HHS Public Access

Author manuscript

J Safety Res. Author manuscript; available in PMC 2015 September 15.

Published in final edited form as:

J Safety Res. 2013 February ; 44: 65–71. doi:10.1016/j.jsr.2012.09.006.

Workplace violence among Pennsylvania education workers: Differences among occupations☆

Hope Tiesman[a,*], **Srinivas Konda**[a], **Scott Hendricks**[a], **Dan Mercer**[b], and **Harlan Amandus**[a]

[a]National Institute for Occupational Safety and Health, Division of Safety Research, Analysis and Field Evaluations Branch, USA

[b]Pennsylvania State Education Association, Research Division, USA

Abstract

Problem—The purpose of this study was to measure the prevalence and characteristics of physical and non-physical WPV in a state-based cohort of education workers.

Method—A sample of 6,450 workers was drawn using de-identified union membership lists, stratified on gender, occupation, and school location. A cross-sectional survey was mailed to participants.

Results—An estimated 7.8% (95%CI = 6.6–9.1) of education workers were physically assaulted and 28.9% (95%CI = 26.4–31.5) experienced a non-physical WPV event during the 2009–2010 school year. Special education teachers were significantly more likely to be physically assaulted and experience a non-physical WPV event compared to general education teachers (Prevalence Rate Ratio = 3.6, 95% 2.4–5.5; PRR = 1.4, 95%CI = 1.1–1.8).

Discussion—Special education teachers were at the highest risk for both physical and non-physical WPV. If not already present, schools should consider implementing comprehensive WPV prevention programs for their employees.

Impact on Industry—Special education teachers have unique workplace hazards. Strategies that protect the special education teacher, while still protecting the special education student should be considered.

Keywords

nonfatal injuries; workplace violence; education; occupational safety and health; surveillance

1. Problem

In 2009, nearly 25% of all nonfatal violent crimes such as sexual assault, robbery, and aggravated assault occurred against persons while in the workplace (Harrell, 2011). Since 2002, nonfatal workplace violence (WPV) rates have declined 35%; however, WPV remains

☆The findings and conclusions in this report are those of the author(s) and do not necessarily represent the views of the National Institute for Occupational Safety and Health.

*Corresponding author at: NIOSH, Division of Safety Research, 1095 Willowdale Road, M/S 1811, Morgantown, WV 26506, USA. Tel.: +1 304 285 6067; fax: +1 304 285 6235. htiesman@cdc.gov (H. Tiesman).

a significant public health concern and occupational hazard (Harrell, 2011). Historically, the occupations at highest risk for nonfatal WPV included those in the protective services industry such as police officers, correctional officers, and private security guards (Duhart, 2001; Harrell, 2011). Yet, other occupations - including teachers - are also at an increased risk for nonfatal WPV, but have largely gone unrecognized. In 2009, special education teachers had a nonfatal WPV rate (17.8 per 1,000 persons) higher than convenience store clerks (7.1), taxi cab drivers (9.0), nurses (8.1), and mental health professionals (17.0) (Harrell, 2011).

There is little existing literature on the nonfatal WPV experience among those employed in the education field. The most widely cited prevalence data originates from the annual Indicators of School Safety report – a joint effort between The National Center for Education Statistics (NCES) and the Bureau of Justice Statistics (Robers, Zhang, & Truman, 2010). Data regarding teacher victimizations are based on the NCES's Schools and Staffing Survey – a survey on the characteristics and qualifications of U.S. public and private teachers and principals (Tourkin et al., 2010). In the most recent report, only 4% of teachers reported being physically attacked while at work (Robers et al., 2010). This survey, however, does not include physical assaults perpetrated by students in other schools, family members of students, or co-workers. In addition, it does not measure the broad array of non-physical WPV behaviors, including bullying, verbal abuse and sexual harassment. (Tourkin et al., 2010).

A recent cross-sectional study of 6,469 Minnesota K-12 teachers found that non-physical WPV was nearly 5 times more common than physical WPV (38 per 100 teachers and 8 per 100, respectively) (Gerberich et al., 2011). While this study provided crucial data on the prevalence of WPV among those in the education field, it was limited to teachers. There is a wide range of occupations within a school setting that also interact with students and may be at risk for WPV. To the best of our knowledge, no study has examined physical and non-physical WPV among other education-based occupational groups such as nurses, counselors, and teaching aides.

Given the paucity of studies encompassing both physical and non-physical WPV among all those employed in a school setting, we conducted a large cross-sectional survey to measure the prevalence and characteristics of physical and non-physical WPV among a state-based cohort of education workers. Here, we analyze data to determine if other occupations employed in a school setting are at an increased risk for physical and non-physical WPV. Additionally, we explore whether the characteristics of the WPV events differ between teachers and other education based occupations.

2. Method

A cross-sectional design, utilizing a stratified random sample was employed for this study. Data were collected via paper-and-pencil questionnaire. The survey and research study were approved by the NIOSH Human Subjects Research Board and the U.S. Government Office of Management and Budget.

2.1. Study Population

This study examined unionized education workers in Pennsylvania during the 2009–2010 school year. The most recent report from the Pennsylvania Department of Education (PDE) shows that during the 2008–2009 school year, there were 155,775 classroom teachers and pupil service professionals and 108,926 education support personnel (PDE, 2010). The pupil service professional category includes nurses, physical therapists, guidance counselors, librarians, social workers, and psychologists (PDE, 2010). The education support personnel category includes instructional aides, school administrative support staff, library/media support staff, administrative support staff, transportation workers, security, and food service workers (PDE, 2010). The state is served by two educational unions: the National Education Association (NEA) and the American Federation of Teachers (AFT). Education workers in Pittsburgh or Philadelphia metropolitan school districts are represented by the AFT and employees in the rest of the state belong to the Pennsylvania State Education Association (PSEA) – a state-based affiliate of the NEA. Overall, 64.6% of education workers in Pennsylvania are unionized.

