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ENA Advocacy Efforts and The State of Play Regarding Workplace Violence

Terry M. Foster, MSN, RN, CCRN, TCRN, CPEN, CEN, FAEN

I don't have to tell anyone reading this column about the increasing incidence of violence seen in our emergency departments. At times, incivility seems to be at an all-time high. I'm not sure if this is pandemic related or not. Not too long ago, we were "health care heroes" (a name I never felt completely comfortable with), and it seems in a short amount of time, emergency nurses were gradually back to being threatened and assaulted.

We've all seen news videos of terrible violent acts occurring in restaurants against food service workers and even on airlines against flight attendants. Those actions, which some of us see on an almost daily basis, cannot be recorded in the emergency department (although it would speak volumes about the workplace violence we endure!).

If you're walking through the grocery and someone approaches you in a hostile manner, threatens you, and then assaults you, charges can be brought and pursued against that perpetrator. Why do we seem to often lose that right simply because we clock in to work? I have heard all too often that "it comes with the job!" This is an appalling and pathetic response to a national crisis. Emergency nurses should never be discouraged from pressing charges, although this has often been the case.

In conjunction with Robert Kramer, Emergency Nurses Association's (ENA) Director of Government Relations, we want to update you on our very active presence in combating workplace violence.

At the federal level, ENA's advocacy efforts related to workplace violence help augment our work to support a healthy work environment by supporting two separate bills in the U.S. Congress. First is the Workplace Violence Prevention for Health Care and Social Service Workers Act. We are currently working to support reintroduction of the bill in both chambers of Congress. In the previous Congress, the bill passed the House of Representatives by a 254-166 bipartisan vote. However, it failed to gain traction and move in the Senate. The bill, which is a longstanding ENA priority, would require the U.S. Occupational Safety and Health Administration (OSHA) to develop and implement a national standard that would require hospitals and other health care employers to implement workplace violence prevention plans in their facilities.

ENA also supports the Safety from Violence for Health Care Workers Act to provide federal penalties for assaulting health care workers. This bill has not been reintroduced in this session of Congress, but reintroduction is expected soon.

On the regulatory front, ENA is closely monitoring activity at OSHA, which has signaled that a workplace violence national standard is a top priority. ENA met with OSHA in July 2022 to discuss these topics. OSHA is expected to release a proposed workplace violence rule later this year.

At the state level, ENA monitors workplace violence legislation at the state level that would enhance criminal penalties for those convicted of assaulting emergency nurses while at work. ENA also supports legislation that would compel health care facilities to develop, implement, and maintain workplace violence prevention plans. Recent victories related to this effort include the passage of new laws in New Hampshire, Arizona, Wisconsin, Utah, and Maryland.

Regarding workplace violence at the state level, approximately 31 states allow for those who assault emergency nurses to be charged with felony offenses, and approximately 11 states have enacted workplace violence prevention laws, including Arizona, California, Connecticut, Illinois, Maryland, Minnesota, Maine, New Hampshire, New Jersey, Oregon, and Washington.

I can assure you that the ENA Board of Directors, staff, and our fellow members are there to support you in these efforts. No emergency nurse should ever have to feel alone and isolated after a workplace assault. We, the ENA, stand with you!

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Why Won't It Stop: Workplace Violence in Emergency Care

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Why Hasn't It Stopped: Workplace Violence in Emergency Care

Workplace violence by patients and visitors against emergency nurses has been ongoing for over 40 years. In 1981, Dubin reported on the conditions most associated with patient violence, including substance use, intoxication, and withdrawal; acute psychosis; paranoia; borderline personality; and organic brain disease. He further warned clinicians to watch for signs of escalation, such as aggressive body posture, speech, and motor activity.[1] These patient conditions and "warning signs" have not changed in the last 40 years, although the catalog of conditions and signs has increased. Additional considerations are patients dissatisfied with care, diagnosed with cornoavirus disease-2019, with a chief complaint of injury, and over the age of 60 years, as well as environmental factors such as emergency department crowding and staffing shortages.[2,3] Given that emergency nurses have had this knowledge for over 40 years, why is workplace violence still a problem? Why hasn't it stopped?

Workplace violence in emergency care persists for a myriad of reasons. As the number of inpatient beds and outpatient treatment centers has decreased over the decades, access to mental health services also has decreased.[4] These changes created a health care system where the emergency department has become the safety net for mental health care.[5] However, the emergency department continues to be ill-prepared for managing mental health emergencies due to a lack of expert clinicians to provide diagnoses, treatment, and care, as well as limited availability of rooms to provide the care safely. An additional aspect of this problem is the lack of funding to support mental health services in the emergency department for patients reporting both physical and mental health problems.[4-6]

Even if the public health crisis for mental health could be curbed, incidents of workplace violence will persist due to the general public not having the resources to manage a situational crisis. In moments of crisis, emotions, fear, and frustration can reduce individuals' abilities to control their actions. As an example, consider a scenario where you, as an emergency nurse, get a call that your 6-year-old child was struck by a motor vehicle running from the school playground onto a city street. Your child was transported to the regional trauma center in the adjacent town. Upon your arrival at the trauma center, you don't recognize anyone. You see a reception desk that has a registration clerk, triage nurse, and security officer. You ask to be taken to your child's bedside. You are informed, "Take a seat, please. We'll get with you as soon as we can. The trauma team is still working on your child." Are you really willing to "take a seat"? Or are you more likely to raise your voice, try to walk around the person telling you to wait, or even push through the door to get into the trauma bay? Are you willing to use profanity or threats to get to your child? If you say "Yes" to any of these questions, then you are admitting that you are willing to use workplace violence during a situational crisis. This demonstrates that even rational and professional emergency nurses who understand that workplace violence is wrong can experience a circumstance where aggressive behaviors could be used.

The aim of emergency nurses and members of the public health system should always be to strive for the complete eradication of workplace violence so that emergency nurses can work in safe, caring environments. Until that perfect world comes, emergency nurses need to recognize that workplace violence will occur. But workplace violence should not be condoned, and emergency nurses should never give up their efforts toward eradication. Emergency nurses should recognize that workplace violence can happen and plan for it. In 2011, a delegation of emergency nurses traveled to Cuba to study the health care system. The delegation learned that "…anger was an expected outcome for poor health or significant changes in health status" (p. 561) and that health care providers began educating patients and families upon

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arrival on how to prevent and manage their anger.[7] If emergency nurses could assume that workplace violence is likely to occur in all patients, then a strategy for universal violence precautions could be routinely used. This perspective could improve the safety of all emergency nurses and persons in emergency care settings.

