Risk of physical assault against school educators with histories of occupational and other violence: A case-control study

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Abstract. A case-control study design was used to investigate risks of work-related physical assault (PA) associated with a history of violent victimization among educators. A total of 6,469 state-licensed educators (Kindergarten – Grade 12) worked in the previous 12 months and were eligible to participate. Exposure data were collected from cases (reporting a PA event in previous 12 months, $n = 290$) for the month before PA, and from controls (no work-related PA in previous 12 months; $n = 867$) for a randomly selected working month. Odds ratios and 95% confidence intervals identified increased risks for educators with any prior history of work-related (17.3, 11.4–26.3) or non-work-related PA (2.0, 1.2–3.5). In addition, PA risk in the previous twelve months increased with the number of previous victimizations, and risk also increased for educators with histories of non-physical violence (work- and non work-related). The results present a compelling case for targeted interventions and further research.

Keywords: Teacher, workplace violence, work-related assault

1. Introduction

Work-related homicide has consistently ranked among the top four most frequent causes of occupational death in the United States since 1992 [1]. In addition, the most recent data available from the Bureau of Justice Statistics reports approximately 1.7 million non-fatal acts of work-related violence occurred annually in the United States between 1993 and 1999 [2]. Employees in certain occupational groups appear at increased risk for violence, including educators. The Bureau of Justice Statistics reported educators have the fourth highest non-fatal occupational victimization rate (23 events per 1,000 educators). The rates per 1,000 educators are only lower than law enforcement officers (126), mental health professionals (55), and retail sales employees (24) [2].

The United States Department of Education projects a dramatic shortage of educators over the next four years. Among the 3.2 million teachers who work in 95,000 schools nationwide, approximately one-third will be lost to retirement and attrition [3] suggesting

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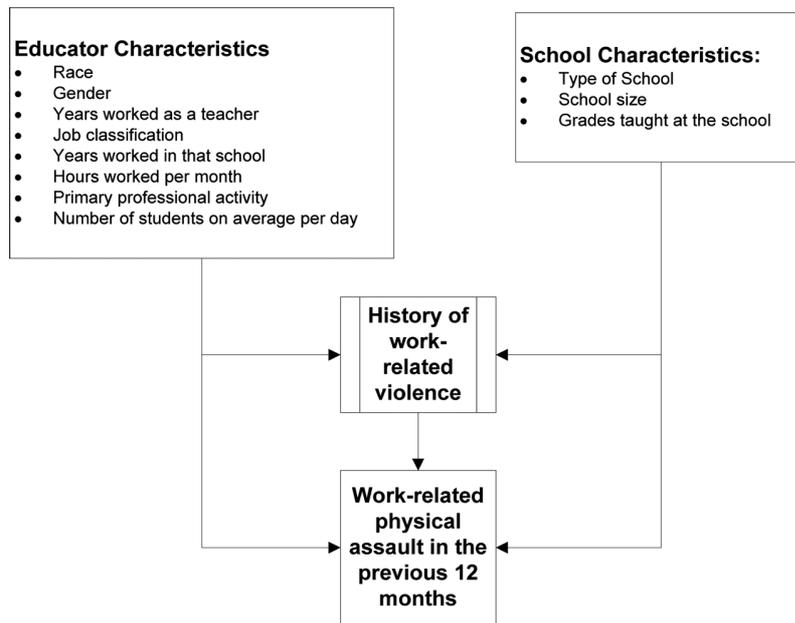
Fig. 1. Conceptual model: History of work-related violence.

the relevance of investigating work-related violence as a potential contributor to work life quality and the recruitment and retention of educators.

While school violence has been identified as a problem among students, little is known about violence against educators. Risk and protective factors for work-related violence for specific populations of workers are unclear; however, one frequently posited risk factor for *current* violence victimization is a *history* of violence, sometimes called revictimization.

The purpose of this study was to identify the association between work-related physical assault against Minnesota educators and history of violence (work- and non work-related; and physical and non-physical violence).

2. Methods

2.1. Study population

This study involved the target population of licensed Kindergarten – Grade 12 educators in Minnesota as of 2003 ($n = 116,661$) from which a random sample of 26,000 educators was selected. Specific methods have been previously described [4]. This study was approved by the Institutional Review Board at the University of Minnesota.

