how easy is it for minors to buy cigarettes and other tobacco products in the community in which you live?" A complete description of the variables is available from the authors.

Descriptive statistical analyses included cross-tabulations intended to assess strength ($\chi^2$ tests) and types of relationships (linear vs nonlinear). For the multivariate analyses, three nonlinear models were tested—logistic, probit, and complementary log-log.[16] With two primary binary response variables, six models were assessed; the Hosmer–Lemeshow goodness of fit statistic[17] was accepted ($p < 0.05$) for all six models. Similarly, the concordance levels assessed as in Kendall's tau, were very similar for all six models, ranging from 79.7% to 80%. A binary logistic model was selected because it is commonly used for this type of data analysis question.[16] Survey data analysis programs such as SUDAAN (Research Triangle Institute, Research Triangle Park NC) or STATA (Stata Corp, College Station TX) were not needed because the clustering effect within the study congressional districts was small for the two binary response variables. The district-to-district variance component for the two binary variables was only 2.3% of the total variance for "smoke at home," and 0.62% for "smoke in the car," and this is the basis for using the subject as the unit of analysis. This matter is discussed in more detail in a previous publication.[13]

The multiple logistic regression coefficients and their associated odds ratios (ORs) and 95% confidence intervals (CIs) were computed using SPSS 11.5 (SPSS Inc., Chicago, 2002). The variance component assessment was calculated using the Proc Mixed procedure in SAS, version 8.2 (SAS Institute Inc., Cary NC, 2001). The full model consisted of age, gender, education, marital status, region, home ownership, number of children in the home, number of friends who smoke, ease of buying cigarettes by minors in the community, attitudes about protecting the public from secondhand smoke, enforcing laws to prevent youth aged <18 from buying cigarettes, smoking status, and number of cigarettes smoked daily.

## Results

### Descriptive Statistics

As shown in Table 1 under "weighted percent," 38.1% of respondents were aged ≥45 years, and 54.5% were female. Proportions with 12 years of education and some college were similar (30%); 45.2% were single/never married. Residents of the tobacco South (29.8%) constituted the largest group of respondents; the smallest proportion (9.3%) was in the West. A majority of respondents (53.7%) reported owning their homes, and 51.9% had no children aged <18 years living in the household. About 44% of respondents reported that "a few of their close friends" smoked cigarettes. Nearly 42% believed that it was very easy for minors to purchase cigarettes in their community. Considerable support (>90%) was found for tobacco control measures designed to protect children from buying cigarettes and being exposed to ETS. Current smokers comprised 20% of the sample, whereas 62.8% were lifetime abstainers.

Sixty-two percent of respondents reported never allowing smoking in their homes and 70.4% reported never permitting smoking in their cars (Table 1). More than 90% of respondents who reported that they did not permit smoking in the home also reported a similar ban on smoking in cars (data not shown).

### Home Smoking Bans

Bivariate analyses revealed that age, education, marital status, geographic region, home ownership, and the number of children aged <18 who reside at home yielded statistically significant associations with home smoking bans (Table 1). The proportion of close friends who smoked was inversely related to maintaining a personal space smoking restriction ($p < 0.001$). Support for protecting the public from secondhand smoke was significantly related to home bans ($p < 0.001$). Current smokers (16.7%) were less likely to have implemented a complete home smoking ban than never smokers (74.2%) or former smokers (59.3%, $p < 0.001$).

### Car Smoking Bans

Age was inversely related to car smoking bans and a greater proportion of women than men (73.8% vs 65.5%, $p < .01$) indicated that they never allowed smoking in the car (Table 1). Compared to other regions, the Midwest had the lowest percentage (63.4%, $p < .05$) that imposed car smoking bans.

A higher proportion of individuals (85.2%) who did not have any friends who smoked had car smoking bans compared to those who had "a few" (67.4%) and those who had "about half or more" (58.4%, $p < .001$). The perceived ease by which minors could purchase cigarettes, as well as the opinion that the public should be protected against secondhand smoke was related to having a car smoking ban (Table 1). Twenty-one percent of smokers stated that they always prohibited smoking in their cars, compared to 84.1% of never smokers and 70.5% ($p < .001$) of former smokers.

