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RESEARCH ARTICLE

# Nonphysical Workplace Violence in a State-Based Cohort of Education Workers*

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## ABSTRACT

**BACKGROUND:** The purpose of this study was to estimate the prevalence, identify risk factors, and assess the impact of nonphysical workplace violence (WPV) events among education workers (teachers, professionals, and support personnel).

**METHODS:** A cross-sectional survey was mailed to a random sample of 6450 education workers, stratified by sex, occupation, and school location in Pennsylvania. Multivariable logistic regression was performed to assess risk factors.

**RESULTS:** Of the 2514 participants, 859 (34%) reported experiencing at least one nonphysical WPV event during the 2009-2010 school year. Coworkers were the most common source of bullying. Most education workers responded that they did not receive an adequate response from their administration after reporting a nonphysical WPV event. Risks of nonphysical assaults increased for education workers who were female, those working in an urban school, and those in their first 3 years of working in their current school. Those assaulted were significantly likely to have low job satisfaction, find work more stressful, and have poor mental health compared to those were not assaulted.

**CONCLUSIONS:** Administration support for specific prevention efforts and post-event responses that address the risk factors for nonphysical WPV are essential for creating a positive, safe work environment in schools.

**Keywords:** nonphysical; violence; teachers; education workers; bullying; verbal abuse.

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Violence in schools in the United States (US) continues to be a major concern for teachers and other education workers.[1] An abundance of existing research focuses on violence among students, but research focusing on workplace violence (WPV) against teachers and other education workers is limited.[2,3] Education workers are at risk for WPV, including threats, verbal abuse, bullying, harassment, and physical assaults from students, coworkers, and parents.[2-6] Among teachers, nonphysical WPV events, such as threats and verbal abuse are more common than physical violence events, such as assaults. In a study of Minnesota kindergarten through grade 12 (K-12) educators, researchers reported 38.8% of teachers had experienced nonphysical WPV events and 7.8% had experienced physical WPV events during one school year.[7] In a recent U.S national survey of representative schools and staffing, 10% of K-12 public school teachers reported being threatened and 6% reported being physically attacked by a student during the 2015-2016 school year.[8] According to the American Psychological Association Task Force on Violence Directed Against Teachers, nearly three-fourths of K-12 teachers experienced nonphysical violence and 44% experienced physical violence during one school year.[2]

These physical and nonphysical WPV events may result in job-related stress, fear, anxiety, depression, and lower emotional and/or physical well-being among education workers.[1,6,9-12] In addition, this WPV against teachers can also have an impact on quality of teaching, recruitment, and retention of

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teachers.[6,12-14] Consequently, teacher attrition can negatively effect students in their engagement and achievement in school.[1] In 2016, more than 3.5 million people were teaching in US schools, and the nation will continue recruiting additional teachers due to retirement, growing student enrollment, education workers leaving the profession, and staff turnover.[15-18] Thus, it is important to consider the safety and health and quality of work life of the professionals who educate and care for our youth.

Despite the reported higher prevalence and negative impact of nonphysical WPV among teachers and other education workers, knowledge is limited about the risk factors for this type of WPV. In addition, prior studies have focused on teachers and have excluded other education workers who may also be at risk for nonphysical WPV, such as counselors, nurses, teaching aides, bus drivers, cafeteria workers, and custodians. Information on other perpetrators of nonphysical WPV, such as colleagues, supervisors, or parents is also limited.[2]

Therefore, we conducted a large, state-based, cross-sectional study to estimate the number of WPV events (physical, nonphysical, and electronic) perpetrated by students, co-workers, parents or grandparents, and other visitors, identify risk factors for WPV, and measure the impact of WPV on job satisfaction and quality of life among education workers. This manuscript focuses on the prevalence and risk factors for nonphysical WPV and the impact of these events on quality of life and job satisfaction among teachers and other education workers.

