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Home smoking policies in urban households with children and smokers



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ABSTRACT

Objective. We identified household, child, and demographic characteristics associated with not having a smoking ban and having a rule about smoking in the presence of children in an urban population.

 $\it Method.$ We conducted a cross-sectional random digit dial telephone survey (n = 456) of Philadelphia parents in June 2012.

Results. Forty-eight percent of homes reported a full smoking ban. In homes that allowed smoking, over half allowed smoking in front of children. Cigarettes smoked in the home decreased as the restrictiveness of the bans increased. Multinomial logistic regression analyses showed that compared to having a full ban, banning smoking only in the presence of children was associated with being African-American, having a child >5 years old, and having an asthma-free child. These characteristics, as well as having both parents as smokers and not having an outdoor space, were also associated with not having any restrictions.

Conclusion. It is possible that households attempt to reduce home smoking by limiting smoking in the presence of children. Health communication messages should be used to inform families about the lingering effects of SHS in the home even when smoking does not occur in the presence of a child.

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Introduction

As defined by the Centers for Disease Control and Prevention, secondhand smoke (SHS) is "a mixture of gases and fine particles that includes smoke from a burning cigarette, cigar, or pipe tip; smoke that has been exhaled or breathed out by the person or people smoking" (Centers for Disease Control and Prevention, 2013). As such, SHS exposure is a health hazard for children and adults (Brownson et al., 1997; Eriksen et al., 1988) and higher levels of SHS exposure are found in minority or lower socioeconomic households in urban areas (Centers for Disease Control and Prevention, 2008; Hopper and Craig, 2000). Infants and children are at particular increased risk of respiratory and other health problems when exposed to SHS (Ferrence and Ashley, 2000; Hovell et al., 2000; Kawachi, 2005), and because of this risk, intervention research has investigated methods of reducing their exposure (Emmons et al., 2001). At the household level, the focus has been on household bans or restrictions on indoor smoking (Gilpin et al., 1999; Hovell and Daniel, 2004; Sockrider et al., 2003; Spencer et al., 2005; Wewers and Uno, 2002; Yousey, 2006). Household smoking restrictions are associated with reduced exposure to SHS among children and adult non-smokers (Pizacani et al., 2003; Wakefield et al., 2000a) as well as quit attempts (Pizacani et al., 2004) and delayed smoking onset in children (Wakefield et al., 2000b).

Despite half of U.S. households with smokers and children having a full smoking ban (Mills et al., 2011), children continue to be particularly vulnerable to SHS. Smoking in the home is the greatest source of SHS exposure among children (Ashley and Ferrence, 1998) and children from urban households are typically exposed to more SHS than other children (Halterman et al., 2006; Weaver et al., 1996). For example, urban children frequently live in multi-unit housing with close proximity to their neighbors, whose smoking may put other residents at risk (Winickoff et al., 2010).

Awareness that SHS is harmful to one's health and the presence of a child in the home (Mills et al., 2011; Norman et al., 1999; Pizacani et al., 2003) are associated with having household restrictions. African-American households, households with older children, and Hispanic and white households with high smoking prevalence are less likely to have home smoking bans (Mills et al., 2011). Studies have shown that while parents have knowledge about the potentially harmful effects of SHS on children, emotional and/or financial stressors prevent the adoption of full smoking bans (Halterman et al., 2007; Halterman et al., 2010). However, partial smoking bans which allow household smoking in certain rooms or under certain circumstances are not as effective as full bans in reducing children's exposure to SHS (Wakefield et al., 2000a). To learn more about these different types of household smoking policies, we conducted a survey with urban parents who either smoke or live with a smoker to determine household, child, and demographic characteristics associated with having a full household smoking ban and having a rule about smoking in the presence of children. We also

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examined how these policies are related to the number of cigarettes smoked in the home.

Methods

A telephone survey in May/June 2012 was conducted with 456 Philadelphia parents or caregivers from homes with at least one smoker and a child 13 years or younger living in the home. We focused on families with children 13 years old and younger because younger children are more vulnerable to SHS (see Ashley and Ferrence, 1998). The sample was randomly drawn from a list of households in Philadelphia County identified as including a child under the age of 13 (n = 217) and through a random digit dialing (RDD) sample drawn from phone numbers with Philadelphia County telephone exchanges from predominantly low-income sections of the city (n = 123). We drew from low-income exchanges specifically because tobacco use is higher in lower socioeconomic groups (Hill et al., 2013). In addition, a random sample was drawn from a pool of respondents who completed a RDD survey of Philadelphia County smokers between 2010 and 2012 and who indicated the presence of a child in their household (n = 116). The combination of approaches was necessary because of the low incidence of the target population. The response rate for this study was 25.3%; the average survey length was 18 min. Unless otherwise noted, all results in this report are weighted. *The study was approved by the institutional review boards at the University of Pennsylvania and the Philadelphia Department of Public Health.