2.2. Study definitions

In this study, work-related violence was defined as the intentional use of physical force or emotional abuse against an employee that resulted in physical or emotional injury and consequences. This included *physical assault* (PA) and *non-physical violence* (NPV). Work-related events included any activities associated with the educator's job or events that occurred in his/her work environment; work-related travel was included. *PA* occurred when educators were hit, slapped, kicked, pushed, choked, grabbed, sexually assaulted, or otherwise subjected to physical contact intended to injure or harm. *NPV* included threats, sexual harassment, verbal abuse, and bullying. *Threat* was defined as when someone used words, gestures, or actions with the intent of intimidating, frightening, or harming (physically or otherwise). *Sexual harassment* occurred when educators experienced any type of unwelcome sexual behavior (words or actions) that created a hostile work environment. *Verbal abuse* occurred when another person yelled or swore at the educator, called the educator names, or used other words intended to control or hurt. *Bullying* was defined as repeated acts of intimidation or coercion.

2.3. Data collection

The study involved two phases. Phase 1 established eligibility of respondents (educators who worked in the

Table 1
Case and control characteristics

	Cases		Controls	
	N = 290	%	N = 867	%
Educator characteristics				
Gender				
Male	55	19	197	23
Female	235	81	670	77
Race				
White	283	98	849	98
Missing	1	< 1	4	1
Age				
Less than 30 years	26	9	72	8
30 to less than 40 years	65	22	183	21
40 to less than 50 years	83	29	234	27
50 to less than 60 years	102	35	319	37
60 or older	14	5	59	7
Highest level of education				
Associate Degree	1	< 1	1	< 1
Bachelor's Degree	90	31	333	38
Master's Degree	163	56	450	52
Education Specialist Degree	27	9	64	7
Doctorate Degree	6	2	6	1
Missing	3	1	13	2
Years worked as an educator				
Less than 8 years	83	29	181	21
8 to less than 15 years	61	21	215	25
15 to less than 25 years	86	30	229	26
25 years or more	58	20	238	27
Missing	2	1	4	1
Years worked in current school				
Less than 3 years	67	23	202	23
3 years to less than 7 years	94	32	194	22
7 years to less than 14 years	60	21	218	25
14 years or more	60	21	241	28
Missing	9	3	12	1
Number of students assigned per day				
No students assigned	82	28	206	24
23 or fewer students	81	28	141	16
24 to 45 students	48	17	159	18
46 to 120 students	42	14	186	21
More than 120 students	31	11	167	19
Missing	6	2	8	1
Primary professional activity				
Special education	117	40	109	13
Classroom teacher	113	39	601	69
School social worker	15	5	8	1
Administrator/Superintendent	13	4	48	6
School psychologist	6	2	6	1
Guidance counselor	5	2	19	2
Multiple roles	5	2	12	1
Librarian/Media specialist	3	1	17	2
School nurse	3	1	5	1
Dean of students	1	< 1	5	1
Teacher Assistant/Aide	1	< 1	8	1
Advisor to extra-curricular activities/ coach	1	< 1	4	1
Other	2	1	11	1
Missing	5	2	14	2
Hours worked per month				
Less than 87 hours	74	26	202	23
87 hours to less than 152 hours	63	22	210	24
152 hours to less than 168 hours	58	20	167	19
168 hours or more	79	27	254	29
Missing	16	6	34	4

Table 1, continued

	Cases		Controls	
	N = 290	%	N = 867	%
Job classification				
Full-time contract	252	87	694	80
Part-time contract	18	6	99	11
Long-call substitute	3	1	8	1
Building substitute	1	< 1	4	< 1
All other substitute	11	4	53	6
Missing	5	2	9	1
School characteristics				
Type				
Public	253	87	713	82
Public alternative	14	5	30	4
Public charter	8	3	17	2
Public magnet	7	2	5	1
Private (Parochial)	3	1	78	9
Private (Non-parochial)	1	< 1	15	2
Missing	4	1	9	1
Grades taught				
Kindergarten-Grade 2	168	58	397	46
Grades 3–6	188	65	498	57
Grades 7–9	108	37	464	54
Grades 10–12	66	23	311	36
Class not in session	21	7	39	5
Missing	4	1	9	1
Location				
Rural	91	31	327	37
Urban	90	31	183	21
Suburban	105	36	348	40
Missing	4	1	9	1
Enrollment				
Less than 50 students	12	4	16	2
50 to 200 students	33	12	100	12
201 to 500 students	106	37	269	32
501 to 1000 students	99	35	290	34
More than 1000 students	36	13	183	21
Missing	4	1	9	1

