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Disparities in work-related homicide rates in selected retail industries in the United States, 2003–2008

Cammie Chaumont Menéndez *, Srinivas Konda, Scott Hendricks, Harlan Amandus

National Institute for Occupational Safety and Health, Division of Safety Research, 1095 Willowdale Rd., Morgantown, WV 26505, USA

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ABSTRACT

Problem: Segments within the retail industry have a substantially higher rate of work-related fatality due to workplace violence compared to the retail industry overall. Certain demographic subgroups may be at higher risk. *Method:* National traumatic injury surveillance data were analyzed to characterize the distribution of fatality rates due to workplace violence among selected retail workers in the United States from 2003 through 2008. *Results:* Overall, the highest fatality rates due to work-related homicide occurred among men, workers aged ≥65 years, black, Asian, foreign-born and Southern workers. Among foreign-born workers, those aged 16–24 years, non-Hispanic whites and Asians experienced substantially higher fatality rates compared to their native-born counterparts. *Conclusions:* The burden of work-related homicide in the retail industry falls more heavily on several demographic groups, including racial minorities and the foreign-born. Further research should examine the causes of these trends. Interventions designed to prevent workplace violence should target these groups.

1. Introduction

Workplace violence continues to play a significant role in the public health burden of occupational fatalities. Despite a decade of decline in both occupational and non-occupational homicide rates in the United States (Hendricks, Jenkins, & Anderson, 2007), homicides remain a leading cause of traumatic occupational fatalities (USBLS, 2012b). In 2010, 423 occupational fatalities (~10% of all traumatic occupational fatalities) were homicides (USBLS, 2012a). Almost 20% of workplace fatalities were the result of an assault or violent act, making workplace violence the second leading cause of workplace fatalities (USBLS, 2012b).

The issue of workplace violence as a topic of research prevention among safety professionals, injury researchers and other major stakeholder groups has intensified over the last decade. A landmark special issue in 2003 of *Clinics in Occupational and Environmental Medicine* entitled 'Violence in the Workplace' provided the many crucial and relevant perspectives in approaching the research and prevention of workplace violence (Wilkinson & Peek-Asa, 2003). The inclusion of a practical classification system for categorizing workplace violence into four types, discussion of emerging issues (such as domestic violence spreading to the workplace) and identification of industries and occupations with disproportionately high rates of fatal and nonfatal injuries due to workplace violence laid the groundwork for the momentum that is currently driving concerted research and prevention efforts.

The retail industry sector historically has experienced a disproportionately high homicide rate, with 'cashiers' experiencing disproportionately high relative risks (Richardson & Windau, 2003). The most recent comprehensive assessment of occupational fatalities and injuries in the retail sector found fatalities continue to persist at disproportionately higher rates in sub-industries of the retail trade sector, particularly among convenience stores and gasoline stations (Anderson, Schulte, Sestito, Linn, & Nguyen, 2010).

Beginning in the 1990s, one of the most dangerous decades in recent American history for work-related homicides (Hendricks et al., 2007), a body of epidemiologic evidence was accumulating on risk factors for robberies and associated injuries. Identified risk factors were work shift (9 pm to 3 am), working in a store that was previously robbed, working in stores open 24 hours and working in stores with a history of assaults and armed robberies (Amandus et al., 1997; Schaffer, Casteel, & Kraus, 2002). Later research identified crucial crime prevention factors, such as having a cash handling policy and bullet-resistant shielding (Hendricks, Landsittel, Amandus, Malcan, & Bell, 1999), in addition to bright exterior lighting and not working alone at night (Loomis, Marshall, Wolf, Runyan, & Butts, 2002). These risk factors and protective measures were consistent with a framework for preventing robberies proposed decades earlier (Jeffrey, 1977) that guides robbery prevention efforts today (Casteel & Peek-Asa, 2000; OSHA, 2002).

There are several groups known to have disproportionately high occupational fatality rates and suspected to have high work-related homicide rates: young workers, minority workers and foreign-born workers. Previous analyses examining the Census of Fatal Occupational Injuries (CFOI) from 1992 through 1996 revealed fatalities in the retail industry sector were more likely to occur among workers under

* Corresponding author. Tel.: +1 304 285 6233; fax: +1 304 285 6235.
E-mail addresses: cmenendez@cdc.gov (C.C. Menéndez), skonda@cdc.gov (S. Konda), shendricks@cdc.gov (S. Hendricks), hamandus@cdc.gov (H. Amandus).

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the age of 20, workers belonging to a minority group, and foreign-born workers (Janicak, 1999; Peek-Asa, Erickson, & Kraus, 1999). With more than half of young workers employed in the retail industry, they are more vulnerable to workplace homicide than older populations. A study interviewing young workers in five cities revealed in four of the cities more than 70% of young workers worked after 7 pm on a school night. In all cities surveyed less than half of young workers were trained to deal with a robbery and, although working in an industry sector with some of the highest work-related homicide rates, less than 20% on average felt in danger of being robbed (Runyan, Bowling, Schulman, & Gallagher, 2005). Additionally, data collected at an urban trauma center from 2000 through 2007 found blacks and Asians experienced almost triple the proportion of non-fatal occupational injuries due to assault than their white and Hispanic counterparts (Forst, Avila, Anozie, & Rubin, 2010). Finally, an analysis of CFOI data from 1996 through 2001 focused on foreign-born workers reported homicides as the primary fatal occupational injury among the 4,751 fatalities examined (Loh & Richardson, 2004). Fatality rates among foreign-born workers were higher than those of native-born workers for three of the years examined (Loh & Richardson, 2004). It is important to further evaluate industries at high risk for robberies and injuries for possible disparities in work-related homicides among young workers, minority workers and foreign-born workers.