## METHODS

### Participants

In this study, we examined unionized education workers in the state of Pennsylvania during the 2009-2010 school year. Unions developed a de-identified file from confidential membership records by removing names and addresses of education workers, but included socio-demographic information related to the sampling stratum. Potential participants were randomly selected from this de-identified membership records. Education workers included teachers, special education teachers, professionals (nurses, therapists, guidance counselors, librarians, social workers, and psychologists), and support personnel (instructional aides, administrative support staff, library/media support staff, bus drivers, security, custodians, and food service workers). The population was stratified by sex (male/female) and occupation (professionals and teachers/education support personnel) for Pittsburgh and Philadelphia. For the rest of Pennsylvania, the population was stratified by sex, occupation, and school location (urban, suburban, rural, and other). Males, professionals, and nonurban employees were oversampled to generate reliable estimates and comparisons across strata. Detailed methods for this data collection effort have been previously described elsewhere.[5,6]

### Instrument and Variable Definitions

Data were collected with a paper-and-pencil survey instrument. The survey has previously been described and includes questions on socio-demographics, work characteristics, and details about WPV events in the prior school year (2009-2010).[5,6] The conceptual framing for the study, including the selection of potential risk factors, originated from the ''Minnesota Violence Against Educators Study.''[4] We added survey items on job satisfaction and quality of work life from the National Institute for Occupational Safety and Health (NIOSH) Quality of Work Life Questionnaire.[19] We added a 4-item set from the US Centers for Disease Control and Prevention Health-related Quality of Life-4, to record the number of days in the past 30 days in which a person was physical and mentally unhealthy.[20] These self-reported Healthy Days measures have shown good measurement properties in several populations, languages, and settings.[20] Also, the retest reliability was excellent for Healthy Days measures.[21]

Nonphysical WPV events were defined as:

- Threat: using words, gestures, or actions with the intent of intimidating, frightening, or harming.[4]
- Verbal abuse: when another person yells or swears, calls you names, or uses other words intended to control or hurt (excludes sexual harassment).[4]
- Bullying: when one or more people tease, threaten, spread rumors about, hit, shove, or hurt another person over and over again.[4]
- Sexual harassment: any type of unwelcome sexual behavior (words or nonphysical actions) that creates a hostile work environment.[4]

### Procedure

Data were collected between May and July 2010. Union membership lists were stripped of confidential data before being used by researchers to draw the randomized stratified sample. Whereas the survey mailing methodology was performed by union staff to preserve confidentiality, we performed quality control checks throughout the mailing process.[5,6] To maximize response rates, per the Dillman Mailing Methodology,[22] all participants were reminded to return the survey 2 weeks after the initial mailings and all nonresponders were sent a second survey approximately 4 weeks after the initial mailings.[22]

### Data Analysis

To account for the stratified and weighted study design, analyses were conducted using the survey

procedures in the Statistical Analysis System (SAS) version 9.4 (Cary, NC). Variances were estimated using the finite population correction. Sample demographic statistics, percentages and means were calculated. Characteristics of the nonphysical WPV events were described with estimated weighted numbers and proportions. Stepwise multivariate logistic regression models were used to examine the relationship among potential risk factors for nonphysical WPV in the prior school year. Adjusted prevalence odds ratios (PORs) were calculated. Potential risk factors available in the survey were considered for modeling and were first assessed univariately. Any variables with a p-value <.20 in the univariate analysis were considered for the final model.[23] Variables were entered into the model in a forward selection process sequentially beginning with the variable with the smallest p-value. A variable was kept in the final model if the p-value <.05. We also examined each possible 2-variable model to assess for any potential confounding between risk factors. Two risk factors were considered confounded if the point estimate of the log of the odds ratio changed by more than 20% from its respective univariate estimate. Once we determined our final model, variables not included in the final model were added to the model one by one to ensure we did not miss any significant risk factors. The odds ratios from the final models can be considered as the increased (or decreased) odds of the nonphysical WPV event for that risk factor compared to the reference category, adjusted for other variables in the model.

Adjusted odds ratios (AORs) were also calculated to measure the association of job-related factors and quality of life among those who had experienced a nonphysical WPV event and those who had not. To further evaluate the association of job-related factors with respect to reporting a nonphysical WPV event, a conditional analysis of those who experienced a nonphysical WPV event was performed. In the survey, we had asked participants if, in their opinion, the administration was adequately responsive to reporting a nonphysical WPV event. Means and 95% confidence intervals of the Likert-type scores of each variable pertaining to job-related factors were calculated separately for persons who did not report the event to administration, those who reported the event to administration and received what they believed to be an adequate response, and those who reported the event to administration and did not receive an adequate response.

## RESULTS

### Socio-Demographics of Estimated Study Population

A total of 2514 surveys were returned, resulting in an overall response rate of 39%. The majority of participants were female (75%), white (94%), and non-Hispanic (98%) (Table 1). The average age of education workers was 46.5 years (standard error [SE] = 0.33). Over three-fourths of participants reported holding a bachelor's degree or higher (80%). Participants were predominantly general education teachers (57%). Most of the participants worked in public schools (95%). More than half of participants worked in class sizes of fewer than 24 students (55%). More than one-third of participants worked with primary school students (36%) and 18% worked with students from multiple grades. The average time employed in their current occupations was 14.4 years (SE = 0.29).