previous 12 months) and estimated the frequency and consequences of work-related violence. Phase 2, the basis for this paper, utilized a case-control approach to identify specific risk and protective factors for assault. Cases were educators who worked in the previous 12 months and reported at least one event of work-related physical assault perpetrated by a student. Cases reported exposures for the month *prior* to the physical assault. If cases reported more than one work-related physical assault in the previous 12 months, they were asked about the month *prior to the first event* in the 12-month study period. Controls were defined as educators who worked in the previous 12-months, but did not report experiencing work-related physical assault in that period. Controls identified exposures for a randomly selected month in which they worked. Data collection instruments and materials are located at the Center for Violence Prevention and Control website, under *research*: http://www1.umn.edu/cvpc/research.html.

2.4. Data analysis

Descriptive statistics were employed first to report frequencies of sample characteristics. Multivariate regression models adjusted for response bias in these estimates by inversely weighting observed responses by probabilities of response, estimated as a function of characteristics available from the licensing database [5]. To account for unknown eligibility among non-respondents, probability of eligibility was estimated from these same factors [6]. Validation procedures for injury event and exposure reporting are reported elsewhere [4].

An overall conceptual model for the occurrence of work-related violent events, based on previous knowledge, served as a basis for a more complex causal model. Directed acyclic graphs were derived from the causal model to select the minimum sufficient sets of potential confounders (see Fig. 1 for an example of the conceptual model for a history of work-related vi-

olence), following the methods described by Greenland et al. [7]. Multivariate analyses were conducted to determine the effect of the respective exposures of interest (types of violence history) on the outcome of physical assault. The point estimates are presented as Odds Ratios (OR) with 95% Confidence Intervals (CI).

3. Results

Among the 6,469 eligible educators, initially identified through the screening survey, 84% (5,415) responded to the Phase 1 questionnaire. Of these, 4,731 responders met eligibility criteria by confirming they had worked as licensed Kindergarten to Grade 12 educators in Minnesota during the prior 12 months. For the Phase 2 case-control study ($n = 372$ cases, 1116 controls; a 1:3 ratio), there was, again, an overall 84% response. When limited to student-perpetrated violence events, and educators who returned full surveys, exposure data were collected from 290 cases and 867 controls.

As shown in Table 1, respectively, most cases and controls were female (81%; 77%), and most worked in public schools (87%; 82%).Both groups worked in suburban schools (36%; 40%). More cases than controls worked in schools with 201 to 500 students (37%; 32%) and identified their primary professional activity as "Special Education" (40%; 13%), while fewer controls (39%), compared to cases (69%), identified their primary professional activity as a "Classroom teacher." Most cases (87%) and controls (80%) worked as full-time contract personnel. Over half of cases (56%) and controls (52%) identified a Master's Degree as the highest level of education.

Separate multivariate regression models for each type of history of violence (physical assault, threat, sexual harassment, verbal abuse, and bullying) indicated that all five types of violence in both contexts (work- and non work-related) were each related to increased risks of work-related physical assault in the previous 12 months (see Table 2). Risks ranged from an OR of 1.2 for non work-related sexual harassment to 17.3 for a history of a previous work-related physical assault.

In addition, when viewed as a four-item categorical variable ('Never,' '1–3 times,' '4–10 times,' or '10 or more times'), nearly every type of violence history was associated with a positive trend for physical assault (see Table 3; Figs 2 and 3.). For those educators with a previous history of work-related physical assault, ORs ranged from 15.0 for those with 1–3 previous events, to 43.7 for those with more than 10 previous events.