### Multivariate Analysis

**Home smoking bans.** Multivariate analyses revealed that older respondents were generally less likely to implement home smoking bans than younger respondents (Table 2). African Americans who were married had nearly 3.0 times the odds (95% CI=1.76–4.73) of strictly forbidding smoking in the home than single/never-married individuals. Living in the West (OR=2.57, CI=1.25–5.30) was significantly associated with never allowing smoking in the home compared to residents in the Tobacco South. Households with three or more children were more likely (OR=1.84, CI=1.04–3.26) to have a ban than those with no children aged <18 years. Having more close friends who smoked significantly decreased the likelihood of never allowing smoking in the home ($p < 0.001$). Respondents who agreed that the public should be protected from secondhand smoke were significantly more likely (OR=2.69, CI=1.36–5.34) to never allow smoking in their homes than those who disagreed with this viewpoint. Those who indicated that it was "somewhat easy" for minors to buy cigarettes were significantly less likely (OR=0.55, CI=0.34–0.89) than individuals who stated "very easy" to never allow smoking in the home. Ever smokers (former or current smokers) were significantly less likely than lifetime abstainers to have imposed a complete home ban on smoking ($p < 0.001$).

**Car smoking bans.** Significant predictors of never allowing smoking in the car were number of children aged <18 who lived in the home ($p < 0.01$), proportion of close friends who smoked ($p < 0.01$), agreeing that it is necessary to protect the public against secondhand smoke ($p = 0.05$), and smoking status ($p < 0.001$). Adults aged between 25 and 34 years were less likely (OR=0.48, CI=.25–.91) to impose car smoking bans when compared to the youngest age group of 18 to 24 years.

**Table 1.** Sample characteristics and personal space smoking restrictions

| | Sociodemographic variables | | Never allow smoking in home (%) | Never allow smoking in car (%) |
|---|---|---|---|---|
| | N/n | Weighted % | | |
| **Total** | 1000[a] | | 62.0 | 70.4 |
| **Age (years)** | | | | |
| 18–24 | 161 | 17.0 | **65.4**** | **79.8*** |
| 25–34 | 183 | 22.7 | 67.3 | 70.6 |
| 35–44 | 203 | 22.1 | 56.9 | 68.4 |
| ≥45 | 404 | 38.1 | 53.4 | 65.3 |
| **Gender** | | | | |
| Male | 331 | 45.5 | 56.8 | **65.5**** |
| Female | 669 | 54.5 | 62.9 | 73.8 |
| **Education** | | | | |
| <High school degree | 170 | 17.8 | **56.4**** | 65.1 |
| High school degree | 294 | 30.0 | 59.9 | 70.6 |
| Some college | 298 | 29.8 | 54.3 | 68.6 |
| College or advanced degree | 223 | 22.4 | 70.4 | 74.7 |
| **Marital status** | | | | |
| Single/never married | 424 | 45.2 | **55.7***** | 72.6 |
| Married | 311 | 32.3 | 69.2 | 69.3 |
| Separated/divorced/widowed | 234 | 22.5 | 53.7 | 64.1 |
| **Region** | | | | |
| Tobacco South | 301 | 29.8 | **59.4***** | **69.4*** |
| Northeast | 201 | 19.8 | 64.9 | 76.5 |
| Midwest | 202 | 20.6 | 48.9 | 63.4 |
| West | 94 | 9.3 | 73.6 | 79.1 |
| Nontobacco South | 202 | 20.4 | 61.5 | 67.6 |
| **Home ownership** | | | | |
| Own | 526 | 53.7 | **63.7*** | 71.4 |
| Rent | 431 | 46.3 | 55.6 | 67.9 |
| **Number of children in home** | | | | |
| None | 507 | 51.9 | **55.4*** | 68.9 |
| 1 or 2 | 350 | 34.2 | 64.7 | 69.4 |
| 3 or more | 138 | 13.9 | 65.1 | 74.3 |
| **Number of closest friends that smoke** | | | | |
| None | 284 | 26.8 | **80.5***** | **85.2***** |
| A few | 432 | 44.2 | 59.1 | 67.4 |
| About half or more | 274 | 29.0 | 41.7 | 58.4 |
| **Ease with which minors can buy cigarettes in community in which you live** | | | | |
| Very easy | 391 | 41.9 | 64.6 | **74.2*** |
| Somewhat easy | 156 | 17.8 | 58.8 | 68.3 |
| Somewhat difficult | 176 | 20.2 | 57.4 | 69.0 |
| Very difficult | 188 | 20.0 | 52.9 | 61.6 |
| **Greater enforcement of the law is needed to prevent youth under age 18 from buying cigarettes** | | | | |
| Agree | 899 | 92.8 | 61.3 | **71.6*** |
| Disagree | 64 | 7.2 | 52.2 | 59.9 |
| **The public should be protected against second hand smoke** | | | | |
| Agree | 890 | 91.9 | **63.6***** | **73.5***** |
| Disagree | 72 | 8.1 | 31.8 | 39.7 |
| **Smoking status** | | | | |
| Nonsmoker | 632 | 62.8 | **74.2***** | **84.1***** |
| Former smoker | 172 | 17.3 | 59.3 | 70.5 |
| Current smoker | 194 | 20.0 | 16.7 | 21.4 |
| **Number of cigarettes smoked per day** | | | | |
| 10 | 211 | 212.0 | 39.9 | 49.3 |
| >10 | 131 | 134.5 | 27.5 | 36.7 |