### Prevalence and Characteristics of Nonphysical WPV Events

Of the 2514 participants, 859 (34%) reported experiencing at least one nonphysical WPV event during the 2009-2010 school year, which equates to an estimated 49,319 education workers (28.9% of the weighted estimate of 171,095) experiencing such an event (data not shown). Of those 49,319 education workers, 61% were general education teachers (weighted estimate = 29,848) 14% were special education teachers (weighted estimate = 6669). Verbal abuse (weighted estimate = 41,592) was the most commonly reported form of nonphysical WPV, followed by threats (weighted estimate = 26,116), bullying (weighted estimate = 14,411), and sexual harassment (weighted estimate = 4520).

The majority of nonphysical WPV events occurred multiple times (Table 2). Although students were the most common perpetrators of threat (82%), verbal abuse (80%), and sexual harassment (72%), coworkers were the most common perpetrator of bullying (51%). Perpetrators were predominantly male for threats (49%) and sexual harassment (84%). For verbal abuse, both male and female together were the common perpetrators (40%). Perpetrators of bullying were about equally divided between males and females (33% and 34%, respectively). The majority of education workers did not seek treatment for these 4 forms of nonphysical WPV event (threat, 83%; verbal abuse, 85%; bullying, 74%; 83%; sexual harassment, 87%) and most incidents did not lead to time away from work (threat,88%; verbal abuse, 89%; bullying, 80%; sexual harassment, 93%). Most nonphysical WPV events, for each of the four nonphysical WPV forms were reported to the employee's administration in written or electronic form. However, a number of those who reported the nonphysical WPV event felt that they did not receive an adequate response (threat, 45%; verbal abuse, 42%; bullying, 53%; sexual harassment, 55%).

### Risk Factors for Nonphysical WPV

Working in an urban school was associated with larger risk for a nonphysical WPV event, compared

Table 1. **Socio-demographics and Work Characteristics for Study Population (N = 2514), Pennsylvania Education Workers, 2009-2010 School Year*,†**

| Characteristics | Sample frequency N (%) | Estimated population frequency (weighted) N (%) | 95% CI |
|---|---|---|---|
| Sex | | | |
| Male | 944 (37.5) | 41,429 (24.2) | 40,911-41,948 |
| Female | 1537 (61.1) | 128,144 (74.9) | 127,625-128,663 |
| Ethnicity | | | |
| Non-Hispanic | 2408 (95.8) | 167,474 (97.9) | 166,772-168,176 |
| Hispanic | 46 (1.8) | 1484 (0.9) | 781-2186 |
| Race | | | |
| White | 2160 (85.9) | 160,907 (94.0) | 159,389-162,425 |
| Non-White | 280 (11.1) | 7226 (4.2) | 5708-8743 |
| Marital status | | | |
| Married | 1805 (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 | 1120 (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 |
| 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) | 2979 (1.7) | 1921-4037 |
| Type of School | | | |
| Public | 2252 (89.6) | 162,499 (94.9) | 161,362-163,636 |
| All other | 234 (9.3) | 7257 (4.2) | 6120-8394 |
| Class size | | | |
| Less than 24 students | 1149 (45.7) | 94,728 (55.4) | 90,631-98,824 |
| 24 students or more | 565 (22.5) | 42,093 (24.6) | 37,996-46,190 |
| Job classification | | | |
| Full time | 2286 (90.9) | 158,468 (92.6) | 156,650-160,286 |
| Part/substitute | 196 (7.8) | 11,487 (6.7) | 9670-13,305 |
| 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 |
| School size | | | |
| Small (<500 students) | 1048 (41.7) | 64,139 (37.5) | 59,498-68,779 |
| Large (>500 students) | 1394 (55.4) | 103,983 (60.8) | 99,343-108,624 |
| Mean age (SE) in years | 48.8 (0.23) | 46.5 (0.33) | 45.8-47.1 |
| Mean time in present occupation (SE) in years | 13.9 (0.21) | 14.4 (0.29) | 13.5-14.7 |
| Total | 2514 (100) | 171,095 (100) | - |

*Percentages/frequencies do not sum to total because of missing values and/or not applicable for respondents.
†This table was previously reported in Tiesman et al.[5,6]
‡Includes preschool and multiple grades (primary schools).
§Includes multiple grades (secondary school and all grades).

