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

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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).

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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 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*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 was 1.8 per 100,000 for workers in the selected retail industry, compared with 0.5 per 100,000 workers in the retail industry overall. Finally, in 2008, the fatality rate was 1.2 per 100,000 workers in the selected retail industry compared with 0.4 per 100,000 for workers in the retail industry overall. From 2003 through 2008 the fatality rates for each group did not vary substantively.

The fatality rates due to occupational homicides were highest among foreign-born workers in both the retail industry overall and the selected retail industries. Both rates followed the same pattern: peaking in 2003 (4.5–4.7 fatalities per 100,000 workers), dropping in 2004, increasing slightly through 2007 and dropping to their lowest in 2008 (2.7–3.4 fatalities per 100,000 workers). For each year the fatality rate due to occupational homicides among foreign-born workers was slightly higher for the retail industry overall compared to only the selected retail industries.

Examining the data aggregated over the six-year period by social demographics (Table 1), men working in the selected retail industries experienced 5.4 times the fatality rate (95% CI 4.5–6.3) due to occupational homicides (2.7 per 100,000; 95% CI 2.5–2.9) compared with women (0.5 per 100,000; 95% CI 0.4–0.6). Workers aged 65 years and older experienced 6.2 times the homicide rates (95% CI 4.3–8.0) of those aged 16 to 24 years [3.7 per 100,000 (95% CI 2.7–4.7) vs. 0.6 per 100,000 (95% CI 0.5–0.7)]. There was a consistent increase in homicide rates as worker age increased with the rate lowest among workers aged 16 to 24 years and the highest rate among workers aged 65 years and older. Regarding race/ethnicity, the highest homicide rates were experienced among Asian workers (6.1 per 100,000; 95% CI 5.3–6.9) who had 6 times the fatality rate than white, non-Hispanics (1.0 per 100,000; 95% CI 0.9–1.1). Black, non-Hispanic workers experienced the second highest fatality rate due to homicide for the selected retail industries (2.8 per 100,000 workers; 95% CI 2.4–3.2). Compared to native-born workers, foreign-born workers bore 3.5 times (95% CI 3.1-3.9) the fatality rate [3.5 per 100,000 (95% CI 3.2–3.8) vs. 1.0 per 100,000 (95% CI 0.9–1.1)] due to occupational homicide. Workers in the South suffered the highest fatality rates (2.2 per 100,000 workers; 95% CI 2.0–2.4), double that experienced in the West (1.1 per 100,000; 95% CI 0.9–1.3), the region with the lowest rate.

Regardless of nativity, the greatest proportion of occupational homicides in the selected retail industries resulted from shooting (83%–85%), followed by stabbing (8%) (Table 2). The distribution of homicides by event (e.g., shooting/stabbing) did not differ substantively by nativity. Of those with reported information on business size, slightly more foreign-born workers than native-born workers were killed in businesses with 10 or fewer employees, although a majority of reported fatalities occurred in establishments with 10 or fewer employees irrespective of nativity. The two occupations most frequently held by the decedents were cashiers (24% for all fatalities, 28% of foreign-born only fatalities) and first-line managers of retail sales workers (22% for all fatalities and 31% for foreign-born only fatalities).

Table 3 was constructed to focus on disparities by age, race/ethnicity and nativity and presents data only for men. For every age group foreign-born men experienced higher fatalities than their native-born counterparts, with the most pronounced difference among men aged 16 to 24 years [3.4 per 100,000 (95% CI 2.5–4.3) among foreign-born vs. 0.6 per 100,000 (95% CI 0.4–0.7) among native-born]. Within each nativity category, fatality rates increased with age, more dramatically among foreign-born men, with men aged 65 and older experiencing the highest fatality rates. For every race/ethnicity, foreign-born men experienced higher occupational homicide rates than their native-born counterparts, with the exception of Hispanics [1.8 per 100,000 (95% CI 1.4–2.2) vs. 1.9 per 100,000 (95% CI 1.4–

2.5), respectively]. Among foreign-born men Asians experienced the highest fatality rates; among native-born men non-Hispanic blacks experienced the highest fatality rates.