Participants for the study were randomly selected from union membership lists. For Philadelphia and Pittsburgh, the population was stratified by gender (male/female) and occupation (pupil service professionals and teachers/education support personnel). For the rest of Pennsylvania, the population was stratified by gender (male/female), occupation (pupil service professionals and teachers/education support personnel), and school location (urban, suburban, rural). Generally, the strata of males, pupil service professionals, and non-urban locations were oversampled to ensure sufficient statistical power to generate reliable estimates. All participants within a stratum were selected at random. Weights were assigned to each participant within a stratum based on the inverse probability of selection within their stratum. Weights were recalibrated at the conclusion of the study based on non-response within each stratum so that valid population estimates could be obtained.

2.2. Survey Instrument and Variable Definitions

We used a modified version of a survey instrument developed by the University of Minnesota's Center for Violence Prevention and Control's for the “Minnesota Educators Study” (Gerberich et al., 2011). The original survey included questions on: demographics, work-related variables, and detailed information on physical and non-physical WPV events occurring in the prior school year (Gerberich et al., 2011). As many as four specific WPV events were recorded for each type of WPV (Gerberich et al., 2011).

Physical assaults were defined as being ‘hit, slapped, kicked, pushed, choked, grabbed, sexually assaulted, or otherwise subjected to physical contact intended to injure or harm’ (Gerberich et al., 2011). Non-physical WPV events included threats, sexual harassment, verbal abuse, and bullying (Gerberich et al., 2011). Threat was defined as ‘using words, gestures, or actions with the intent of intimidating, frightening, or harming’ (Gerberich et al., 2011). Sexual harassment was defined as ‘experiencing any type of unwelcome sexual behavior that creates a hostile work environment’ (Gerberich et al., 2011). Verbal abuse was defined as ‘when another person yells or swears, calls you names, or uses other words

intended to control or hurt' (Gerberich et al., 2011). Bullying was defined as 'repeated acts of intimidation or coercion' (Gerberich et al., 2011).

For this analysis, occupation categories were formed for six mutually exclusive groups: special education teachers, general education teachers, pupil service professionals (nurses, administrators, counselors, psychologists, social workers), education support personnel (custodial staff, food service workers, secretaries, transportation workers), aides (teaching, non-teaching, and librarian specialist), and other. In this study, special education teachers were defined as those working with students with learning impairments, physical impairments, or various emotional and/or behavioral disorders.

2.3. Data Collection

Data were collected between May and July 2010. Each union independently developed a de-identified database file, based on their membership files. This database was stripped of identifying information, but included pertinent socio-demographic information related to the sampling stratum. Using this de-identified file, the sample was drawn and unique IDs were assigned by the authors. Mailing labels with the unique ID were prepared by each union and applied to ID-embossed mailing envelopes by union staff in concert with the authors. Appropriate quality control measures were taken throughout the mailing process to verify accuracy by the primary author. Approximately two weeks after the initial mailing, all participants received reminder postcards to encourage them to return the survey (Dillman, 1978). Approximately four weeks after the initial mailing, all non-responders received a second survey (Dillman, 1978). In addition to the reminder post-cards and second survey mailings, participants from the PSEA, also received reminder robo-calls.

2.4. Statistical Analyses

The unit of analysis was the education worker. Analyses were conducted using the survey procedures available in the Statistical Analysis System V.9.1 to account for the stratified and weighted design of the sample (SAS Institute, Cary, NC). Finite population corrections were used to estimate all variances. Descriptive statistics including percentages and means were employed to describe the sample demographics. Prevalence estimates for physical assaults and non-physical WPV events were calculated. Prevalence rate ratios (PRR) and their corresponding 95% confidence intervals (95% CI) were generated with general education teachers as the comparison group. Prevalence rates are defined as the number of education workers who experienced a WPV event divided by the total number of participants. Descriptive statistics were calculated for the characteristics of the physical assaults including time of the event, perpetrator, circumstance of event, weapon, location of event, and the presence of others. Descriptive statistics were calculated for the severity measures such as change in work situation, work absences, symptomology, and medical treatment for injuries and compared across occupation categories by examining proportions. Proportions of non-physical WPV events were compared across occupations using chi-squares.

3. Results

3.1. Characteristics of Study Population

Surveys were returned by 2,514 participants for an overall response rate of 39%. Participants were largely female (75%) and the average age was 46.5 years (SE = 0.33) (Table 1). The participants were primarily white and non-Hispanic (94% and 98%, respectively). Over three-quarters of participants had a bachelors' degree or higher (80%). The most frequently reported occupation was general education teacher (57%), followed by aides (13%), and education support personnel (10%). On average, participants had been employed in their current occupation for 14.4 years (SE = 0.29). Participants most frequently reported that they worked in public schools with class sizes less than 24 students (95% and 55%, respectively). Eighteen percent reported working with students from multiple grades, 36%worked with primary school students, 12% with middle school students, and 11% with high school students.

3.2. Prevalence of Physical Assaults and Non-Physical WPV

During the 2009–2010 school year, approximately 8% of education workers incurred at least one physical assault while at work (7.8%, 95%CI = 6.6–9.1) (Table 2). Special education teachers had a prevalence nearly four times higher than general education teachers (PRR = 3.6, 95%CI = 2.4–5.5). Pupil service professionals and aides also experienced a significantly higher prevalence of physical assault than general education teachers (PRR = 1.9, 95%CI = 1.01–3.4; PRR = 1.6, 95%CI = 1.09–2.45). Nearly 30% of education workers had incurred at least one non-physical WPV event (28.9%, 95%CI = 26.4–31.5). This was nearly four times higher than the prevalence of physical assault. While special education teachers had the highest prevalence estimate of physical assaults (42.3), general education teachers were estimated to have the highest number of non-physical WPV events (N = 29,848).

