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Workplace violence: how do we improve approaches to prevention?

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The topic of workplace violence has been studied for many years and from many different professional approaches. These professional fields have employed different definitions, priorities, and understanding of the scope of the problem into their approaches to intervention. Some industries and psychologists exclusively have defined the scope as worker-on-worker violence, and their prevention strategies have focused on threat identification and management. Law enforcement have focused on robbery-related workplace violence and used criminal apprehension and environmental modification as interventions. The retail industry has focused on environmental and some administrative approaches, whereas the healthcare industry has focused on training. Other industries have not used an integrated approach, and others have not applied any interventions.

As the field of workplace violence has grown and evolved, these diverse perspectives have begun to come together. Workplace violence is understood to be a broad spectrum of events, including physical assault, threats, and harassment in the workplace. Important risk factors have been identified that are amenable to intervention, and programs have been implemented that address these risk factors. The broad field of workplace violence, however, has not adapted an organized framework with which to address increasing knowledge. This article discusses the scope of workplace violence and how it fits within the framework of the public health model. The use of a public health model to identify promising avenues for improving intervention efforts is examined.

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The public health model

The public health approach defines five steps to reduce negative health consequences in populations, and this approach fits well with the prevention of workplace violence (http://www.cdc.gov/niosh/injury/traumaresearch.html) [1]. The five steps are:

1. Surveillance: Identify and prioritize problems.
2. Etiologic research: Quantify and prioritize risk factors.
3. Prevention and control: Identify existing strategies or develop new strategies to prevent occupational injuries.
4. Dissemination: Implement the most effective injury control measures.
5. Evaluation: Monitor the results of intervention efforts.

Although it is preferable for these steps to occur in an orderly fashion, such order rarely occurs. The progression through the public health model in the case of workplace violence often is haphazard because of the multidisciplinary and broad nature of the problem. The following sections discuss current knowledge about these five steps.

Surveillance: how common is workplace violence?

The surveillance of workplace violence is the process of enumerating and describing the dimensions and characteristics of such events [2]. It has advanced in the past 15 years, yet the scope of workplace violence still is not understood fully. Information about the incidence of workplace violence comes from surveillance efforts at many levels.

Most knowledge about the incidence and trends of workplace violence comes from fatal and severe events. National sources for information about fatal events include the Bureau of Labor Statistic's Census of Fatal Occupational Injuries, described by Richardson and Windau in an article elsewhere in this issue.

Surveillance of nonfatal workplace violence events is more difficult and provides a less clear picture. In the Survey of Occupational Injuries and Illnesses (SOII), Richardson and Windau reported in this issue that 18,500 assaults resulted in time away from work in 2000. In contrast, the National Crime Victimization Survey (NCVS) reported an annual average of 1.7 million workplace violence incidents [3].

Although these numbers seem to be discrepant, they are correct estimates for the samples that they reflect. The SOII involved a sample of large private industries and only included events that lead to time away from work. It included only severe cases that were reported and did not represent all industries. In the NCVS, a random sample of US adults was asked about their overall experience of violent victimization, including that which occurred in the workplace. Events included simple and aggravated assault, rape and sexual assault, and robbery. Although the NCVS

included a broader definition and did not require official reporting, its responses were subject to self-reporting biases.

Although the SOII and NCVS report different scopes of events, they share many similar trends. Both surveys identify similar age, gender, and occupational categories as being at high risk. They also follow the same general time trends, indicating a decrease in events of workplace violence from 1993 through 1999 and a slight increase in the past 2 years. These consistencies are important for the identification of high-risk groups.

One important finding from the NCVS is that only 46.3% of workplace rapes, sexual assaults, robberies, and simple and aggravated assaults were reported to the police, and only 30.1% of such incidents were reported to another official source [3]. Almost one quarter (23.6%) of all events were not reported through any official source. Research also indicates that reports rarely are made to both police and employers, so that neither law enforcement nor employer-based reporting systems accurately identify the full spectrum or number of events [4].

This finding has many implications for research and prevention. One of the most important implications is that information that is based on reported events may greatly underrepresent the true scope of the problem. The risks and characteristics of events cannot be identified accurately if all events are not reported. If there are systematic differences between events that are reported and those that are not reported, there will be bias in how risk factors and prevention priorities are identified. The ability to evaluate the success of intervention approaches is hindered severely without an accurate count of events.