4. Discussion

Work-related fatalities due to workplace violence in selected retail industries, namely, gas stations, grocery stores, food services and drinking places, and beer, wine, and liquor stores were disproportionately higher than the retail industry overall for every year examined (2003–2008). Specifically, men, older workers (65 years), blacks, Asians, foreign-born workers and Southern workers experienced disproportionately higher homicide rates. Shooting was by far the most frequent event, and most occurred in establishments of 10 employees or less. Cashiers and first-line managers of retail sales workers were the occupations held by the majority of decedents. These findings highlight demographic groups within the retail trade that are particularly affected by the high rates of work-related homicide that were first brought to widespread attention a decade ago (Wilkinson & Peek-Asa, 2003).

Workplace violence in the retail sector has been described previously, with research using innovative partnerships or unique data sources conducted to identify risk factors and evaluate best practices for safety measures in the retail industry (Casteel, Peek-Asa, Greenland, Chu, & Kraus, 2008; Peek-Asa & Casteel, 2010; Peek-Asa, Casteel, Kraus, & Whitten, 2006; Peek-Asa et al., 1999). Yet research on the existence of disparities among work-related fatalities due to workplace violence in the retail sector has been lacking. To the authors' knowledge this paper is the first to examine the demographic distribution of work-related homicides in this sector. Among men, foreign-born workers who were non-Hispanic whites or Asian experienced the highest fatality rates. Additionally, foreign-born men aged 16–24 experienced 6 times the fatality rates of their native-born counterparts. Disparities exist among victims of workplace violence in the retail sector and it is important efforts are made in the translational process of implementing effective safety measures in the industry that focus on excessively at-risk populations.

Currently the theoretical basis for preventing crime in the retail sector is Crime Prevention Through Environmental Design (CPTED) (Jeffrey, 1977). This involves designing environments to prevent crime through multiple components: increased visibility, reduction in available cash on premises, trespassing affidavits, alarms, time-lock safes, bullet-proof barriers, and surveillance systems. These potential safety measures for consideration are widely accepted and were summarized in an OSHA Fact Sheet (OSHA, 2002). They have been in use by the retail industry for many years now (Casteel & Peek-Asa, 2000). As a general practice, most new retail businesses, including the retail industries selected for this paper (gasoline stations, grocery stores, etc.), are equipped with a majority of these measures, especially if they are part of a large franchise or company. However, many small business owners may have minimal resources set aside for safety equipment and may not have many or most of these safety measures (Casteel et al., 2008). Occupational fatality rates remain disproportionately high in these selected retail sectors and it is not clear if the measures are not implemented as widely as they should be or if a threshold of multiple measures is required to make an observable impact in fatality rates. Ongoing research by the

authors is evaluating the effect of ordinances in two large cities implementing a broad range of safety measures designed to prevent crime in small retail establishments. The findings will provide insight into the effectiveness of current safety measures based on CPTED theory and will be used in translational research efforts.

There is limited data available on the demographic distributions of workers employed in small businesses within the selected retail industries (U.S. Census Bureau, 2008). One possible explanation for the disparities seen by sex, nativity, race/ethnicity and age is that these at-risk groups of workers are more likely to be employed in businesses that lack the safety measures other businesses have adopted. Additionally, it is possible that these at-risk workers are more likely to work in stores in inner-city areas within larger metropolitan areas, where crime rates are higher. Either of these scenarios would place them at greater risk for armed robbery, and, consequently, being killed. A research study evaluating the compliance of a municipal ordinance mandating safety measures is currently being conducted and will provide insight into whether or not suggested safety measures installed in retail businesses are done so disproportionately across demographic groups. If this is the case then an argument could be built for additional targeted translational efforts of workplace violence interventions found to be effective towards businesses employing foreign-born workers, black and Asian workers, and the youngest/oldest workers.

