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Assessing research on workplace violence, 2000–2012

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ABSTRACT

Since the highly publicized U.S. Postal violence cases in the 1980s, workplace aggression and workplace violence have been the source of much public discussion and concern. Yet, the topic has only recently received sustained empirical attention—most of which has come from the organizational management and business fields. This article provides a review of the empirical research literature on workplace violence in several databases from 2000 to 2012. Our review uncovers that different occupational domains have different experiences with workplace violence, while some occupations are subject to distinct types of violence by unique aggressors. Directions for future theoretical and empirical research are highlighted.

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1. Introduction

In the United States, the hallmark of success is education, hard work, and ultimately gainful employment. Sometimes, however, being employed – especially in specific occupations – carries with it risk to one's mental and/or physical health. One adverse consequence of employment concerns the risk of being a victim of workplace aggression or workplace violence. Although there are numerous conceptual and operational definitions of these two terms (Barling, Dupre, & Kelloway, 2009), workplace aggression tends to include "behavior by an individual or individuals within or outside an organization that is intended to physically or psychologically harm a worker or workers and occurs in a work-related context" (Schat & Kelloway, 2005, p. 191), while workplace violence "is a distinct form of workplace aggression that comprises behaviors that are intended to cause physical harm" (Barling et al., 2009, p.673; see also Schat & Kelloway, 2005). Under this conception, "all violent behaviors are aggressive whereas not all aggressive behaviors are violent" (Barling et al., 2009, p. 673).

Although both workplace aggression and workplace violence have reportedly been common – with many workers either personally or vicariously experiencing such victimization – the lack of a national

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database tracking the prevalence and correlates of such victimizations does not exist. In fact, the only national database on anything close to workplace violence, maintained by the Bureau of Labor Statistics, collects and publishes data on workplace injuries/fatalities—and even those data suffer from several limitations (Schat, Frone, & Kelloway, 2006, p.55). It is the case that there are a wide array of surveys on aspects of workplace aggression and workplace violence from life insurance companies, the National Crime Victimization Survey/Bureau of Justice Statistics, the Center for Fatal Occupational Injuries, the Canadian Public Service Employment Survey, as well as researchers studying the topic. Nevertheless, limitations associated with previous research (e.g., differences in survey construction, response rates, sample frames, types of behaviors studies), as well as the lack of a national database preclude "the drawing of valid conclusions about the degree to which members of the workforce are exposed to aggressive work-related behaviors" (Schat et al., 2006, p.54). Thus, the empirical knowledge base rests almost entirely on a series of single studies conducted by agencies, researchers, local or federal governments, and both public and private companies.

Not surprisingly, studies on workplace aggression and workplace violence report very different estimates of the prevalence and correlates associated with such victimizations. The main findings from the research conducted in the 1990s and early to mid-2000s tend to show that (1) the overall prevalence of non-physical or psychological aggression is higher than that for physical aggression or violent behavior, (2) various estimates of workplace violence indicate a decreasing trend since the 1990s, (3) the prevalence of exposure to such victimization differs across the main aggressor sources—with the general public, co-workers, and supervisors having the highest prevalence in that order, and (4) certain individual (sex and age) and occupational (health and law enforcement jobs) characteristics are related to some types of workplace aggression and workplace violence (see Barling et al., 2009; Harrell, 2011; Hershcovis & Barling, 2010; Hershcovis et al., 2007; Schat et al., 2006). The emphasis placed on assessing the predictors of workplace aggression and violence is expected since knowledge of such risk factors is key for developing and modifying theory and critical for developing policy and prevention strategies.

2. Current focus

As noted, there has been an accumulating set of empirical research studies on workplace violence. It is pertinent at this point to take stock of the main findings of this research in order to arrive at some temporary working conclusions of key facts and to also identify points of future research. As such, the current study presents the results of a systematic review that covers the accumulated research on the topic of workplace violence identified in several databases from 2000 to 2012. Due to space constraints, we could not review the results of every single study and also had to limit our review to describing how workplace violence manifests more generally and then across various occupational domains instead of the reasons underlying workplace violence victimization and whether and how victimization experiences vary by perpetrator characteristics (i.e., supervisor, co-worker, general public)—an important topic for subsequent review.[1]

[1] There are literatures on both workplace aggression (including non-violent behaviors such as emotional abuse, verbal insults, bullying, and hostility; see Barling et al., 2009; Hershcovis & Barling, 2010; Hershcovis et al., 2007), and workplace deviance/counterproductive workplace behaviors (including acts such as working slowly, coming in late for work, theft from work as well as more serious acts such as accounting fraud and price-fixing; see Bennett & Robinson, 2000; Dunlop & Lee, 2004; Marcus & Schuler, 2004; Roberts, Harms, Caspi, & Moffitt, 2007; Piquero & Moffitt, forthcoming).

3. Systematic literature review

3.1. Method

A literature search was performed for empirical research on workplace violence published between January 1, 2000 and October 1, 2012. The following seven databases were included in the search: Web of Knowledge, Criminology Powersearch, Behavioral and Brain Sciences Powersearch, Criminal Justice Abstracts, Sociological Abstracts, Management Powersearch, and Social Issues Powersearch. The search terms utilized included "workplace violence," "workplace violence organization," and "workplace aggression organization." Articles that did not differentiate between workplace violence and workplace aggression in their measurement were omitted and literature reviews were not included. Inclusion requirements were that the studies be peer-reviewed, produce new empirical findings on violence in the workplace, and utilize U.S. samples. Additionally, the articles needed to focus on violence against an individual, not on violence against an organization, an important but separate question for future research.

Most studies identified centered on several possible topics, including the prevalence of workplace violence within a certain occupation, outcomes of the behavior, correlates of workplace violence, as well as predictors of violence. This review included those studies discussing the prevalence, correlates, and predictors of workplace violence. The total number of articles that met the specified search criteria was 55, and while previous research has focused on several different domains or occupations where workplace violence occurs, 24 of the identified studies (44%) discussed workplace violence occurring within healthcare-related occupations. Appendix A includes a brief overview of these studies.

3.2. Literature review

3.2.1. General workplace

Several scholars have investigated workplace violence more generally without specifying specific domains. McGovern et al. (2000) focused on the total cost of all occurrences of workplace violence within Minnesota in 1992. In 1996 dollars, 344 nonfatal work-related physical assaults resulted in approximately $5.9 million of direct (i.e., medical) and indirect (i.e., lost work days) costs. Additionally, 67% of those injured were female and the average age was 36 years old. Some occupations were found to be at higher risk than others. Specifically, those employed in safety- and justice-related occupations were at the highest risk of being victimized, followed by those in social service and healthcare fields.