Definition and Typology for Workplace Violence

The National Institute for Occupational Safety and Health, a division of the United States Centers for Disease Control and Prevention, defines workplace violence as "the act or threat of violence, ranging from verbal abuse to physical assaults directed toward persons at work or on duty."[8] A definition that more broadly defines the construct in terms of where work takes place is provided by the International Labor Office, International Council of Nurses, World Health Organization, and Public Services International. They jointly define workplace violence as "incidents where staff is abused, threatened or assaulted in the circumstances related to their work, including commuting to and from work, involving an explicit or implicit challenge to their safety, well-being or health" (p. 3).[9] In addition to definitions for workplace violence, there are myriad of terms used to depict workplace violence. Workplace aggression and occupational violence are other terms you will see used in this special issue.[10,11]

Workplace violence is not confined to the actions of patients and visitors. The University of Iowa Injury Prevention Research Center convened a national panel of experts to discuss workplace violence.[12] From that panel, a new typology for workplace violence based on the relationship of the aggressor to the employee was developed. Type I of this typology is criminal intent violence. In emergency care, type I workplace violence occurs when a person enters the emergency department to seek and injure someone they previously had an altercation with (eg, gang violence). Other actions include a person entering the emergency department seeking to steal property such as purses or opioid medications from an automated medication dispensing machine or keys to patient vehicles.[13] Type II is customer/client violence. Type II workplace violence is the most frequently reported type of violence in the emergency care setting. This type of violence against emergency nurses includes patient and visitor behaviors such as hitting, spitting upon, throwing objects, etc. The majority of the articles published in this special issue will address type II workplace violence. Type III is worker-on-worker violence. Type III workplace violence in the emergency department occurs when a current or previous employee targets another employee. The behaviors can include verbal abuse and assault; however, they also can include bullying or mobbing-type behaviors.[14] Type IV is personal relationship violence. Type IV workplace violence is rarely addressed in the literature. This type of violence can include a current or previous intimate partner of the emergency nurse coming into the emergency department and demonstrating harassing or assaultive behaviors.

Workplace violence is further defined based on the actions taken or behaviors exhibited by an aggressor, not the intention of the aggressor. For example, an older adult who is confused and pinches or hits an emergency nurse during a physical examination or invasive procedure still commits workplace violence. Despite the older adult not meaning to assault the emergency nurse, physical and emotional pain can still be experienced by the emergency nurse, as noted by Somes in this special issue.[15] Specific categories of workplace violence include verbal abuse, sexual abuse, physical threats, and assaults. Each category can occur across the 4 types (I, II, III, and IV) of workplace violence.

Universal Violence Precautions

The term "Universal Violence Precautions" was first used by Gillespie to describe interventions that emergency nurses could use to prevent or manage workplace violence.[16] This construct is similar to universal bloodborne pathogen precautions in which emergency nurses wear gloves during invasive procedures to prevent the risk of acquiring hepatitis and other bloodborne diseases. Rather than being selective on who might have a bloodborne disease, the emergency nurse assumes everyone might be infected and therefore takes universal precautions. The need for universal violence precautions is similar. The emergency nurse should maintain the assumption that anyone can enact violence at any time, and therefore, the emergency nurse would change how they might typically interact with others to promote personal safety.

The Occupational Safety and Health Administration (OSHA), a division of the United States Department of Labor, provides a framework for workplace violence prevention guidelines.[17] In their framework, there are 5 categories for prevention interventions: (1) management commitment and employee participation, (2) worksite analysis, (3) hazard prevention and control, (4) safety and health training, and (5) recordkeeping and program evaluation. The following Table provides examples of strategies based on the OSHA framework. Additional

TABLE
Examples of strategies to foster universal violence precautions for the prevention and management of workplace violence in the emergency care setting

Categories for workplace violence prevention programs	Workplace violence prevention strategies
Management commitment and participation[11,17-21]	• Maintaining security/police presence in the emergency department • Distributing personal alarm systems to emergency nurses to activate during a workplace violence incident • Providing mental health services to the victimized emergency nurse following an incident of workplace violence • Requiring all threats and assaults be reported
Worksite analysis[17,22,23]	• Conducting walkthrough assessments looking for hazards • Talking with staff about their recommendations for improvement and prevention • Assessing for adherence to policies and procedures for workplace violence • Identifying occupational groups/situations most likely to encounter workplace violence
Hazard prevention and control[10,15,17-19,23-27]	• Adjusting the physical environment to promote safety, such as incorporating high/deep counters, panic buttons, and lockdown procedures • Using comfort carts or other forms of distraction • Screening for risk of workplace violence • Having a chaplain staff stay with a family experiencing a situational crisis • Administering pharmacologic therapy to patients • Conducting safety huddles periodically throughout the day • Reassigning violent patients to a different team member after they significantly threaten or physically assault a team member (when staffing permits) • Conducting root cause analyses
Safety and health training[11,17-19,21,23,28]	• Providing annual (at minimum) educational programming; suggested topics include: ○ Workplace violence policies and procedures ○ Early recognition and violence de-escalation ○ Situational awareness ○ Crisis prevention ○ Stress inoculation training ○ Caregiver fatigue and burnout ○ Mental health first aid
Recordkeeping and program evaluation[17,19,23,25,29]	• Developing a workplace violence reporting system useful for nonpatient incidents • Reviewing workplace violence data to identify trends • Measuring frequency and severity of incidents to determine if interventions are effective

strategies are detailed by Howard and Robinson in this special issue.[18]

Consequences of Workplace Violence

In this special issue, Gillespie and Berry[11] provide a framework for the consequences incurred by patients and visitors, the worker, the workplace, and patient care when workplace violence occurs. The negative impact on patients and visitors exhibiting workplace violence includes patients being restrained, visitors being evicted or removed from the emergency department, and offenders having charges pressed against them.[11,28] Worker effects are physical injuries, psychological stress, and supportive care by coworkers.[11,21,30,31] Effects of workplace violence on the workplace or employer are absenteeism and emergency nurses quitting and seeking employment elsewhere.[21,32] Consequences to patient care resulting from workplace violence can manifest as a decrease in overall work productivity with patients, delayed treatment for non-violent patients, and errors in patient care.[11,21]

BOX 1
Worker's rights outlined by the United States OSHA.[17]

Workers have the right to:

- Working conditions that do not pose a risk of serious harm.
- Receive information and training (in a language and vocabulary the worker understands) about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules. OSHA will keep all identities confidential.
- Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against for using their rights, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

Special Issue on Workplace Violence

In this special issue, you will find a series of articles focusing on workplace violence against emergency nurses. We recommend paying particular attention to the clinical articles by Spradlin and Dunseth-Rosenbaum,[23] Cabilan et al,[10] and Carr and Derouin.[24] The authors provide extensive details of their project procedures and implications for emergency nurses. Spradlin and Dunseth-Rosenbaum[23] describe the components of their intervention: zero tolerance for workplace violence campaign, daily safety huddles, review of policies and procedures, senior leadership support, behavioral health response team, case reviews, and data dashboard.[23] Cabilan et al[10] incorporated the Queensland Occupational Violence Risk Assessment Tool for use with the electronic health record of their emergency patients. The tool is being used to identify patients at higher risk for workplace violence so that preventive interventions can be deployed. Carr and Derouin[24] implemented a duress alarm system for emergency nurses to use when needing to call for help during workplace violence.[24] Although their project did not reduce the prevalence of workplace violence, they provide sound recommendations for future use of duress alarms to yield a desirable outcome.