Another important component of workplace violence prevention is safety training. The current benchmark for safety training is one that includes de-escalation of precursors to violent behavior, including non-resistance during robberies (OSHA, 2009). Data gathered by the U.S. Census Bureau reveal the retail industry is heavily populated with small businesses (91% of retail industry) and there is no evidence to suggest such businesses provide effective safety training, in particular training in workplace violence. Cultural and gender-related factors play a role in how safety training is received and the extent to which new behaviors promoting safety are adopted. It is important workers in the retail industry be trained in methods of identification and de-escalation of violent behavior. However, how this training is presented or conducted should be done in a manner that is both culturally-sensitive and sensitive to gender roles in the originating culture.

While the use of the foreign-born variable provides a unique insight into fatality trends due to workplace violence that is typically not included in this research area, it is not a required variable by CFOI and, therefore, may not be completely characterized. However, CFOI gets its data from multiple sources and instituted a change in how the variable was collected in 2001, which resulted in an approximately 15-20% increase in reported fatalities among foreign-born workers in the subsequent years (Menéndez & Havea, 2011). It is likely that a majority of this increase was due to the change in the collection of the variable, which involved selecting the country of birth from a drop down menu rather than typing it in. It is reasonable that this change resulted in not only a more complete recording of the field, but a more accurate one as well. Although there is no way to test the validity of the variable, the findings reported in this paper are very similar to those seen in a previous analysis on foreign-born workers overall (Menéndez & Havea, 2011).

5. Conclusion

To our knowledge, this paper is the first to highlight disparities in work-related homicides. The retail sector was chosen because it is one of the most dangerous industries with respect to this outcome. Because of the existence of safety measures that have been widely implemented in pieces (but not necessarily widely or completely disseminated) by the industry for years, it is important to examine these disparities in the context of how we can adapt the current measures and target them to the vulnerable populations identified in the current analysis. Specifically, more efforts aimed at ensuring retail workers who fall within the demographics with disproportionately high workplace fatality rates due to homicide work in an environment that employs all of the safety measures suggested to prevent workplace violence is crucial.

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.

Biographies

Cammie Chaumont Menéndez, PhD, graduated from the University of Texas Houston Health Science Center where she completed a NIOSH Doctoral fellowship. She works in the Division of Safety Research at NIOSH within the CDC. Her areas of interest are computer use and upper extremity musculoskeletal symptoms and disorders, workplace violence, health disparities, and intervention evaluation. She is currently (1) evaluating the effect of safety equipment in taxicab cabs on taxicab driver homicide rates for 30 major cities and (2) determining predictive factors for store compliance to a citywide ordinance focused on the safety of convenience store workers in 2 metropolitan cities.

Srinivas Konda, MPH, is an Associate Services fellow in the Division of Safety Research at NIOSH within the CDC. He has conducted, managed, or provided support to several large studies in occupational injury in the past 3 years. His areas of interest are workplace violence, road safety and foreign-born workers.

Scott Hendricks, MS, is a statistician in the Division of Safety Research at NIOSH within the CDC. He was co-author on the earliest papers (almost 20 years ago) that described potential risk factors for robberies and injuries associated with robberies at convenience stores and gas stations. He continues to provide statistical support to ongoing workplace violence projects such as injuries among healthcare workers, evaluating citywide ordinances for convenience store worker safety, evaluating the effectiveness of safety equipment in taxicab driver homicides, and risk factors for workplace violence among teachers and paraprofessionals.

Harlan Amandus, PhD, is Branch Chief of the Analytic and Field Evaluations Branch within the Division of Safety Research at NIOSH within the CDC. He spearheaded NIOSH efforts to determine potential risk factors and protective factors for robberies and injuries associated with robberies among convenience store workers. He continues to play a leading role in shaping the future agenda for the Workplace Violence Program although his interests

are as varied as epidemiology of injuries among workers in a helicopter manufacturing plant, road safety intervention evaluation, taxicab driver homicides, and convenience store worker safety interventions.

