



# An Educational Program to Prevent, Manage, and Recover From Workplace Violence

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## ABSTRACT

There exists a gap in the preparation of emergency department (ED) employees to prevent, manage, and recover from workplace violence (WPV). Thus, the purpose of this article is to evaluate learning outcomes following a 4-unit WPV educational program. A quasi-experimental study was used to evaluate learning outcomes with 315 employees from 3 EDs. Units 1–3 were web-based and included a pretest–posttest. Unit 4 was classroom-based and allowed employees to apply the knowledge learned during the web-based program. A paired samples *t* tests reflected a significant increase in knowledge attainment ( $p < 0.001$ ). There was no significant difference in knowledge attainment between employees who completed the web-based learning only and employees who completed the hybrid web-based/classroom-based education ( $p = 0.136$ ). A well-developed WPV educational program can achieve significant learning outcomes in ED employees. Web-based learning may be an effective alternative yielding learning outcomes equal to that of a hybrid educational program. **Key words:** classroom-based learning, emergency department, hybrid learning, workplace violence, web-based learning

**E**MERGENCY DEPARTMENT (ED) employees continue to be physically assaulted at an alarming rate (Behnam, Tillotson, Davis, & Hobbs, 2011; Deans, 2004; Gacki-Smith et al., 2009; Gates, Ross, &

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McQueen, 2006). The physical and emotional stress placed on victimized ED employees may lead to ineffective or unsafe patient care (Berry, Gillespie, Gates, & Schafer, 2012; Dragon, 2006; Gates, Gillespie, & Succop, 2011; Gillespie, Gates, Miller, & Howard, 2010). Unfortunately, there exists an educational gap in the preparation of ED employees to prevent, manage, and recover from workplace violence (WPV). Thus, it is the purpose of this article to evaluate the learning outcomes for a cohort of ED employees who completed a WPV education program tailored for their specific work environment.

There is a clear consensus that violence training needs to be provided to ED employees (Behnam et al., 2011; Catlette,

2005; Deans, 2004; Dragon, 2006; Gacki-Smith et al., 2009; Gates et al., 2011; Gillespie, Gates, Miller, & Howard, 2012; Grenyeret al., 2004; Hardin, 2012; Ray, 2007). Overall, little specificity has been offered as to the components that should be included in the design of a violence training program. Hardin (2012) did dictate that a well-developed violence training program should include a practical component for those situations that escalate beyond normal de-escalation techniques. Gillespie et al. (2012) and the International Association for Healthcare Security and Safety (Meserve & Williams, 2007) recommended that the program be interdisciplinary and co-instructed by ED employees and security officers. In one intervention study, Deans (2004) described a violence education program focused on increasing the ability to understand, be aware, and demonstrate violence prevention and management. Information was not provided for how Hardin determined the specific content of the education. It is important that any learning content be developed in collaboration with learners and health care organizations, based on their identified needs.

Recently, Gates et al. (2011) assessed the learning needs of ED employees for the development of a WPV prevention program. After conducting a series of focus groups with ED leadership, employees, and patients, the researchers documented the need for education focused on the prevention of, management of, and recovery from WPV. Gates et al. (2011) reported that WPV education should be interdisciplinary and inclusive of all ED employees and security personnel. Furthermore, components of an educational program should inform employees how to communicate effectively, anticipate and answer patient questions, provide comfort and distraction, show genuine concern and empathy, understand departmental policies and procedures for a violence response, assess for early signs of escalation, and clarify role expectations during and after violent events. The findings of the study of Gates et al. (2011) were used as a

template to develop a multicomponent, interdisciplinary WPV prevention program. This article reports on the learning outcomes component of this violence prevention program.

The educational component of the WPV program was developed on the basis of Knowles' theory of adult learning. Inherent within the theory is the need for education that takes into consideration that adults are self-directed learners whose life experiences inform their learning; the knowledge must be relevant and applied to their daily lives; and intrinsic and extrinsic motivators influence their learning (Dumchin, 2010; Levett-Jones, 2005; Olson, Stedman-Smith, & Fredrickson, 2005; Polansky, 2011).

This study adds to the literature, because it tested the knowledge attainment for two components of the educational program: a web-based learning program and a web-based/classroom-based hybrid program. The hypotheses for this study were as follows: (1) there will be a significant increase of knowledge attainment in ED employees and (2) employees completing the web-based/classroom-based hybrid program will have significantly higher knowledge attainment than employees completing the web-based learning-only program.

## METHODS

A quasi-experimental study was used to evaluate the achievement of learning outcomes with a sample of ED employees. This study was part of a larger multisite, multicomponent study aiming to reduce the incidence of physical threats and assaults against ED employees and reduce the negative consequences. Institutional review board approval was obtained prior to the start of the WPV education.