3.3. Characteristics of Physical Assaults

The majority of physical assaults occurred during regular school hours (97%), did not involve a weapon (91%), and were perpetrated by a student (95%) (Table 3). A smaller percentage of education support personnel were assaulted during regular school hours than other occupations (67%). Also, a larger percentage of education support personnel were assaulted by co-workers compared with other occupations (36%). Overall, most education workers were assaulted in the classroom (62%); however, there were differences across occupations with respect to the location of the assault. Education support personnel's physical assaults most commonly occurred in school offices (54%).

Special education teachers, pupil service professionals, aides, and those in 'other' occupations were more likely to be assaulted by those impaired by either an injury, illness, or disability (66%, 52%, 67%, and 71%, respectively). Education workers were rarely alone when the assault occurred (12%). The most common circumstances associated with physical assault across all occupations was disciplining a student (38%), working with special education students (34%), and breaking up a fight (10%). Workers most commonly incurred abrasions/bruises/contusions (36%), temporary discolorations/slap marks (22%), and cuts/lacerations/scratches (13%) as a result of the physical assault (data not shown). Workers

were most commonly injured on the face (17%), hands (12%), and chest/abdomen (8%) (data not shown). Overall, 83% of workers reported the physical assault to administration; however, education support personnel were less likely to do so (53%).

Nearly 20% of the assaulted education workers were treated by a medical professional for treatment of injuries (N = 2,662, 19.7%, Table 4). A larger percentage of special education teachers and pupil service professionals sought care after the assault (27% and 27.2% respectively). Five percent of education workers had changes in their work situation such as job transfers as the result of the physical assault and 14% experienced work absences longer than one day. Nearly 10% of general education teachers were absent from work for more than one week as the result of the assault. In nearly 12% of workers, the physical assault lead to moderate or severe limitation in the activities of daily living (11.7%). Nearly 30% of those in 'other' occupations experienced moderate to severe limitations after a physical assault.

3.4. Characteristics of Non-Physical WPV

Overall, verbal abuse was the leading form of non-physical WPV (24%), followed by threats (15%), bullying (8%), and sexual harassment (3%) (Table 5). Nearly 40% of special education teachers had experienced verbal abuse and 30% had received threats. Twenty-five percent of pupil service professionals and 20% of aides had also been verbally abused. Regarding the non-physical WPV events, 66% were verbal in nature, 6% were graphic (picture, email, writing), and 5% were thefts (data not shown). Overall, 73% of non-physical WPV events were perpetrated by students, followed by co-workers (15%), and family members of students (10%) (data not shown). Unlike with physical assaults, only 15% of the non-physical WPV events were perpetrated by an impaired person (data not shown).

4. Discussion

This research provides a description of nonfatal WPV among education workers. Previously published WPV studies in the education field focused on teachers and did not include the experience of others employed in a school setting. We found that WPV affects a large number of education workers: in a single school year in Pennsylvania, over 13,000 education workers were assaulted and nearly 50,000 experienced a non-physical WPV event. Special education teachers, pupil service professionals, and teaching aides were significantly more likely to have experienced a physical assault and non-physical WPV event compared with general education teachers. We found also important differences in the characteristics and severity of the WPV events across occupations.

Our findings closely mirror that of the Minnesota Educators Study (Gerberich et al., 2011). Gerberich et al. (2011) surveyed 4,731 teachers using contact information from the Minnesota licensing database and found 8.3% of teachers had been physically assaulted and 38.6 had experienced a non-physical WPV event in the prior year (Gerberich et al., 2011). Conversely, we surveyed 2,514 education workers (including teachers and non-teachers) and found that 7.8% had been physically assaulted and 28.9% had experienced a non-physical WPV event. The characteristics of the physical assaults were similar across the two studies. We found that 95% of assaults were perpetrated by students, 73% perpetrated by males, and

62% occurred in classrooms. The Minnesota study reported 95% of assaults were perpetrated by students, 71% by males, and 65% occurred in classrooms (Gerberich et al., 2011). There were differences between our findings and the Minnesota study regarding work changes. Eighty-seven percent of Minnesota teachers reported no work changes after the physical assault; this is somewhat lower than our finding of 94% (Gerberich et al., 2011). While one explanation for this discrepancy is that the physical assaults in the Minnesota study were more serious in nature; however, another explanation is that our study included education-based occupations, such as education support personnel that may have less flexibility in regards to work changes compared with teachers.

We found that special education teachers had the highest prevalence of both physical and non-physical WPV. Indeed, special education students make disproportionately more threats than students in general education (Kaplan & Cornell, 2005). Specifically, special education students defined as emotionally disturbed (ED) made more threats than any other special education group (Kaplan & Cornell, 2005). Special education students also appear to act on aggressive tendencies more than general education students. Wright and Dusek (1998) found that over a 2-year period, 26% of special education students had a referral for aggression compared with 8% of general education students (Wright & Dusek, 1998). Kaplan and Cornell (2005) suggests that ED students develop inappropriate strategies for dealing with internal conflicts, such as threatening violence (Kaplan & Cornell, 2005). Therefore, it may be difficult to interpret threats from ED students as intended acts of violence when these behaviors are symptoms of the child's emotional disturbance (Kaplan & Cornell, 2005). Special education teachers may forgive or ignore these behaviors and consider then situation related. For example, a recent study of nurses found that they believed violence was ‘just part of the job’ – especially when the violence was perpetrated by those who were impaired, stressed, or distraught (May & Grubbs, 2002).