Using Lincoln, NB, police department data, Scalora, Washington, Casady, and Newell (2003) analyzed 281 cases of nonfatal workplace violence from 1997 to 1998 to assess differences between coworker and public perpetration of workplace violence. A central characteristic of coworker-perpetrated incidents included the importance of the victim–perpetrator relationship as most of them were related to domestic violence. Among public-perpetrated incidents, however, shared factors included that the assaults were more likely to affect male staff, involve prior threats, and be related to customer service concerns. Overall, almost half (48%) of the perpetrators had prior history with law enforcement and a small minority of them had a mental illness, but among this group, they were significantly more likely to engage in assault. A weakness of this study is its use of a police-contact sample, so there could be a selection effect in who reports these incidents to officials and which incidents are formally documented.

Aside from state or local data, others have used national survey data to examine workplace violence. Tjaden and Thoennes (2001) analyzed a sample from a nationally-representative telephone survey conducted between 1995 and 1996 and reported that an estimated 2.3 million men and 1.1 million women have been victimized by a co-worker at some point in their lives. They found some gender differences with

respect to victimization type such that women were more likely to be raped or stalked while men were more likely to report being physically assaulted. Females were also more likely to report the incident to the police and lose time from work than males. The authors did not find any age, race, or education differences in coworker violence. Fisher and Gunnison (2001) also studied gender differences in their analysis of the 1992–1996 National Crime Victimization Survey (NCVS) data. Similar to Tjaden and Thoennes, they also found that women were more likely to report rape victimization while males were more likely to report aggravated assault victimization. Over that time period, victimization for females increased by 17% but decreased for males by 34%. Fisher and Gunnison also found a gender/work domain interaction where some occupations put women at a higher risk of being victimized. Females working in education, law enforcement, retail, and transportation occupations were more likely to be victimized than males in such roles.

Hartley, Doman, Hendricks, and Jenkins (2012) utilized data from a nationally-representative sample of hospitals to identify workplace violence victims and interview them about their experiences. The researchers used 733 cases between the years of 2002 and 2004 and found that the majority were treated in the emergency room and resulted in no lost time from work. Over 90% of the assaults were committed by clients or patients of the victims and 63% of the cases were not reported to the police. Education, healthcare, public safety, justice, and retail occupations accounted for 90% of the injuries and 8% of all incidents had criminal intent (e.g., robbery).

Another common data source has been worker's compensation claims. Islam, Edla, Mujuru, Doyle, and Ducatman (2003) used such data from West Virginia (from 1997 to 1999) to look at workplace physical assault incidence rates. Of the 2122 injuries analyzed, females reported more injuries than men and 75% of all injuries occurred among healthcare workers, public safety workers, and teachers. Women who worked the nightshift in healthcare occupations were at a particularly higher risk of injury due to workplace violence. Among these domains, most of the injuries were perpetrated by the public/non-coworkers, with sprains being the most common injury, followed by contusions, fractures, and lacerations. Importantly, Islam and his colleagues reported that while those in the healthcare industry reported the highest number of injuries, those working in the public safety sector had a higher proportion of injuries. McCall and Horwitz (2004) analyzed Oregon compensation claims from 1990 to 1997 and found that those in the medical field had the highest rate of injury claims (46.4 per 10,000), followed closely by those in law enforcement positions (45.64 per 10,000). Other domains with high prevalence rates included correctional officers, other public service workers, therapists, and bus drivers. The most common workplace violence incidents were assaults and other violent acts by other individuals (85.7%). Only 2.2% of incidents were shootings. During that time frame, there were only 18 fatalities reported and 55.5% of them occurred during evening or night shifts.

Horwitz, McCall, and Horwitz (2006) examined workplace injuries using Rhode Island's workers' compensation claims from 1998 to 2002. Of the 6402 cases analyzed, females were more likely to file claims but males suffered from injuries that resulted in longer periods of damages and higher costs. The total cost associated with these claims was more than $7 million, with an average of about $1000 a claim. Further, there were 6 fatalities reported in the 5-year timespan.

The final study to be reviewed in this section used a unique unit of analysis, U.S. Census Blocks, to examine the role of community-level factors in workplace violence. Specifically, Ta et al. (2009) linked the Census Blocks to specific North Carolina industries found to be at a high risk for fatal violence in the workplace and found areas at higher risk tended to have higher rates of poverty, more residential stability, and less human and economic capital.

In summary, the studies reviewed in this section demonstrate that workplace violence is costly, it is not rare, and it impacts workers within a wide range of occupations. Threats emerge from coworkers as well as the general public for many reasons, including domestic disputes and customer service concerns. Although men and women are both at risk for workplace violence in general, men are more at risk for physical assaults while women tend to be victims of a different kind of violence—usually stalking and sexual assault. Additionally, those working within the healthcare, education, public safety, retail, and justice industries tend to report the majority of workplace violence incidents. These incidents are explored in greater detail in the sections that follow, which focus more specifically on workplace violence in specific occupational domains.

3.2.1.1. General healthcare. To investigate the prevalence of workplace violence among healthcare workers, Findorff, McGovern, Wall, Gerberich, and Alexander (2004) surveyed 1751 current and former employees of a Midwest healthcare organization. A little over 7% ($n = 127$) of the participants experienced physical violence. Patient care assistants, nurses, and doctors experienced higher odds of being victimized, while clerical workers and management experienced lower odds of victimization when compared to medical specialists. Increased patient contact also increased the odds of violent victimization. A limitation of their study was the modest response rate (42%).

In a study of workplace violence among emergency department workers, Gates, Ross, and McQueen (2006) performed a survey of 242 employees in 5 hospitals. Findings showed that most employees reported being verbally harassed at least once. Further, there were 319 assaults by patients and 10 assaults by visitors. Survey results also indicated that 65% of these assaults were not reported to hospital authorities.

Kansagra et al. (2008) conducted a secondary data analysis of the National Emergency Department Safety Study. The sample included 3518 surveys from physicians, residents, nurses, nurse practitioners, and physician assistants in 65 hospitals. They uncovered a total of 3461 physical attacks over a five-year period, with a median of 11 attacks per emergency department. The authors also evaluated perceptions of safety, finding that one-fourth of surveyed emergency department staff reported feeling safe "sometimes, rarely, or never." The remaining 75% felt safe "most of the time" or "always" with "most of the time" being the modal category ($N = 2150$, 61%). Out of the occupations sampled, nurses felt the least safe, which the authors related to the amount of face-to-face contact with patients.

In a study of violent victimizations among six hospitals between 2003 and 2008, Arnetz, Aranyos, Ager, and Upfal (2011) analyzed a total of 1126 violent incidents that were reported during the study period. Underlying this estimate, other notable findings indicated that (1) the highest risk of victimization occurred in outpatient mental health treatment centers; (2) worker on worker violence occurred at a higher rate than patient on worker violence; and (3) mental health technicians and security guards were at the greatest risk for violence.