with working in a rural school (POR = 3.9, 95% CI = 2.6-5.6); Table 3). In addition, workers' higher educational attainment was associated with higher risk for a nonphysical WPV event (POR = 2.1, 95% CI = 1.3-3.3). Working with high school students and teaching multiple grades were associated with a significantly higher risk for a nonphysical WPV event than working with students in a primary grade level (POR = 2.8, 95% CI = 1.7-4.8 and 2.9, 95% CI = 1.9-4.5, respectively). Being employed in the present school for less than 3 years (POR = 1.7, 95% CI = 1.1-2.8) was also associated with a higher risk for a nonphysical WPV event. Female education workers had a significantly higher risk for a nonphysical WPV event compared with male education workers (POR = 1.8, 95% CI = 1.3-2.6).

### Impact of Nonphysical WPV Events

Those who experienced at least one nonphysical WPV event in the 2009-2010 school year were over 3.5 times more likely to report ''always'' finding work stressful (AOR = 3.6, 95% CI = 2.4-5.2), over 3 times more likely to report ''very often'' feeling used up at the end of the day (AOR = 3.2, 95% CI = 2.3-4.5), and over 3.5 times more likely to report not being satisfied with their jobs (AOR = 3.6, 95% CI = 2.5-5.2; Table 4). Also, those who were victims of a nonphysical WPV event were over 5 times more likely to report they were ''very likely'' to leave the education field compared to those who had not experienced a nonphysical WPV event (AOR = 5.2, 95% CI = 2.4-11.1). Compared with education workers who had not experienced a nonphysical WPV event, those who experienced at least one nonphysical WPV event were about two or more times more likely to report having days of poor physical health (AOR = 1.8, 95% CI = 1.4-2.5), poor mental health (AOR = 2.4, 95% CI = 1.7-3.3), feeling unhealthy (AOR = 2.5, 95% CI = 1.8-3.7), or activity restrictions (AOR = 2.1, 95% CI = 1.6-2.8).

### Reporting Nonphysical WPV Events

The victims of nonphysical WPV events consisting of threats, verbal abuse, and bullying who reported the event to administration and did not receive what they perceived to be an adequate response were significantly more likely to find work more stressful, feel used up, have lower job satisfaction, and be more likely to leave the education field than those who reported the event to administration and received an adequate response (Table 5). Additionally, the mean Likert-type scores of victims who did not report the event to administration generally fell in between the mean Likert-type scores of victims who reported and received an adequate response and those who reported and did not receive an adequate response for WPV events consisting of threats, verbal abuse, and bullying.

For nonphysical WPV events which were related to sexual harassment, no significant differences were found in terms of job-related factors among those who did not report the event to administration, those who reported to administration and received and adequate

Table 2. **Characteristics of Nonphysical WPV Events (Weighted Estimates) Among Pennsylvania Education Workers, 2009-2010 School Year**

| Characteristics | Threat N (%) | Verbal abuse N (%) | Bullying N (%) | Sexual Harassment N (%) |
|---|---|---|---|---|
| Frequency | | | | |
| Single event | 6238 (24) | 5774 (14) | 2736 (19) | 781 (17) |
| 2 or 3 times | 10,285 (39) | 12,841 (31) | 4047 (28) | 2219 (49) |
| >3 times | 8896 (34) | 22,297 (54) | 7381 (51) | 1368 (30) |
| Perpetrator* | | | | |
| Student | 21,449 (82) | 33,324 (80) | 6890 (48) | 3271 (72) |
| Coworker | 3587 (14) | 5687 (14) | 7342 (51) | 1340 (30) |
| Other | 4319 (17) | 7064 (17) | 1411 (10) | 295 (7) |
| Sex of the perpetrator | | | | |
| Male | 12,852 (49) | 14,361 (35) | 4709 (33) | 3812 (84) |
| Female | 3566 (14) | 7780 (19) | 4958 (34) | 117 (3) |
| Both male and female together | 7819 (30) | 16,706 (40) | 3727 (26) | 548 (12) |
| Impairment status of perpetrator | | | | |
| Not impaired | 17,718 (68) | 30,756 (74) | 11,800 (82) | 3729 (83) |
| Impaired by injury, illness, alcohol, drugs, or disability | 4800 (18) | 6438 (15) | 1070 (7) | 412 (9) |
| Medical treatment | | | | |
| No treatment | 21,747 (83) | 35,490 (85) | 10,634 (74) | 3915 (87) |
| Medical care (Physician, nurse, psychiatrist) | 2449 (9) | 4152 (10) | 2277 (16) | 254 (6) |
| Change in work situation | | | | |
| No change | 23,845 (90) | 38,545 (93) | 11,642 (81) | 3942 (87) |
| Quit, transfer, leave of absence | 959 (4) | 1093 (3) | 1735 (12) | 273 (6) |
| Work absence | | | | |
| No work absence | 22,952 (88) | 36,884 (89) | 11,464 (80) | 4220 (93) |
| Less than one day | 1054 (4) | 1947 (3) | 1193 (8) | 81 (2) |
| More than one day | 858 (3) | 1260 (3) | 975 (7) | 110 (2) |
| Reported event to administration? | | | | |
| Yes | 21,498 (82) | 34,009 (82) | 10,130 (70) | 2651 (59) |
| No | 3387 (13) | 6049 (15) | 3585 (25) | 1754 (39) |
| Was administration response adequate?† | | | | |
| Yes | 10,005 (47) | 16,189 (48) | 3337 (33) | 1174 (44) |
| No | 9714 (45) | 14,146 (42) | 5403 (53) | 1458 (55) |
| Total | 26,116 (100) | 41,592 (100) | 14,411 (100) | 4520 (100) |