Final Thoughts

After you read this special issue on workplace violence, we recommend you continue your exploration of the prevention and management of workplace violence. The articles in this special issue are not exhaustive regarding the recommendations available to emergency nurses. First, it is important to know your rights as an employee before, during, and after workplace violence. For emergency nurses in the United States, please see Box 1, which displays the rights of workers granted by OSHA.[17] For emergency nurses who practice outside of the United States, we encourage you to contact relevant nursing advocacy groups, legislators, and occupational health agencies to determine your rights. Resources, including position statements, white papers, and policy recommendations, are provided in Box 2.

We do dream of a future where the tenured emergency nurse reads this editorial and says, "Workplace violence? Was that ever really a thing?" These questions will indicate that the efforts of the emergency nursing and public health community will have achieved their ultimate aim for the safety and well-being of emergency nurses across the globe.

BOX 2
Position statements, white papers, and policy recommendations for the prevention and management of workplace violence.

American College of Emergency Physicians (2022)
- Protection from violence and the threat of violence in the emergency department: https://www.acep.org/patient-care/policy-statements/protection-from-violence-and-the-threat-of-violence-in-the-emergency-department/

American Hospital Association (2023)
- Workforce and workplace violence prevention: https://www.aha.org/workplace-violence

American Hospital Association and International Association for Healthcare Security & Safety (2021)
- Creating safer workplaces: a guide to mitigating violence in health care settings: https://www.aha.org/system/files/media/file/2021/10/creating-safer-workplaces-guide-to-mitigating-violence-in-health-care-settings-f.pdf

American Nurses Association (2015)
- Position statement on incivility, bullying, and workplace violence: https://www.nursingworld.org/practice-policy/nursing-excellence/official-position-statements/id/incivility-bullying-and-workplace-violence/

American Organization for Nursing Leadership and Emergency Nurses Association (2022)
- Toolkit for mitigating violence in the workplace: https://www.aonl.org/system/files/media/file/2022/10/AONL-ENA_workplace_toolkit.pdf

Emergency Nurses Association (2020)
- ENA position statement: Violence and its impact on the emergency nurse: https://www.jenonline.org/article/S0099-1767(20)30005-2/pdf

International Labor Office, International Council of Nurses, World Health Organization, and Public Services International (2002)
- Framework guidelines for addressing workplace violence in the health sector: https://apps.who.int/iris/bitstream/handle/10665/42617/9221134466.pdf?sequence=1&isAllowed=y

National Quality Forum (2020)
- National Quality Partners issue brief: NQP action team to prevent healthcare workplace violence: https://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=93050

Registered Nurses Association of Ontario (2019)
- Preventing violence, harassment, and bullying against health workers: https://rnao.ca/bpg/guidelines/preventing-violence-harassment-and-bullying-against-health-workers?_ga=2.148417015.1743565705.1674963891-1104841806.1674963891

The Joint Commission (2022)
- Workplace violence prevention standards: https://www.jointcommission.org/standards/r3-report/r3-report-issue-30-workplace-violence-prevention-standards/#.Y9XtdxPMI0Q

United States Government Accountability Office (2016)
- Workplace safety and health: Additional efforts needed to help protect healthcare workers from workplace violence: https://www.gao.gov/products/gao-16-11

United States Occupational Safety and Health Administration[17]
- Guidelines for preventing workplace violence for health care and social service workers: https://www.osha.gov/sites/default/files/publications/osha3148.pdf
- Online workplace violence prevention course for nurses: https://www.cdc.gov/niosh/topics/violence/default.html

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Workplace Violence: Raising Awareness and Bridging the Gap with Law Enforcement

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Emergency nurses in the United States are making great strides against workplace violence with the support and encouragement of the Emergency Nurses Association (ENA). Many nurses and professional nursing organizations are working tirelessly to raise awareness about the prevalence of violence against health care workers. ENA recently challenged members to raise awareness about workplace violence within their communities. Answering this challenge, many ENA chapters have chosen various methods to disseminate information and advocate for change to stop workplace violence.

The Golden Triangle ENA in Texas felt particularly charged to respond, as there have been many violent incidents against nurses in the rural area of Texas they serve. Multiple chapter members had personally been impacted by workplace violence, and many of these nurses reported they felt that they were discouraged from formally reporting the incident or felt it was a pointless endeavor because "nothing comes of it." This belief is not uncommon. One study reported that only 19% of violent incidents against health care workers were reported.[1] After dealing with ongoing frustration regarding the normalization of workplace violence, members chose to reach out to local elected leaders and law enforcement to develop a better working relationship.

The purpose of this editorial is to share with readers the process that the chapter followed to get community support to raise awareness of workplace violence and to bridge the gap with law enforcement. A secondary goal is to share ideas that may be beneficial to other emergency nurses and ENA chapters that are working to facilitate a collaborative relationship with community leaders and local law enforcement.

Elected chapter officers began by contacting local city council members to schedule a time to present statistics and information on workplace violence (see Figure). They were able to attend 4 city council meetings to present them with facts: violence against emergency nurses has reached epidemic levels, and violence against health care workers has been normalized, with many nurses feeling as if this is a "part of their job." The local city council members were shocked and saddened to learn how prevalent this issue has become. City council members were encouraged to support initiatives, encourage legislation that provides support to health care workers, and raise awareness that workplace violence will not be tolerated. Following the discussion, the elected mayors of 3 separate local cities issued a proclamation for Violence in the Workplace Awareness Day.

After the initial discussion with elected community officials, members began reaching out to all local law enforcement agencies to explain the prevalence of workplace violence and to raise awareness of the perceived lack of support for nurses who are victims of violent crimes in the workplace. Local law enforcement agencies were excited to begin a dialogue on how nurses in the community could feel more supported by law enforcement. These discussions resulted in the Texas ENA's Violence in the Workplace Declaration being signed by various local law enforcement agencies. This edict declares the support of local law enforcement agencies for health care workers. Also, the district attorney, chief of police, and all of the criminal investigation detectives for the largest local city reached out to each of the major hospitals to meet with the nurses. During this meeting, law enforcement personnel discussed violence prevention and provided nurses with important guidelines to follow if an incident of workplace violence does occur (see Table). How these events will shape the local health care environment and the relationship between health care workers and law enforcement personnel is yet to be seen, but it has facilitated a dialogue between the 2 groups.