3.2.1.2. Nursing. Other investigators have looked specifically at workplace violence among nurses. Anderson (2002) mailed surveys to 800 nurses in an un-specified state and found that about 39% of (the majority white female) respondents indicated being a victim of physical violence. The author evaluated the contributing effect of several characteristics including drugs, poor staffing, and gangs. At least one nurse identified each contributing factor with their experience of workplace violence. Significance, however, was not determined and the response rate was very low (8.5%).

Research on workplace violence among nurses was then extended in an analysis of one state. Gerberich et al. (2004) surveyed 6300

registered and practical[2] nurses in Minnesota on their experiences with physical and non-physical violence in the prior 12 months (response rate = 78%). Results indicated a violence victimization rate of 12.2 per 100 for the 12 months prior to the survey. The authors subdivided these rates by training and demographic variables. Practical nurses had a higher rate (16.4) than registered nurses (12.0); males had a higher rate of violent victimization (19.4) than females (12.9); and 97% of violent victimizations were at the hands of patients/clients. This line of research was extended by Nachreiner et al. (2007) using the same sample to reevaluate the question but with the additional methodological approach of controlling for possible confounding variables. Their results indicated that, net of other effects, practical nurses had increased odds of violent victimization (OR = 1.4; 95% confidence interval = 1.1–1.9) compared to registered nurses.

Using a sample from one U.S. hospital, Spector, Coulter, Stockwell, and Matz (2007) collected data on the prevalence of violent victimization from 198 nurses. Fifty-six (28%) of the respondents reported being the target of physical violence, of which, 22 (39%) reported receiving a physical injury from the event.

Gacki-Smith et al. (2009) performed a secondary data analysis of a national survey performed by the Emergency Nurses Association of their almost 32,000 members. Although they had a very low response rate (10.9%), findings indicated that 25% of the respondents were victims of physical violence more than 20 times in the prior 3 years. Nurses on night shifts and weekends experienced the largest rates of victimization frequency.

Tak, Sweeney, Alterman, Baron, and Calvert (2010) used data from the 2004 National Nursing Assistant Survey, a sample of 3017 nursing assistants from 582 nursing homes, of which 2888 were included in the analysis. Results indicated that 34% of nursing assistants experienced physical injuries in the previous year. Working in Alzheimer care units, mandatory overtime, and not having enough time to assist residents with their daily activities increased the odds of experiencing physical injuries.

Using data collected from an online survey of 2166 nurses and nursing personnel from four healthcare institutions from one U.S. metropolitan area, Campbell et al. (2011) found that 19.4% of respondents reported physical workplace violence. Risk factors for experiencing workplace violence were: being a nurse, white, male, working in an emergency department, older, employed longer, childhood abuse, and experiencing intimate partner violence.

While the aforementioned studies addressed workplace violence experienced by nurses in a more general context, other studies explored the issue in specific nursing populations and fields. Anderson and Parish (2003) researched workplace violence among Hispanic nurses. The authors surveyed 900 Hispanic nurses from three counties in a large southern state, of which only 90 nurses replied. The survey collected demographic information and data on the number of years of nursing experience the respondent had when they experienced their most significant workplace violence incident. Forty-three percent of the respondents indicated being a victim of a physical violence during their career. Results indicated that 35% of respondents reported their most significant workplace violence incident occurring between zero and four years of experience (30%).

Snyder, Chen, and Vacha-Haase (2007) focused their research on nurses in long-term geriatric care facilities. The study gathered data on 76 nurses from six geriatric care facilities over a two-week period. Data were collected five times during the study period. The first four data collections were on consecutive workdays during the first week, while the last collection occurred seven days after the fourth collection. Responses were capped at six aggressive incidents for each shift. Over the study period, nurses experienced 3416 physical incidents with a median of 26 aggressive incidents, most of which were not reported. This median, however, contains both physical and non-physical incidents.

Hinchberger (2009) studied the prevalence of violence against female nursing students among 126 of the 173 nursing students who were sent a survey. Results indicated that 10% of reported violence was physical in nature. A majority of these offenses were at the hand of staff members (50%). Patients were responsible for 25% of the offenses as were visitors or other persons.

In order to assess the effect of workplace violence on physical pain, Miranda, Punnett, Gore, and Boyer (2011) surveyed 920 nursing home workers and found that nearly half reported at least one physical victimization in the prior 3 months. Furthermore, reports of lower back pain were significantly higher in nursing home workers reporting three or more victimizations in the past 3 months over those reporting no workplace violence.

Research on workplace violence among nurses has also been performed within specific nursing specialties. Sakellaropoulos, Pires, Estes, and Jasinski (2011) studied workplace violence among nurse anesthetists. A survey was sent to 700 nurse anesthetists, of which 205 mainly white females over age 50 responded. One hundred seventy (82.9%) of the respondents reported experiencing a least one physical act of violence. A larger percentage of females (85.3%) reported a least one act of physical violence than for males (79%). However, there was not a significant relationship between gender and physical acts of violence.

3.2.1.3. Physicians. Research has also been performed to identify workplace violence victimizations of physicians. Kowalenko, Walters, Khare, and Compton (2005) surveyed 250 emergency physicians from the Michigan College of Emergency Physicians about their experience with workplace violence in the prior 12 months. One hundred seventy-one doctors returned the surveys, of which approximately 28% reported experiencing a physical assault. Further analysis indicated that less experienced doctors and female doctors were more likely to experience physical assault.

Judy and Veselik (2009) distributed an Internet-based questionnaire to 1211 pediatric residents. Of the 541 residents who responded to the survey, 9% (N = 50) reported being the victim of physical assaults during their residency. Out of these 50, only 6 reported their victimization. Behnam, Tillotson, Davis, and Hobbs (2011) performed an online survey of 263 doctors and residents. Seventy-eight percent of respondents reported at least one violent victimization in the prior year; 205 reported verbal threats, 56 reported physical assaults, and 14 reported outside confrontations. Reports of workplace violence were similar for males (79%) and females (75%).

3.2.1.4. Mental health settings. Those working in mental health settings are also at risk for workplace violence. Hatch-Maillette, Scalora, Bader, and Bornstein (2007) studied a group of 129 psychiatric workers from the Midwest in order to examine possible gender differences in violent incidents with patients. While women were more likely to experience sexual threats, they were not more likely to report such events as particularly salient. Unlike the general workplace violence literature, men were not more likely to have been physically assaulted by a patient, but females were more likely to be threatened. Male patients were more likely to be aggressive than female patients, and 85% of those surveyed were not physically injured in the most recent incident.