### Description of the WPV Educational Intervention

The WPV educational program consisted of four units. Units 1–3 were based in the cognitive domain of learning (Krau, 2011), delivered via a web-based learning format,

**Table 1.** Employee learning outcomes for the workplace violence educational program*Web-based learning outcomes*

## Unit 1: Prevent workplace violence.

1. Describe techniques to prevent aggressive behaviors.
2. Discuss safety processes for workers working with potentially violent patients.

## Unit 2: Manage workplace violence.

1. Recall interventions to safely and effectively manage a violent patient or visitor.
2. Identify components of effective communication, de-escalation, and conflict resolution.

## Unit 3: Recover from workplace violence.

1. Describe support for the worker following a violent event.
2. Identify post-violent event procedures.

*Classroom-based learning outcomes*

## Unit 4: Application of workplace violence knowledge.

1. Identify the method(s) for screening patients and visitors for risk of enacting workplace violence.
2. Apply the method(s) for screening patients and visitors for risk of enacting workplace violence.
3. Discuss the roles of emergency department providers for the management of workplace violence.
4. Demonstrate management of a violent patient using a coordinated team approach.

venting WPV. Unit 2 unlocked July 1, 2010, with content focused on the management of WPV. Unit 3 unlocked August 1, 2010, with content focused on how to provide care to the victimized worker and complete post-violent event paperwork. Units were unlocked incrementally to allow time for employees to incorporate the knowledge into their daily practice as an ED health care provider.

Unit 4 was a single, 2-hr classroom session modeled after the multidisciplinary disaster planning exercises conducted by public health departments known as tabletop exercises (Federal Emergency Management Agency, 2007). The classroom session required the prior completion and application of the web-based learning from Units 1–3. During the session, employees watched a series of vignettes depicting scenes of violence escalation. Employees were queried after each vignette regarding their responsibilities based on their occupational role and the department/hospital policies and procedures for the prevention, management, and recovery from WPV.

All employees completed a 20-question pretest–posttest. The test questions were developed and leveled on the basis of Bloom's taxonomy to address cognitive processing for remembering, understanding, applying, analyzing, evaluating, and creating knowledge (Krau, 2011). Pretest–posttest questions were identical. To reduce history bias, employees were not informed as to the accuracy of their responses to the pretest or posttest during the data collection period. The pretest was a prerequisite in the web-based learning management system for Unit 1 and unlocked simultaneously with Unit 1. Following completion of the educational program with or without Unit 4 (classroom education), employees completed the posttest. The specific time period between completion of Units 1–3 or Units 1–4 and taking the posttest varied between participants.

Certificates of completion were provided to the employees at the end of the educational program. Employees were awarded three continuing education hours for completion

and included a pretest and a posttest. Completion of Units 1–3 and the pretest–posttest took approximately 3 hr. Unit 4 was a 2-hr classroom-based education program that addressed both the cognitive and psychomotor domains of learning (Krau, 2011). The learning outcomes for each unit are presented in Table 1.

Unit content was presented in a chronological fashion so that content for each successive unit built upon the content learned during previous units. Unit 1 unlocked June 1, 2010, with content focused on defining and pre-

of the web-based learning units and two continuing education hours for completion of the classroom education.

### Setting and Sample

All employees from three Midwestern U.S. EDs were required to complete the WPV educational program as part of their annual competency and training. This was the first time that the employees completed the violence training program. Only employees on maternity or sick leave were excluded from the mandatory education. Employees who completed the posttest by October 15, 2011, were dichotomized into one of two groups. Group assignment was based on employees' abilities to complete Unit 4 and the posttest by the predetermined deadline. Randomization was not a consideration for group assignment. The first group, web-based learning only, consisted of those employees who completed the pretest, Units 1-3, and posttest. The second group, web-based learning/classroom-based hybrid learning, consisted of those employees who completed the pretest, Units 1-3, Unit 4, and posttest.

### Study Procedures

Managers at the three EDs provided employees a link to complete the web-based learning (Units 1-3). The program's pretest and posttest data were directly entered by the employees into the web-based learning management system. The Unit 4 class sessions were scheduled by the ED educators. The class sessions were co-instructed by a member of the study team and a site educator (e.g., nurse, patient care assistant, security officer) who attended a train-the-trainer session for the educational program. Weekly completion logs were provided to the department managers and educators to facilitate targeted reminders to those employees who had not completed the required training. Individual test scores were not released to the department managers, educators, or employees. Pretest/posttest data were downloaded from

the web-based learning management system into an SPSS-19 database (Armonk, NY).