Law enforcement personnel have expressed that they want emergency nurses to feel supported and safe. However, they also have a desire for members to understand why

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TABLE
Guidelines from law enforcement when filing a report:

- Get a license plate or other identifying information if possible of the aggressor
- When law enforcement arrives, include a detailed recount of the incident where the reader of the report can visualize what happened, details can't be stressed enough
- Include the names of any witnesses of the workplace violence incident in the police report
- When completing the police report, list all equipment that may have been destroyed in the act, this may lead to additional charges and demonstrates the level of violence
- Include pictures, if applicable, of any injuries or damage that occurred because of the incident
- If your state has enhanced charges for health care workers that increase the punishment against offenders, you should remind the officer taking the report to ensure they file the appropriate charges
- If security footage is available, notify law enforcement personnel immediately so they can work with the health care organization to obtain footage to use as evidence
- Document the injury with photos for multiple days after the event because the injury can change or be more visible
- If your state has enhanced charges for health care workers that increase the punishment against offenders, you should remind the officer taking the report to ensure they file the appropriate charges

certain charges are pursued and others are dropped based on current legislation and the severity of varying charges. As a result, the chapter is determining if there is enough community support to host an educational conference for health care workers to learn from experts (eg, district attorney, chief of police, county judge) about the legal process that occurs after a report is made. This will allow nurses to better understand why some charges may not be pursued, whereas others are. If there is not enough support for the conference, the speakers will attend a local ENA chapter meeting to provide education and discuss workplace violence concerns with chapter members.

As emergency nurses continue to advocate for change in their communities, it is important not to remain complacent. Unfortunately, as violent incidents against nurses have become normalized, many emergency nurses feel resigned to accept this fate. However, emergency nurses have a large voice and deserve the right to feel safe in the workplace. Hopefully, this overview provides a good starting point or ideas for nurses working to stop workplace violence in their respective communities.

FIGURE
Left, Keri Reeves, GTENA President, and right, Misty Dantin, GTENA President-Elect, attending a violence awareness event at which law enforcement personnel met with health care providers.

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Providing Peer Support after Workplace Violence

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Emergency nurse providing emotional support to a peer who has been abused by a patient while providing care in the emergency department.

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Agitated Geriatric Patients and Violence in the Workplace

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Abstract

Older adults may suddenly exhibit behaviors that are viewed as noncompliant, noncooperative, and threatening. They may even lash out verbally and physically causing injury to health care staff. In addition to taking actions that prevent harm to the staff and the patient, determining what caused this behavior (dementia vs delirium or other cases) will be critical, as well as debriefing the staff after the incident.

Key words: Workplace violence, Workplace aggression, Agitation, Older adult, Behaviors

Law enforcement presents with a patient who appears to be approximately 80 years old. They state they were called for an "altercation" and found the patient in an agitated state. The patient is alert, but mumbling and picking at their urine- and food-stained clothing. You note a strong odor of old urine and body odor and notice the patient is wearing multiple shirts, sweaters, and pairs of pants. In addition to looking disheveled and unkempt, the patient looks frail and undernourished and is refusing to cooperate and allow assessment or treatment. As the ED staff attempts to get the patient undressed and into a gown, the patient starts yelling obscenities and swinging at the staff. At one point, the patient grabs a staff member's arm, leaving long bloody nail marks. Is this workplace violence? What should be the response?

The increase in episodes of workplace violence, described as physical assault (striking out, hitting, biting, spitting, scratching), sexual assault, and verbal abuse, in the emergency department has been well documented.[1-7] Studies of agitation in older adults with dementia, delirium, substance use, and psychological issues describe the same behaviors, yet there are minimal recent published data specifically looking at the frequency of violence in the workplace perpetrated by an older adult with these conditions.[4,8,9] This lack of data may be caused by health care workers tending to not report all episodes of workplace violence.[1,3-7] Episodes involving older adults are reported even less frequently when staff considers it "part of the job," if the patient has dementia or delirium, or if they feel the patient has a "reason to act that way."[1,3-7]

When an older adult becomes violent in the emergency department, it is important to ask "Why is this patient acting like this?" Other questions to consider asking include:

- What is the safest way to de-escalate and manage the situation?
- What additional precautions are necessary when managing the situation due to the patient's age, physiology, and frailty?
- Is an episode of workplace violence that causes injury any less harmful to staff when it is an older adult causing the injury?
- What needs to occur after an episode of workplace violence involving an older adult with altered cognition to prevent this from recurring and have the best outcome for all?
- Is the debriefing and treatment of staff and witnesses different when an agitated older adult is involved?

DETERMINE THE WHY

Agitated and aggressive behavior in older adults is most typically related to dementia, hyperactive delirium, psychiatric disorders, and substance abuse.[8-16] While taking steps to de-escalate and manage the behavior, it will be important to determine why this older adult has suddenly become violent. Sorting out the why and addressing the underlying

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cause may help to determine the best course of action and may in fact be lifesaving, especially if delirium is the cause. Creating a plan to help prevent future episodes of agitation is important.

DEMENTIA

Patients with dementia—such as Alzheimer's disease or Lewy body dementia—typically have a known history of progressively deteriorating cognition and behaviors that may become agitated or violent.[8,10] Agitation is the third most common neuropsychiatric symptom in dementia, being observed in up to 70% of patients with cognitive decline.[8,10] Increased use of the emergency department by patients with dementia and agitation has been noted.[8] Patients with dementia may pace, fidget, use verbal abuse or threatening gestures, physically lash out, or destroy things.[8,9] Many patients with dementia present with mild cognitive impairment and confusion, but patients with advanced dementia are more prone to sudden behavioral symptoms including "aggression, agitation, delusions, hallucinations, anxiety, wandering, and apathy."[8-10] Changes in environment (being brought to the emergency department, change in amount of light/sunset, change in faces), fear, boredom, overstimulation, and having unmet basic needs such as hunger, thirst, or the need to go to the bathroom are frequent precipitating factors for aggressive behavior.[8-10] Dementia is often associated with receptive and expressive communication; thus, agitation may be the patient's only method of communicating.[8-10] A state of delirium also may be superimposed on the dementia.[8,9]

DELIRIUM

Patients with delirium tend to have a sudden waxing and waning alteration in cognition.[8,12-14] Typically, there is a precipitating cause for the delirium, which must be identified and corrected. Mortality associated with delirium ranges from 10% to 26%, and as often as 75% of the time is not recognized in the emergency department.[8,12] The mnemonic "DELIRIUM" provides a good framework when attempting to get to the bottom of the patient's agitation and violent behavior.[11]