* Percentages add to greater than 100 because multiple options could be selected.
† Percentage comes from those reported to school administration.

response, and those who reported to administration and did not receive an adequate response.

## DISCUSSION

Extrapolating from our sample, it is expected that almost 50,000 education workers in the State of Pennsylvania experienced at least one form of a nonphysical WPV event during the 2009-2010 school year. Verbal abuse was the most frequent form of violent event, followed by threats, bullying and sexual harassment. Also, not all nonphysical WPV events were single events, rather they occurred multiple times over the school year. Coworkers were the most common perpetrators of bullying and students were the most common perpetrators of verbal abuse, threats, and sexual harassment. The majority of education workers felt that they did not receive an adequate response from administration after reporting a nonphysical WPV event. In addition, a number of risk factors were found for nonphysical WPV including sex, community size (urban vs. rural), educational attainment of worker, school grade(s) taught, and number of years working in the current school. Furthermore, nonphysical WPV significantly impacted school workers' job satisfaction and quality of life, especially for those who reported the nonphysical WPV event to administration but stated they did not receive an adequate response compared to those victims who reported the event to administration and received an adequate response.

In this study, education workers reported a higher prevalence of nonphysical WPV events (28.9%) than physical WPV events (7.8%).[5] Our results align with those of the Minnesota Educator Study, which researchers found 38.8% of teachers experienced a nonphysical WPV event and 7.8% experienced a physical WPV event.[7] Furthermore, similar to the Minnesota Educator Study, the most common forms of victimization in Pennsylvania were verbal abuse and threats. Based on our findings, these negative encounters are a regular part of the profession for many education workers. Those who experienced these forms of WPV on a daily basis reported

Table 3. **Univariate and Multivariate Logistic Regression Model Predicting a Nonphysical WPV Event Among Pennsylvania Education Workers, 2009-2010 School Year**

| Risk factor | Univariate POR | Multivariate POR* |
|---|---|---|
| School grade | | |
| Primary | 1 | 1 |
| Middle | 0.8 (0.5-1.3) | 0.9 (0.6-1.5) |
| High | 2.0 (1.3-3.2) | 2.8 (1.7-4.8) |
| Multiple | 2.2 (1.5-3.1) | 2.9 (1.9-4.5) |
| Education | | |
| Less than bachelors | 1 | 1 |
| Bachelors | 1.5 (1.0-2.1) | 1.0 (0.6-1.7) |
| More than Bachelors | 2.1 (1.6-2.8) | 2.1 (1.3-3.3) |
| Years in present school | | |
| 0-3 | 1.5 (1.0-2.1) | 1.7 (1.1-2.8) |
| 4-6 | 1.4 (0.9-2.3) | 1.4 (0.9-2.3) |
| 7-13 | 0.8 (0.5-1.2) | 0.8 (0.5-1.2) |
| ≥14 | 1 | 1 |
| Region | | |
| Rural | 1 | 1 |
| Urban | 3.5 (2.6-4.8) | 3.9 (2.6-5.6) |
| Suburban | 1.1 (0.7-1.5) | 1.1 (0.7-1.7) |
| Other | 1.4 (1.0-2.0) | 1.2 (0.8-1.9) |
| Sex | | |
| Male | 1 | 1 |
| Female | 1.3 (0.9-1.6) | 1.8 (1.3-2.6) |

*Adjusted for other variables in the table; POR, prevalence odds ratio.

