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Variations in support for secondhand smoke restrictions across diverse rural regions of the United States

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ABSTRACT

Significant disparities exist between rural-urban U.S. populations. Besides higher smoking rates, rural Americans are less likely to be protected from SHS. Few studies focus across all regions, obscuring regional-level differences. This study compares support for SHS restrictions across all HHS regions. Data: 2014/15 TUS-CPS; respondents (n = 228,967): 47,805 were rural residents and 181,162 urban. We examined bi-variates across regions and urban-rural adjusted odds ratios within each. Smoking inside the home was assessed along with attitudes toward smoking in bars, casinos, playgrounds, cars, and cars with kids. Urban respondents were significantly more supportive of all SHS policies: (e.g. smoking in bars [57.9% vs. 51.4%]; support for kids in cars [94.8% vs. 92.5%]. Greatest difference between urban-rural residents was in Mid-Atlantic (bar restrictions) and Southeast (home bans): almost 10% less supportive. Logistic regression confirmed rural residents least likely, overall, to support SHS in homes (OR = 0.78, 95% CI 0.74, 0.81); in cars (OR = 0.87, 95% CI 0.79, 0.95), on playgrounds (OR = 0.88, 95% CI.83, 0.94) and in bars OR = 0.88, 95% CI 0.85, 0.92), when controlling for demographics and smoking status. South Central rural residents were significantly less likely to support SHS policies-home bans, smoking in cars with kids, on playgrounds, in bars and casinos; while Heartland rural residents were significantly more supportive of policies restricting smoking in cars, cars with kids and on playgrounds. Southeast and South Central had lowest policy score with no comprehensive state-level SHS policies. Understanding differences is important to target interventions to reduce exposure to SHS and related health disparities.

1. Introduction

It is well established that significant health disparities exist between rural and urban areas of the United States (WHO report on the global tobacco epidemic, 2017). Rural residents have higher rates of cancer, chronic diseases, and disability, as well as increased mortality rates and poorer overall health, which all contribute to their lower life expectancies (Meit et al., 2014; Polednak, 2009; Singh et al., 2011). Many factors have been implicated to account for these disparities, including lower socio-economic status, higher rates of health risk behaviors, lack of economic opportunities and geographic isolation. Rural residents are older, have less access to health care and are more likely to lack health insurance (Eberhardt and Pamuk, 2004). Adults who live in rural areas have among the highest smoking rates in the country, consume more cigarettes and use more smokeless/spit tobacco than their urban counterparts (Roberts et al., 2017; American Lung Association; Doescher et al., 2006; Roberts et al., 2016). This high rate of tobacco use is directly linked to rural populations' having worse health outcomes than those in urban areas and the country as a whole. However, rural regions are not homogeneous as they differ substantially by demographic, cultural, geographic and economic factors (Hart et al., 2005; Doogan et al., 2017). Yet no studies of rural/urban disparities in cigarette use have examined differences across all regions possibly obscuring marked regional-level differences. In addition, rural/urban differences in attitudinal support for tobacco control policies—specifically, different types of secondhand smoke (SHS) policies have received minimal attention (Pesko and Robarts, 2017; York et al., 2010; McMillen et al., 2004).

Rural areas have historically been underserved by tobacco control programs, lack access to prevention and cessation services, and are less likely to have implemented protective tobacco control policies (Doogan et al., 2017; Pesko and Robarts, 2017; York et al., 2010; McMillen et al.,

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2004; Vander Weg et al., 2011). It has been reported that rural Americans are more likely to live in homes where smoking is permitted, more likely to smoke in their cars, more likely to work in settings where smoking is permitted, more apt to shop in stores where smoking is allowed, and to dine in restaurants where smoking is allowed (Vander Weg et al., 2011; Mills et al., 2011). Thus, taking a more in-depth, geographical perspective could highlight the connections between the underlying factors that influence support for secondhand smoke (SHS) policies and help improve adoption and implementation of SHS policies.

In trying to implement SHS policies, many reasons have been asserted as to why these restrictions are necessary, including health concerns, protecting children, reducing litter and de-normalizing smoking (Bayer and Bachynski, 2013). Bans have been imposed mostly indoors—in public places, and in such establishments as worksites, bars and casinos (King et al., 2013; Tang et al., 2003). More recently, they have also been extended to such outdoor areas as parks, playgrounds and beaches (Bayer and Bachynski, 2013; Thomson et al., 2016). In addition, bans have been extended into private spaces, such as cars and multi-unit housing, and individuals have instituted home bans (Mills et al., 2011; Weisman, 2010). Outdoor smoking restrictions, as well as any restrictions in non-public settings, may be more controversial and less supported by rural residents (King et al., 2013). The difference in support for SHS restrictions in rural areas may not be due to a lack of knowledge about dangers of SHS. Differences in norms, cultural and psychological factors, more negative media coverage and even less tobacco control capacity are important factors to consider (Hartley, 2004; Hahn et al., 2013; Rentfrow et al., 2013; Stillman et al., 2006). In addition, support for smoke-free policies tends to increase after implementation and not all states have comprehensive SHS policies (Rayens et al., 2007; Hyland et al., 2009).

