

Environmental Tobacco Smoke: Public Perception of Risks of Exposing Children to Second- and Third-Hand Tobacco Smoke

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ABSTRACT

Introduction: Extensive evidence exists regarding health risks posed by children's exposure to second-hand smoke, and there is increasing evidence concerning the risks of third-hand smoke. This evidence is most meaningful if the public is aware of these risks and can help curb childhood exposure.

Methods: Participants were selected at an academic medical center and asked to complete a survey. Responses were compared based on respondents' smoking status and the presence or absence of children in their homes.

Results: A total of 310 adults responded. Nonsmokers and respondents living with children were more likely to see smoking in the home as affecting all the queried health problems ($p < .05$). Knowledge of the risks of second-hand smoke exposure is limited, and very few respondents perceived risk from third-hand smoke exposure.

Discussion: The widespread lack of awareness of the risks associated with environmental tobacco smoke must be addressed to curb childhood exposure. *J Pediatr Health Care.* (2016) ■, ■-■.

KEY WORDS

Environmental tobacco smoke, pediatrics, secondhand smoke, third-hand smoke, tobacco control, public health

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Conflicts of interest: None to report.

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INTRODUCTION

There is an abundance of evidence describing the impact that environmental tobacco smoke (ETS) can have on children's health. Many of the harmful effects of ETS include respiratory symptoms, such as increasing the incidence of coughing, asthma, and both upper and lower respiratory tract infections (American Academy of Pediatrics Committee on Substance Abuse, 1994; American Academy of Pediatrics Committee on Environmental Health, 1997; Cook & Strachan, 1999; U.S. Department of Health and Human Services, 2014; Johansson, Halling, & Hermansson, 2003; Li, Peat, Xuan, & Berry, 1999), as well as increasing the severity of childhood pneumonia (Ahn et al., 2015). Exposure

to ETS can also lead to numerous disorders of the ear, nose, and throat such as otitis media (Adair-Bischoff & Sauve, 1998; U.S. Department of Health and Human Services, 2014; Ilicali, Keles, Deger, & Savas, 1999; Jones, Hassanien, Cook, Britton, & Leonardi-Bee, 2012), sensorineural hearing loss (Lalwani, Liu, & Weitzman, 2011; Talaat, Metwaly, Khafagy, & Abdelraouf, 2014), and tonsillitis (Straight, Patel, Lehman, & Carr, 2015). ETS exposure increases the incidence of childhood obesity (Apfelbacher et al., 2008; Mangrio, Lindstrom, & Rosvall, 2010; Moore et al., 2016; Raum et al., 2011), and it can also lead to poor childhood growth as measured by height (Muraro et al., 2014). ETS exposure can also increase the incidence of sleep-disordered breathing (Jara, Benke, Lin, & Ishman, 2015). This is not meant to be a comprehensive list of the risks of ETS exposure; rather, it is meant to give a sense of the extensive health consequences associated with ETS exposure. Although there is a large body of evidence substantiating the harmful effects of ETS on children's health, this evidence would have a greater impact if the public were aware of these risks.

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Previous studies have shown that awareness of the risks of ETS exposure can lead to the implementation of smoking bans in cars and homes (Drehmer et al., 2014; Winickoff et al., 2009).

The present study was designed to evaluate the general population's risk perception of the dangers that ETS exposure poses to children, including an analysis of the risk perceptions for exposure to both second-hand tobacco smoke (SHS), which is exposure to smoke because of proximity to a person who is actively smoking, and third-hand tobacco smoke (THS), which is exposure to compounds that remain in the air and on surfaces such as furniture and clothing after someone has finished smoking rather than exposure to the smoke itself. This study was also designed to assess how these risk perceptions differ between cohorts based on present and past smoking habits and the presence or absence of individuals under the age of 18 years living in respondents' homes.

METHODS

After approval by the institutional review board, data were collected through the use of written surveys, which were randomly distributed to adults in an otolar-

ingology–head and surgery clinic at an academic medical center. These surveys were distributed between June 11, 2012, and August 6, 2012. Potential participants were approached in the clinic by a member of the research team and offered a survey to complete while they waited. The participants included patients, parents of patients, and accompanying family members or friends who were at least 18 years of age. Only one respondent per family group was solicited. Because of lack of foreign language interpreters, participants were required to be able to communicate using either spoken or written English to complete the surveys, and the surveys were administered verbally upon request.

The survey questions were presented in a scenario format to represent situations of both SHS and THS exposures (the survey questions are available as supplementary material at <http://dx.doi.org/10.1016/j.pedhc.2016.08.008>). Participants were asked whether they believed that these ETS exposures could be related to the progression of asthma, poor growth, obesity, frequent colds, pneumonia, ear infections, hearing loss, tonsillitis, and snoring in exposed children. These scenarios included the following:

- A person habitually smokes in the same room/car as a child. Could this person's smoking be related to the following in the child? (asthma, poor growth, obesity, frequent colds, pneumonia, ear infections, hearing loss, tonsillitis, and snoring)
- A person habitually smokes in a DIFFERENT room in the same home as a child. Could this person's smoking be related to the following in the child? (asthma, poor growth, obesity, frequent colds, pneumonia, ear infections, hearing loss, tonsillitis, and snoring)
- A person habitually smokes OUTSIDE the home where this person and a child live. Could this person's smoking be related to the following in the child? (asthma, poor growth, obesity, frequent colds, pneumonia, ear infections, hearing loss, tonsillitis, and snoring)

Respondents were able to answer *yes*, *no*, or *don't know* for each of these questions. Respondents were asked to evaluate the association between ETS exposure and each of these conditions individually as opposed to grouping the conditions for each scenario (e.g., respondents could answer that asthma and frequent colds were related to the smoke exposure in one of the ETS exposure scenarios but also answer that obesity and ear infections were not related to the ETS exposure in that particular scenario).

There were also questions to assess participants' current and past smoking habits, risk perception of the effects of firsthand tobacco smoke on the smoker's health, and the presence or absence of individuals under the age of 18 years living in their homes. There were no identifiers on the questionnaire, so there was no tracking of who had completed the survey. Individuals were not compensated for their participation in this study.

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