Table 4. **Multivariate Logistic Regression Predicting the Impact of Nonphysical WPV on Job-Related Factors and Health-Related Quality of Life Among Pennsylvania Education Workers, 2009-2010 School Year**

| Dependent variable | Unadjusted OR (95% CI)* | Adjusted OR† (95% CI) |
|---|---|---|
| Job-related factors | | |
| "Always" find work stressful | 3.9 (2.8-5.5) | 3.6 (2.4-5.2) |
| "Very Often" feel used up at the end of the day | 3.3 (2.5-4.4) | 3.2 (2.3-4.5) |
| Not satisfied with job | 4.0 (2.9-5.6) | 3.6 (2.5-5.2) |
| "Very Likely" leaving education field in the next year | 4.9 (2.3-10.2) | 5.2 (2.4-11.1) |
| Health-related quality of life | | |
| Any poor physical health days | 2.0 (1.6-2.6) | 1.8 (1.4-2.5) |
| Any poor mental health days | 2.7 (2.0-3.6) | 2.4 (1.7-3.3) |
| Any unhealthy days (physical + mental) | 3.0 (2.2-4.2) | 2.5 (1.8-3.7) |
| Any days where activity was restricted | 2.5 (1.9-3.2) | 2.1 (1.6-2.8) |

CI, confidence interval; OR, odds ratio.
* No experience of a nonphysical WPV event is the reference point.
† Adjusted for gender, age, race, region, size of school, grades taught, educational attainment, and occupation.

consequences to their mental health, job satisfaction, and intention or desire to leave the education setting.[24,25] Some studies have indicated more covert forms of violence, such as name calling, having reputation tarnished, experiencing intimidation from students were more likely to negatively impact teachers in terms of physical and emotional health consequences than did more overt violence, such as being threatened with a weapon.[1]

We found coworkers were the most common source of bullying. Workplace bullying has been reported in many occupations, including nurses[26-28] and teachers[4,29-32] and researchers have shown that managers or supervisors and coworkers are typically identified as the perpetrator of bullying behavior.[26-28] Specifically, our findings were similar to other studies which have reported a high level of coworker bullying among those in the education sector, rather than bullying from students and their parents.[4,29-32] Some potential theories exist to explain the higher incidence of workplace bullying among those in the education sector. At the organizational level, there are characteristics of the education work environment that place increased emphasis on interpersonal relationships with colleagues and superiors.[33] For example, the evaluation of the quality of an educator's work, along with that the potential for promotion or other rewards, depends upon exerting influence in interpersonal relationships with colleagues and supervisors to improve ones' own position.[33] Workplace bullying may in part, be due to high job demands and decreasing job resources in the education sector.[34]

On the basis of our findings, a high percentage of education workers felt they did not receive an adequate response from administration after the event was reported. Fear of repercussion from parents, protection of the school's reputation, a lack of a consistent and effective discipline policy, and a poor relationship with administrators have been identified as some possible explanations for the lack of adequate response from administration.[35] Consistent with previous studies, we also found that a lack of an adequate leadership response to incidents of WPV can impact education workers negatively, which then results in lower job satisfaction, burnout, teacher turnover, and professional disengagement.[1,13,24,25,35,36] Conversely, employees who felt supported by school administration reported greater well-being, were more likely to remain in their school, and were less exposed to violence.[1,10,12,37] Regardless of occupation, management support is important to workers. Administrators can support education workers in terms of WPV prevention by developing polices that address violence directed against education workers not just by students, but also by coworkers, parents and others; increasing enforcement of school policies; providing training on verbal de-escalation techniques during confrontations with students; providing a means of reporting; encouraging mutual support among colleagues; and providing support to colleagues following incidents of victimization.[1,12,35,38]

Increased risk of nonphysical WPV was identified for education workers who had worked in their

