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Physical Assaults Among Education Workers:

Findings From a Statewide Study

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Abstract

Objective—Enumerate and describe physical assaults occurring to Pennsylvania education workers.

Methods—A cross-sectional survey was mailed to a random sample of 6450 workers, stratified on gender, occupation, and region. Logistic regression was used to examine risk factors for physical assault.

Results—During the 2009–2010 school year, 309 of 2514 workers were assaulted 597 times. Special education teachers, urban workers, and those in their first 3 years of employment were at an increased risk. Most assaults did not lead to medical care or time away from work; however, those assaulted were significantly more likely to find work stressful, have low job satisfaction, and consider leaving the education field (adjusted odds ratio [AOR] = 2.5 [95% CI = 1.5 to 4.1]; AOR = 2.4 [95% CI = 1.5 to 3.9]; AOR = 10.7 [95% CI = 4.1 to 28.1]).

Conclusions—Although education workers experienced few serious physical assaults, the impact of this violence was considerable.

In recent years, several high-profile school shootings have generated mass media attention to the cause of school violence; however, while school-based homicides are tragic, they are rare events. Data from the 2011 Indicators of School Crime & Safety show that between July 1, 2009, and June 30, 2010, there were 25 school-associated homicides and 32% ($n = 8$) of these deaths were among teachers or school staff.¹ Although a substantial amount of research exists on school-based violence, little focuses on violence from an employee standpoint. When school-based violence is directed at education workers, it becomes workplace violence (WPV) and can impact their quality of life, job satisfaction, job retention, and job performance.^{2–4} Because of these potential and serious impacts, additional research into the risk factors and prevention of WPV among education workers is needed.

Most existing WPV studies of education workers have been conducted in Canadian and European countries that have different educational systems than the United States^{3,5–7} The

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few US studies that exist were conducted using workers' compensation databases, and while these studies found a significant and increased risk for physical assault among education workers, these studies potentially underestimate the true magnitude of WPV because workers' compensation data include only events that lead to financial compensation.^{8,9} To date, only one US study has used self-reported data to examine WPV among education workers, and that study was limited to teachers in a single US state.¹⁰

To fill this void, we conducted a large, comprehensive, state-based study to measure the prevalence, characteristics, and impact of physical and nonphysical WPV among a unionized cohort of education workers, including teachers, education professionals, and education support personnel. Here, we will detail the prevalence and circumstances of these physical assaults, explore risk factors for the assaults, and analyze their impact on quality of life, job satisfaction, and job stress.

METHODS

Study Population

This study was approved by the National Institute for Occupational Safety and Health Human Subjects Research Board and the US Office of Management and Budget.

This study examined Pennsylvania unionized education workers during the 2009–2010 school year and was completed in partnership with the Philadelphia Federation of Teachers, Pittsburgh Federation of Teachers, and Pennsylvania State Education Association. Education workers included in this study were teachers, special education teachers, education professionals (nurses, administrators/superintendents, physical therapists, guidance counselors, librarians, social workers, and psychologists), and education support personnel (instructional aides, administrative support staff, library/media support staff, transportation workers, security, food service workers, and custodial staff). Participants were randomly selected from three state-based union membership lists.

A stratified random sample was used. In Philadelphia and Pittsburgh, the sample was stratified by gender (male/female) and occupation (professionals and teachers/education support personnel). For the rest of the state, the sample was stratified by gender, occupation, and school region (urban, suburban, rural, and other). Men, education support personnel, and nonurban workers were oversampled. Weights were based on the inverse probability of selection within the specific stratum. Weights were recalibrated at the conclusion of the study on the basis of nonresponse in order for valid population estimates to be calculated. At the time of the study, approximately 65% of education workers in Pennsylvania were unionized.¹¹

Data Collection

Cross-sectional data were collected using a paper-and-pencil instrument mailed to each participant's home at the end of the 2009–2010 school year (between May and July). Each union stripped their confidential membership lists of identifying information, but retained sociodemographic information related to the sampling stratum. These de-identified files were used by the research team to draw the sample and assign unique study identities.