### Data Analysis

Descriptive statistics were computed to describe the distribution of employee occupational roles and work settings. Next, the difference between the posttest score ( $\mu_1$ ) and pretest score ( $\mu_2$ ) was calculated to identify the paired difference ( $\mu_1 - \mu_2$ ) for each employee. A paired samples *t* test was computed to test the hypothesis that there would be a significant increase in knowledge attainment (Hypothesis 1). A two-tailed pooled independent samples *t* test was computed to compare the means of the paired differences ( $\mu_1 - \mu_2$ ) for changes in knowledge attainment for the web-based learning group and web-based learning/classroom-based learning hybrid group (Hypothesis 2). Alpha was set at 0.05.

### RESULTS

Three hundred fifteen employees completed the WPV educational program. Employees were primarily unlicensed assistive personnel ( $n = 151$ , 47.9%) or nurses ( $n = 130$ , 41.3%). The largest cohort of employees worked in an urban ED ( $n = 131$ , 41.6%), followed by employees from the Level I trauma center and suburban ED (see Table 2).

**Table 2.** Sample description ( $N = 315$ )

Characteristic	<i>n</i>	%
Emergency department type		
Suburban	86	27.3
Urban	131	41.6
Level I trauma center	98	31.1
Occupational role		
Physician	12	3.8
Nurse	130	41.3
Social worker	22	7
Unlicensed assistive personnel	151	47.9

### Hypothesis 1

Paired samples *t* tests were calculated to determine changes in knowledge attainment (see Table 3). The paired samples *t* test for the 315 employees was significant [ $t(314) = 10.811, p < 0.001$ ]. Next, paired samples *t* tests were computed to determine the change in knowledge for each of the two study groups. Tests were significant based on pretest–posttest score changes for the web-based learning group [ $t(94) = 5.008, p < 0.001$ ] and the web-based/classroom-based hybrid learning group [ $t(219) = 9.629, p < 0.001$ ].

### Hypothesis 2

A histogram for the means of the paired group differences was assessed for normality. The data were normally distributed meeting the first assumption for a *t* procedure. A Levene's test was then conducted to test for an equality of variances between the means of the paired differences ( $\mu_1 - \mu_2$ ) for changes in knowledge attainment with the web-based learning group and the web-based/classroom-based hybrid learning group. The two groups did not vary significantly ( $F = 2.386, p = 0.123$ ), indicating that a pooled statistical procedure was appropriate and the second assumption for a *t* procedure met.

Hypothesis 2 was then addressed through a two-tailed pooled independent samples *t* test

(see Table 3). There was no significant difference in knowledge attainment between the two groups [ $t(313) = 1.493, p = 0.136$ ].

### DISCUSSION

Significant knowledge attainment was seen in the ED employees that completed this novel WPV educational program. One rationale that may explain the knowledge attainment seen in this study is that WPV is a profound problem for ED employees (Behnam et al., 2011; Gacki-Smith et al., 2009; Gates, Ross, & McQueen, 2006). When adult learners focus on content that is immediately relevant to their daily lives, learning will be amplified (Dumchin, 2010). The magnitude of the violence experienced by ED employees may have led them to be fully engaged in learning educational content developed to increase their personal safety.

The significant knowledge attainment may have also occurred as a result of the staggered release of program content over a 4-month period. The staggered release may have allowed employees to learn and retain more content over time rather than attempting to absorb all content at one sitting. Kerfoot et al. (2010) conducted a randomized control trial with 724 urology residents to compare the delivery of education via an en masse approach with a staggered delivery approach. The researchers ascertained that an en masse

**Table 3.** Learning outcomes for the workplace violence program

	Pretest, mean (%)	Posttest, mean (%)	Mean of paired differences (%)	<i>t</i> -Test statistic	<i>df</i>	<i>p</i>
Change in knowledge attainment, all employees ( <i>n</i> = 315)	61.67	68.46	6.79	10.811	314	<0.001
Group comparisons for knowledge attainment				1.493	313	0.136
Web-based learning group ( <i>n</i> = 95)	61.79	67.16	5.37			
Hybrid learning group ( <i>n</i> = 220)	61.61	69.02	7.41			

approach resulted in higher short-term learning, but the staggered approach yielded significantly higher learning outcomes at Week 45 ( $p < 0.01$ ). The success of a staggered release approach used for our study as well as the study of Kerfoot et al. (2010) might be explained by physiological changes that occur in the brain. Sisti, Glass, and Shors (2007) conducted an experimental study to measure the survival of new neuron cells in animal models for en masse education and a staggered educational approach. Sisti et al. (2007) concluded that staggered education not only leads to greater memory retention over the en masse approach but also to a consistently higher neuron cell survival count.