The $p$ value is associated with a $\chi^2$ test comparing the percentages for each variable separately. Regions are defined as Northeast (New York, New Jersey, Pennsylvania, Washington, DC, Maryland); Midwest (Illinois, Missouri, Michigan, Ohio); West (California); tobacco South (North Carolina, South Carolina, Tennessee, Virginia, Georgia); and nontobacco South (Alabama, Louisiana, Texas, Mississippi, Florida).
*$p$ <0.05 (bolded).
**$p$ <0.01 (bolded).
***$p$ <0.001 (bolded).
[a]Unweighted sample size.

**Table 2.** Multivariate logistic regression model of never allowing smoking in homes or cars

| | Home restriction<br>n = 777<br>OR (95% CI) | Car restriction<br>n = 730<br>OR (95% CI) |
|---|---|---|
| **Age (years)** | | |
| 18–24 | 1.00 | 1.00 |
| 25–34 | 0.87 (0.50–1.50) | 0.48 (0.25–0.91) |
| 35–44 | 0.54 (0.29–0.98) | 0.67 (0.33–1.39) |
| ≥45 | 0.47 (0.24–0.91) | 0.69 (0.32–1.49) |
| **Gender** | | |
| Male | 1.00 | 1.00 |
| Female | 0.95 (0.65–1.36) | 1.03 (0.69–1.55) |
| **Education** | | |
| <High school degree | 1.0 | 1.00 |
| High school degree | 0.82 (0.49–1.39) | 0.96 (0.52–1.79) |
| Some college | 0.75 (0.44–1.26) | 1.01 (0.55–1.87) |
| College degree | 1.22 (0.67–2.22) | 0.91 (0.46–1.79) |
| **Marital status** | | |
| Single, never married | **1.00***** | 1.00 |
| Married | 2.89 (1.76–4.73) | 1.01 (0.60–1.70) |
| Separated/divorced/widowed | 1.79 (1.03–3.10) | 0.86 (0.46–1.59) |
| **Region** | | |
| Tobacco South | **1.00*** | 1.00 |
| Midwest | 0.75 (0.46–1.22) | 0.84 (0.49–1.44) |
| Northeast | 1.47 (0.87–2.47) | 1.86 (0.99–3.52) |
| West | 2.57 (1.25–5.30) | 1.47 (0.67–3.19) |
| Nontobacco South | 1.17 (0.72–1.90) | 0.75 (0.44–1.28) |
| **Home ownership** | | |
| Own | 1.00 | 1.00 |
| Rent | 0.93 (0.63–1.36) | 0.86 (0.56–1.32) |
| **Number of children in home** | | |
| None | 1.00 | 1.00** |
| 1 or 2 children | 1.42 (0.94–2.14) | 0.70 (0.44–1.11) |
| 3 or more children | 1.84 (1.04–3.26) | 1.94 (0.99–3.79) |
| **Number of closest friends that smoke** | | |
| None | **1.00***** | **1.00*** |
| A few | 0.45 (0.28–0.73) | 0.46 (0.27–0.79) |
| About half or more | 0.28 (0.16–0.47) | 0.52 (0.28–0.96) |
| **Ease with which minors can buy cigarettes in community in which you live** | | |
| Very easy | 1.00 | 1.00 |
| Somewhat easy | 0.55 (0.34–0.89) | 0.51 (0.30–0.88) |
| Somewhat difficult | 0.71 (0.44–1.14) | 0.91 (0.53–1.56) |
| Very difficult | 0.80 (0.48–1.31) | 0.86 (0.50–1.50) |
| **Public should be protected against second/hand smoke** | | |
| Disagree | **1.00**** | **1.00*** |
| Agree | 2.69 (1.36–5.34) | 2.20 (1.08–4.46) |
| **Greater enforcement of law is needed to prevent youth under age 18 from buying cigarettes?** | | |
| Agree | 1.00 | 1.00 |
| Disagree | 0.73 (0.36–1.49) | 0.53 (0.25–1.13) |
| **Smoking status** | | |
| Nonsmoker | **1.00***** | **1.00***** |
| Former smoker | 0.59 (0.36–0.96) | 0.47 (0.27–0.81) |
| Current smoker | 0.11 (0.07–0.18) | 0.06 (0.03–0.10) |