Mailing labels were matched to study identity-embossed envelopes by union staff and members of the research team to further ensure member confidentiality. Quality control measures, including a 20% random check of the mailing label matching process, were taken throughout the mailing procedure. Two weeks after the initial mailing, all participants received reminder postcards, per the Dillman Total Design Survey Method.¹² Approximately 4 weeks after the initial mailing, all non-responders received a second survey with a reminder cover letter.¹²

The survey included questions on sociodemographics, work characteristics, WPV events occurring in the prior school year, quality of life, and job satisfaction. The survey used in this study was a modified version of the one used in the “Minnesota Educators Study.”¹⁰ *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,” as defined by the “Minnesota Educators Study.”¹⁰ Validation sub-studies have been performed on this survey to measure potential measurement error.¹⁰ We added additional items on job satisfaction and quality of work life from the National Institute for Occupational Safety and Health Quality of Work Life Questionnaire to the survey.¹³ We also added the standard four-item set of Healthy Days core questions (Centers for Disease Control and Prevention Health-Related Quality of Life–4).¹⁴ The four-item set of Healthy Days core questions records the number of days in the prior month that a person’s mental health was not good, the number of days their physical health was not good, and the number of days that their activity was limited because of poor health.¹⁴ In addition, an estimate of a person’s overall unhealthy days was derived by adding poor mental health and poor physical health days together.¹⁴ The full set of Healthy Days measures has shown good measurement properties in several populations, languages, and settings.¹⁴ Also, the retest reliability of the Health-Related Quality of Life–4 is moderate to excellent.¹⁵ The severity of the physical assault was measured using several items: medical treatment received postassault, changes in work situation (quitting job, transferring, or taking a leave of absence), time away from work postassault (none, less than 1 full day, and greater than 1 full day), and self-reported limitation of activities (none, some, moderate, severe, and disabling). The survey instrument was peer-reviewed and pilot tested before use in the field.

Analysis

Analyses were conducted using the survey procedures in the SAS version 9.1 (SAS Institute, Cary, NC) to account for the stratified and weighted design of the sample. This accounted for the stratified design of our survey, including strata defined as a combination of union (Philadelphia, Pittsburgh, rest of Pennsylvania), region (urban, suburban, rural, and other), gender, and occupation. Because the likelihood of having teachers from the same school in our sample was small, any correlation between teachers within a specific school in the sample was ignored. The unit of analysis was the education worker. Descriptive statistics including counts, proportions, and 95% confidence intervals were used to describe the sample and population sociodemographics. Characteristics of the physical assaults and severity measures (medical treatment, changes in work situation, time away from work, self-reported limitation of activities) were compared by examining the weighted numbers and percentages.

To determine the strength and significance of the association between exposures of interest and the presence of at least one physical assault in the prior school year, prevalence odds ratios were calculated using logistic regression. Resulting estimates were interpreted as prevalence rate ratios (PRRs) because of the conservative nature of the PRR in relation to the prevalence odds ratio.¹⁶ Also, the PRR is the preferred measure of association in cross-sectional studies, especially in the presence of other variables.¹⁶ We chose risk factors by first running bivariate logistic regression models. All risk factors with a $P < 0.20$ were considered for further analysis with a manual forward selection process. Once the final model was derived, each variable that was dropped during the modeling process was added back into the final model one at a time to ensure that it did not significantly contribute to the final model. The effects of covariates in the multivariable model were tested by likelihood ratio tests.

Three components of job satisfaction were measured using a five-point Likert scale: “how often do you find work stressful,” “how often do you feel used up at the end of the day,” and “how satisfied do you feel with your job.” Responses were dichotomized to “always” find work stressful/other responses, “very often” felt used up at the end of the day/other responses, and not satisfied with their job/other responses. Job satisfaction was compared between those who had experienced a physical assault and those who did not, using multivariable logistic regression while adjusting for the potential confounding variables of gender, age, race, size of school, grades taught, occupation, and region. The number of poor mental health, poor physical health, physically restrictive, and total unhealthy days (poor physical + poor mental) in the prior 30 days were dichotomized to “0” days and any days. These categories of unhealthy days were also compared between those who had experienced a physical assault and those who did not, using multivariable logistic regression and adjusting for the potential confounding variables as determined by prior research.¹⁰

RESULTS

Sociodemographics

Over 2500 participants returned the survey for a response rate of 39% ($n = 2514$) (Table 1). This resulted in an estimated weighted total of 171,095 education workers. Education workers were largely female ($n = 1537$; 61%), white ($n = 2160$; 86%), and non-Hispanic ($n = 2408$; 96%). Their average age was 46.5 years (SE = 0.33). Sixty-four percent had a bachelors’ degree or higher ($n = 1623$). The most frequently reported occupation was teacher ($n = 1185$; 467%), aides ($n = 524$; 21%), and education support personnel ($n = 428$; 17%). They primarily worked in public schools ($n = 2252$; 90%) and had been employed in their current occupation for an average of 14.4 years (SE = 0.29). Twenty-eight percent worked with primary school students, 9% with middle school, 9% with high school, and 18% with students from multiple grades.

