Safety and Health at Work xxx (2017) 1–5

Contents lists available at ScienceDirect

Safety and Health at Work

journal homepage: www.e-shaw.org

Short Communication

Prevalence and Correlates of Current and Former Smoking among Urban Transit Workers

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ARTICLE INFO

Article history:
Received 23 December 2015
Received in revised form
22 February 2016
Accepted 13 December 2016
Available online xxx

Keywords:
blue-collar workers
health disparities
smoking

ABSTRACT

Transit workers constitute a blue-collar occupational group that have elevated smoking rates relative to other sectors of employed adults in the United States. This study analyzed cross-sectional tobacco survey data from 935 workers (60% African American; 37% female) employed at an urban public transit agency in California. Prevalence of current and former smoking was 20.3% and 20.6%, respectively. Younger workers were less likely than older workers to be current or former smokers. Having a complete home smoking ban was associated with decreased likelihood of being a smoker [odds ratio (OR) = 0.04, 95% confidence interval (CI) = 0.01–0.17], as were neutral views about whether it is easy for a smoker to take a smoking break during their shift (OR = 0.50, 95% CI 0.28–0.88). Current smoking among the sample is > 50% higher than the adult statewide prevalence. Potential points of intervention identified in this study include perceived ease of worksite smoking breaks and establishing home smoking bans. Tailored cessation efforts focusing on older transit workers more likely to smoke are needed to reduce tobacco-related disparities in this workforce.

1. Introduction

Smoking-related disparities persist among many blue-collar occupational groups [1,2]. Transit workers constitute a blue-collar occupational group that have elevated rates of smoking relative to other sectors of employed adults in the United States. For example, data from the 2004–2012 National Health Interview Survey show that age-adjusted smoking prevalence among workers classified in the transportation and material moving occupational group is 27.8%. In contrast, smoking prevalence among workers in the education, training, and library occupational group is 8.4% [2]. These disparities remained after adjustment for race/ethnicity, education, and income [3]. Additionally, studies from two geographically distinct locations indicate that the prevalence of current smoking among transit workers exceeds statewide adult smoking prevalence. One study, conducted among a sample of transit workers employed in the Minneapolis–St. Paul area, found that 25.4% were current smokers [4]; at the time of the study, smoking prevalence among Minnesota adults was ~18% [5]. Similarly, 26.6% of transit workers who participated in the 1993–1995 San Francisco Municipal Railway (MUNI) Study were current smokers [6], yet smoking prevalence among Californian adults during the study period ranged from 17% to 19% [7]. In order to capture the baseline of smoking prevalence prior to implementing a concerted intervention aimed at reducing the number of transit works who smoke, the purpose of this study was to estimate the prevalence and correlates of current and former smoking among a diverse sample of workers employed at an urban public transit agency in California. We hypothesized that the prevalence of current smoking would be elevated in comparison to the adult statewide prevalence.

Previous research suggests that sociodemographic and employment-related factors may contribute to increased risk for tobacco-related disparities. For example, among working adults in the 2004–2010 National Health Interview Survey, female smokers were more likely to have adverse health outcomes than male smokers [3]. Given the increasing number of women employed as transit workers, a key research question is to determine whether gender is associated with smoking status. Moreover, African Americans experience excessive rates of tobacco-related health consequences, such as lung cancer, compared to other racial/ethnic groups [8]. Because African Americans constitute one-quarter of those employed as bus drivers in the United States [9], it is imperative to consider the role of race/ethnicity *vis-à-vis* smoking within this

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2093-7911/$ – see front matter
http://dx.doi.org/10.1016/j.shaw.2016.12.005

occupational group. Regarding employment-related factors, there is research evidence that employees subject to nonstandard work schedules (e.g., afternoon, night, rotating, or split shift) are more likely to smoke compared to those on a standard (day) schedule [10]. This is particularly salient for workers employed at public transit agencies that strive to provide service to passengers around the clock. We hypothesized that transit workers who usually work nonstandard shifts would be more likely to smoke than those on standard (day shift) schedules. Workplace smoking policy is another employment-related factor that could be associated with smoking status, but may vary among occupational groups. For example, in an analysis of employed women stratified by race/ethnicity, Shavers et al found that those who reported a no smoking in work area policy were significantly less likely to be current smokers compared to those whose workplace had no official smoking policy, but only among non-Hispanic whites [11]. Okechukwu and colleagues, however, found no association between workplace smoking policy and smoking at baseline or follow-up among a national sample of blue-collar workers [12]. In the context of a workplace-smoking ban, the ability of a smoker to take a break during their shift in order to smoke a cigarette may take on a sense of urgency [13]. This could pose a particular challenge for bus operators who are under time pressure to maintain the schedule in the face of traffic congestion, and do not have regularly scheduled breaks for eating, restroom use, or smoking [14]. We hypothesized that perceived ease of taking a smoking break would be positively associated with smoking status among transit workers. These research questions were driven by the goal of ensuring that we can measure the impact of an intervention informed by the research findings.