The presence of WPV prevention programs for education workers varies drastically across states, districts, and even schools. During our project, we found that in the state of Pennsylvania, if programs existed at all, they dealt solely with general education student violence. Given the discrepancy between intended threats of violence and emotional disturbance behaviors among special education students, how to best respond and prevent violence directed at special education employees becomes a complex issue. For example, a student with a disability cannot receive standard disciplinary action for a behavior that is a manifestation of their disability (Skiba, 2002). Zero-tolerance policies are a popular method employed by many schools to protect students and workers from dangerous behavior; however, these policies may also put special education students at risk for unnecessary disciplinary action (Skiba & Peterson, 1999). Threat assessment is a different approach because it focuses on the context and meaning of a student's behavior rather than considering all violent events and threats as potentially dangerous (Skiba & Peterson, 1999). While a threat assessment approach may be more relevant for preventing and reducing violence perpetrated by special education students, scientific and rigorous evaluations of these approaches are needed before making such recommendations (Kaplan & Cornell, 2005).

Those in professional occupations such as nurses, counselors, social workers, school administrators, and psychologists were also at an increased risk for physical assault. This is not surprising given that many pupil service professionals – especially counselors and psychologists – work closely with aggressive, angry, and violent students (Sandhu, 2000). However, our results are not necessarily consistent with the limited data on WPV among education-based professionals. Furlong, Babinski, Poland, Munoz, and Boles (1996) surveyed 123 school psychologists and found that 18% had been verbally assaulted and 4% physically assaulted in the prior 30 days (Furlong et al., 1996). We found that 11% of pupil service professionals had been physically assaulted and 28% experienced a non-physical WPV event in the 2009–2010 school year. An obvious explanation for these differences is the different recall periods. The recall period used in the Furlong study was significantly shorter than our 9- to 10-month recall period (Furlong et al., 1996). Another explanation for the differences may lie in the differing job tasks between school psychologists and other education-based professionals. For example, school social workers and counselors spend more time counseling students and school psychologists spend more time on psychometric testing and report writing (Agresta, 2004). The Furlong study was limited to psychologists who may have had less student involvement than the other education-based professionals included in our study (Furlong et al., 1996). Since the populations commonly served by pupil service professionals are similar to that of special education students, we believe that prevention strategies that focus on the requirements of special education students could positively impact both occupations.

Previously published studies of WPV in the education field did not include the experience of education support staff such as administrative assistants, food service workers, or custodial staff. These occupations not only interact with students, but with family members of students as well; therefore, we expected to find a high prevalence of WPV perpetrated by students among these workers. Surprisingly, 36% of physical assaults among education support staff were perpetrated by co-workers. Recent work has demonstrated that WPV in the form of workplace bullying was highest among administrative and support workers (20%) compared to other workers (Keuskamp, Ziersch, Baum, & LaMontagne, 2011). Given that workplace bullying has been found to be associated with various negative outcomes including low job satisfaction, high stress, sleep disorders, and cardiovascular disease, it should be fully addressed in any WPV prevention program (Kivimäki, Elovainio, & Vahtera, 2000; Kivimaki et al., 2003; Vartia, 2001).

Studies evaluating the effectiveness of WPV prevention programs have focused on the key industries of healthcare and retail (Casteel, Peek-Asa, Greenland, Chu, & Kraus, 2008; Occupational Safety and Health Administration [OSHA], 2004, 2009; Peek-Asa et al., 2007). Ruff, Gerding, and Hong (2004) using suggestions from Simonowitz, Rigdon, and Mannings (1997) outlined an eight-step plan for the development of a WPV prevention program for teachers (Ruff et al., 2004; Simonowitz et al., 1997). These steps were general in nature and applicable to many different occupational settings (Ruff et al., 2004; Simonowitz et al., 1997). To the best of our knowledge, the evaluation of an evidence-based WPV program designed specifically for education workers has not been reported. Furthermore, the effectiveness of anti-violence programs aimed at reducing student-on-student violence is rarely evaluated from a WPV standpoint.

There are a number of limitations to these findings. Considering that the data were collected retrospectively and in a self-reported fashion, the potential for recall bias exists. Participants may have misunderstood the WPV definitions, been unwilling to share confidential information, or had difficulty recalling less serious WPV episodes (Warshaw & Messite, 1996). If so, then the prevalence estimates presented here are underestimates of the true magnitude. To combat potential recall bias, we utilized a survey that had been used in a similar study of WPV (Gerberich et al., 2011). Validation sub-studies had been performed on this survey to measure potential measurement error (Gerberich et al., 2011). Also, since the recall period was limited to the prior school year, we timed the data collection to coincide with the end of the school year. Another limitation was the low response rate; our overall response rate was 39%. While the response rate was low, the proportions of those that responded were similar to the original selected sample. Ten percent of our sample came from Pittsburgh, 21% from Philadelphia, and 69% from the rest of the state. Regarding our respondents, 10% came from Pittsburgh, 25% came from Philadelphia, and 65% came from the rest of the state.

Finally, it is acknowledged that the study population contained only those education workers enrolled in a state-based education union. Thus, the population surveyed is not necessarily representative of all education workers. The generalizability of these results to all education workers in Pennsylvania or nationwide is unknown. However, the union membership lists allowed for the development of a state-wide sampling frame that encompassed all potential occupations in a school system. There was no known state-wide data source in Pennsylvania that retains contact information on both teachers and other education workers. Since the socio-demographics of education workers enrolled in an education union were similar to workers state-wide, we feel that this sampling bias is minimized.