The objective of this study was to (1) describe the homicide rate of workers in selected retail industries over time from 2003 through 2008 and (2) characterize the homicide rate of workers in selected retail industries with respect to age, race/ethnicity, nativity, and region.

2. Methods

2.1. Data sources

Occupational injury fatalities among selected retail workers occurring from 2003 through 2008 were enumerated using the Census of Fatal Occupational Injuries (CFOI) (USBLS, 2012c). The Bureau of Labor Statistics administers CFOI and annually updates work-related fatalities occurring in a calendar year for all 50 states and the District of Columbia. Various information sources are utilized to ascertain a work-related fatality: death certificates, Workers' Compensation reports, OSHA Forms (01 and 36), OSHA Report 170, newspaper articles, Motor Vehicle Accident state police reports, CFOI follow-back questionnaires, state files, sheriff/police reports (such as crime reports), and clinical reports from pathologists, coroners, and medical examiners. An average of four sources are obtained but at least two source documents or one source document and a follow-back questionnaire are used to confirm a work-related fatality.

Annual labor estimates for the United States workforce are determined using the Current Population Survey (CPS) administered jointly by the BLS and Census Bureau. The CPS is administered monthly to a probability-selected sample of 60,000 households within the US civilian, non-institutionalized population aged 15 years or older and includes wage and salary workers, self-employed, part-time workers, and unpaid workers in family-oriented enterprises such as farms (USBLS, 2012d). Both telephone and personal interviews are conducted on selected households for each of the 50 states and the District of Colombia in a rotating sampling scheme designed to ensure continuity with excessive burden to respondents (USCB, 2006). Each month labor force data are collected and classified according to demographic characteristics (including nativity, industry type, and occupation). For the purpose of this analysis CPS data were stratified by gender, age, race/ethnicity, nativity and region.

2.2. Statistical analysis

Age groupings were consistent with data collected by the CPS and are presented as the following: 16–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years and 65 years and older. Ethnicity was reported as Hispanic or Non-Hispanic. Race was re-categorized by the authors into: Non-Hispanic White, Non-Hispanic Black, Hispanic, Asian and Pacific Islander, and Other. States were grouped into the following regions consistent with the U.S. Census Bureau: Northeast, Midwest, South, and West. Industries were coded using the North American Industry Classification System (NAICS) (U.S. Census Bureau, 2002). Occupations were coded using the Standard Occupational Classification (SOC) (US BLS, 2000e). This paper presents fatalities of the retail trade overall (using NAICS code headings 44 and 45) and selected retail trades (based on preliminary analyses describing distribution of homicides within the Retail Trade sector) with the following NAICS codes: 4451 – Grocery Stores (including convenience stores), 4453 – Beer, Wine and Liquor Stores, 4471 – Gasoline Stations, and 722 – Food Services and Drinking Places. The Food Services and Drinking Places sub-industry was included in the selected retail industry because historically it was grouped with the retail trade sector and workers in this industry share the same exposures to workplace violence: working in community settings, open late hours, exchange of money with the public, working alone or in small numbers, and working in high crime areas (NIOSH, 1993). Fatalities presented are limited to homicides as classified by the Occupational Injury and Illness Classification System (OIICS) for events using the two-digit code, 61 – Assaults and violent acts by person.

Fatality rates were calculated as number of enumerated fatalities (CFOI) divided by the estimated number of workers averaged across the 6-year span (CPS) and expressed as per 100,000 workers (per year). Both the numerator and denominator were divided into consistent age groupings, gender, race/ethnicity and foreign-born and native-born populations. Rate ratios were used to compare fatality rates across demographic variables; 95% confidence intervals were constructed using the formula $CI = RR \pm 1.96*RR*\text{sqrt}[(1/d_1) + (1/d_2)]$ where RR is the rate ratio, d_1 is the number of fatalities in one group and d_2 is the number of fatalities in the other group. Summary statistics were conducted using SAS, version 9.2.

3. Results

From 2003 through 2008 there were 1,062 homicides identified in the retail sub-industries selected for the purpose of this study: gasoline stations, grocery stores, food services, and beer, wine and liquor stores.

A temporal pattern of the fatalities examining rates of all retail workers, selected retail workers, and their foreign-born counterparts is presented in Fig. 1. The occupational homicide rates among all retail workers remained less than 0.5 per 100,000 workers and did not vary from 2003 through 2008. The rate of occupational homicides among workers in the selected retail industries was at least triple the retail industry rate overall for every year studied. In 2003 the fatality rate

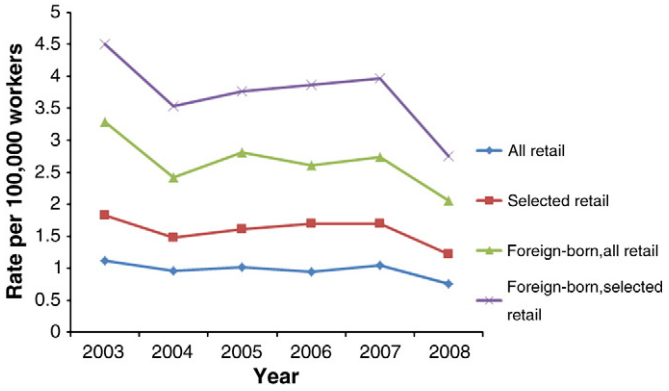

Fig. 1. *Homecide rate per 100,000 workers for all retail workers, foreign-born workers, selected retail workers and selected retail workers who are foreign-born, United States — 2003–2008.

*This research was conducted with restricted access to Bureau of Labor Statistics (BLS) data. The views expressed here do not necessarily reflect the views of the BLS.