Victims may have many barriers to reporting a violent event. If the workplace is unlikely to take the report seriously or to take any action, the victim has no incentive to report. Some victims may fear retaliation from the perpetrator or the employer or may not want to draw attention to themselves or the event. Workers who experience chronic assaults, which occur in some healthcare occupations, may consider violence to be part of the job and not important enough to report. Victims may not want to take the time to report an incident if a lot of paperwork is involved.

Surveillance efforts to identify other outcomes are scarce, although the types of outcomes from violent events are broad. In a survey of bank clerks who had experienced robbery, 80% of victims reported that their productivity was impacted negatively, 67% reported debilitating anger and stress, and more than 40% reported a desire to change jobs [5]. Surveillance efforts are needed to identify the incidence and characteristics of threatening behavior and harassment, the costs and consequences of workplace violence, and the types of programs that employers are implementing.

Etiologic research

The goal of analytic research is to quantify and prioritize risk factors for intervention. The categorization of workplace violence into distinct types has helped

focus research and prevention efforts [6;7]. The four types of workplace violence are:

1. Criminal intent: The perpetrator has no legitimate relationship to the business or its employees and usually commits a criminal act before the violence occurs. Criminal acts include robbery, shoplifting, and loitering (type I).
2. Customer or client: The perpetrator has a legitimate relationship with the business and becomes violent during a business transaction. This category includes customers, clients, patients, students, inmates, and any other group for which the business provides services (type II).
3. Worker on worker: The perpetrator is an employee or past employee of the business who attacks or threatens other employees or past employees (type III).
4. Personal relationship: The perpetrator does not have a relationship with the business but has a personal relationship with the intended victim. This category includes victims of domestic violence who are assaulted while at work. These events may not be related directly to the workplace (type IV).

There is little quantitative research available to identify and prioritize risk factors for workplace violence. Research studies have focused on two different units of analysis: the individual and the workplace. Few data show how individuals interact with the workplace to increase or decrease the potential for workplace violence.

Individual risks for workplace homicide are not distributed evenly among the workforce. Blacks, Asians and Pacific Islanders, Hispanics, and new immigrants of any ethnicity have an elevated risk for workplace violence [8–11]. Workers who work at night or in the early morning have an increased risk for workplace homicide that occurs as a result of criminal activity, especially if working alone [9,10,12]. Older workers are at higher risk for workplace homicides, with rates exceeding 2.7 per 100,000 workers for those aged 65 or older [8,10,13]. Younger workers may have an elevated risk, but in an article elsewhere in this issue, Runyan et al show that reliable estimates of this risk among young workers are not available. Although the rate of workplace violence victimization is higher among men, a higher proportion of women who are injured while working are victims of violence [9].

Individuals who work in certain occupations and industries consistently are found to have elevated rates of workplace violence, but these rates differ by the level of violence severity. According to the Bureau of Labor Statistics surveys (see article by Richardson and Windau in this issue), homicide rates are highest in the retail industry and are high in liquor stores and among taxicab drivers. Homicides most commonly occur during a robbery, which is a type I event. Nonfatal assaults are most common among healthcare and social service workers and most frequently are perpetrated by a customer or client. According to the NCVS, annual rates of victimization exceed 50 per 1000 workers for law enforcement officers,

private security personnel, mental healthcare workers, junior-high and special-education teachers, retail sales workers, and taxicab drivers [3].

Etiologic research that examines business characteristics in relation to workplace violence has occurred for many years, but the research tends to focus on limited industries and on only one of the four types of violence. Most research that identifies risk factors for workplace violence has been conducted in the retail industry and has focused on robbery or crime-related violence (type I). Most of the risk factors that have been examined are environmental in nature, with some focus on administrative approaches. These findings are discussed in an article by Marshall et al elsewhere this issue.