In conclusion, this research provides the most comprehensive description of WPV among education workers using self-reported data to date. While historically the bulk of the research has focused on general education teachers, we found that pupil service professionals, special education teachers, and aides had an even higher risk for WPV. There are a growing number of children in need of special education services and school districts struggle with retaining special education specialists (George, George, Gersten, & Grosenick, 1995). Special education teachers experience high levels of stress, job dissatisfaction, and high levels of burn-out (Frank & McKenzie, 1993; Nelson, Maculan, Roberts, & Ohlund, 2001; Wisniewski & Gargiulo, 1997); however, WPV is rarely examined as a predictor of these outcomes. Reducing the prevalence of WPV among education workers – especially special education teachers- should be an important priority; however, how to best protect education workers from WPV remains unclear. Thus, research should be undertaken to better train special education teachers on ways to protect themselves while working with students.

5. Impact on Industry

The results of the current study suggest that those employed in a school setting are at risk for physical and non-physical WPV. While the primary perpetrator of this violence was students, many administrative staff members also experienced WPV from co-workers. If not

already present, states, districts, and schools should consider implementing comprehensive WPV prevention programs for all education workers, not only general education teachers. Results of the current study also confirm that attention should be paid to special education teachers. Special education teachers have unique workplace hazards that increase their risk for injuries, assaults, and threats. Developing strategies that protect both the special education student, as well as the special education teacher should be considered. Collaborative research between psychologists, injury epidemiologists, and those in the special education field should focus on improving interventions and techniques for working with special education students.

Acknowledgments

This work was supported by the Division of Safety Research, NIOSH, CDC. We thank Nanette Sowers for her diligence in exhaustive data collection efforts. We thank Darryl Alexander from the American Federation of Teachers for her support. We thank Barbara Goodman, Dee Phillips, Janet Fusella, and Jerry Jordan from the Philadelphia Federation of Teachers for their assistance with data collection efforts and support. We also thank John Tarka, Sylvia Wilson, and Kathy Noroski from the Pittsburgh Federation of Teachers. We thank Adrienne Markovitz from the National Education Association for her support and the research team, particularly Jon Schmehl and Tracy Gardner, at the Pennsylvania State Education association for their assistance with data collection. We also thank Marci Hertz and Corrie Ferdon from the National Center for Injury Prevention and Control for their expertise and advice on school violence issues.

References

Agresta J. Professional role perceptions of school social workers, psychologists, and counselors. Children and Schools. 2004; 26(3):151–162.

Casteel C, Peek-Asa C, Greenland S, Chu LD, Kraus JF. A study of the effectiveness of a workplace violence intervention for small retail and service establishments. Journal of Occupational and Environmental Medicine. 2008; 50(12):1365–1370. [PubMed: 19092491]

Dillman, DA. Mail and telephone survey: the total design method. New York: John Wiley & Sons; 1978.

Duhart, DT. Violence in the Workplace, 1993–1999. Bureau of Justice Statistics Special Report. 2001. NCJ 190076 (Available at: www.bjs.gov)

Frank AR, McKenzie R. The development of burnout among special educators. Teacher Education and Special Education. 1993; 16(2):161–170.

Furlong M, Babinski L, Poland S, Munoz J, Boles S. Factors associated with school psychologists' perceptions of campus violence. Psychology in the Schools. 1996; 33:28–37.

George NL, George MP, Gersten R, Grosenick JK. To leave or to stay: An exploratory study of teachers of students with emotional and behavioral disorders. Remedial and Special Education. 1995; 16(4):227–236.

Gerberich SG, Nachreiner NN, Ryan AD, Church TR, McGovern PM, Geisser MS, et al. Violence against educators: a population-based study. Journal of Occupational and Environmental Medicine. 2011; 53(3):294–302. [PubMed: 21346637]

Harrell, E. Workplace Violence, 1993–2009: National Crime Victimization Survey and the Census of Fatal Occupational Injuries. Washington, DC: Bureau of Justice Statistics; 2011. (Available at: www.bjs.gov/index.cfm?ty=pbdetail&iid=2377)

Kaplan SG, Cornell DG. Threats of violence by students in special education. Behavioral Disorders. 2005; 31(1):107–119.

Keuskamp D, Ziersch AM, Baum FE, LaMontagne AD. Workplace bullying a risk for permanent employees. Australian and New Zealand Journal of Public Health. 2011; 36(2):116–119. [PubMed: 22487344]

Kivimäki M, Elovainio M, Vahtera J. Workplace bullying and sickness absence in hospital staff. Occupational and Environmental Medicine. 2000; 57(10):656–660. [PubMed: 10984336]

Kivimaki M, Virtanen M, Vartia M, Elovainio M, Vahtera J, Keltikangas-Jarvinen L. Workplace bullying and the risk of cardiovascular disease and depression. Occupational and Environmental Medicine. 2003; 60(10):779–783. [PubMed: 14504368]

May DD, Grubbs LM. The extent, nature, and precipitating factors of nurse assault among three groups of registered nurses in a regional medical center. Journal of Emergency Nursing. 2002; 28(1):11–17. [PubMed: 11830728]

Nelson JR, Maculan AM, Roberts ML, Ohlund BJ. Sources of occupational stress for teachers of students with emotional and behavioral disorders. Journal of Emotional and Behavioral Disorders. 2001; 9(1):123–130.

Occupational Safety and Health Administration. Guidelines for Preventing Workplace Violence for Health Care & Social Service Workers. 2004. OSHA Publication 3148-01R (Available at: http://www.osha.gov/SLTC/workplaceviolence/otherresources.html)

Occupational Safety and Health Administration. Recommendations for Workplace Violence Prevention Programs in Late-Night Retail Establishments. 2009. OSHA Publication 3153-12R (Available at: http://www.osha.gov/SLTC/workplaceviolence/otherresources.html)

Peek-Asa C, Casteel C, Allareddy V, Nocera MA, Goldmacher S, O'Hagen E, et al. Workplace Violence Prevention Programs in Hospital Emergency Departments. Journal of Occupational and Environmental Medicine. 2007; 49:756–763. [PubMed: 17622848]

Pennsylvania Department of Education. 2010 www.education.state.pa.us.