- D–drugs
- E–electrolytes/environment
- L–lack of drugs, especially pain meds/withdrawal
- I–infection, including encephalitis secondary to coronavirus disease 2019
- R–reduced sensory input (missing hearing aids, glasses, etc.)
- I–intracranial problems (tumor, bleeding, stroke)
- U–urinary or gastrointestinal issue (full bladder or constipation)
- M–myocardial or cardiovascular/lung issue[11]

Several of these causes may be life threatening; thus, identifying and treating the cause along with the behavior will be critical. Patients with delirium often have hallucinations or delusions, which may incorrectly be assumed to be a psychosis or dementia.[8,12-14] Searching for all possible underlying causes will be essential, given that often there is more than one reason for the behavior.[8,11-14] Patients with delirium are typically unable to maintain attention during an exam.[8,14] Patients with dementia and psychiatric conditions are usually able to maintain attention.[8,14] A useful tool is the Delirium Triage Screen, which first assesses the level of arousal (normal, sedated, or agitated) and then checks for attention by asking the patient to spell LUNCH backward.[14] Patients with delirium are typically unable to do so owing to disorganized thinking or because their mentation is too altered. Patients with an altered level of arousal but able to spell LUNCH backward with 1 or no errors most likely do not have delirium. However, they should be evaluated for dementia or depression.[14] As noted earlier, a patient may present with both dementia and delirium.[8,11,12,14]

Medication reactions can present as delirium.[13] Narcotics and benzodiazepines tend to cause a hypoactive delirium, whereas hyperactive and mixed delirium are more frequently seen with anticholinergic medications, serotonin-related drugs, stimulants, and alcohol intoxication.[13] Steroids, anti-Parkinsonian agents, anticonvulsants, nonsteroidal anti-inflammatories, antihistamines including diphenhydrAMINE, H_2-blockers, antinausea medications such as scopolamine and dimenhyDRINATE, fluoroquinolones, and tricyclic antidepressants also have been linked to delirium.[13] Withdrawal from benzodiazepines or alcohol also can present as agitation.[13]

SUBSTANCE USE OR ABUSE

Substance use or abuse should be considered as a potential cause of agitation in the older adult.[8] Alcohol and cannabis are substances commonly used by older adults to control pain.[8] Alcohol is the most used drug among older adults, with approximately 65% of people at the age of 65 years and older reporting high-risk drinking.[15,16] In addition to using alcohol to relieve pain, patients report using it to cope with stress or improve their mood or out of boredom. They also report mixing it with other drugs and marijuana.[15,16] A recent study showed that as many as 61% of adults older than 65 years are using cannabis for the first time.[17-24] Older adults report using it for pain, insomnia,

and anxiety.[17-24] Cannabis products containing higher levels of tetrahydrocannabinol have psychoactive properties that can lead to agitation and increased anxiety.[17-24] Higher doses of cannabidiol (CBD) also can cause agitation and anxiety.[17-24] Older adults trying edible cannabinoids for the first time have presented to the emergency department with extreme anxiety and agitation owing to cannabis intoxication.[17-24] Intoxication can occur when patients expecting immediate effects similar to what occurs when inhaling cannabis ingest additional doses of cannabinoids—typically gummies—owing to not feeling effects right away. Effects of edible cannabinoids take 45 minutes or longer to be felt; thus, patients have often consumed high doses of the drug, becoming intoxicated, anxious, and agitated.[18,19,21-24] CBDs are generally taken for their relaxing and calming effects, but incidents of anxiety and agitation due to higher doses, or due to the CBD product having been mixed with tetrahydrocannabinol, have been reported.[21-24]

PSYCHIATRIC ISSUES

New onset of psychiatric issues in the older adult is unusual, but a patient with "known" behavioral issues may present as a psychosis with violent behaviors, especially if the patient is having visual or auditory hallucinations or has not been taking their medications.[8,14] Acute anxiety is the most commonly seen symptom in older adults.[8,14] Schizophrenia is uncommon in the older adult.[8,14] Depression and mania are the other causes of psychosis seen in the emergency department, but typically the patient has a previously diagnosed condition, and other causes should be investigated as well.[8,14]

Controlling the Situation

Older adults who suddenly strike out physically or verbally against ED staff will usually have a precipitating reason.[8-14] Three actions should take place concurrently. Take steps to calm the environment, the patient, and the responders. Ensure that all (patient and responders) are safe and that life-threatening conditions are being addressed. Determine and address what is causing or caused the behavior, given that addressing the cause may stop the agitated behavior.[8-14]

ADEPT is a mnemonic developed for ED management of an agitated older adult.[14]

- A–assess
- D–diagnose that delirium is present and causing the behavior
- E–evaluate why there is delirium
- P–prevent symptoms from getting worse due to being in the emergency department, and prevent falls and other injuries
- T–treat the problem[14]

Assessing and treating for hypoxia, hypoglycemia, and other basic comfort needs (food, fluids, bathroom, comfortable body and room temperature, and sense of safety and familiarity for the patient) will be important.[8-12,14,25] A complete head-to-toe survey looking for hidden trauma or decubitus ulcer (such as a sacral or foot) infections, which are common causes of agitation in the older adult.[14] Obtaining a 12-lead electrocardiogram, head computed tomography, laboratory tests, and medication history will be important given that ST-segment elevation myocardial infarction, intracranial or neurologic pathology, electrolyte or other metabolic disturbances, and infection also are common causes of agitation in the older adult.[8,12,14] In fact 30% to 40% of agitated delirium is related to infection (respiratory, urinary, skin, and brain related) and 12% to 39% related to an adverse medication reaction.[14]

Determining the events that occurred just prior to the behavior change will be an important part of obtaining the history, given that there may have been a precipitating factor tied to the inability to communicate needs or understand directions or feelings of insecurity. Agitation can be related to staff invading "personal space" when removing the patient's clothing, attempting to wash them, helping with toileting, or due to procedures causing discomfort while providing care that the patient does not understand.[9,10,14] Creating a feeling of being safe, rather than being accosted, for the patient who is not processing information correctly is important.[9]

Other tips to facilitate de-escalation include the following:

- Correct overstimulation (excess people, noise, light [the hubbub of the emergency department]) and understimulation (missing glasses, hearing aids, or too little light). Look carefully at the situation and correct the sensory insult.[12,14,26]
- Remove "tethering objects" when possible (catheters, intravenous tubing, blood pressure cuffs, monitor, and pulse oximeter cables).[8,14,26]
- Correct bothersome symptoms—including the patient being cold, hot, nauseated, vomiting, in pain, hungry, or thirsty; needing to urinate; or having a bowel movement.[9,12,14,26]
- Have one person do the communicating rather than multiple people telling the patient what to do. The communicator (someone familiar to the patient when possible) should use frequent eye contact and patiently provide simple, clear, one-action instructions. They should be someone that can be patient,

compassionate, and empathic with the patient. If possible, use someone with a face that is familiar to the patient.[9,12,14,25-27]