Notes: The $p$ values are associated with the significance of each independent variable in this model. Contrasts between the reference category and each level of the independent variable are significant based on the 95% CI. All listed independent variables were included in the model.
*$p$ <0.05 (bolded).
**$p$ <0.01 (bolded).
***$p$ <0.001 (bolded).
CI, confidence interval; OR, odds ratio.

**Current smokers only.** In truncated multiple logistical regression models of current smokers only (Table 3), the likelihood of never allowing smoking in homes ($n =$159) and cars ($n =$137) was examined. Some variables were deleted due to multicollinearity (i.e., marital status, region, minors' access, enforcement of laws).

**Table 3.** Multivariate logistic regression model of never allowing smoking in homes or cars current smokers only

| | Home restriction<br>n = 159<br>OR (95% CI) | Car restriction<br>n = 137<br>OR (95% CI) |
|---|---|---|
| **Age (years)** | | |
| 18–24 | 1.00 | 1.00 |
| 25–34 | 0.92 (0.20–4.19) | 0.64 (0.15–2.67) |
| 35–44 | 0.47 (0.09–2.39) | 0.42 (0.09–1.93) |
| 45–54 | 0.45 (0.09–2.38) | 0.58 (0.13–2.63) |
| ≥55 | 0.72 (0.12–4.16) | 1.03 (0.22–4.89) |
| **Gender** | | |
| Male | 1.00 | 1.00 |
| Female | 0.45 (0.17–1.21) | 1.13 (0.44–2.89) |
| **Education** | | |
| <High school degree | 1.0 | 1.00 |
| High school degree | 0.87 (0.21–3.57) | 1.34 (0.35–5.08) |
| Some college | 1.55 (0.42–5.69) | 0.98 (0.26–3.69) |
| College degree | 0.43 (0.06–3.01) | 0.55 (0.09–3.43) |
| **Home ownership** | | |
| Own | 1.00 | 1.00 |
| Rent | 1.28 (0.49–3.35) | 0.79 (0.32–1.95) |
| **Number of children in home** | | |
| None | **1.00*** | 1.00 |
| 1 or more children | 2.85 (1.03–7.91) | 1.08 (0.44–2.66) |
| **Number of closest friends that smoke** | | |
| None/few | 1.00 | 1.00 |
| Half or more | 0.47 (0.17–1.29) | 1.74 (0.67–4.52) |
| **Number of cigarettes smoked per day** | | |
| ≤10 | 1.00 | 1.00 |
| >10 | 0.44 (0.14–1.35) | 0.36 (0.12–1.06) |
| **Public should be protected against second/hand smoke** | | |
| Agree | 2.28 (0.52–10.01) | 3.19 (0.70–14.49) |
| Disagree | 1.00 | 1.00 |

Notes: The $p$ values are associated with the significance of each independent variable in this model. Contrasts between the reference category and each level of the independent variable are significant based on the 95% CI. All listed independent variables were included in the model.
*$p$ <0.05 (bolded).
CI, confidence interval; OR, odds ratio.

For example, marital status was deleted as it was highly correlated with the number of children aged <18. The ease by which minors can buy tobacco products in respondent communities, and the need for greater enforcement of laws to prevent underage purchase of cigarettes, were strongly related to the view that the public should be protected against secondhand smoke. Other variables were collapsed to reduce large confidence intervals (i.e., age, education, number of children, friends who smoke). None of the predictors in the home smoking restriction model were statistically significant ($p$ >0.05), except the number of children at home aged <18. Of interest, smokers with children at home aged <18 had an OR of 2.85 (95% CI=1.03–7.91) of never allowing smoking in the home compared to those who did not have any children aged <18 living at home. The car restriction model consisting of smokers only did not have any significant predictors.