Robers, S.; Zhang, J.; Truman, J. Indicators of School Crime and Safety: 2010(NCES 2011-002/NCJ 230812). Washington, DC: National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice; 2010.

Ruff JM, Gerding G, Hong O. Workplace Violence against K-12 teachers: Implementation of preventive programs. AAOHN Journal. 2004; 52(5):204–209. [PubMed: 15152718]

Sandhu DS. Special Issue: School violence and counselors. Professional School Counseling. 2000; 4(2):IV–V.

Simonowitz J, Rigdon J, Mannings J. Workplace violence: prevention efforts by the occupational health nurse. AAOHN Journal. 1997; 45(6):305–316. [PubMed: 9197582]

Skiba RJ. Special education and school discipline: A precarious balance. Behavioral Disorders. 2002; 27(2):81–97.

Skiba RJ, Peterson RL. The dark side of zero tolerance: Can punishment lead to safe schools? Phi Delta Kappan. 1999; 80(5):372–382.

Tourkin, S.; Thomas, T.; Swaim, N.; Cox, S.; Parmer, R.; Jackson, B., et al. Documentation for the 2007–08 Schools and Staffing Survey (NCES 2010–332). Washington, DC: National Center for Education Statistics, U.S. Department of Education; 2010. (Available at: http://nces.ed.gov/pubsearch).

Vartia ML. Consequences of workplace bullying with respect to the well-being of its targets and the observers of bullying. Scandinavian Journal of Work, Environment & Health. 2001; 27(1):63–69.

Warshaw LJ, Messite J. Workplace Violence: Preventive and interventive strategies. Journal of Occupational and Environmental Medicine. 1996; 38(10):993–1005. [PubMed: 8899575]

Wisniewski L, Gargiulo RM. Occupational stress and burnout among special educators: a review of the literature. Journal of Special Education. 1997; 31(3):325–346.

Wright JA, Dusek JB. Compiling school based rates for disruptive behaviors from student disciplinary referral data. School Psychology Review. 1998; 27(1):138–147.

Biographies

Hope Tiesman is an epidemiologist with the National Institute for Occupational Safety and Health. She completed her MSPH in Epidemiology from the University of South Florida and PhD from the University of Iowa where she was a fellow in the occupational injury prevention research program. She has an adjunct academic appointment with the West Virginia University Injury Control Research Center. Her research interests include the

prevention of workplace violence, urban–rural injury disparities, and occupational safety of law enforcement officers.

Srinivas Konda is a research fellow with the National Institute for Occupational Safety and Health in Morgantown, WV. He completed his MPH in Epidemiology and Biostatistics from the University of Southern Mississippi, Hattiesburg. His work focuses on projects related to the prevention of workplace injury and violence. Current areas of research include occupational injuries among foreign born workers, occupational traumatic brain injuries, and robbery related homicides among retail workers.

Scott Hendricks has been a statistician for the Division of Safety Research at the National Institute for Occupational Safety and Health for over 20 years. He has numerous publications in occupational safety, particularly in the areas of workplace violence and statistical methodology in workplace intervention evaluation. He has a MS degree in Statistics from West Virginia University.

Dan Mercer received a bachelor's degree and a master's degree from Wittenberg University and the University of North Carolina-Chapel Hill, respectively. His Ph.D. was received from Johns Hopkins University in 2007; his thesis explored the relationship between migration, local age structure, and public school funding. Mercer has been employed by the Pennsylvania State Education Association (PSEA) since 2006. His work is concentrated on surveys of member and public opinion, and on school funding.

Harlan Amandus is Chief of the Analysis and Field Investigations Branch at the National Institute for Occupational Safety and Health. He is an occupational injury epidemiologist and has over 30 years of experience in occupational epidemiologic research. His current research interest is prevention of robbery-related workplace violence in retail workers and evaluation of approaches to increase compliance among retail businesses to proven robbery-prevention guidelines.

Table 1

Socio-demographics and Work Characteristics for Study Population (n = 2,514)[¶].

Characteristics	Sample Frequency n (%)	Estimated Population Frequency ^N (%)	95% CI
Gender			
Male	944 (37.5)	41,429 (24.2)	40,911–41,948
Female	1,537 (61.1)	128,144 (74.9)	127,625–128,663
Ethnicity			
Non-Hispanic	2,408 (95.8)	167,474 (97.9)	166,772–168,176
Hispanic	46 (1.8)	1,484 (0.9)	781–2186
Race			
White	2,160 (85.9)	160,907 (94.0)	159,389–162,425
Non-white	280 (11.1)	7,226 (4.2)	5,708–8,743
Marital status			
Married	1,805 (71.8)	132,063 (77.2)	128,170–135,955
Not married	659 (26.2)	37,031 (21.6)	33,138–40,923
Education			
Less than bachelors	849 (33.8)	32,099 (18.8)	30,980–33,217
Bachelors	503 (20.0)	41,390 (24.2)	37,141–45,639
More than bachelors	1,120 (44.6)	96,028 (56.1)	91,876–100,180
Occupation			
General ed. teachers	972 (38.7)	98,046 (57.3)	94,111–101,982
Special education teacher	213 (8.5)	15,836 (9.3)	13,056–18,616
Pupil service professionals	298 (11.9)	14,285 (8.3)	11,433–17,133
Education support staff	428 (17.0)	17,193 (10.0)	15,823–18,563
Aides	524 (20.8)	21,811 (12.7)	19,838–23,783
Other	64 (2.5)	2,979 (1.7)	1,921–4,037
Type of School			
Public	2,252 (89.6)	162,499 (94.9)	161,362–163,636
All other	234 (9.3)	7,257 (4.2)	6,120–8,394
Class size			
Less than 24 students	1,149 (45.7)	94,728 (55.4)	90,631–98,824
Greater than 24 students	565 (22.5)	42,093 (24.6)	37,996–46,190
Job classification			
Full time	2,286 (90.9)	158,468 (92.6)	156,650–160,286
Part/substitute	196 (7.8)	11,487 (6.7)	9,670–13,305
School grade			
Primary (Pre K-5)[*]	714 (28.4)	61,412 (35.9)	57,077–65,747
Middle (6–8)	217 (8.6)	21,157 (12.4)	17,830–24,484
High (9–12)	225 (8.9)	18,497 (10.8)	15,561–21,432
Multiple[**]	449 (17.9)	30,711 (17.9)	27,151–34,271