Table 2
Risk of work-related physical assault associated with any prior violence victimization

	Weighted multivariate model	
	OR	95% CI
History of work-related:*		
Physical assault	17.3	11.4, 26.3
Threat	4.8	3.3, 6.9
Verbal abuse	3.1	2.1, 4.5
Sexual harassment	2.1	1.4, 3.1
Bullying	2.0	1.5, 2.9
History of non work-related:**		
Physical assault	2.0	1.2, 3.5
Threat	1.8	1.2, 2.7
Bullying	1.7	1.2, 2.5
Verbal abuse	1.5	1.1, 2.1
Sexual harassment	1.2	0.8, 1.9

Reference value for all models: no history.
*Model controls for: primary professional activity, number of students taught on average per day, hours worked during month, job classification, type of school, school size, grades taught at school, years worked as an educator, years worked in the current school, educator gender, educator race; also weighted for non-response and eligibility.
**Model controls for: primary professional activity, job classification, school location, educator's age, educator's gender, educator's race, educator's highest level of education; also weighted for non-response and eligibility.

4. Discussion

Educators' histories of any violent victimization was strongly associated with risk of experiencing work-related physical assault in the previous 12 months, even after controlling for potential confounders and adjustment for non-response. This subsequent victimization is consistent with previous research [8–12]; though this relation has not been demonstrated on a large scale with educators. While specific prevalence for any type of revictimization has not been identified and the exact mechanism for revictimization is unclear, Anderson [8] hypothesized that having witnessed or experienced abuse, as well as experiencing a "near miss," creates a sense of vulnerability regarding future risk. Levin et al. [13] also found an increased sense of vulnerability among nurses who witnessed or experienced assault, as well as those experiencing a "near miss."

It has been reported that some survivors of violence may become passive, while others may become more aggressive, further increasing the risk of experiencing future violence. Little [11] proposed that one explanation of revictimization is that the initial abuse may result in development of maladaptive beliefs, behaviors and attitudes that shape an adult's vulnerability to victimization. Further, Smith [14] articulated the theory of "repetition compulsion" as the tendency individu-

Table 3
Risk of work-related physical assault associated with frequency of past violence victimization

	Weighted multivariate model**	
	OR	95% CI
Work-related physical assault*		
Never	1	–
1–3 times	15.0	9.7, 23.1
4–10 times	21.5	10.5, 44.2
10 or more times	43.7	17.1, 111.3
Work-related threat*		
Never	1	–
1–3 times	3.6	2.4, 5.3
4–10 times	5.6	3.1, 10.0
10 or more times	11.8	6.4, 21.8
Work-related sexual harassment*		
Never	1	–
1–3 times	1.9	1.3, 2.9
4–10 times	4.1	1.5, 11.3
10 or more times	2.9	0.8, 9.8
Work-related verbal abuse*		
Never	1	–
1–3 times	2.1	1.3, 3.2
4–10 times	3.2	1.9, 5.5
10 or more times	6.6	4.0, 11.0
Work-related bullying*		
Never	1	–
1–3 times	1.4	0.9, 2.0
4–10 times	2.3	1.1, 4.6
10 or more times	8.1	4.0, 16.3
Non work-related physical assault**		
Never	1	–
1–3 times	1.8	1.0, 3.1
4–10 times	9.9	1.5, 63.8
10 or more times	4.0	0.2, 72.5
Non work-related threat**		
Never	1	–
1–3 times	1.7	1.1, 2.6
4–10 times	2.2	0.5, 9.7
10 or more times	3.7	1.0, 13.9
Non work-related sexual harassment**		
Never	1	–
1–3 times	1.2	0.7, 1.9
4–10 times	1.7	0.5, 5.9
10 or more times	1.5	0.3, 7.8
Non work-related verbal abuse**		
Never	1	–
1–3 times	1.3	0.9, 1.9
4–10 times	1.7	0.7, 4.1
10 or more times	2.6	1.3, 5.1
Non work-related bullying**		
Never	1	–
1–3 times	1.6	1.1, 2.5
4–10 times	3.0	1.0, 9.5
10 or more times	1.4	0.5, 4.1