Characteristics of Physical Assaults

Of the 2514 education workers who responded to the survey, 309 experienced 597 separate physical assaults during the 2009–2010 school year (12.3%) (Table 2). This equates to an estimated 13,481 education workers experiencing 25,653 separate physical assaults (7.9% of

the weighted population of 171,095). Most physical assaults occurred during regular school hours ($n = 558$; 94%). More than half of the assaults occurred in classrooms ($n = 358$; 60%); however, many also occurred in the hallway/stairs ($n = 181$; 30%). Students were the most common perpetrators of the physical assault ($n = 583$; 98%) and weapons were rarely used ($n = 46$; 8%). When weapons were used, they were most commonly pens, pencils, and scissors ($n = 38$; 83%) (data not shown). Perpetrators were commonly male ($n = 427$; 72%). In 40% of the assaults, the perpetrator had an impairment due to a disability, injury, or illness ($n = 237$). Working with special education students lead to the most physical assaults ($n = 230$; 39%). Workers were most commonly injured on the arms ($n = 235$; 43%), legs ($n = 132$; 24%), and hands ($n = 96$; 17%) (data not shown). The most common injuries included abrasions and contusions ($n = 250$; 47%), slap marks ($n = 139$; 26%), and cuts ($n = 81$; 15%) (data not shown). Thirty-three percent of education workers sought medical treatment from a professional after the assault ($n = 194$). Most the assaults did not lead to changes in the employee's work situation ($n = 552$; 93%), time away from work ($n = 507$; 85%), or limitation of activities; ($n = 464$; 78%). Generally, assaults were reported to the employee's administration in written or electronic form ($n = 487$; 82%) (data not shown).

Risk Factors for Physical Assault

Table 3 presents the bivariate and multivariable PRRs and their 95% confidence intervals (CI) for the association between various risk factors and at least one physical assault in the 2009–2010 school year. Working in an urban school was associated with the largest risk for assault after adjusting for age, time in present school, and occupation (PRR = 3.7; 95% CI = 2.1 to 6.4). Other significant risk factors included being between 31 and 59 years of age (PRR = 2.1; 95% CI = 1.1 to 3.9) and being employed in their present school for less than 3 years (PRR = 2.5; 95% CI = 1.4 to 4.4). Special education teachers had a significantly higher risk for physical assault compared with general education teachers (PRR = 2.7; 95% CI = 1.7 to 4.2).

Impact of Physical Assault

Physical assault had a significant impact on education workers' job satisfaction and health-related quality of life (Table 4). Those who experienced at least one physical assault in the 2009–2010 school year were over 2 times more likely to report "always" finding work stressful (adjusted odds ratio [AOR] = 2.5; 95% CI = 1.5 to 4.1), 2 times more likely to report "very often" feeling used up at the end of the day (AOR = 2.1; 95% CI = 1.3 to 3.3), and 2.4 times more likely to report not being satisfied with their jobs (AOR = 2.4; 95% CI = 1.5 to 3.9) after controlling for region, gender, age, race, school size, grades taught, and occupation. Also, those who had been physically assaulted were nearly 11 times more likely to report that they were "very likely" leaving the education field than those who had not been assaulted (AOR = 10.7; 95% CI = 4.1 to 28.1). Being physically assaulted also impacted health-related quality of life, though not in a statistically significant manner. Those who had been assaulted were more likely to report having any number of poor physical health, mental health, or total unhealthy days (physical + mental) than those who had not been assaulted (AOR = 1.6 [95% CI = 1.0 to 2.5]; AOR = 1.6 [95% CI = 0.95 to 2.6]; AOR = 1.2 [95% CI = 0.67 to 2.2], respectively).

DISCUSSION

This article documents and characterizes physical assaults occurring to education workers in a single state during the 2009–2010 school year. To our knowledge, this is the first US study to capture comprehensive WPV data on a cohort of all those employed in a school setting. It was estimated that in a single school year in Pennsylvania, 25,653 separate physical assaults occurred to education workers. The vast majority of these assaults occurred during regular school hours and in the classroom, were perpetrated by a student, and did not involve a weapon. Also, most assaults did not result in time away from work or medical care for the employee. Nevertheless, those who were physically assaulted experienced significantly lower job satisfaction, higher levels of job stress, were more likely to report having days of restricted activity due to poor health, and were more likely to consider leaving the education field than those who were not physically assaulted.