- Ask the patient what they would like to do rather than ordering them or assuming the patient will agree to what they are being told to do. Allow the patient to make choices from options determined by the staff.[9,12,14,25-27]
- Instead of arguing with and attempting to force the patient into the here and now, agree with what they say and redirect them to what you need them to do. Provide reassurance they are safe and that you will provide care. Consequences for noncompliance should be set/stated, yet the speaker should avoid sounding "bossy."[9,12,14,25-27]
- Allow the patient to "burn off" energy by pacing, doing distractive activities—such as washcloth folding, playing or listening to music, coloring, rocking in a chair, puzzles, playing with a doll, or other enjoyable activities. Gently move to a safer area/room. Do not restrict movement, as long as no harm to the patient and staff or damage to the area is being inflicted.[9,10,25,26]
- Recreate a home-like environment and spaces if possible. Make the room more like at "home" with chairs or bench-like chairs (couch) where 2 people can sit together, rather than requiring the older adult to stay in the bed.[9,14,26]
- When possible, use the faces and voices of family members in person or via phone or video. This may help the patient reconnect with reality.[9,14,26]

USE OF MEDICATIONS

Using medications to control the situation is an option, but must be carefully considered. The recommendation most consistently found in studies related to controlling behavior and calming the agitated older adult was to attempt nonpharmacologic approaches first.[8,10,12-14] Although often used to control behavior in younger patients, the use of a B-52 (benzodiazepine, antipsychotic, and anticholinergic) was specifically culled out as "not recommended."[8,9,12-14] Risk of falls and excess sedation when using first- and second-generation antipsychotics was raised.[8,9,12-14] Haloperidol, OLANZapine, risperiDONE, or QUEtiapine were suggested as one-time, low-dose options, if nonpharmacologic interventions were not working or the patient was too agitated to engage in nonpharmacologic approaches.[8,9,12-14] However, risk of worsening psychosis, respiratory depression, falls, orthostatic hypotension, QT prolongation, torsades de pointes cardiac rhythm, and vital sign instability were associated with all of these medications. (QUEtiapine was noted to have a higher risk of orthostatic hypotension.)[8,9,12-14] Falls remained a concern with any of these medications, especially if repeated doses were needed.[8,9,12-14] Overall, these 4 medications were noted to have less adverse effects than any other behavioral controlling drug options.[8,9,12-14] It was noted if a patient developed extrapyramidal symptoms owing to use of any of these medications, diphenhydrAMINE was not recommended due to its anticholinergic effects often causing psychosis.[8,14] Mortality and morbidity in the older adult population were noted to go up when antipsychotic medications were used; thus, nonpharmacologic interventions were highly recommended.[8,14]

Pain is a common cause of agitation in the older adult; thus, pain medications should be considered a method of controlling behavior.[8] This is especially important to consider, because the older adult may not be able to verbalize that they have pain or where it is located other than by agitated behaviors.[8,9,12-14] Pain medication alone or in combination with an antipsychotic medication should be considered.[8,9,12-14] Kennedy[8] provided an in-depth breakdown of the various pain and antipsychotic medication options and alternatives, starting with the recommendation to try nonpharmacologic and non-narcotic options first—such as heating pads, lidocaine patches, acetaminophen, and even one-time doses of nonsteroidal anti-inflammatories (ketorolac) if there were no concerns of gastrointestinal bleeding issues. Concerns related to falls, vital sign instability, respiratory depression, oversedation, and constipation led to frequent recommendations of "start low and go slow," especially when combining an antipsychotic and pain medication.[8,10,12-14]

Physical restraint to control the patient during an outburst was advised against due to risks of injury to the patient and staff.[26,28,29] Review of the literature did not find a recent publication related to the best way to approach physically restraining an older adult. Instead, recommendations were to move people and items away to keep all as safe as possible and let the person wind down.[8-10,11-14,25-27] If physical restraints are used, it will be important to recognize the impact this action will have not only on the patient but staff who are involved in the restraining episode.[29]

By providing a calming environment, meeting basic needs including pain relief, reassurance of safety, and some level of independence, the patient may return to their normal cognitive state.

EDUCATING AND SUPPORTING THE STAFF

Despite the violence and injury (physical or verbal) caused by the older adult not usually being deliberate or intended, both still have the potential to cause pain to the staff (physical and emotional).[6,9,28-31] Staff often is reticent to report the

violence inflicted on them by an agitated older adult, because they feel the patient does not mean it or does not know what they are doing.[1,3-7,9] However, this pain cannot be summarily dismissed simply because an older person inflicted it. Even if no charges are being filed, an internal report needs to be filed, staff debriefed, and the incident investigated.[6,9,28-31] Staff members should be offered post event counseling related to their injury and/or feelings raised by the event.[6,9,28-31] In studies of caregivers that deal with agitated older adults, the participants reported guilt, regret, and self-blame related to not recognizing and preventing the escalation or related to the manner in which they handled the patient during the event.[6,9,29,30] Physical contact or an unkind verbal response by a staff member during the heat of the moment led to increased feelings of guilt, regret, and self-blame.[6,9,29,30] Staff members also reported feelings of powerlessness, as well as judging themselves inadequate and failures when they were unable to figure out or meet the patient's needs, which led to the outburst.[9,29,30] Fears of being injured or harming the more frail older adult patients also were reported.[9] Reports of inadequate training about why an older adult could be agitated or different approaches staff could use when dealing with an agitated older adult were reported, as well as a lack of resources and staff to meet the patient's needs or handle situations when escalation occurred.[3,6,7,9,29,30] Staff reported feeling disheartened, undervalued, and angry, yet they expressed fear of retaliation or being shamed for not handling the situation.[3,6,7,9,29,30] Several studies identified these feelings as the reason for burnout and for caregivers leaving areas that routinely provide care for this older, vulnerable population.[3,6,7,9,29,30]

Completing a root cause analysis that thoroughly investigates the episode may be able to identify how it could have been prevented and identify an action plan to prevent similar events in the future.[28,31] Determining attitude of staff members involved in the episode to ensure no one was looking to escalate the situation will be important.[8,28,31] Ensuring that all staff has the knowledge to recognize escalating behavior and the knowledge and resources to take action to safely prevent escalation and de-escalate the situation will be important.[8,26,28-31] Validating the concerns and feelings of the caregivers provides a sense of value.[9,28-31] Not allowing them to continue to believe that violence is just "part of the job" when providing care for the agitated older adult was identified as critical.[9,28-31] The Joint Commission in their "Quick Safety – De-escalation in Health Care" document and the ENA "Toolkit for Mitigating Violence in the Workplace" outline information and actions related to violence occurring in the workplace, and both recommend tracking and trending reports of workplace violence and appropriate follow-up and support to the victims and witnesses.[28,31]