## Discussion

We believe that this is the first published study based on a nationally dispersed random sample, of the opinions and practices of African Americans regarding both home and car smoking bans. It was found that the prevalence of a complete (never allowing) smoking ban was 62.0% and 70.4% for homes and cars, respectively. Differences between these findings and those of previous studies may be partly the result of changes that have taken place in the attitudes and practices of African Americans within the last decade regarding the dangers associated with ETS and the importance of going beyond "common courtesy"[6] to restrict smoking in one's personal space. Moreover, results from other studies were limited to a particular state or certain cities, and thus are less representative nationally of African Americans than the present results.

Similar to past research, attitudes and practices toward personal space smoking restrictions differed significantly by smoking status,[4,5,18] suggesting that those who are most likely to expose others to smoke (e.g., heavier smokers, those with many friends who smoke) are also less likely to ban smoking. These findings are similar to other studies showing that smokers with children were far more likely to have instituted a complete home smoking ban compared to those with-

out children aged <18. One study found that 38% of inner-city smokers restricted home smoking, and the proportion increased to 52% among smokers with children,[4] suggesting that smokers are likely influenced by other factors regarding their decision to implement a personal space smoking restriction in the home.

Multivariate analysis revealed that residing in the West, being married, nonsmoker status, having fewer close friends who smoked, and believing that the public should be protected against secondhand smoke were statistically significant covariates of never permitting smoking in the home. Predictors of a complete car smoking ban were age (25 to 34), number of children in household aged <18, number of friends who smoked, attitude toward protecting the public against secondhand smoke, and smoking status. Except for marital status, both the bivariate and multivariate trends were fairly consistent, indicating that predictor confounding was mild, and did not strongly influence the bivariate results.

Why was marital status strongly related to a ban on smoking in homes but not in cars? Smoking in homes compared to cars can be more easily restricted to certain rooms or occasional external displacement, thereby reducing the exposure to a nonsmoking spouse or children. Greater independence and control may be exercised in cars as opposed to homes, as married individuals are likely to have their own automobiles, and therefore are able to implement a ban without a need to consider the preferences of others. For example, the 2000 National Household Travel Survey revealed that 74% of married African-American households and 60% of those with two African-American adults have at least two separate vehicles.[19] Consequently, smoking restrictions would likely vary depending on the preference or addiction status of the primary driver.

Social conventions governing the introduction of personal space smoking restriction in homes and cars are fairly recent, and may require a certain degree of cultural deftness to impose a smoking ban without appearing discourteous or as a social imposition. Additional research is needed to understand the cultural nuances promoting the diffusion of personal space smoking restrictions among African Americans. It is hypothesized that social innovations that are consistent with or easily adaptable to existing African-American social norms covering social politeness, nonthreatening or demeaning behaviors, hospitality, and social networks are more likely to be adopted. Some evidence exists which indicates that African-American nonsmokers may be more likely than Caucasian nonsmokers to request that people abstain from smoking in their presence.[20]

With respect to study limitations, some caution must be exercised in interpreting these results as nationally representative of all African-American adults because

---

**What This Study Adds . . .**

There exists a paucity of information about the viewpoints and practices of African Americans and other minorities about environmental tobacco smoke (ETS).

This article contributes to our understanding of the within-group behavior of African Americans to prevent ETS in homes and automobiles.

This nationally based survey suggests that a substantial segment of African Americans have placed recommendations about ETS into practice.

However, strategies are needed to reach individuals and families whose ETS exposure continues.

---

this sample did not cover geographic areas lacking African-American congressional representatives. However, 68% of all African-American adults reside in the 37 congressional districts from which the district sample was randomly selected. Another possible limitation of this analysis is that some variables have not been used in previous research, and any additional items to test for convergent or discriminant validity were not included.

Similar to other telephone surveys, certain households will be missed due to the lack of telephones. Proportionally, these residences are more likely to be of lower socioeconomic status, and include more smokers and probably fewer smoking bans. In addition, the data on personal space smoking restrictions were based on self-report information. Future questions about personal space smoking restriction should also clarify that the ban refers to the individual smoker as well as others. It is possible that some smokers might interpret the ban to apply to others and not themselves, and thereby inflate the rates of compliance.