Characteristics	Sample Frequency n (%)	Estimated Population Frequency ^N (%)	95% CI
School size			
Small (<500 students)	1,048 (41.7)	64,139 (37.5)	59,498–68,779
Large (>500 students)	1,394 (55.4)	103,983 (60.8)	99,343–108,624
Mean age (SE) in years	2,439 (97.0)	46.5 (0.33)	45.8–47.1
Mean time in present occupation (SE) in years	2,514 (100)	14.4 (0.29)	13.5–14.7
Total	**2,514 (100)**	**171,095 (100)**	–

¶Percentages/frequencies do not sum to total because of missing values.

*Includes preschool and multiple grades (primary schools).

**Includes multiple grades (secondary school and all grades).

Table 2

Frequency, Prevalence, and Prevalence Ratio (95% CI) of Physical WPV and Non-Physical WPV by Occupation.

Occupation	Physical WPV			Non-Physical WPV		
	Estimated Population Frequency ^N (%)†	Prevalence estimate	Prevalence Rate Ratio (PRR) (95% CI)	Estimated Population Frequency ^N (%)†	Prevalence estimate	Prevalence Rate Ratio (PRR) (95% CI)
General ed. teachers	5,837 (43.3)	6.0	1.0	29,848 (60.5)	30.4	1.0
Special ed. teachers	3,433 (25.5)	21.7	**3.6 (2.4–5.5)**	6,699 (13.6)	42.3	**1.4 (1.1–1.8)**
Pupil service professionals	1,576 (11.7)	11.1	**1.9 (1.0–3.4)**	3,962 (8.0)	27.7	0.9 (0.6–1.2)
Education support staff	192 (1.4)	1.1	**0.2 (0.1–0.5)**	2,871 (5.8)	16.7	**0.5 (0.4–0.7)**
Aides	2,126 (15.8)	9.7	**1.6 (1.1–2.5)**	5,402 (11.0)	24.8	0.8 (0.6–1.0)
Other	188 (1.4)	6.3	1.1 (0.5–2.4)	460 (0.9)	15.4	0.5 (0.3–1.0)
Total	13,481 (100)	7.8	———	49,319 (100)	28.9	———

*Bold font denotes significance at ά = 0.05.

†Numbers do not add to total because of missing values.

J Safety Res. Author manuscript; available in PMC 2015 September 15.

Table 3

Characteristics of Physical Assaults by Occupation ¶.

	General ed. teachers ^N (%)	Special ed. teachers ^N (%)	Pupil service professionals ^N (%)	Education support personnel ^N (%)	Aides ^N (%)	Other ^N (%)	Total ^N (%)
Time							
Regular school hours	5,762 (98.7)	3,251 (94.7)	1,559 (98.9)	130 (67.4)	2,112 (99.4)	163 (86.0)	13,013 (96.5)
Perpetrator§							
Student*	5,399 (92.5)	3,305 (96.2)	1,581 (100)	118 (61.7)	2,253 (105.9)	159 (84.5)	12,844 (95.3)
Employee or co-worker	394 (6.8)	43 (1.2)	0 (0)	69 (35.9)	7 (0)	0 (0)	513 (3.8)
Impairment of Perpetrator§							
Injury, illness, or disability	484 (8.3)	2,276 (66.3)	833 (52.9)	6 (3.1)	1,422 (66.9)	136 (71.8)	5,157 (38.3)
Not impaired	4,971 (85.2)	871 (25.4)	586 (37.2)	88 (45.8)	574 (26.9)	21 (11.2)	7,239 (53.7)
Circumstances of Assault							
Disciplining student	3,334 (57.1)	1,195 (34.8)	69 (4.3)	127 (66.1)	434 (20.4)	29 (15.4)	5,189 (38.5)
Breaking up fight	956 (16.3)	191 (5.5)	160 (10.1)	0 (0)	78 (3.6)	8 (4.2)	1,411 (10.5)
Working with special ed. students	480 (8.2)	1,611 (46.9)	861 (54.6)	13 (6.7)	1,463 (68.8)	107 (56.9)	4,538 (33.7)
Other	923 (15.8)	211 (6.1)	486 (30.8)	16 (8.3)	110 (5.1)	26 (13.8)	1,882 (13.9)
No weapon involved	5,348 (91.6)	2,934 (85.4)	1,547 (98.1)	157 (81.9)	1,951 (91.8)	163 (86.7)	12,227 (90.7)
Presence of others							
Alone	1,343 (23.0)	182 (5.3)	27 (1.7)	0 (0)	63 (2.9)	53 (28.1)	1,668 (12.4)
Another teacher or staff member present	1,294 (22.2)	1,872 (54.5)	1,188 (75.4)	30 (15.6)	1,117 (52.5)	39 (20.7)	5,539 (41.1)
No adult present, but students present	2,353 (40.3)	162 (4.7)	53 (3.4)	88 (45.3)	88 (4.2)	0 (0)	2,744 (20.4)
Both adults and students present	807 (13.8)	1,217 (35.5)	158 (10.0)	39 (20.4)	789 (37.1)	71 (37.8)	3,358 (24.9)
Location of the assault§							
Classroom	3,757 (64.4)	2,339 (68.1)	631 (40.0)	0 (0)	1,608 (75.6)	84 (44.7)	8,421 (62.5)
Hallway/stairway	1,499 (25.7)	1,058 (30.8)	567 (35.9)	0 (0)	488 (23.0)	39 (20.7)	3,781 (28.0)
Parking area	9 (0.2)	29 (0.8)	314 (19.9)	0 (0)	8 (0.4)	35 (18.6)	396 (2.9)
Office in the school	124 (2.1)	202 (5.9)	254 (16.1)	104 (54.2)	16 (0.8)	0 (0)	700 (5.2)
Other	854 (14.6)	192 (5.6)	69 (4.4)	64 (33.3)	314 (14.8)	39 (20.7)	1,535 (11.4)
Gender of the perpetrator							
Male	4,350 (74.5)	2,326 (67.7)	1,239 (78.6)	53 (27.6)	1,648 (77.5)	161 (85)	9,887 (73.3)