The second hypothesis in this study was not supported. We found that although the ED employees who completed the web-based/classroom-based hybrid learning content scored a higher mean test score improvement than the group that completed the web-based learning only content, the difference in means was not significant. The test itself was developed to directly measure the web-based content potentially explaining the lack of significance between the two groups. In addition, the purpose of the classroom-based instruction was to build upon the web-based learning and allow an additional opportunity for the learning to be applied in a simulated classroom environment, a key facet of adult learning theory (Dumchin, 2010). It is also possible that the lack of statistical significance could be a derivative of measuring knowledge attainment versus behavior change. Although learning did occur with the educational program, further research will need to be done to assess whether adoption of the knowledge into daily practice varied between the two groups.

Garland (2010) compared changes in test scores for dental students taking a web-based infection control program with classroom-based instruction. Results indicated significantly greater learning for students in the web-based education cohort ( $p = 0.011$ ). Gallagher, Dobrosielski-Vergona, Wingard, and Williams (2005) found similar results with

students taking a dental hygiene gerontology course. The mean final course score for students in the web-based version of the course was significantly higher than the score for students taking the course in a traditional classroom setting (94.3% vs. 89.3%, respectively,  $p < 0.001$ ). Although these findings reflect a difference of knowledge attainment for learning outcomes based on two separate delivery strategies (classroom vs. web-based), it does emphasize the significant degree of learning that occurs with a web-based learning approach. Given that both groups in our study completed the same web-based learning component (Units 1–3) and the web-based learning group participants significantly increased their knowledge attainment, it is not surprising that there was no greater difference between test score improvements. However, this should not negate the fact that although the group differences were not significant, the hybrid group did achieve a greater increase in knowledge attainment. The greater difference for the hybrid group likely resulted from the employees' ability to discuss the learning in relation to their daily work lives as well as apply the learning during the simulated classroom session.

### Limitations

This study was limited by potential history, repeated testing, and diffusion biases. It is possible that employees completed WPV education not related to this required educational program. This bias was likely minimal, because the leadership from the three EDs reported that no WPV education was being offered other than the program depicted in this study. The effect of repeated testing was prevented, because employees were not informed of the pretest or posttest results. However, it is still possible that employees discussed their answers with each other while testing. It is possible that diffusion bias occurred, because employees who did and did not complete Unit 4 worked together at their respective sites. Employees likely discussed and deployed the classroom-based training

learned during Unit 4. This knowledge transfer to coworkers could further explain the lack of significance between the two study groups. If so, this bias will actually pose a significant implication to practice: employees diffuse content they learn during classroom-based educational programs.

### IMPLICATIONS FOR EMERGENCY NURSE EDUCATORS

There are several implications for emergency nurse educators based on this study. First, web-based learning is growing in popularity; however, the learning outcomes of ED employees using this approach were not previously known. The results from this study revealed that web-based learning outcomes were not different from outcomes with web-based learning coupled with a classroom component for the content delivered in this program. However, consideration should be given to the preferences of learners and educators when developing future educational programs. Leasure, Davis, and Thievon (2000) illustrated the benefits of web-based learning and classroom-based instruction. Benefits of web-based learning are convenience, costs, and flexibility. Web-based learning does require learners to be computer savvy and self-motivated to complete the education. Benefits of classroom-based instruction include direct interaction with educators, engagement with peers for program content, and increased confidence with mastery of program content. The delivery method chosen for the development of content specific to ED employees may rest with the availability of the emergency nurse educator and funds for web-based program development versus payroll expenses for classroom attendance. Considerations reflective of the findings of Smith, Ferguson, and Caris (2002) are as follows: How much interaction will the educator have with web-based learners? How much time will the web-based interaction require? How will participation and program completion be assessed for web-based content? How will critical thinking and reasoning be assessed?

### CONCLUSION

A well-developed WPV educational program can achieve significant knowledge attainment in ED employees. In addition to the statistical significance, clinical significance in this study was achieved. Employees in this study are now armed with a battery of knowledge that they can apply in the work setting for the prevention of, management of, and recovery from WPV. Web-based learning may be an effective teaching approach garnering significant knowledge attainment when the educational program is designed using principles of adult learning theory. Classroom-based instruction may yield an additive effect to web-based learning for knowledge attainment. Further research should be conducted to determine whether learners completing exclusive web-based learning versus exclusive classroom-based education equally adopt new behaviors learned during an educational program. Research also needs to be conducted to evaluate changes in WPV victimization for employees who attend WPV educational programs.

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