Table 5. **Mean Likert-Type Scale Scores and Confidence Intervals of Job-Related Factors for those who Responded to the Question if they Reported a Nonphysical Event to School Administration and Whether or not Received an Adequate Response**

| Type of nonphysical event | How often do you find your work stressful?* | How often have you felt used up at the end of the day?† | How satisfied would you say you are with your job?‡ | How likely is it you will leave the education field within the next year due to workplace violence?§ |
|---|---|---|---|---|
| Threat | Mean score (95% CIs) | Mean score (95% CIs) | Mean score (95% CIs) | Mean score (95% CIs) |
| Did not report to administration | 2.00 (1.72-2.28) | 1.75 (1.49-2.02) | 2.35(2.11-2.59) | 2.63 (2.44-2.81) |
| Reported to administration and received an adequate response | 2.10 (1.90-2.29) | 2.00 (1.76-2.23) | 1.93 (1.74-2.11) | 2.93 (2.87-2.99) |
| Reported to administration but did not receive an adequate response | 1.69 (1.50-1.88) | 1.58 (1.39-1.77) | 2.40 (2.18-2.62) | 2.72 (2.62-2.81) |
| Verbal abuse | | | | |
| Did not report to administration | 2.05 (1.88-2.23) | 1.89 (1.66-2.13) | 2.36 (2.15-2.57) | 2.70 (2.57-2.83) |
| Reported to administration and received an adequate response | 2.22 (2.06-2.39) | 2.21 (2.02-2.41) | 1.91 (1.78-2.04) | 2.94 (2.91-2.98) |
| Reported to administration but did not receive an adequate response | 1.74 (1.60-1.89) | 1.69 (1.51-1.86) | 2.35 (2.19-2.51) | 2.70 (2.59-2.81) |
| Bullying | | | | |
| Did not report to administration | 2.13 (1.87-2.39) | 2.05 (1.64-2.46) | 2.18 (1.94-2.42) | 2.80 (2.63-2.97) |
| Reported to administration and received an adequate response | 2.52 (2.21-2.84) | 2.40 (2.05-2.75) | 1.85 (1.46-2.25) | 2.84 (2.69-2.99) |
| Reported to administration but did not receive an adequate response | 1.68 (1.47-1.89) | 1.58 (1.39-1.77) | 2.26 (1.97-2.54) | 2.69 (2.51-2.86) |
| Sexual harassment | | | | |
| Did not report to administration | 1.74 (1.43-2.06) | 1.80 (1.33-2.27) | 2.33 (1.92-2.74) | 2.71 (2.45-2.98) |
| Reported to administration and received an adequate response | 1.68 (1.35-2.01) | 1.57 (1.23-1.91) | 2.16 (1.90-2.42) | 2.96 (2.89-3.04) |
| Reported to administration but did not receive an adequate response | 1.74 (1.26-2.22) | 1.60 (1.11-2.08) | 2.55 (1.96-3.13) | 2.70 (2.47-2.93) |

*1 = Always; 2 = Often; 3 = Sometimes; 4 = Hardly Ever; 5 = Never.
†1 = Very Often; 2 = Often; 3 = Sometimes; 4 = Rarely; 5 = Never.
‡1 = Very Satisfied; 2 = Somewhat Satisfied; 3 = Not Too Satisfied; 4 = Not at All Satisfied.
§1 = Very Likely; 2 = Somewhat Likely; 3 = Not at All Likely.

current school for fewer than 3 years, which suggests that newer education workers may be at greater risk of being victimized by students. It is possible relatively newer workers may have less control over student behavior because they are relatively new in their current school or because of a lack of experience in managing violent situations.[1,5,37] Teachers leave the profession at a higher rate than other professions,[39] and this rate is even higher among newer teachers; 25-50% of novice teachers leave the profession within the first 3-5 years.[37,40,41] Although many factors contribute to teacher attrition, experiencing violent events often prompts teachers to quit their profession.[1] Thus, school administrators should encourage victimized education workers to seek Employee Assistance Programs and provide them with resources to build classroom management skills and WPV prevention to better retain education workers and recruit new employees to serve growing numbers of students.[1,5]

Nonphysical WPV events impacted education workers' quality of life and job satisfaction. In the current study, education workers who experienced at least one nonphysical WPV event were more likely to report dissatisfaction with their jobs and having poor physical health and mental health. The consequences of nonphysical WPV have been shown to be more deleterious than physical violence for producing stress and causing post-traumatic stress disorder that can impact teachers in restricting or modifying their work and leaving their jobs or transferring to other schools or districts.[7]

Teachers who have been victims of nonphysical WPV on the job have higher levels of job strain, emotional exhaustion, and burnout, and these negative outcomes are exacerbated by low social support at work.[32] Researchers have indicated teachers' job satisfaction decreased and burnout increased as experiences of nonphysical WPV increased.[42] Whereas most nonphysical WPV events did not result in either medical care or time away from work, their impact on education workers' quality of life was evident. Exposure to nonphysical WPV such as bullying tends to be more cumulative in nature than physical violence,[43] and the negative health effects related to ongoing stress and emotional labor in teachers experiencing nonphysical WPV may be as detrimental as physical violence.[43]