For many persons living in urban settings, the importance of ETS takes on added significance as environmental pollution and industrial hazards may exacerbate the effects of the lack of personal space smoking restrictions.[21–23] In this regard, public policy initiatives to establish and enforce ETS restrictions is a crucial aspect of promoting smoke-free environments, especially among populations in which tobacco-related health disparities are greatest.

No financial conflict of interest was reported by the authors of this paper.

## References

1. U.S. Department of Health and Human Services. The report of the Environmental Protection Agency: respiratory health effects of passive smoking—lung cancer and other disorders. Washington DC: U.S. Department of Health and Human Services, 1993 (Smoking and tobacco control monogram 4, NIH publication 933605).
2. U.S. Department of Health and Human Services. Reducing tobacco use: the 2000 report of the U.S. Surgeon General. Atlanta GA: Centers for Disease Control and Prevention, 2000.
3. Gehrman CA, Hovell MF. Protecting children from environmental tobacco smoke (ETS) exposure: a critical review. Nicotine Tob Res 2003;5:289–301.
4. Okah FA, Choi WS, Okuyemi KS, Ahluwalia JS. Effect of children on home smoking restriction by inner-city smokers. Pediatrics 2002;109:244–9.
5. Charlton A. Children and passive smoking—a review. J Fam Pract 1994; 38:267–77.
6. Davis RM, Boyd GM, Schoenborn CA. "Common courtesy" and the elimination of passive smoking: results of the 1987 National Health Interview Survey. JAMA 1990;263:2208–2210(erratum, JAMA 1990;263:3025).
7. Ducatman AM, McLellan RK. Epidemiologic basis for an occupational and environmental policy on environmental tobacco smoke. J Occup Environ Med 2000;42:1137–41.
8. Ashley MJ, Cohen J, Ferrence R, et al. Smoking in the home: changing attitudes and current practices. Am J Public Health 1998;88:797–800.
9. Koepe D, Flay BR, Johnson CA. Health behaviors in minority families: the case of cigarette smoking. Fam Community Health 1990;13:35–43.
10. Gilpin EA, White MM, Farkas AJ, Pierce JP. Home smoking restrictions: which smokers have them and how they are associated with smoking behavior. Nicotine Tob Res 1999;1:153–62.
11. Brownson RC, Jackson-Thompson J, Wilkerson JC, Davis JR, Owens NW, Fisher Jr. EB Demographic and socioeconomic differences in beliefs about the health effects of smoking. Am J Public Health 1992;82: 99–103.
12. Norman GJ, Ribisl KM, Howard-Pitney B, Howard KA. Smoking bans in the home and car: do those who really need them have them? Prev Med 1999;29:581–9.
13. King G, Mallett R, Kozlowski L, Bendel RB. African American attitudes toward cigarette excise taxes. Am J Public Health 2003;93:828–34.
14. Pavlik VN, Hyman DJ, Vallbona C, et al. Response rates to random digit dialing for recruiting participants to an onsite health study. Public Health Rep 1996;111:444–50.
15. Allen B, Bastani R, Bazargan S, Leonard E. Assessing screening mammography utilization in an urban area. J Natl Med Assoc 2002;94:5–1.
16. Agresti A. Categorical data analysis. 2nd ed. New York: John Wiley and Sons, 2002.
17. Hosmer DW, Lemeshow S. Applied logistic regression. 2nd ed. New York: John Wiley and Sons, 2000.
18. Biener L, Cullen D, Zhu XD, Hammond KS. Household smoking restrictions and adolescents exposure to environmental tobacco smoke. Prev Med 1997;26:358–63.
19. Center for Transportation Analysis, Oak Ridge National Laboratory. National Household Travel Survey 2000. Available at: http://nhts.ornl.gov/2001/index.shtml. Accessed March 15, 2004.
20. Brownson RC, Davis JR, Wikerson JC, Jackson-Thompson J. Predictors of individual action to reduce exposure to environmental tobacco smoke. Tob Control 1994;3:216–21.
21. Litt JS, Tran NL, Burke TA. Examining urban brown fields through the public "macroscope". Environ Health Perspect 2002;110:183–93.
22. Johnson BL, Coulberson SL. Environmental epidemiologic issues and minority health. Ann Epidemiol 1993;3:175–80.
23. Brown P. Race, class, and environmental health: a review and systematization of the literature. Environ Res 1995;69:5–30.