In a survey of 1131 licensed mental health professionals from Georgia, Arthur, Brende, and Quiroz (2003) found that 61% of respondents had been victimized in violent acts at one point in their careers. The three most common physically violent acts reported were pushing, grabbing, and damaging property. Gates et al. (2011) surveyed

[2] According to Minnesota State Law, a licensed practical nurse is a healthcare provider engaged in practical nursing. The definition of practical nursing varies from state to state but is defined in Minnesota State Law as activities "which are commonly performed by licensed practical nurses and which require specialized knowledge and skill such as are taught or acquired in an approved school of practical nursing, but which do not require the specialized education, knowledge, and skill of a registered nurse" (Minnesota Nurse Practice Act, 2012).

213 workers from several emergency departments to identify demographic and occupational characteristics related to workplace violence. They found no difference in frequency of violence with respect to age, job title, patient population, or hospital location such that all workers in the emergency department appeared to be at risk for violence. In their survey, 68% experienced at least one physical threat from a patient and 31% experienced such a threat from a visitor. Almost half (48%) experienced at least one physical assault from a patient while 2% experienced a visitor-perpetrated assault. Most assaults went unreported; only 12% of the respondents said they often or always report the violence.

Cunningham, Connor, and Melloni (2003) studied workplace violence within mental health facilities. The authors surveyed staff at 15 inpatient mental health facilities, which treat children, adolescent, and adult patients, and obtained 515 surveys. Three hundred thirty-three (64.7%) respondents indicated that they were victims of physical violence in the workplace. Staff working with children and juveniles experienced higher rates of violence than staff working with adults. The study also found evidence that less-experienced staff reported higher rates of violence. Finally, victimization rates did not differ significantly between staff working with female and male patients. Privitera, Weisman, Cerulli, Tu, and Groman (2005) continued this research in a single mental health facility. The authors distributed 742 surveys within a single mental health facility to collect data on victimization in the past 12 months. Of the 380 mainly female and clinician respondents, results indicated that 55% of clinicians were victims of assault, while 14% of non-clinicians were victims of assault. In 73% of cases, patients were the source of victimization, with weapons being used in 11% of these cases. Similar to other studies of workplace violence, males (17.6%) were victimized at a higher rate than females (16.1%). Both registered and advanced practice nurses reported the highest rates of violent victimization (57% and 54%, respectively) followed closely by medical doctors (40%). Consistent with prior research, less experienced respondents reported higher rates of victimization than more experienced respondents. Respondents with between two and five years of experience had the highest percentage of workplace violence rates (15%). Interestingly, the less than 1-year experience category did not report any violent victimization.

3.2.1.5. Addiction treatment. Lipscomb et al. (2012) examined the victimization of staff working for residential addiction treatment centers. Their sample contained 409 staff members from 13 treatment centers in one northeastern state. Findings indicated that physical attacks were relatively infrequent, with 1.2% of the sample reporting physical attacks more frequently than "never/very rarely." When other factors were considered, working with clients who were actively resisting the program and had a history of violence increased the odds of being victimized. Management commitment to program also had an effect but was only significant at the moderate level of commitment, not the lowest level of commitment.

3.2.1.6. Emergency medical services. Grange and Corbett (2002) performed one of the few American studies evaluating the workplace violence of emergency medical services personnel. The authors analyzed reports from emergency medical service personnel from a southern California metropolitan area after every call over a one month time period, resulting in 4102 cases. Violence occurred in 349 (8.5%) cases. Out of these, 184 (52.7% or 4.5% of total sample) were directed at care providers, while 165 (47.3%) were directed at others. Ninety out of the 184 cases were physical violence only, and 56 cases were both physical and verbal violence. Patients were the most common offenders towards care providers (165/184; 89.7%). Male sex and age of the patient, as well as hour of day were all significant predictors of violence. In further analysis, Grange and Corbett (2002) also controlled for situational characteristics and found that: presence of police, apparent presence of gang members, suspected psychiatric disorder, and perceived presence of alcohol or drugs were predictive of violence. Male sex was not a strong independent predictor of violent episodes.

3.2.2. Educators

Another domain considered in studies of workplace violence is that of education. Howard (2011) gave a scenario-based survey to several different types of employees at a Midwestern public university to assess their perception of workplace violence. The employees tended to view physical assaults as more representative of workplace violence than property damage or threats. Male employees tended to see each type of violence differently while females perceived them as similar.

In a case control study, Nachreiner et al. (2012) looked at the risks of work-related physical assaults among 1157 Kindergarten-12th grade teachers in Minnesota, of which 290 had reported a relevant physical assault in the previous 12 months. Even when controlling for several possible confounding variables, such as job location, race, sex, and age, a main risk factor for workplace victimization was prior work-related and non-work-related physical assault.

Gregory, Cornell, and Fan (2012) investigated the relationship between an authoritative school climate, as characterized by high levels of student support and discipline, and teacher victimizations by analyzing 280 high schools in Virginia. Among their sample, 2.9% of teachers reported a physical attack that did not require a doctor and 1.1% reported being injured so as to require medical attention following an assault. After controlling for neighborhood and school factors, both higher degrees of structure and support were associated with lower amounts of teacher victimizations. Additionally, they also found that schools with larger African American enrollment had higher rates of teacher victimization.

3.2.3. Correctional officers

Correctional officers are an example of another occupation at risk for workplace violence. Konda, Reichard, and Tiesman (2012) studied both fatal and nonfatal injuries of U.S. correctional officers from 1999 to 2008. During that time, there were an estimated 125,200 injuries treated in the hospital and 113 fatalities. Assault and violent acts accounted for 40% of the fatalities and 38% of the nonfatal injuries. There were several characteristics identified that place correctional officers at risk for violence, such as working alone, working within close contact with inmates, working at night, and being unarmed. Institutional factors such as overcrowding, inadequate training, and inmate gangs can also contribute to a heightened risk for violence. Of the nonfatal injuries, 73% were male and 27% were female, with the latter having an increased risk of injury compared to the former.

3.2.4. Adolescent workers

Most studies reviewed thus far focus on adult-aged workers. However equally important, but much less investigated, are persons under the age of 18 who work—many of whom occupy food and retail businesses. Rauscher (2008) focused on such a juvenile-aged worker sample. Using survey data from 1171 respondents between the ages of 14 and 17, she found that 10% of them reported being physically attacked while at work. Those that were female, older, and white were more likely to be victims. Customers were the most common perpetrator of physical attacks.

3.2.5. Judicial workplace

Those working in justice-related positions have also been found to be at risk for workplace violence (McGovern et al., 2000). Harris, Kirschner, Rozek, and Weiner (2001) conducted surveys and in-depth interviews with a total of 1029 judges in Pennsylvania to investigate their perception of workplace violence. While only 1% reported being physically assaulted, 52% reported receiving some type of threatening action, such as inappropriate communication. Although they acknowledged that

violence is possible in their line of work, the judges tended to minimize it by failing to report it, excusing it as the perpetrator needing to vent, or blaming it on other jurisdictions.