Conclusion

Deliberate or not, the physical and emotional injuries inflicted on the health care worker by an agitated older adult are just as impactful. Staff may have additional emotional turmoil arise owing to the patient being an older, frail adult vulnerable to injury during the confrontation and unaware of what they are doing.[9,29,30] This turmoil is even greater if there was a need to physically restrain the older adult for everyone's safety.[9,29,30] Although many health care providers will excuse and not report violent behaviors of an older adult because "they didn't know what they were doing," those staff members are still victims. Ensuring staff reports violent episodes involving older adults, and having a process that evaluates not only what happened but why it happened, can help to identify whether there are additional educational needs of the staff related to the care of and response to an older adult presenting in or developing an agitated state. By ensuring staff has adequate training related to agitated behavior in older adults and post violence episode counseling, the staff can respond in a more effective manner, providing a safer and more effective care environment for the patient and themselves.

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Addressing a Key Leadership Challenge: Workplace Violence

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Abstract

Workplace violence is a growing concern among health care workers, especially staff working in emergency departments. Emergency department leaders have oversight accountability that includes mitigation of workplace violence risks and staff education related to workplace violence prevention. Challenges associated with workplace violence events include disruption of safe patient care, decreased staff job satisfaction, and increased turnover. Improving safety for staff, patients, and visitors requires a culture focused on safety. A summary of current regulations, standards, and resources available to date is provided, including a list of mitigation strategies that can be easily translated into practice by emergency nurse leaders.

Key words: Violence; Emergency department; Threat; Intimidation; Injury; Fear

Workplace violence is a serious threat to ED staff. Leaders have an obligation to implement changes that enhance the safety of the workplace while also ensuring that ED staff receive education regarding mitigation of workplace violence. Varying definitions of workplace violence exist among organizations and agencies.[1] Several of the following definitions are likely to be relevant to emergency nurse leaders. The Occupational Safety and Health Administration (OSHA) relays "Workplace violence is any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior that occurs at the work site. It ranges from threats and verbal abuse to physical assaults and even homicide." The CDCs NIOSH indicates "Workplace violence is the act or threat of violence, ranging from verbal abuse to physical assaults directed toward persons at work or on duty." The Joint Commission defines workplace violence as "An act or threat occurring at the workplace that can include any of the following: verbal, nonverbal, written, or physical aggression; threatening, intimidating, harassing, or humiliating words or actions; bullying; sabotage; sexual harassment; physical assaults; or other behaviors of concern involving staff, licensed practitioners, patients, or visitors."[2] The relevance of these definitions translates to compliance with recent regulatory recommendations regarding each organization's responsibilities related to workplace safety. Health care workers remain the work group most likely to be injured.

Health care workers accounted for 73% of all nonfatal workplace injuries and illnesses due to violence, with hospital workers 6 times more likely to experience job violence than private sector workers as a whole.[3] In 2019, United States hospitals recorded 221,400 work-related injuries and illnesses, a rate of 5.5 work-related injuries and illnesses for every 100 full-time employees.[4] This is almost twice the rate for private industry as a whole, yet in 2015 researchers found that 88% of health care workers in an American hospital system who self-reported a violent event in the previous year had not documented the incident in the hospital's electronic system and only 45% had reported the incident to their supervisor.[5] The study attributed various reasons for the underreporting: lack of physical injury, lack of lost time, time-consuming reporting procedures, lack of supervisory or coworker support, fear of reprisal or blame, belief that reporting will not lead to positive changes, a common perception among health care

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workers that violence is simply "part of the job," and varying definitions of violence among employees and within organizations.[5] A different study showed health care workers who experienced frequent violence indicated a lack of support from hospital administration and ED management as barriers to reporting workplace violence even though more than one-third reported work-related consequences on their well-being and health.[6]

Leaders need to be cognizant of current regulations that may impact workplace violence in health care. Several relevant federal regulations are described in the following paragraphs. OSHA, thought to be the predominant driver of workplace safety in the United States, first disseminated "Guidelines for Preventing Workplace Violence for Healthcare and Social Service Workers" in 1996 with updates in 2004 and 2014.[7] Although OSHA has no standard specific to the prevention of workplace violence, the agency currently enforces Section 5(a)(1) (General Duty Clause) of the OSHA Act against employers who expose their workers to this recognized hazard. Section 5(a)(1) states that employers have a general duty to provide each of their employees a place of employment that is free from recognized hazards that are causing or are likely to cause death or serious physical harm to their employees (29 U.S.C. 654[a][1]). Section 5(a)(1) does not specifically prescribe how employers are to eliminate or reduce their employees' exposure to workplace violence. OSHA acknowledges that workplace violence enforcement activities typically focus on physical assaults or threats that result or can result in serious physical harm. Verbal abuse does not receive the same level of recognition from OSHA.

However, many people who study workplace violence and the prevention programs highlighted by OSHA determined that verbal abuse includes threats, verbal aggression, hostility, harassment, and the other acts of violence, which can cause significant psychological trauma and stress, even if no physical injury takes place. Often, verbal abuse can escalate to physical violence.[8] In 2017, OSHA initiated a Request for Information to support a proposed rule entitled "Prevention of Workplace Violence in Healthcare and Social Assistance."[7] More than 80,000 comments were received by the agency on this topic during the public comment period.[9] A federal requirement exists that before proposing rules that would have a significant economic impact on a substantial number of small entities, the agency must convene a Small Business Regulatory Enforcement Fairness Act Panel, yet to date the panel has not been assembled.

In April 2021, the United States House of Representatives passed H.R. 1195, the Workplace Violence Prevention for Health Care and Social Service Worker Act. A companion bill, S.4182, was introduced in the Senate to require the United States Department of Labor to issue an interim occupational safety and health standard (at a minimum, based on their current guideline). The bill would require certain employers to take actions to protect workers and other personnel from workplace violence, but the bill became inactive at the conclusion of the 117th Congressional session and now awaits resubmission in the 118th Congress.