Risk factors for violence in the healthcare industry, especially hospital emergency departments and psychiatric facilities, have been identified through a limited body of research. Healthcare facilities have many of the commonly cited risk factors for workplace violence. These risk factors include the provision of services to the public (especially on demand), working with the public, working in an accessible workplace, and providing services to potentially hostile clientele [8,14,15]. Risk factors found specifically within the healthcare setting include the carrying of weapons by patients, long waiting periods, overcrowded working and waiting areas, the right of psychiatric patients to refuse treatment, and the use of hospitalization in lieu of incarceration [15,16]. Staffing patterns, including decreases in the number and experience level of staff, have been identified as important risk factors [17,18]. Factors placing patients at high risk for the assaulting of staff include male gender, age between 16 and 25 years, use of drugs or alcohol, and gang activity [19–22].

Although studies examining retail and healthcare settings have found many similar risk factors between these two areas, no studies agree on the most important risk factors. Although much of this discrepancy results from the variation in study designs, the discrepancy also may be caused by differences in individual workplaces. Effective interventions differ depending on the community and the individual business. Because of these differences, business modifications need to be studied at the local level before standards can be adopted at broader levels [23]. Effective prevention may depend largely on a thorough understanding of each individual workplace.

Prevention and control

The goals of prevention and control are to identify existing strategies or develop new strategies to prevent workplace violence or reduce its consequences. The public health model provides an important framework for prevention efforts. The model identifies three levels of interventions (primary, secondary, tertiary) that apply to the timing of the event. The goal of primary prevention is to prevent the event from occurring, and these efforts occur in the pre-event stage. Secondary prevention focuses on early recognition of the problem so that prompt management can be initiated, and efforts apply during the event itself. Secondary prevention reduces the impact of an event by addressing the event early and keeping it from

escalating. Tertiary prevention focuses on minimizing the consequences of an event once it has happened.

The Haddon Matrix is a useful tool for organizing the etiologic effects of different prevention approaches, and it can be adapted easily to workplace violence [24,25]. It divides the different phases of prevention into categories based on the focus of the prevention effort. The different focus areas include the victim, the agents and perpetrators that cause the event, the physical environment, and the social environment. An example of the Haddon Matrix as it applies to workplace violence prevention strategies is shown in Table 1.

One important component of these prevention categories is that efforts in one category also might apply to another category at a later stage. Appropriate assistance to employees who are victims of violence (a tertiary approach) may create a better working environment, which can have a primary affect on reduction of aggression in the workforce.

Many businesses approach prevention by assuming that they are at risk for only one of the four types of workplace violence events. Retail establishments may develop a program for robbery prevention, but may not implement program elements to reduce violence from customers, between co-workers, or from personal acquaintances of workers. Some industries have developed comprehensive programs to protect their workers from domestic abuse (see article by Randall and Wells elsewhere in this issue), but have not integrated programs that address co-worker or client violence.

The etiology of workplace violence is complex and multicausal. Implementation of only one strategy likely will not have a large effect on reducing the problem. A good understanding of the work environment helps identify the strategies that are most effective in a specific workplace. Prevention efforts also are complicated, because the same components of a prevention program might not be effective, or even applicable, in different types of workplaces. Employment of uniformed security guards may be highly appropriate for a large urban trauma center, but might not be helpful or cost effective in a small, community hospital. Similarly, certain environmental approaches may not work similarly in all business settings. Bright indoor and outdoor lighting has been identified as an important environmental factor in many retail businesses; however, bright lighting might not be appropriate in all business settings, such as a romantic restaurant. Because interventions work differently in different business settings, a check-list approach to prevention is not effective. Effective prevention programs arise from good assessments of hazards within specific workplaces.

Dissemination

Dissemination includes steps to implement the most effective injury-control measures in the highest-risk businesses. One important factor in the successful implementation of a program for workplace violence prevention is management commitment. Occupational safety and health agencies have identified essential

Table 1
The Haddon Matrix and examples of strategies for workplace violence prevention

Event phases	Employee as a potential victim	Perpetrator	Physical environment	Work and social environment
Primary	Training on the elements and use of the workplace violence prevention plan Training on how to identify potential aggressors and what to do when they are found	Supplying avenues for employees to express problems. Effective overall crime control and law enforcement	Maintenance of good control of the environment, including lighting, entry and exit control, protection of valuable goods	Positive labor–management relationship Good working environment Comprehensive, prevention-based workplace violence policy
Secondary	Training on de-escalation techniques when aggression begins to build Training and practice on a violent-event response plan.	Reduced potential for weapons at the worksite Reduction of the potential lethality of weapons Use of restraints or medications (especially in healthcare settings)	Installation of alarm systems Providing egress for employees Well-trained and responsive security or law enforcement personnel	Established and coordinated response plan
Tertiary	Supplying workers with adequate crisis intervention and debriefing services	Effective relationship with security and law enforcement for apprehension and prosecution	Surveillance cameras to help document incident and apprehend perpetrators	Efforts to create cohesive workforce for support structure

elements of an effective workplace security plan, and the first element they identify is commitment from management [26–28].