This study examines rural-urban disparities in attitudes toward and support of SHS restrictions, including progressive policies (e.g., home bans, outdoor restrictions); smoking in bars and casinos (establishment restrictions); and restrictions to protect children in cars and on playgrounds (kid protections) across all U.S. regions. The study objective is to gauge how support for various SHS restrictions differs between rural and urban respondents both nationwide and within each of the regions of the country. We provide estimates adjusted for demographics and smoking status as well as unadjusted estimates for each region.

2. Methods

2.1. Data

The study data are from the 2014/2015 Tobacco Use Supplement to the Current Population Survey (TUS-CPS), fielded in July 2014, January 2015, and May 2015. The TUS-CPS queries approximately 240,000 non-institutionalized current civilian U.S. adults 18 years and older, including 50 states and the District of Columbia, about their tobacco product use with demographics available from the core CPS. All respondents were asked about their attitudes toward smoking. Items from the TUS-CPS are either self-reported or provided by proxy. Households were selected based on the 2000 Census where the United States was subset into primary sampling units (PSUs), which were then grouped into strata within state. Of the total sample (n = 228,967), 47,805 were rural residents and 181,162 were urban residents.

2.2. Measures

2.2.1. Demographics

Other respondent socio-demographic characteristics in this study included: sex (male, female); age (18–24; 25–44; 45–64; 65 +); race/ethnicity (Hispanic, Non-Hispanic white, Non-Hispanic black or African-American, Non-Hispanic all other races); and family income (less than $20,000, between $20,000 and $49,999, and greater than $49,999).

2.2.2. Secondhand smoke

Respondents were first asked about smoking rules inside the homes; responses included “No one is allowed to smoke anywhere inside your home”, “Smoking is allowed in some places or at sometimes inside your home”, or “Smoking is permitted anywhere inside your home”. If one household member reported that smoking was not allowed anywhere inside the home, then all householder members were coded as disallowing smoking inside the home. Respondents were then directed to five questions that reflected the respondent's attitudes toward smoking inside various places, specifically: bars, casinos, playgrounds, cars where other people are present, and cars where children are present. All items were asked with the following response options: “Always be allowed”, “Be allowed under some conditions”, and “Never be allowed”. For all analyses, “Always be allowed” and “Be allowed under some conditions” were combined.

In addition, two composite attitude scores were created and standardized for comparison: protecting kids (cars where children are present and playgrounds), and smoking in establishments (casinos and bars). For each question, respondents who reported smoking should “always be allowed” or “be allowed under some conditions” were scored −1, respondents who reported smoking should “never be allowed” were scored as 1, and those who reported they did not know if smoking should be allowed were scored as 0. If respondents reported smoking should “never be allowed” in cars, then they were similarly scored as “never be allowed” in cars with kids. The scores were summed and divided by the number of questions to create a value ranging from −1 to 1.

2.2.3. Statewide policies

Aggregated SHS regional policy scores were created by utilizing the American Nonsmokers' Rights Foundation's analysis of 100% Smokefree Air Laws for non-hospitality workplaces, restaurants, and bars as of July 1, 2015 maps (American Non-smokers' Rights Foundation, 2015). First, each state was given a score of either 0 for states with no state-wide laws, 1 for states with 100% statewide SHS laws in one or two of the three places, or 3 for states with 100% statewide laws in all three locations. Next, scores were averaged across the region using the weighted respondent counts of the TUS to closely mirror the population from the analysis.

2.2.4. Smoking status

Current smoking, conditioned on whether the respondent reported ever smoking 100 cigarettes in his/her lifetime, was determined by response to a question whether the respondent “now smoke[s] cigarettes every day, some days, or not at all.” An indicator variable distinguished current smokers from non-smokers (former and never smokers).

2.2.5. Geography

Households are first classified as either rural (nonmetropolitan) or urban (metropolitan) using the Census TUS-CPS public use file's OMB county-level definition; the public use file does not provide the necessary information to classify respondents with another definition of rurality. Respondents are further classified into 10 HHS regions to allow for a comparison between rural regions and each rural region to the corresponding urban population. HHS regions cluster groups of states together. Region 1 (*New England*: CT, ME, MA, NH, RI, VT); Region 2 (*NY,NJ*); Region 3 (*Mid-Atlantic*: DE, DC, MD, PA, VA, WV); Region 4 (*Southeast*: AL, FL, GA, KY, MS, NC, SC, TN); Region 5 (*East North Central*: IL, IN, MI, MN, OH,WI); Region 6 (*South Central*: AR, LA, NM, OK, TX); Region 7 (Heartland: IA, KS, MO, NE); Region 8 (*North Central Mountain*: CO, MT, ND, SD, UT, WY); Region 9 (*Southwest Pacific*: AZ, CA, HI, NV); and Region 10 (*Northwest*: AK, ID, OR, WA).