*Model controls for: primary professional activity, number of students taught on average per day, hours worked during month, job classification, type of school, school size, grades taught at school, years worked as an educator, years worked in the current school, educator gender, educator race; also weighted for non-response and eligibility.
**Model controls for: primary professional activity, job classification, school location, educator's age, educator's gender, educator's race, educator's highest level of education; also weighted for non-response and eligibility.
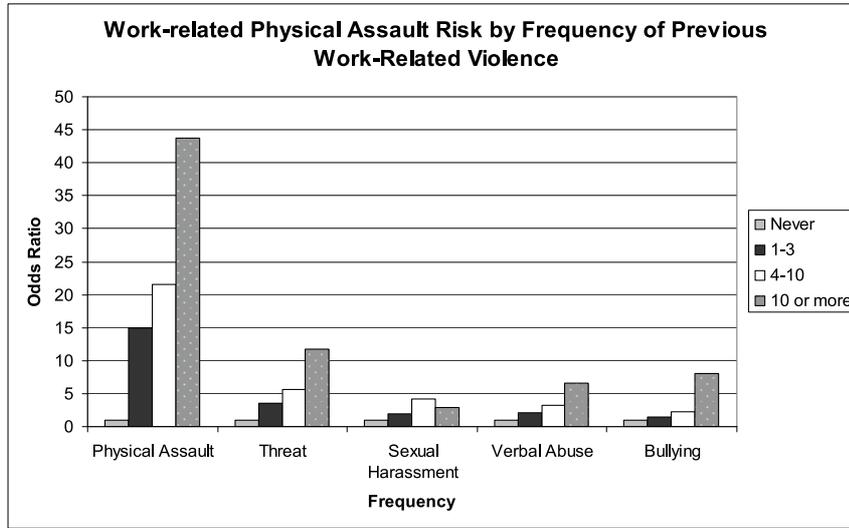
Fig. 2. Work-related physical assault risk by frequency of previous work-related violent events.
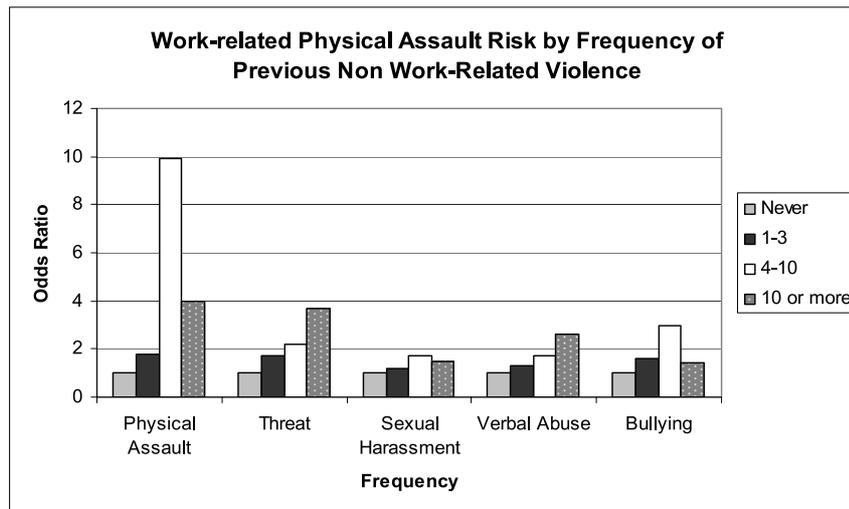

Fig. 3. Work-related physical assault risk by frequency of previous non work-related violent events.

als have to experience similar types of negative events throughout their lives. In this theory, he explains, there is a strong unconscious need to undo the previous abuse, and victims will continue to expose themselves to abuse until a potentially abusive situation is mastered.

Smith et al. [15], hypothesized the history of violence may not specifically increase the risk of future violence, but the victimization-related disruption in social cognition may impair functioning – such as the evaluation of the risks and benefits – and, therefore, result in vulnerability to revictimization.

Some previous studies investigated the association between history of violence or abuse, and current work-

related violence against another occupational group: nurses. In the current study, we did not specifically assess a history of child abuse; however, Little [11] found nurses abused as children had a 26% increased risk of work-related physical violence as adults. Similarly, Anderson [8] found history of abuse as a child or as an adult increased the risk for work-related violence against nurses.

Results from the current study should be interpreted with caution, so as not to further assign the responsibility of victimization on the victim. In contrast, with this strong association of a history of violence on the future risk of physical assault, interventions can more

specifically be tailored to those educators with a previous history of violence, so that the cycle of violence can be interrupted.

4.1. Limitations

While there is a potential for biases, including the fact that participants self-reported violent experiences and relevant exposures, numerous strategies were implemented to minimize these biases and enhance the overall quality of this study. These procedures are described in detail elsewhere [4].

5. Conclusions

A history of violence victimization is strongly associated with risk of work-related physical assault for educators. Based on these findings, appropriately designed interventions and future research can be more specifically tailored to interrupt the cycle of violence against educators.

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