Are managers committed? In surveys of the Fortune 1000 companies conducted by Pinkerton Consulting and Investigations, workplace violence has ranked as the number one security threat to American businesses for 6 of the past 7 years [29,30]. Workplace violence out-ranked concerns about drugs and alcohol, fraud, employee screening, and fears of terrorism before and after the terrorist attacks on September 11, 2001 [29,30]. In a survey of 1000 employees, however, 27% felt that their employers were not prepared sufficiently to deal with threats or violence in the workplace [31].

Another important factor in the implementation of workplace violence prevention programs is the availability of effective strategies and avenues for businesses to learn about such programs. There is a wide discrepancy between what research findings suggest is successful and what businesses voluntarily implement. In Fig. 1, 11 studies that identified risk factors and prevention strategies for robbery and violence prevention in the retail setting were reviewed [32–42]. The review identified whether each study examined one of eight factors found to be related to the risk for workplace violence. If the study examined the factor, it was determined whether the factor was related or unrelated to reducing the risk for robbery. The eight factors were cash-control policies; correct use of a

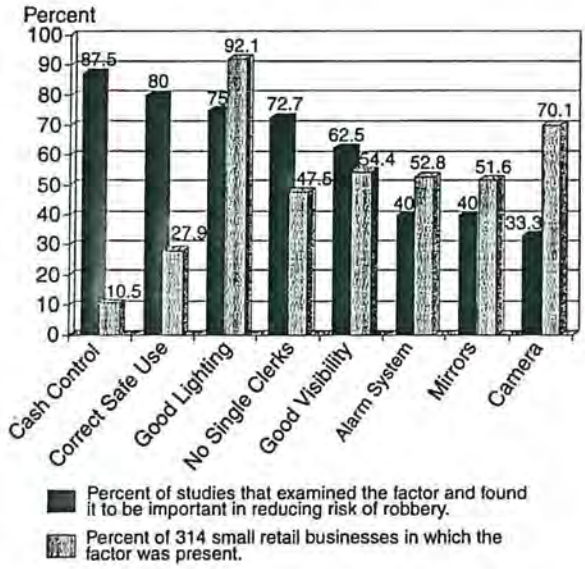

Fig. 1. Discrepancy between what research findings suggest is successful in violence prevention and what businesses voluntarily implement. Solid bar, percentage of studies that examined the factor and found it to be important in reducing the risk for robbery; shaded bar, percentage of 314 small retail businesses in which the factor was applied.

safe; good internal or external lighting: staffing patterns to avoid clerks working alone; good internal or external visibility; and the use of alarm systems, mirrors, and surveillance cameras.

To compare the interventions that businesses have implemented voluntarily with the interventions that have been found to be successful, information about security programs of 314 retail businesses was used (C. Peek-Asa, MPH, PhD, unpublished data, 2003). The businesses were part of the Workplace Violence Prevention Project described in an article by Casteel et al elsewhere in this issue. These small retail establishments and the samples in the 11 studies shared similar characteristics. Surveys of the business' security programs were conducted at baseline, so the program components that were identified were implemented voluntarily by business owners.

There is an almost inverse relationship between the approaches that researchers have found to be successful and what business owners have implemented. In Fig. 1, the eight factors are ordered by the proportion of studies that have found them to be successful. As the success decreases, the level of implementation increases.

Of the studies, 87.5% found that cash-control policies are an important factor in reducing the risk for robbery; however, only 10.5% of businesses had adequate cash-control policies. The use of security cameras was found to be an important prevention factor in only a third of the studies, yet more than 70% of businesses had installed security cameras.

The implementation of cash-control policies requires few resources but requires knowledge of how these policies should be designed and maintained. The implementation of security equipment, however, is comparably more expensive but may require little knowledge on behalf of the business owner. Implementation does not seem to be driven primarily by the need for resources.