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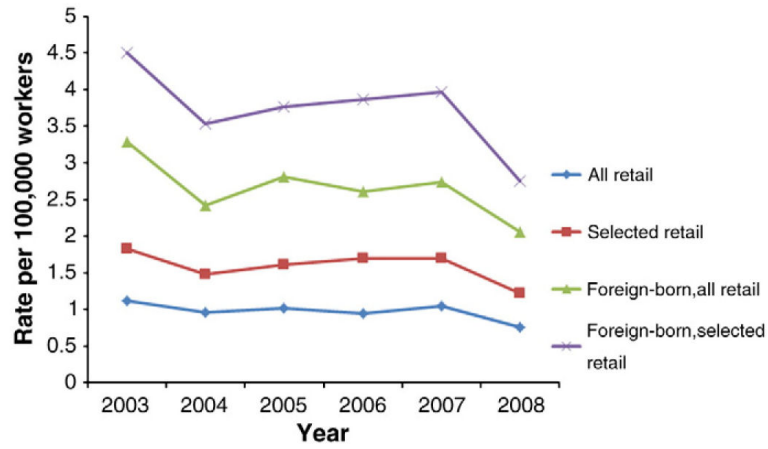
Fig. 1.
*Homecide rate per 100,000 workers for all retail workers, foreign-born workers, selected retail workers and selected retail workers who are foreign-born, United States — 2003–2008.
*This research was conducted with restricted access to Bureau of Labor Statistics (BLS) data. The views expressed here do not necessarily reflect the views of the BLS.

Table 1

[†]Work-related homicides in selected retail industries by demographic characteristics — United States, 2003–2008.

Characteristics	# Workers	Homicides n (%)	Rate per 100,000 workers (±CI)	Rate ratio (±CI)
Gender				
Female	34,475,200	178 (17)	0.5 (0.4–0.6)	1
Male	32,489,600	884 (83)	2.7 (2.5–2.9)	5.4 (**4.5, 6.3**)[*]
Age group				
16–24 years	26,363,800	147 (14)	0.6 (0.5–0.7)	1
25–34 years	14,470,700	250 (24)	1.7 (1.5–1.9)	2.8 (**2.3, 3.4**)
35–44 years	11,344,100	257 (24)	2.3 (2.0–2.6)	3.8 (**3.1, 4.6**)
45–54 years	8,972,500	231 (22)	2.6 (2.3–2.9)	4.3 (**3.4, 5.2**)
55–64 years	4,231,300	118 (11)	2.8 (2.3–3.3)	4.7 (**3.5, 5.8**)
65 years and older	1,582,400	59 (6)	3.7 (2.7–4.7)	6.2 (**4.3, 8.0**)
Race				
White, non-Hispanic	42,347,100	426 (40)	1.0 (0.9–1.1)	1
Black, non-Hispanic	6,844,200	194 (18)	2.8 (2.4–3.2)	2.8 (**2.4, 3.3**)
Asian	4,081,900	251 (24)	6.1 (5.3–6.9)	6.1 (**5.1, 7.1**)
Hispanic	12,291,300	155 (15)	1.3 (1.1–1.5)	1.3 (**1.1, 1.5**)
Other	1,400,300	27 (3)	1.9 (1.2–2.6)	1.9 (**1.2, 2.6**)
Not reported	—	9 (1)	—	—
Origin				
Native-born	53,196,200	549 (52)	1.0 (0.9–1.1)	1.0
Foreign-born	13,768,600	513 (48)	3.5 (3.2–3.8)	3.5 (**3.1, 3.9**)
Region				
Northeast	12,166,700	177 (17)	1.5 (1.3–1.7)	1.0
Midwest	15,905,500	198 (19)	1.2 (1.0–1.4)	0.8 (**0.6, 1.0**)
South	23,921,000	523 (49)	2.2 (2.0-2.4)	1.5 (**1.2, 1.7**)
West	14,971,600	164 (15)	1.1 (0.9–1.3)	0.7 (**0.6, 0.9**)
Total	66,964,828	1062 (100)	1.6 (1.5-1.7)	—

[*]Bold font denotes statistical significance at α=0.05.

[†]Fatal injury numbers and rates were generated by [authors] with restricted access to CFOI microdata.

Table 2

[¶]Work-related homicides in selected retail industries by event of death, establishment size and selected occupations — United States, 2003–2008.