Even though this study included all those employed in a school setting, our findings closely mirror that of a similar US study that focused on teachers. The Minnesota Educators Study surveyed 4731 teachers and found 8.3% had been physically assaulted in the prior school year.¹⁰ Similarly, we found that 12% of Pennsylvania education workers (teachers and nonteachers) had been physically assaulted. These two US-based studies have reported a higher prevalence of physical WPV than recent European and Canadian studies. A German study focusing only on teachers reported 1.4% had experienced violence from students and 0.4% experienced violence from parents, though violence was never fully defined.⁷ Another study from British Columbia demonstrated that 4.1% of teachers had experienced an episode of physical violence without a weapon in the prior school year.⁶ Although the magnitude of school violence seems to be greater in the United States, it is also an area of major concern in many European countries.¹⁷

On the basis of our findings, not only are general education teachers impacted by school-based violence but other school workers are as well. We found that special education teachers were at an increased risk for being physically assaulted. After controlling for region, age, and amount of time in their present school, the probability of being the victim of a physical assault was 2.7 times higher among special education teachers than among general education teachers. Our findings are in concordance with a recent Finnish study that found an increased risk among special education teachers.⁵ Ervasti et al⁵ found that male and female special educators were significantly more likely to be exposed to physical violence than their general education counterparts (males OR = 5.45 [95% CI = 3.21 to 9.25]; females OR = 3.34 [95% CI = 2.57 to 4.36]). Our findings are also in line with research that has found those working in special education schools were exposed to more threats of violence and physical assaults than others in human service fields (eldercare, psychiatry, and the prison and probation service).¹⁸ We believe that these data point toward the need for more and better training in WPV prevention for those working with special education students; however, research into evidence-based prevention strategies is almost nonexistent. A possible explanation for this is the perception that special education students are the ones who need protecting, not the ones that education workers need to be protected from.¹⁸ Actually, those employed in special education schools had higher levels of acceptance of threats and violence than other human service fields.¹⁸

Workplace violence training can vary greatly from state to state, and even within districts in the same state. If training or prevention programs exist, they commonly deal with student-on-student violence at the general education level. How to specially address violence in the special education classroom is a complex issue. For example, while zero-tolerance policies are a popular method used by many schools, these policies can also unnecessarily discipline special education students because no consideration to the student's frame of mind, intent, or context of the violent event are given.¹⁹ Given the wide range of students with physical, mental, and emotional disabilities who special education teachers work with, a more comprehensive and consistent set of training guidelines should be adopted. Although scientific insight into the needs of special education students continues to improve, so should the evidence-based training and education of those who educate and care for them.

Our findings are not the first to highlight the issue of violence in urban schools. We found that education workers working in an urban school were nearly four times more likely to have been physically assaulted in the prior school year than those in rural schools. Most recently, the annual Indicators of School Crime & Safety report found that teachers in city schools were more likely to report being threatened with injury than teachers in suburban or rural schools (10%, 7%, 6%, respectively).¹ Although many risk factors have been identified for urban school-based violence, including physical structure, school climate, social structure, community size, community crime rate, and community economic status, the role that this increased violence plays into occupational aspects of the teaching profession are still unclear.^{20,21}

The physical environment of a school may also play an important role in WPV. Although the vast majority of research in school-based violence centers on the individual, more research is now being directed at the environmental level. Some environmental factors found to be associated with school violence include a lack of support from administration, lack of basic security, and the physical deterioration of school buildings.^{22,23} Other research has shown how Crime Prevention Through Environmental Design principles have led to reductions in the number of school-based violent incidents.^{24,25} Finally, the role of the surrounding neighborhood and associated crime rates cannot be ignored. One study found that the odds of a teacher reporting a WPV event increased 300% between communities with low and high crime rates as the student to teacher ratio increased.²⁰ Although the social and physical environment of a school may play a role in the prevention of violence, there are still not enough longitudinal or experimental studies to put these concepts into practice.

We also found that education workers in their first 3 years of employment were at a significant and increased risk for physical assault while on the job. Although there is limited data on the association between job tenure and risk for becoming a victim of WPV, it is feasible that new employees may be less likely to receive adequate WPV prevention training. Also, new employees may lack the personal experience on how to recognize and handle potentially violent situations. Providing education workers with a supportive organizational culture and network of support in their early years could enhance their ability to handle difficult situations.