Surveys about existing programs in other industries are scarce. One national survey of city and county government offices found that only 37.8% had workplace violence policies, and 36.2% had implemented full programs [43]. The likelihood of having a program increased with increasing population. Zero-tolerance policies were the most common policy in place (83.2%), although there is little evidence that these policies are effective. Less than 41.6% of offices had a postincident response plan, even though evaluations of these plans have shown some success [44–46].

A survey of 428 members of the American Management Association found similar trends [47]. Only 27% of respondent companies reported having crisis management plans that addressed workplace violence, and only 19% of respondents had plans that addressed crime. Training for security procedures was conducted by only 35% of respondents. In contrast, workplace violence was ranked among the top areas of concern for companies.

These trends indicate that there may be an important gap in the dissemination phase of the public health model for workplace violence. The existing evidence indicates that workplace violence is a priority concern for businesses. Little is known about the avenues that are available to businesses to learn about prevention programs, however.

Evaluation

The evaluation of intervention strategies is a crucial component in the development of successful and cost-effective programs. Few intervention programs have been evaluated [48,49].

Although the absence of an intervention evaluation does not mean that the intervention approach is not successful, it does demonstrate that workplace violence prevention is not based on evidence. Evaluations of these interventions are important for measuring overall effectiveness and identifying the most efficient methods of implementing the intervention. Increased attention to evaluation; increased collaboration between researchers, practitioners, and industry; and resources to address these issues are necessary.

Recommendations

The National Institute for Occupational Safety and Health (NIOSH) developed the National Occupational Research Agenda (NORA) in 1996 [50]. Within the framework of NORA, priorities were identified for research on traumatic occupational injuries, under which workplace violence falls. These priorities follow the public health model. Some of these recommendations as they relate to workplace violence are identified.

Surveillance

- Ensure that national reporting systems include high-risk workers. These types of employees include adolescent and older workers, temporary or contract workers (such as taxicab drivers), and undocumented workers, all of whom may be at higher risk for workplace homicide.
- Improve reporting of nonfatal events. A work-related indicator could be added to data on hospital discharge and trauma registry. Workplace violence events then could be identified through a combination of cause-of-injury and workplace codes, provided that this information is available for research purposes. Nonfatal surveillance for workplace violence should be expanded to include less severe events and threats.
- Integrate existing surveillance systems. Methods to link national databases that also protect the identities of the cases should be developed and implemented.
- Develop industry-based surveillance systems that are stripped of identifying information and are available for collaborative research.
- Conduct surveillance efforts to identify the intervention strategies that businesses are implementing.

Etiologic research

- Expand research that identifies the role of work organization, management's commitment to safety, company culture, and how the individual worker interacts with the work environment.

- Conduct research to identify how different industries and workplaces within the same industry vary according to risk factors.

Prevention and control

- Identify the extent to which existing approaches are transferable to new work settings and industries.
- Determine the relative costs and benefits for existing strategies.
- Identify factors that help motivate businesses to implement and maintain a comprehensive security program.
- Identify the interaction of environmental, administrative, and behavioral approaches and how these interactions change in different industries.
- Identify methods to increase worker–management interaction and to ensure appropriate training.

Dissemination

- Identify sources of information used by businesses and the extent to which existing information is used (such as guidelines from the Occupational Safety and Health Administration).
- Investigate the process and influences by which effective prevention programs come to the attention of occupational audiences.
- Identify new audiences and collaborators to raise awareness of the issue.
- Assess the relative effectiveness of different formats and channels of communicating risk and intervention approaches.

Evaluation

- Evaluate the effectiveness of existing interventions using robust study designs and analytic techniques.
- Develop partnerships between researchers, industry, and labor unions or other worker organizations to evaluate interventions in real work settings.
- Expand evaluation projects to include issues of feasibility, acceptability, and cost effectiveness.
- Evaluate how different approaches work differently in different work industries and different environments.

Summary

The public health model serves as one potential organizing framework for workplace violence research and prevention efforts, enabling the incorporation of input from any number of professional approaches. Although a range of important

work needs to be done, a great deal has been accomplished and learned. Existing information needs to be disseminated more fully and communicated to employees, employers, safety and health professionals, and policymakers.

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