3.2.6. Military

Other scholars have investigated the effect of military enlistment on individuals' (specifically women) experience with workplace violence. Sadler, Booth, Cook, Torner, and Doebbeling (2001) used data from a national telephone survey of 537 women who served in Vietnam, post-Vietnam, and the Persian Gulf War eras to assess experience with violence. Among the respondents, 23% reported experiencing physical assault during their service—a rate that was consistent across military eras. Sexual harassment and unwanted sexual advances were independent risk factors for physical assault. Those who were assaulted were more likely to be enlisted, leave their military career sooner than intended, and have a history of childhood physical/sexual abuse. The perpetrators were mostly male and similarly ranked. The perpetrators also were reportedly under the influence of drugs/alcohol at the time of the offense.

3.2.7. Social workers

Similar to those in healthcare, social workers also work in areas and with persons that may place them at a high risk of experiencing violence. Shields and Kiser (2003) investigated the extent of aggression and physical assault among 171 social workers in four rural areas and one urban area in the Midwest. Over half (56%) of the respondents indicated that they had experienced threats of violence, with those working in rural areas more likely to receive such threats. However, 9% of those respondents actually experienced physical violence, with a higher rate in urban areas. Jayaratne, Croxton, and Mattison (2004) studied a 1999 national sample of 507 social workers and found that while verbal abuse was quite common (49.3%), physical assault was not very common (3.3%). Approximately 23% of those surveyed had been physically threatened at some point and those who worked for nonprofit agencies were at a higher risk for assault than those working in private ones.

In her exploration of social workers, Ringstad (2005) surveyed 1029 social workers from across the U.S. and found that 62% of the respondents had reported being a victim of either physical or psychological assault. Thirty percent had been physically assaulted ever in their careers and 14.7% had been assaulted during the previous 12 months. Inpatient mental health and residential settings had the highest rate for these assault victimizations. Interestingly, the survey also asked the workers about their own assaultive behavior and 8% reported they had physically assaulted a client at least once in their careers.

Respass and Payne (2008) used national injury data from the Bureau of Labor Statistics to explore trends in social workers' experience of workplace violence. Compared to other workers, social workers were almost 6 times more likely to experience workplace violence in some form. In 2002, approximately 18 out of every 10,000 social workers missed at least 1 day of work due to a workplace assault. Among other workers in the same year, that same rate was 2.7.

In a later study, Ringstad (2009) surveyed both clients and workers in California Child Protective Services (CPS) analyzing a total of 68 respondents. Among the respondents, 22% of the workers said they had been physically assaulted by a client and 70% of all workers reported being a victim of some form of violence committed by a client. However, 7% of the clients reported physically assaulting a CPS worker. The most common form of assault took the form of grabbing, pushing, or shoving. Ringstad did not report any demographics differences in offenders or victims of workplace violence in this setting.

3.2.8. Taxicab drivers

Although not commonly a subject of scholarly research, taxicab drivers are another occupation at risk for workplace violence. Schwer, Mejza, and Grun-Rehomme (2010) analyzed the experiences of 401 taxi drivers in Las Vegas, NV, and found that 7% of their sample had been physically assaulted at some point while another 4% had ever been robbed. Gilbert (2011) interviewed 16 taxi drivers in an urban center in the northwestern U.S. and found that all of the drivers reported experiencing some form of violence while on the job. She also identified several themes of the violence including: money, physical violence/weapons, night shift encounters, and interpersonal violence. Typically the violence stemmed from disputes over the fare, general disrespect, and hostility due to the driver's nationality or accent. Despite the nature of the violence, the drivers in her sample were rarely injured due to the violence.

3.2.9. Homicide-specific occurrences

Other scholars have focused on fatalities resulting from violence in the workplace. Moracco et al. (2000) analyzed 361 homicides that occurred from 1977 to 1991 in North Carolina and found that fatalities were highest among males, older employees, self-employed workers, minorities, and those working as taxicab drivers, in the grocery industry, and in protective services. Half of the cases were robberies, and this was especially true in retail workplaces, and firearms were used in nearly 75% of the fatalities. Women were more likely than men to be killed by an estranged partner and 51.4% of all fatalities occurred in an urban area. Also using North Carolina data, Loomis, Wolf, Runyan, Marshall, and Butts (2001) conducted a case–control study of workplace homicides from 1994 to 1998 and identified several risk factors including: workplaces open at night or on Saturdays, having only one worker present, an employee having two years or less experience at the job, and workplaces with higher proportions of males, African-Americans, or Asians. Out of the 105 fatalities studied, 59 of those occurred in retail, followed by transportation ($n = 14$) and manufacturing ($n = 11$).

In contrast to studying the prevalence of homicide within various occupations, Hartley, Biddle, and Jenkins (2005) calculated the societal costs of 7925 workplace homicides between 1992 and 2001 including medical expenses, lost future earnings, and lost household production. With a mean cost of $800,000, workplace homicide during that period had a total cost of approximately $6.5 billion. The retail industry had the highest number of homicides and subsequently the highest cost. Approximately 70% of the homicides were white workers and most of the victims were between the ages of 25 and 44.

Hendricks, Jenkins, and Anderson (2007) found a significant decline of about 6% annually in U.S. workplace homicides from 1993 to 2002. This decline was most evident in taxicab drivers, chauffeurs, and convenience store employees. However, there was a non-significant increase in the rate of homicides for those in healthcare and social services domains.

Using North Carolina data from 1994 to 2003, Gurka et al. (2009) examined the differences between robbery-related and non-robbery-related workplace homicides. Of the 265 homicides included in their study, 64% of them were robbery related and 36% were not. Strangers committed 11% of the non-robbery homicides compared to 73% of the robbery-related homicides. Most robbery-related homicides occurred in retail occupations (67%), but that same domain only comprised 28% of the non-robbery-related homicides. Service (26%) and manufacturing (22%) industries were also prevalent among non-robbery-related homicides.

Tiesman, Gurka, Konda, Coben, and Amandus (2012) performed an analysis of the effect of intimate partner violence on workplace homicides among U.S. women. The authors analyzed workplace homicides between 2003 and 2008, finding that 648 women were feloniously killed at work. Criminal intent was the most common cause of these homicides ($n = 212$; 39%). Personal relations followed as the second leading cause of homicides ($n = 181$; 33%). Furthermore, intimate

partners committed 142 (78%) of the homicides committed by personal relations.

Utilizing Chicago police records, Hewitt, Levin, and Misner (2002) analyzed 940 homicides, occurring between 1965 and 1990, in order to assess the risk factors associated with workplace homicide. Results provided evidence that working in a retail establishment increased the likelihood of being a victim of workplace homicide, with robbery being the most common motive (62%). The authors also found a seasonal effect in which the number of workplace homicides was highest during November and December. African American men were found to be the most common offender and victim of workplace homicide. Further, firearms were used in a majority of homicides (83%). Finally, alcohol consumption by tavern workers, which is the occupation with the highest homicide count for the study, was a factor in 48% of homicides.