Measures

Smoking policies in the home

Two questions on the survey asked about home smoking rules. The first was: Which of the following best describes your household's rules about smoking? (a) Smoking is allowed in all parts of the home (no ban), (b) Smoking is allowed in some parts of the home (partial ban), and (c) Smoking is not allowed in any part of the home (full ban). A small number of respondents (n=6, unweighted) answered that there were no smoking rules, and these were classified as response (a). If respondents indicated having either no ban or a partial ban, they were asked a second item asked about smoking in the presence of children: In your home, is smoking in the presence of children: In your home, is smoking in the presence of children always allowed, sometimes allowed, or never allowed? If the respondent stated that there was no household rule about smoking in the presence of children (n=8, unweighted), the item was coded as "always allowed".

From these two items we created a new variable to reflect the combined presence of these rules to indicate a child's level of protection from SHS. Based on their distribution, the variable had three categories: (1) full smoking ban, (2) no smoking in the presence of children (in the absence of a full ban), and (3) no ban/smoking allowed in the presence of children.

Child and household characteristics

The independent variables included the presence of a child in the home that was <5 years old and if the child in the home had ever been diagnosed with asthma. We also measured household characteristics such as the number of smokers in the household, the number of rooms in the home, access to a private outdoor space (e.g., a balcony, patio), and the relationship of the smoker(s) in the home to the child (mother, father, both, or other). For smokers who reported that they

smoked at least 100 cigarettes in their lifetime *and* smoked at any time during the past 30 days, we asked how many cigarettes they smoked on a typical day [M: 9.8 cigarettes, 95% CI: 8.8–10.7]. Note that to reduce respondent bias, the smoking self-reports were collected before the information on the two types of household smoking restrictions.

Additional covariates

Other covariates were exposure to ads on television or radio about SHS in the last month (never, rarely, sometimes, often) as well as how many of their friends were smokers (none, only some, more than half, or all of them). Knowledge about the effects of SHS was measured using a 4-item scale with responses from 1 to 5 (strongly disagree to strongly agree). The items were "SHS is a cause of": lung cancer in a non-smoker; asthma in children; low birth weight in babies; ear infections in children and babies. Prior to answering these knowledge items, respondents were given the following definition of SHS: "By secondhand smoke we mean smoke from cigarettes or other tobacco products that could be inhaled by people who are not smoking." Standard demographic data were also collected.

Statistical analysis

Descriptive analyses were conducted on all variables to determine the prevalence of relevant child, household, and demographic characteristics as well as the home smoking policies. We created bar graphs to illustrate the mean number of cigarettes smoked in the home by the type of household smoking ban. Multinomial logistic regression was used to identify correlates of having a child-ban and not allowing smoking in the presence of children. For the odds ratios, the referent category was those parents with a *full ban*, which we compared to those homes that either (1) banned smoking in the presence of children, or (2) that had no ban on smoking. All analyses were weighted and were conducted using Stata 11.0.

Results

Sample

The child, household, and demographic characteristics of the respondents are shown in Table 1. The sample was largely African-American and female. Fifty percent of the caregiving respondents were mothers, 18.4% fathers, 26.1% grandparents, and the remaining 5.6% were another relative (e.g., a sibling). In general, knowledge about the effects of SHS was high especially regarding its role in lung cancer in non-smokers and asthma in children (Table 1).

Household smoking policies

About 48% (47.9%) of households reported a full ban which prohibited smoking in any part of the home. In contrast, 10% of households allowed smoking in all parts of the home and 42.1% allowed smoking in some parts of the home. Of those homes without a full ban (n=212), 45.8% reported that smoking in the presence of children was never allowed, 43.6% reported it was sometimes allowed, and 10.7% stated it was always allowed.

The cross-tabulation of these two items regarding smoking in the home (Table 2) indicates that the major difference between the two rules was attributable to households in which smoking was only allowed in some parts of the home. About 24% of households reported never allowing smoking in the presence of children but still allowed smoking somewhere in the home. Thus, the combination of these two policies was as follows: full smoking ban (47.9%), no smoking in the presence of children in the absence of a full ban (24.1%), and smoking allowed in the presence of children (28%).

^{*} The sample was weighted to (1) adjust for bias stemming from the propensity to complete a second survey in households re-contacted based on responses to the previous smoking survey; (2) adjust for differences in the probability of selection between listed households and the RDD sampling frame; (3) correct for the oversampling of low-income exchanges; and (4) balance the sample to known household estimates in Philadelphia County and households of smokers with children.

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