Although the literature is ripe with studies examining the impact of school violence on students, there is a general dearth of studies that measure the impact of this violence on those employed in a school setting. It is no surprise that some studies have found “pupil misbehavior” to be a significant factor in models of occupational stress and burnout among teachers.^{26–30} School-based violence may also play a role in the decision-making process of teachers when considering whether to leave the education field. A study by Smith & Smith found that the threat of violence in schools was the greatest contributing factor teachers faced when leaving an urban school setting.³¹ We found that education workers who had experienced at least one physical assault in the prior school year reported significantly lower levels of job satisfaction and higher levels of job stress, were more likely to report any days of restricted activity because of poor health, and were more likely to report leaving the education field than those who had not been assaulted. Given these potential links between WPV, attrition, job stress, job satisfaction, and quality of life, addressing school violence must remain a priority for the education sector.

A limitation of this study is that participants were asked to self-report on WPV events occurring several months in the past; therefore, the potential for recall, reporting bias, or both exists. If so, the prevalence estimates reported here are potentially underestimates of the true magnitude of WPV, because participants more easily recall serious injury events.³² Another limitation was the low response rate (39%). Although this was low, it was on par with average response rates from mail surveys (weighted response rate, 45%).³³ The generalizability of the study is also limited. The study population contained only those employees in an education union and may not be representative of all education workers. Although this is a limitation, confidential union membership lists afforded the only opportunity for a statewide sampling frame that encompassed all occupations in a school system. Also, there is possibly a survivor effect because our cohort only included those currently working in the school system. Finally, because the study was cross-sectional in nature, interpreting causality from this data is not possible.

CONCLUSIONS

These findings point to several areas to direct our immediate attention. We found that special education teachers, those in urban schools, and education workers in their first 3 years of employment were at a significant and increased risk for physical assault on the job. This and other research have shown that WPV may play a role in a teacher’s decision to leave the education field. Considering that an additional 2.8 million new teachers will be needed in future years because of a growing student enrollment and retirement, the intersection between WPV, teacher satisfaction, and attrition should be further examined.³⁴ School violence is a complex issue, and the study of WPV in a school setting has unique challenges. For example, student-perpetrated violence becomes an incident of WPV when it is directed at a school employee. The relationship between school-based violence and WPV bears study to better focus resources and to provide insights into interventions that work.

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TABLE 1

Sociodemographics and Work Characteristics for Study Sample and Population, Pennsylvania Education Workers, 2009–2010 School Year*

Characteristics	Sample Frequency, n(%)	Estimated Population Frequency, n (%)	Estimated Population 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 – 2,186
Race			
White	2,160 (85.9)	160,907 (94.0)	159,389–162,425
Nonwhite	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			
Teachers	1,185 (47.1)	113,882 (66.6)	110,603–117,167
Education professionals	298 (11.9)	14,285 (8.3)	11,433–17,133
Education support personnel	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
Total	2,514 (100)	171,095 (100)	—

CI, confidence interval.

* Previously reported in Tiesman et al.³⁵

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TABLE 2

Characteristics of Physical Assaults Among Pennsylvania Education Workers, 2009–2010 School Year*

	Sample Frequency, <i>n</i> (%)	Estimated Population, Frequency, <i>n</i> (%)
Time		
Regular school hours	558 (93.5)	23,826 (92.9)
Not during regular school hours	28 (4.7)	702 (2.8)
Location of assault [†]		
Classroom	358 (60.0)	16,499 (64.3)
Hallway/stairway	181 (30.3)	7,607 (29.7)
Other (gym, school office, away from school property, staff/student lounge)	140 (23.4)	4,525 (17.6)
Perpetrator [†]		
Current or former student	583 (97.6)	25,149 (98.1)
Coworker	13 (2.2)	614 (2.4)
Other	13 (2.2)	202 (<1.0)
Presence of others		
Alone	60 (10.1)	2,599 (10.1)
Another employee present	225 (37.7)	11,640 (45.4)
Students present	104 (17.4)	4,423 (17.2)
Both adults and students present	191 (32.0)	6,606 (25.8)
Perpetrator's gender		
Male	427 (71.5)	19,116 (74.5)
Female	115 (19.3)	4,852 (18.9)
Weapon used		
No weapon	537 (89.9)	23,215 (90.5)
Gun, knife, other	46 (7.7)	2,102 (8.2)
Primary cause of assault		
Disciplining a student	192 (32.2)	8,778 (34.2)
Breaking up a fight	84 (14.1)	2,134 (8.3)
Special education students	230 (38.5)	10,384 (40.5)
Other	76 (12.7)	3,492 (13.6)
Perpetrator's impairment status [†]		
Impaired due to injury, illness, or disability	237 (39.7)	10,961 (42.7)
Impaired due to alcohol, aerosols, or drugs	5 (<1.0)	45 (<1.0)
Not impaired	308 (51.6)	12,712 (49.6)
Medical treatment		
No treatment	438 (73.4)	20,140 (78.5)
Medical care (doctor, dentist, nurse, EMS, psychiatrist, chiropractor, physical therapist) [†]	194 (32.5)	6,834 (26.6)
Changes in work situation		
No change	552 (92.5)	24,079 (93.9)
Quit, transfer, leave of absence, job restriction [†]	51 (8.5)	1,453 (5.7)