4. Discussion

This article conducted a review of the empirical research on workplace violence from 2000 to 2012. Findings indicated that although it is premature to arrive at any estimate of the prevalence of workplace violence, it can be concluded that: (1) it is rare; (2) the risk of workplace violence varies by demographic factors and occupational status (and in some cases their interaction, such as female nurses) as well as by the nature of the victim-aggressor relationship—with most workplace violence originating from persons external to the workplace, and (3) the factors related to workplace violence appear to be mainly situational, stress-related, and purposeful—such as the perpetrator being refused a service or request. In particular, much of the empirical research reviewed since 2000 has been concentrated on the workplace violence experienced by persons in professional (nurses, social workers, therapists, doctors) and service (police and security officers, health care workers) occupations, who likely exhibit an increased likelihood of victimization because they interact with patients and clients who may be suffering from drug/alcohol abuse and/or mental illness (LeBlanc & Kelloway, 2002).

As with any young and developing area of interest, there are many unanswered questions and topics for research. In the remainder of our article, we identify many of these open questions. First, one of the most consistent findings from our review (and attention paid in previous research) has been the extent to which the risk of workplace violence is strongly linked to occupational domain. Yet, there are many occupations that have not been subject to comparable empirical scrutiny – many of which interact with persons and/or populations that may victimize them, including: persons working in the adult entertainment industry (strippers, prostitutes), those working in the alcohol industry (bartenders), those working in the fast food industry (servers, hostesses), and those working in the airline industry – especially flight and gate attendants who are on the front-line when it comes to airline passengers complaining about delayed and canceled flights, inadequate seat and baggage space. All of these occupations, and several others not listed, should be subject to research not only in an effort to document their risk of workplace violence victimization, but also to assess whether they are subject to the same types of violent victimizations and for the same reasons.

Second, as is the case of much of the existing empirical research, our review was focused on workplace violence against individuals, yet it would seem that aggressors can also target the organization. Aggressive acts against an organization can take the form of physical or virtual vandalism. For example, distraught employees or customers could physically destroy organizational property, such as defacing or burning the building, company cars, computers or other equipment. In today's world, virtual attacks on the company could be quite costly. These acts would include launching viruses to destroy company computers, files, and databases, or viruses designed to deface the company website (e.g., web spoofing) or even a denial of service attack where the computer system is overloaded and flooded with bogus messages that in effect shut down e-commerce sites. These examples, while not as extreme as physical violence against an individual, are equally costly and harmful to an organization. In summary, much more research is needed that documents the prevalence and types of workplace violence against the organization as well as the correlates of those attacks.

Third, as would be expected, most empirical research on workplace violence has concentrated on overt or direct victimization, yet equally important though much harder to assess, are indirect or covert forms of workplace crime. Examples of such (mainly non-violent) acts would include obstructive behaviors like failing to provide necessary information regarding upcoming meetings or appointments, failure to respond to inquiries, or other activities that do not allow an individual to adequately perform their job. Understanding the prevalence of such acts, as well as the reasons persons may offend in covert as opposed to overt forms, is important. In this regard, it is important to examine demographic differences in victimization (and perpetration) of both direct and indirect forms of workplace violence.

Fourth, most of the research undertaken on workplace violence has emerged from the fields of organizational psychology, business, and health (Aquino & Thau, 2009; Hershcovis & Barling, 2010; Inness, LeBlanc, & Barling, 2008), but other disciplines have theoretical frameworks that can provide useful insight into workplace violence. One in particular, Agnew's (1992) General Strain Theory (GST) from the field of criminology, may be especially useful. Agnew argues that individuals experience at least three distinct types of strain: the presentation of noxious stimuli, the removal of positive stimuli, and the failure to achieve positive goals. Experience of these strains is believed to produce negative emotions, such as anger, depression, fear, and anxiety. Individuals are believed to respond to these negative emotions in either a crime or non-crime manner, depending on various conditioning factors such as their stock and use of coping mechanisms. From the perspective of workplace violence, an intriguing possibility here is that individuals may experience the strain of workplace violence and then perhaps lash out against their workplace (for failing to protect them), may act out against others, or may go into despair and hurt themselves by drug use or other negative acts. GST is also intriguing from the perspective of the offender. For example, the offender may perceive that s/he has been victimized at work (e.g., is fired, not promoted, not given a raise), experiences anger, and then lashes out at his/her manager or at the workplace more generally. In one study exploring the applicability of GST to workplace issues, Hinduja (2007) used data from a survey of over 300 employees from two sites of a northeastern corporation to examine how overt (e.g., call names or insults) and covert (e.g., keep from getting raise) forms of workplace harassment resulted in either aggressive (e.g., feel very angry) or passive (e.g., become withdrawn) reactions. Findings showed that covert – but not overt – harassment increased both aggressive reactions. Data limitations precluded a more complete assessment of GST, particularly the extent to which the aggressive and passive emotions subsequently predicted criminal behavior.

Fifth, much of the research on workplace violence has been from the perspective of the victim, but equally important is an understanding of the motives behind the perpetration of workplace violence. A program of research studying aggressor motivations is important for better understanding workplace violence.

Finally, although the creation and maintenance of a national database of workplace violence faces several obstacles, it would be important to better describe the nature and substance of the problem so as to help develop better theoretical frameworks and more appropriate policy options. Such a database will also help with respect to reporting of workplace violence. There is some suggestion that workplace violence is under-reported, especially more so than non-workplace violence incidents (Harrell, 2011), and this seems to be occurring because workplace violence tends to be reported to other officials

(not the police) or the victim remains silent because s/he believes it was a personal matter.

In summary, suffering workplace violence can lead to many adverse outcomes including personal safety concerns, job insecurity, fear, lowered job performance, job satisfaction, affective commitment, intent to turnover, psychological distress, emotional exhaustion, depression, physical well-being, interpersonal deviance, and organizational deviance. Given the adverse consequences that may emerge from such victimization, researchers and policy officials should be keenly interested in not only documenting and explaining the prevalence and correlates of workplace violence, but also consider the characteristics and motivations associated with the perpetrators of workplace violence. Basic descriptive knowledge on the type and source of workplace violence will not only help inform theoretical frameworks but also yield the insight needed in order to tailor more effective interventions to prevent such victimizations from occurring. Recently, studies have shown that health-related initiatives, such as fitness and wellness programs (Gebhardt & Crump, 1990), stress management interventions (Limm et al., 2011) and multivitamin supplement administration (Stough et al., 2011), can reduce the experience of workplace stress. As workplace stress is associated with workplace violence, evaluations of programs designed to alleviate workplace stressors would seem important.