### Limitations

Although this study is the first to examine nonphysical WPV across all occupations within a school system, it has at least four limitations. First, there was possible recall bias, as we asked participants to self-report on WPV events over the course of the previous school year. Participants may have difficulty recalling some nonphysical WPV events.[5] Thus, the estimates presented in this study are likely

an underestimate of the overall burden of WPV events among education workers. Second, the overall response rate for our survey was 39%. However, the response rate was not differential by major city and nonurban respondents; the proportions of participants from each state-based union (Pittsburgh, Philadelphia, and the rest of Pennsylvania) were similar to the proportions of the selected sample. Third, the generalizability of these findings to all education workers in Pennsylvania or nationwide is limited.[5,6] Fourth, the cross-sectional nature of the survey makes it impossible to determine if some of the risk factors and characteristics of the education workers are a result of the nonphysical WPV or if these characteristics make them more vulnerable to WPV events.

### Conclusions

We found self-reported nonphysical WPV events directed against education workers were common. Approximately 30% of education workers in the State of Pennsylvania experienced at least one nonphysical WPV event during the 2009-2010 school year. Perpetrators of nonphysical violence included not only students, but also colleagues. Risk factors that were associated with nonphysical WPV could provide a foundation for future research. Future studies could include qualitative research to examine the unique contexts in which nonphysical WPV occurs, especially in recurring acts. Such knowledge could lead to effective policies and prevention efforts to address violence directed at education workers. It is of particular concern that many education workers were not satisfied with the response from administrators after reporting a nonphysical WPV event. Consequently, adequacy of the administration's response after the event was reported made a difference in the education worker's job satisfaction, job stress and potential decision to leave the education field. Given the impact of nonphysical WPV on job-related factors and quality of life of education workers, prevention of these events should be a priority.

## IMPLICATIONS FOR SCHOOL HEALTH

An important finding from this study is the magnitude of the impact of nonphysical WPV among education workers. More specifically, education workers frequently reported that the response they received from their administration after a nonphysical WPV event was not adequate and greatly impacted their job satisfaction, job stress, and decision to leave the education field. To ensure the nonphysical safety and quality of work-life among education workers, we believe schools and districts should focus their efforts on two actions: (1) improve education worker training and (2) provide a supportive environment.

We found that students were the most common perpetrators of threats, verbal abuse, and sexual harassment. This finding highlights the need to better train and equip all education workers with (1) evidence-based preventative methods and intervention strategies to reduce aggressive and disruptive behaviors, and (2) information on school procedures and protocols on the reporting process if an event should occur.

Schools cannot assume that education workers have received adequate training to deal with the complex behaviors and needs that students have. Several studies have reported that teachers believe there is a lack of training for preventing and managing school violence.[44-47] When education workers feel unprepared to manage potential violence, their psychological and professional well-being is impacted.[1,3] School administrators could consider training to uncover predictable patterns in student aggressive behavior for effective intervention.[1,48] School administrators could also consider training their education workers using a range of effective school-based programs that have been shown to have positive effects in aggressive and disruptive student behaviors.[49] Treatment modalities such as behavioral strategies, social skills training, counseling therapy for students, peer student mediation, and parent training are used in these programs accordingly for reducing aggressive and disruptive student behavior.[49]

School administration should ensure that policies related to student conduct and procedures on addressing and reporting of violence are clear to all education workers.[1,35] When staff are well-trained on these disciplinary policies and practices, it is less likely that staff will be psychologically vulnerable and experience some level of violence from students.[1]

We also found that coworkers were the most common perpetrators of workplace bullying. When a school worker reports an instance of nonphysical WPV, administration should conduct a thorough and unbiased investigation and respond in a supportive manner to the affected education workers. Actions that address incidents of nonphysical violence can assist education workers in feeling protected, cared for, and enabled by their school administration. It can also increase trust in school leadership and in turn lead to improved staff recruitment and retention.[1,12]

Administrators and other school leaders play an important role in ensuring a safe, positive work environment for education workers. Any actions to prevent nonphysical WPV and their post-incident response when nonphysical WPV events occur may mitigate some stress and prevent education workers from leaving the profession.

## Human Subjects Approval Statement

This study was approved by the National Institute for Occupational Safety and Health Institutional Review Board (Study ID # HSRB 07-DSR-09XP).

## Conflict of Interest

The authors have no conflicts of interest to disclose.

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