	Sample Frequency, <i>n</i> (%)	Estimated Population, Frequency, <i>n</i> (%)
Time away from work		
No absence	507 (84.9)	22,907 (89.3)
Less than 1 day	28 (4.7)	837 (3.3)
Greater than 1 day	58 (9.3)	1,529 (6.0)
Self-reported limitation of activities		
No limitation of abilities/activities	464 (77.7)	21,661 (84.4)
Some limitation of abilities/activities	68 (11.4)	1,696 (6.6)
Moderate/severe limitation of abilities/activities	49 (8.2)	1,096 (4.3)
Total	597 (100)	25,653 (100)

EMS, emergency medical services.

[†]Percentages add to greater than 100% because multiple categories could be selected.

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TABLE 3

Bivariate and Multivariable Analysis of Risk Factors for Physical Assault Among Pennsylvania Education Workers, 2009–2010 School Year

Risk Factor	Bivariate PRR (95% CI)	Multivariable PRR* (95% CI)
Occupation [†]		
Aides	1.7 (1.1–2.6)	1.6 (1.0–2.5)
Special education teachers	3.7 (2.4–5.9)	2.7 (1.7–4.2)
Education professionals (nurses, administrators, superintendents, physical therapists, guidance counselors, librarians, social workers, psychologists)	2.0 (1.1–3.8)	1.7 (0.9–3.2)
Education support personnel (instructional aides, administrative support staff, library/media support staff, transportation workers, security, food service workers, custodial staff)	0.2 (0.1–0.6)	0.2 (0.1–0.8)
Other	0.9 (0.3–2.6)	0.6 (0.2–1.7)
Time in present school, yr [‡]		
0–3	3.5 (2.0–6.0)	2.5 (1.4–4.4)
4–6	2.2 (1.1–4.2)	1.9 (1.0–3.7)
7–13	1.9 (1.0–3.5)	1.7 (0.9–3.2)
Age, yr		
19–30	2.8 (1.3–6.1)	1.9 (0.9–4.3)
31–59	2.4 (1.3–4.6)	2.1 (1.1–3.9)
Region [§]		
Urban	4.5 (2.6–8.3)	3.7 (2.1–6.4)
Suburban	1.2 (0.6–2.3)	1.2 (0.6–2.4)
Other	4.5 (2.6–7.7)	3.1 (1.7–5.7)

CI, confidence interval; PRR, prevalence rate ratio.

* Adjusted for other variables in the table.

[†] Comparison group is general education teachers.

[‡] Comparison group is 14 years or greater.

[§] Comparison group is rural.

TABLE 4

Impact of Physical Assault on Job Satisfaction and Health-Related Quality of Life Among Pennsylvania Education Workers, 2009–2010 School Year

Impact Measure	Unadjusted OR (95% CI)	Adjusted OR* (95% CI)
Job-related factors		
“Always” find work stressful	3.0 (1.9–4.6)	2.5 (1.5–4.1)
“Very often” feel used up at the end of the day	2.4 (1.6–3.6)	2.1 (1.3–3.3)
Not satisfied with your job	2.8 (1.8–4.2)	2.4 (1.5–3.9)
“Very likely” leaving education field in the next year	6.0 (2.7–13.3)	10.7 (4.1–28.1)
Health-Related Quality of Life		
Any poor physical health days	1.8 (1.2–2.7)	1.6 (1.0–2.5)
Any poor mental health days	1.8 (1.1–2.8)	1.6 (0.95–2.6)
Any unhealthy days (physical + mental)	1.5 (0.85–2.5)	1.2 (0.67–2.2)
Any days where activity was restricted	2.5 (1.7–3.7)	2.2 (1.4–3.4)

CI, confidence interval; OR, odds ratio.

* Adjusted for region, gender, age, race, size of school, grades taught, and occupation.

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