Appendix A

Reference	Location	Main findings
McGovern et al., 2000	Minnesota	344 nonfatal work-related physical assaults resulted in approximately $5.9 million of direct and indirect costs. Occupations at highest risk for workplace violence: safety workers, justice workers, social service workers, and healthcare workers.
Scalora et al., 2003	Lincoln, NB	Coworker-perpetrated workplace violence tended to be related to victim-perpetrator relationship. Public-perpetrated incidents were more likely to be related to customer service issues and involve prior threats.
Tjaden & Thoennes, 2001	Nationally-representative telephone survey	An estimated 2.3 million men and 1.1 million women have been victims of workplace violence at some point. Women were more likely to be raped or stalked while men were more likely to be physically assaulted.
Fisher & Gunnison, 2001	National Crime Victimization Survey	Women were more likely to be raped while men were more likely to be victims of aggravated assault at work. Workplace victimizations for women increased by 17% but decreased for males by 3% between 1992 and1996.
Hartley et al., 2012	Nationally-representative sample of hospitals	Education, healthcare, public safety, justice, and retail occupations accounted for 90% of workplace violence injuries. Eight percent of the incidents had criminal intent.
Islam et al., 2003	West Virginia, 1997–1999 worker's compensation claims	Females reported more injuries than men and women working the nightshift in healthcare occupations were especially at risk for workplace violence. Seventy-five percent of all injuries occurred among healthcare workers, public safety workers, and teachers.
McCall & Horwitz, 2004	Oregon, 1990–1997 worker's compensation claims	Most common workplace violence incidents included assaults. Industries found to be at higher risk for workplace violence included medicine, law enforcement, correctional officers, public service workers, therapists, and bus drivers.
Horwitz et al., 2006	Rhode Island, 1998–2002 worker's compensation claims	Though females filed more claims, males were more likely to suffer from injuries that resulted in longer periods of damages and higher costs. The total cost of all claims was more than $7 million, with an average claim value of $1000.
Ta et al., 2009	North Carolina	Using Census Block data, it was found that industries at a higher risk for fatal workplace violence were located in areas with higher poverty rates, more residential instability, and less human and economic capital.
Howard, 2011	Survey of Midwestern public university employees	Employees viewed physical assaults as more representative of workplace violence than property damage or threats.
Nachreiner et al., 2012	Minnesota Kindergarten-12th grade teachers	Out of the 1157 teachers surveyed, 290 had experienced a work-related physical assault. Prior work-related and non-work-related physical assault was found as a main risk factor for workplace victimization, even when controlling for job location, race, gender, age, and other possible confounds.
Gregory et al., 2012	Virginia high schools	4% of their sample reported experiencing a work-related physical assault. Schools with higher African American enrollments had higher rates of teacher victimizations.
Konda et al., 2012	U.S. correctional officers, 1999–2008	Assault and violent acts accounted for 38% of work-related nonfatal injuries and 40% of work-related fatalities. Characteristics that place correctional officers at risk include working alone, working within close contact with inmates, working at night, institution overcrowding, and inmate gangs.
Rauscher, 2008	U.S. workers, ages 14–17	Among the sample, 10% reported being physically attacked while at work. Females, older adolescents, and white adolescents were more likely to be victimized.
Harris et al., 2001	Pennsylvania judges	Though 1% of judges interviewed reported being physically assaulted, 52% had received some type of threatening action.
Sadler et al., 2001	National telephone survey of women with military experience	23% of respondents reported experiencing a physical assault during their military service. Those who were assaulted were more likely to be enlisted, leave their military career earlier than intended, and have a history of childhood physical/sexual abuse. The perpetrators tended to be reportedly under the influence of drugs/alcohol at the time of the assault.
Shields & Kiser, 2003	Midwest social workers from rural and urban areas	56% of respondents reported had experienced violent threats and 9% experienced physical violence.
Jayaratne et al., 2004	National sample of social workers	Though 3.3% of social workers reported experiencing physical assault, 49.3% reported being verbally assaulted. 23% of the respondents had been physically threatened at some point.

Appendix A *(continued)*

Reference	Location	Main findings
Ringstad, 2005	U.S. social workers	62% of respondents reported being a victim to either physical or psychological assault. 30% had been physically assaulted ever in their careers and 14.7% had been assaulted at some point in the previous 12 months.
Respass & Payne, 2008	Bureau of Labor Statistics—National injury data	In 2002, approximately 18 out of 10,000 social workers missed at least 1 day of work due to workplace assault. Social workers were almost 6 times more likely to experience workplace violence compared to other workers.
Ringstad, 2009	California Child Protective Services social workers	22% of workers were physically assaulted at one time by a client and 70% reported being a victim of some form of violence by a client.
Schwer et al., 2010	Las Vegas, NV, taxi drivers	7% had been physically assaulted at some point and 4% had ever been robbed.
Gilbert, 2011	Northwestern U.S. urban center taxi drivers	All (n = 16) in the sample had experienced some form of violence on the job. Typically the violence stemmed from disputes over the fare, general disrespect, and hostility due to the driver's nationality or accent.
Moracco et al., 2000	North Carolina homicides, 1977–1991	Work-related fatalities were highest among males, older employees, self-employed workers, minorities, and those working as taxicab drivers, in the grocery industry, and in protective services.
Loomis et al., 2001	North Carolina homicides, 1994–1998	Risk factors for work-related fatalities included workplaces open at night or on Saturdays, having only one worker present, an employee having 2 years or less experience at the job, and workplaces with higher proportions of males, African-Americans, or Asians.
Hartley et al., 2005	U.S. workplace homicides, 1992–2001	Workplace homicide had a mean cost of $800,000 and the retail industry had the highest number of homicides. Approximately 70% of homicides were white workers and most victims were between the ages of 25 and 44.
Hendricks et al., 2007	U.S. workplace homicides, 1993–2002	Found a decline of approximately 6% in workplace homicides between 1993 and 2002, especially among taxicab drivers, chauffeurs, and convenience store employees.
Gurka et al., 2009	North Carolina workplace homicides, 1994–2003	64% of workplace homicides were robbery-related. Strangers committed 73% of the robbery-related homicides but 11% of non-robbery-related homicides. Most robbery-related homicides occurred in retail occupations (67%).
Tiesman et al., 2012	U.S. workplace homicides among women, 2003–2008	648 women were killed at work. Criminal intent was the cause of 39% of these cases and personal relations was the cause among 33% of the homicides. Intimate partners committed 78% of the homicides committed by personal relations.
Hewitt et al., 2002	Chicago workplace homicides	Working in the retail industry increased the likelihood of workplace homicide. Workplace homicide was the highest during November and December and African American men were found to be the most common offender and victim.
Findorff et al., 2004	1 Midwest healthcare organization	127 (7.2%) participants experienced physical violence. Patient care assistants, nurses, and doctors experienced higher odds of being victimized, while clerical workers and management experienced lower odds of victimization when compared to medical specialists. Increased patient contact also increased the odds of violent victimization.
Gates et al., 2006	5 hospitals in 1 Midwest City	There were 319 assaults by patients and 10 assaults by visitors. 65% of these assaults were not reported to hospital authorities.
Kansagra et al., 2008	National Emergency Department Safety Study	3461 physical attacks were reported over a 5-year period, with a median of 11 attacks per emergency department. Questions on perceptions of safety indicated that 1/4 of surveyed emergency department staff reported feeling safe "sometimes, rarely, or never." The remaining 75% felt safe "most of the time" or "always."
Arnetz et al., 2011	Six hospitals in un-specified state, 2003–2008	1126 violent incidents were reported during the study period. The highest risk was in outpatient mental health treatment centers. Worker on worker violence occurred at a higher rate than patient on worker violence. Mental health technicians and security guards were at the highest risk.
Anderson, 2002	68 nurses in un-specified state	39% of respondents indicated being a victim of physical violence. The sample was mostly female and white.
Gerberich et al., 2004	6300 Minnesota nurses	There was a violence victimization rate of 12.2 per 100 for the 12 months prior to the survey. Practical nurses had a higher rate (16.4) than registered nurses (12.0); males had a higher rate of violent victimization (19.4) than females (12.9); and 97% of violent victimizations were at the hands of patients/clients.
Nachreiner et al., 2007	6300 Minnesota nurses	Net of other effects, practical nurses had increased odds of violent victimization (OR = 1.4; 95% confidence interval = 1.1–1.9) compared to registered nurses.
Spector et al., 2007	198 nurses in 1 southeastern U.S. hospital	Fifty-six (28%) of the respondents reported being the target of physical violence. Of these, 22 (39%) reported receiving a physical injury from the event.
Gacki-Smith et al., 2009	National survey of the Emergency Nurses Association	25% of the respondents were victims of physical violence more than 20 times in the prior 3 years. Nurses on night shifts and weekends experienced the largest rates of victimization frequency.
Tak et al., 2010	2004 National Nursing Assistant Survey	34% of nursing assistants experienced physical injuries in the previous year. Working in Alzheimer care units, mandatory overtime, and not having enough time to assist residents with their daily activities increased the odds of experiencing physical injuries.
Campbell et al., 2011		19.4% of respondents reported physical workplace violence. Risk