Characteristics	Total n (%)	Foreign-born n (%)
Event		
Hitting, kicking, beating	53 (5)	22 (4)
Shooting	885 (83)	438 (85)
Stabbing	89 (8)	41 (8)
Assaults and violent acts by person(s), n.e.c/unspecified	35 (3)	12 (2)
Establishment Size		
1–10 employees	528 (50)	298 (54)
11–19 employees	67 (6)	18 (4)
20–49 employees	62 (6)	11 (2)
50–99 employees	20 (2)	— [†]
100+employees	29 (3)	—
Not reported	356 (34)	178 (35)
Occupation [*]		
Cashiers	252 (24)	146 (28)
First-line managers of retail sales workers	236 (22)	159 (31)
Food service managers	91 (9)	45 (9)
First-line managers of food preparation and serving workers	86 (8)	18 (4)
Security Guards	75 (7)	7 (1)
Driver/Sales Workers	51 (5)	21 (4)
Cooks	40 (4)	22 (4)
Bartenders	33 (3)	6 (1)
Retail salespersons	29 (3)	15 (3)
Combined food preparation and serving workers	26 (2)	7 (1)
Service station attendants	24 (2)	17 (3)
Total	**1062 (100)**	**513 (100)**

[¶]Fatal injury numbers and rates were generated by [authors] with restricted access to CFOI microdata.

[†]Do not meet BLS reporting criteria.

[*]Do not sum to total because it includes selected occupations.

Table 3

§ Work-related homicide rates among men for selected retail industries by age and race/ethnicity and stratified by nativity — United States, 2003–2008.

Characteristics	Foreign-born (n=462)		Native-born (n=422)		Foreign-born to native-born
	Rate per 100,000 workers (±CI)	Rate ratio (±CI)	Rate per 100,000 workers (±CI)	Rate ratio (±CI)	Rate ratio (±CI)*
Age group (in years)					
16–24	3.4 (2.5–4.3)	1	0.6 (0.4–0.7)	1	**6.1 (3.9–8.4)**
25–34	3.9 (3.1–4.6)	1.2 (0.8,1.5)	2.3 (1.9–2.7)	**4.1 (2.8, 5.4)**	**1.7 (1.2–2.1)**
35–44	5.5 (4.5–6.5)	**1.6 (1.1, 2.1)**¶	2.6 (2.1–3.2)	**4.7 (3.2, 6.2)**	**2.1 (1.5–2.6)**
45–54	9.1 (7.5–10.7)	**2.7 (1.8, 3.6)**	2.6 (2.0–3.2)	**4.7 (3.1, 6.3)**	**3.5 (2.5–4.5)**
55–64	9.0 (6.6–11.5)	**2.7 (1.7, 3.7)**	3.1 (2.2–4.1)	**5.6 (3.4, 7.7)**	**2.9 (1.7–4.1)**
65 and older	9.3 (4.4–14.2)	**2.8 (1.1, 4.4)**	7.0 (4.8–9.2)	**12.5 (7.5, 17.5)**	1.3 (0.5–2.1)
Race					
White, non-Hispanic	9.7 (8–11.5)	1	1.2 (1.0–1.4)	1	**8.1 (6.3–10)**
Black, non-Hispanic	6.8 (4.3–9.2)	0.7 (0.4, 1)	4.8 (4.0–5.5)	**4.0 (3.1, 4.8)**	1.4 (0.9–2)
Asian	11.1 (9.6–12.6)	1.1 (0.9, 1.4)	3.7 (2.1–5.3)	**3.1 (1.7, 4.5)**	**3 (1.6–4.4)**
Hispanic	1.8 (1.4–2.2)	0.2 (0.1, 0.2)	1.9 (1.4–2.5)	**1.6 (1.1, 2.1)**	0.9 (0.6–1.3)
Other†/unknown	40.9 (24.2–57.6)	**4.2 (2.3, 6.1)**	0.9 (0.1–1.7)	0.7 (0.1, 1.4)	**45.6 (1.5–89.7)**
Total	5.5 (5.0–6.0)	…	1.7 (1.6–1.9)	…	**3.2 (2.7–3.6)**

*Reference group is native born.

¶Bold font represents statistical significance at α=0.05.

†Includes Hawaiian/Pacific islander, American Indian, Alaskan native, and multiple races.

§Fatal injury numbers and rates were generated by [authors] with restricted access to CFOI microdata.