	General ed. teachers ^N (%)	Special ed. teachers ^N (%)	Pupil service professionals ^N (%)	Education support personnel ^N (%)	Aides ^N (%)	Other ^N (%)	Total ^N (%)
Reported assault to administration	4,891 (83.8)	3,099 (90.3)	1,365 (86.6)	103 (53.6)	1,498 (70.5)	136 (72.3)	11,222 (83.2)
Total	**5,837 (100)**	**3,433 (100)**	**1,576 (100)**	**192 (100)**	**2,126 (100)**	**188 (100)**	**13,481 (100)**

[¶] Column values do not sum to total because of missing values.

[*] We combined current student, former student, another currently enrolled student, and another formerly enrolled student.

[§] Responses may sum to more than 100 because 'check all that apply' condition.

J Safety Res. Author manuscript; available in PMC 2015 September 15.

Table 4

Severity of Physical Assaults by Occupation.

	General ed. teachers ^N (%)	Special ed. teachers ^N (%)	Pupil service professionals n (%)	Education support personnel ^N (%)	Aides ^N (%)	Other ^N (%)	Total ^N (%)
Treated for injuries[§]							
No treatment	4,841 (82.9)	2,467 (71.9)	1,117 (70.9)	151 (78.6)	1,616 (76.0)	161 (85.6)	10,480 (77.7)
Any type of professional medical care	796 (13.6)	928 (27.0)	428 (27.2)	34 (17.7)	447 (21.0)	28 (14.9)	2,662 (19.7)
Changes in work situation[§]							
No changes	5,458 (93.5)	3,192 (92.9)	1,533 (97.3)	192 (100)	2,054 (96.6)	150 (79.8)	12,705 (94.2)
Transfer, work restriction, or leave of absence	402 (6.9)	199 (5.8)	42 (2.7)	0 (0)	48 (2.3)	18 (9.6)	709 (5.3)
Absence from work							
No absence	4,686 (80.3)	3,014 (87.8)	1,437 (91.2)	169 (87.8)	1,828 (86)	162 (86.2)	11,423 (84.7)
Less than 1 week	558 (9.6)	347 (10.1)	110 (6.9)	23 (11.9)	173 (8.1)	0 (0)	1,209 (8.9)
More than one full work week	550 (9.4)	72 (2.1)	28 (1.8)	0 (0)	47 (2.2)	26 (5.9)	726 (5.4)
Severity of symptoms							
No limitation of abilities/activities	4,617 (79.1)	3,081 (89.7)	1,325 (84.1)	192 (100)	1,719 (80.9)	133 (70.7)	11,195 (83.0)
Some/moderate limitations	777 (13.3)	195 (5.7)	198 (12.6)	0 (0)	130 (6.1)	39 (20.7)	1,350 (10.0)
Severe/disabling limitations	98 (1.7)	60 (1.8)	0 (0)	0 (0)	47 (2.2)	17 (9.0)	224 (1.7)
Total	**5,837 (100)**	**3,433 (100)**	**1,576 (100)**	**192 (100)**	**2,126 (100)**	**188 (100)**	**13,481 (100)**

[*] Column values do not sum to total because of missing values.

[§] Responses may sum to more than 100 because 'check all that apply' condition.

Table 5

Estimated Frequency and Prevalence of Non-Physical WPV Events by Occupation*.

	General ed. teachers n (%)	Special ed. teachers n (%)	Pupil service professionals n (%)	Education support personnel n (%)	Aides n (%)	Other n (%)	Total** n (%)	Chi-square
Threat	15,789 (16.1)	4,870 (30.8)	1,713 (12.0)	1,090 (6.3)	2,409 (11.0)	186 (6.2)	26,116 (15.3)	**0.004**
Verbal abuse	24,502 (25.0)	6,282 (39.7)	3,510 (24.6)	2,363 (13.7)	4,502 (20.6)	364 (12.2)	41,592 (24.3)	0.085
Bullying	10,467 (10.7)	1,330 (8.4)	829 (5.8)	935 (5.4)	774 (3.5)	32 (1.1)	14,411 (8.4)	**0.002**
Sexual harassment	3,305 (3.4)	429 (2.7)	86 (0.6)	112 (0.7)	566 (2.6)	5 (0.2)	4,520 (2.6)	0.087

* Number in parenthesis denotes prevalence percentage.

** Estimated numbers of non-physical assaults do not sum to total because of missing values.