(continued on next page)

Appendix A *(continued)*

Reference	Location	Main findings
	2166 Nurses from 4 healthcare institutions in 1 metropolitan area	factors for experiencing workplace violence were: being a nurse, white, male, working in an emergency department, older, employed longer, childhood abuse, and experiencing intimate partner violence.
Anderson & Parish, 2003	3 counties in large southern state	Forty three percent of the respondents indicated that being a victim of a physical violence during their career. Results indicated that 35% of respondents reported their most significant workplace violence incident occurring between 0 and 4 years of experience (30%).
Snyder et al., 2007	6 geriatric care facilities in rocky mountain region	3416 physical incidents with a median of 26 aggressive incidents were reported over the 2-week study period. Responses were capped at 6 aggressive incident per shift.
Hinchberger, 2009	1 un-specified nursing school	10% of reported violence was physical in nature. A majority of these offenses were at the hand of staff members (50%). Patients were responsible for 25% of the offenses as were visitors or other persons.
Miranda et al., 2011	920 nursing home workers	Nearly 50% of respondents reported at least one physical victimization in the prior 3 months. Furthermore, reports of lower back pain were significantly higher in nursing home workers reporting three or more victimizations in the past 3 months over those reporting no workplace violence.
Sakellaropoulos et al., 2011	Randomly selected anesthetists from AANA	170 (82.9%) of the respondents reported experiencing a least one physical act of violence. More females (85.3%) reported a least one act of physical violence than for males (79%).
Kowalenko et al., 2005	171 emergency physicians from the Michigan	28% reported experiencing a physical assault. Less experienced doctors and female doctors were more likely to experience physical assault.
Judy & Veselik, 2009	525 pediatric resident programs	9% (N = 50) reported being the victim of physical assaults during their residency. Only 6 (12%) reported their victimization.
Behnam et al., 2011	65 randomly selected emergency medicine residency programs	78% of respondents reported at least one violent victimization in the prior year; 205 reported verbal threats, 56 reported physical assaults, and 14 reported outside confrontations. Reports of workplace violence were similar for males (79%) and females (75%).
Hatch-Maillette et al., 2007	Psychiatric workers from the Midwest	Women were more likely to experience sexual threats. Men were less likely to have been physically assaulted by a patient. Females were more likely to be threatened. Male patients were more likely to be aggressive than female patients. 85% of those surveyed were not physically injured in the most recent incident.
Arthur et al., 2003	1131 licensed mental health professionals from Georgia	61% of respondents had been victimized in violent acts at one point in their careers. The three most common physical violent acts reported were pushing, grabbing, and damaging property.
Gates et al. (2011)	Random sample of members belonging to the Emergency Nurses Association	68% experienced at least one physical threat from a patient and 31% experienced such a threat from a visitor. Almost half (48%) experienced at least one physical assault from a patient while 2% experienced a visitor-perpetrated assault. Most assaults went unreported; only 12% of the respondents said they often or always report the violence. There was no difference in frequency of violence with respect to age, job title, patient population, or hospital location.
Cunningham et al., 2003	Mental health facilities in Massachusetts California, Arizona, Florida, and Pennsylvania	64.7% respondents reported victimization of physical violence in the workplace. Staff working with children and juveniles experienced higher rates of violence than staff working with adults; less-experienced staff reported higher rates of violence; and victimization rates did not differ significantly between staff working with female and male patients.
Privitera et al., 2005	Department of Psychiatry at the University of Rochester Medical Center	55% of clinicians were victims of assault, while 14% of non-clinicians were victims of assault. Patients were the source of victimization in 73% of cases. Weapons were used in 11% of these cases. Males (17.6%) were victimized at a higher rate than female (16.1%). Registered and advanced practice nurses reported the highest rates of violent victimization (57% and 54%, respectively).
Lipscomb et al., 2012	13 addiction treatment centers in 1 Eastern U.S. State	1.2% of the sample reported physical attack more frequently than “never/very rarely.” Net of other effects, working with clients whom were actively resisting the program and have a history of violence increased the odds of being victimized.
Grange & Corbett, 2002	1 EMS agency in Southern California	Violence occurred in 349 (8.5%) cases. Of these cases, 184 were directed at care providers, while 165 were directed at others. 90 of 184 cases were physical violence only, and 56 cases were both physical and verbal violence. Patients were the most common offenders towards care providers (165/184; 89.7%).

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