2. Materials and methods

2.1. Procedures

Data for this project were collected as part of a mixed-methods study at an Oakland, California-based public transit agency aimed at identifying perceived and structural barriers to transit workers' participation in health-insurance-sponsored cessation treatment. As a formative part of the research, focus groups were conducted among current and former smokers; results on barriers to treatment such as inaccessibility of classes [14] and perceptions that medication assisted therapy bears excessive risks for this population [15] are reported elsewhere. At the outset of the project, the researchers established a Union–Management Advisory Group with transit agency managers and transit union officers in order to get feedback and practical suggestions on all aspects of the project. The research team posted flyers advertising the survey at the facilities of the agency (3 bus garages, a large bus maintenance facility, a training center, and the agency headquarters). Self-administered questionnaires were distributed to eligible employees. Research team members were available on site at the break room in each location to collect completed surveys, answer questions, and distribute $25 incentive gift cards to survey participants. The voluntary, confidential nature of study participation was emphasized in the survey materials and during verbal interactions with participants. The agency provided the researchers with an Excel database of employee names and identification numbers. When a worker turned in a completed survey to a research team member, their name was electronically checked off in the database using Google Nexus tablets. This helped limit the possibility that duplicate surveys might inadvertently be obtained from the same participant. No identifying information (name, employee identification number) appeared on the collected surveys. Data collection took place between January 2014 and March 2014. Informed consent was obtained. All procedures were approved by the Institutional Review Board of the Pacific Institute for Research and Evaluation. Printed informed consent materials were provided to each study participant. In accordance with the protocol approved by the Institutional Review Board, participants checked a box affirming their consent to take the survey following receipt of the informed consent materials. Signatures were not obtained in order to protect the anonymity of the participants.

2.2. Measures

2.2.1. Tobacco use

Smoking status was determined using the questions, "Have you smoked or used the following at least 100 times in your lifetime: cigarettes, cigarillos, cigars, e-cigarettes, hookahs, smokeless tobacco ("dip"), snus, or chewing tobacco ("spit")?", and "How often do you currently smoke?" Response categories were: not at all, some days, and every day. Participants who answered affirmatively to the first question, and indicated that they smoked some days or every day, were classified as current smokers. Those who answered affirmatively to the first question, and "not at all" to the second question, were classified as former smokers. Participants who indicated that they had never smoked at least 100 times in their lifetime were classified as never smokers. Current smokers were asked which tobacco products they used from a list that included cigarettes, cigarillos, cigars, E-cigarettes, hookahs, and smokeless tobacco, as well as the usual daily amount of cigarettes, cigarillos, and cigars smoked during the past 30 days. Smokers were asked if they usually smoked menthol cigarettes, non-menthol cigarettes, or no usual type.

2.2.2. Other covariates

Employment-related factors included job classification, usual shift, and length of employment. For job classification, workers were categorized as bus operators; those who were in maintenance or clerical positions served as the reference group. Length of employment was categorized as up to 5 years, 5–10 years, 11–15 years, and > 15 years (reference group). Usual shift was categorized as day shift; afternoon shift; night shift; and split, rotating, irregular or extra board (reference group). Respondents were asked to rate their level of agreement on a 5-point scale ("strongly agree" to "strongly disagree") with the statement "It is very easy for a smoker to take a smoking break during their shift." Responses were categorized as strongly agree/agree, neither agree nor disagree, and disagree/strongly disagree (reference group).

Sociodemographic characteristics included gender, age, race/ethnicity, educational level, and marital status. For gender, each respondent was coded as female or male (reference group). The age of each respondent was categorized as 20–39 years, 40–49 years, 50–55 years, and > 55 years (reference group). Respondent race/ethnicity was coded as non-Hispanic Black, Latino/Hispanic, Asian/South Asian, multiethnic or other, and non-Hispanic White (reference group). Respondents were asked about the highest level of education they had completed. Education was coded as those who had up to 12 years of schooling, and those who had at least some college education (reference group). Marital status was categorized as being married/cohabiting; separated, divorced or widowed; or single and never married (reference group). Home smoking rules were assessed by asking respondents to endorse one of three statements: "No one is allowed to smoke anywhere inside your home"; "Smoking is allowed in some places or at some times inside your home"; and "Smoking is permitted anywhere inside your home" (reference group).

2.3. Statistical analysis

Means and standard deviations (SDs) for continuous variables and percentages for categorical variables were calculated. Cross

Please cite this article in press as: Cunradi CB, et al., Prevalence and Correlates of Current and Former Smoking among Urban Transit Workers, Safety and Health at Work (2017), http://dx.doi.org/10.1016/j.shaw.2016.12.005