Under the Centers for Medicare and Medicaid Services hospital emergency preparedness regulations, hospitals must develop and implement an emergency preparedness plan based on community- and facility-based risk assessments, using an all-hazards approach. Emergency preparedness plans must include strategies for addressing emergency events, such as the use of weapons. On November 28, 2022, the Centers for Medicare and Medicaid Services issued an official memorandum reminding hospitals of their obligation under Medicare's conditions of participation to ensure patients and staff have an environment that prioritizes their safety with effective delivery of care. Expectations in the memo include identifying patients at risk of intentional harm to self or others, identifying environmental safety risks for such patients, and providing education and training for staff.[10]

Effective January 1, 2022, new and revised workplace violence prevention standards apply to all Joint Commission-accredited hospitals and critical-access hospitals. Under the Joint Commission standard, hospital leaders must develop and implement policies and procedures to prevent and respond to workplace violence, a process for reporting and analyzing incidents and trends, and a process for follow-up and support for victims and witnesses affected by workplace violence, such as trauma and psychological counseling.[11]

In 1993, California became the first state to require health care facilities to develop and maintain a violence prevention program. According to the Emergency Nurses Association (ENA), some 31 states have passed laws that allow local prosecutors to seek felony charges against those who assault emergency nurses. These laws also provide parity in terms of protection under the law for emergency nurses when comparing them with other professions protected by similar laws such as police, fire, and emergency medical services.[12] Most recently, ENA and the American Organization for Nursing Leadership collaborated on a compendium of resources intended to assist corporate and individual nurse leaders implement a culture of nonviolence that can be downloaded.[1]

A range of risk mitigation strategies implemented to various degrees by hospitals may include the following[4]:

Environmental Considerations

- Emergency signaling, alarms, and monitoring systems
- Security devices such as metal detectors to prevent armed persons from entering the hospital
- Security devices such as cameras and good lighting in hallways
- Security escorts to the parking lots at night
- Waiting areas to accommodate and assist visitors and patients who may have a delay in service
- Triage area and other public areas designed to minimize the risk of assault
- Enclosed staff areas and nurses' stations
- Deep service counters or bullet-resistant and shatterproof glass enclosures in reception areas
- Arranging furniture and other objects to minimize their use as weapons
- Secured staff only rest areas
- Evacuation exits

Administrative Considerations

- Management commitment, including the endorsement and visible involvement of top leadership
- Clearly defined workplace expectations that convey a culture of respect at all levels including intolerance for incivility and bullying among coworkers
- Zero tolerance policies (including prominent signage for hospital visitors addressing violence, supporting staff in the removal of perpetrators of unruly behavior from hospital property, and the willingness to support legal action for violations)
- Emergency communication systems
- Proper staffing
- Workplace analysis and violence prevention plans
- Hazard identification
  - Population risks (persons with a history of violence, abuse of drugs or alcohol, gang members, cognitive and mental health factors)
  - Weapons and active shooter policies
- Event reporting systems and data analysis
- Analysis and improvement of operational factors that cause patient delays
- Prevent unrestricted movement of the public in clinical areas
- Post-incident debriefings
- Collaboration and relationships with local law enforcement
- Information sharing among health care organizations
- Safety stand downs
- Drills and exercises

Individual Considerations

- Safety starts with self
- Take the initiative to seek education and training
  - ENA's Workplace Violence Prevention Course (free)
  - Workplace Violence Prevention for Nurses CDC Course No. WB4525–NIOSH Pub. No. 2013-155 (free)
- Improve skills related to situational awareness and de-escalation techniques
- Communicate with patients and family members about long waits
- Provide support to coworkers that are verbally abused or physically assaulted
- Encourage incident reporting
- Volunteer for employer-based committee/task forces to help identify solutions with a "frontline" perspective

Summary

A uniform, regulatory framework addressing workplace violence in health care might improve consistency for state and federal lawmakers. However, continuing to wait for regulatory solutions to a very complex problem is not realistic. The problem remains; our colleagues continue to experience the increasing incidence of violent attacks in the emergency department. Accreditation standards may help lessen the risk by giving a broad framework to address hospital safety, but the timeliness of a standard imposed in 2022 will not have an immediate impact on the needed risk mitigation and safety outcomes that are now past due. Despite increasing awareness, documentation of serious adverse events, and research related to workplace violence, we seem to be a long way from achieving zero harm.

The practice of emergency care is a team sport.[13] Clearly the ultimate strategy involves all stakeholders—legislators, regulatory agencies, national associations, hospital

administrators, nursing and physician leaders, all persons working in emergency departments, law enforcement, and the public—working together to improve safety for patients and staff in the emergency department. As emergency nurse leaders, we have to stand together to advocate for safer work environments for our staff, patients, and visitors. You can be the catalyst for this change!

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Researching Workplace Violence: Challenges for Emergency Nursing Researchers

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Key words: Workplace violence; Emergency nursing; Research

Workplace violence (WPV) in health care settings can create long-term sequelae for nurses, including anxiety, poor sleep patterns, work-related stress disorders, depressive disorders, and psychological distress.[1] Study findings suggest that WPV also may be associated with higher risk of interpersonal violence, psychoactive substance abuse, burnout, suicidal ideation, and suicide.[2] Identifying interventions that can reduce both the prevalence and effects of WPV is a critically important line of research; emergency department–focused researchers examining elements of WPV must account for significant challenges in conducting meaningful research, including the lack of an accepted definition, challenges in data collection, unclear metrics or outcome measures, and methodological limitations. In this paper, we aim to describe these challenges and offer suggestions to help researchers and others to better define the phenomenon of WPV, the necessary data required, ways to collect data, and outcome measures that can be used to guide intervention development or selection.

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Definitions

Researchers examining WPV in the emergency department must first clearly identify the problem that their study will examine, given that there are a number of types and forms of WPV. Experts have classified WPV into 4 distinct types: criminal intent, customer/client, worker-on-worker, and personal relationship.[3] Once the type of WPV has been identified, broad definitions for WPV impede research efforts.[4,5] For example, the Occupational Safety and Health Administration[6] has a broad definition, "any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior that occurs at the work site," with workers, patients, and visitors susceptible to be perpetrator or victim. In contrast to this very general definition, Boyle and Wallis[4] created specific definitions using expert consensus for 6 distinct forms of WPV occurring in the health care sector: bullying, verbal abuse, threat, physical abuse, sexual harassment, and sexual assault. Regardless of the WPV definition chosen for the study, researchers need to choose a definition that fits the scope of the problem they are trying to address and ensure that study participants understand the definition. The definition chosen by researchers is important as they design a study, because the choice of definition may drive data collection about WPV incidents, and victims may choose whether to report WPV based on their personal interpretation of the event, not a standard definition.[7,8]

Challenges in Data Collection

Collecting appropriate data to establish the parameters of WPV in a given setting can be challenging. The most obvious problem is underreporting of violence, but even in studies where some data can be collected, the nature and format in which data are collected can vary greatly.[7,9] In a mixed methods study of WPV in California hospitals,[10] researchers reported that data were collected about incidents of violence and separated into physical and nonphysical injuries in their online Workplace Violence Incident Reporting System. Challenges to interpreting those data included a

lack of clarity around injury description, given that there was no way to tell the seriousness of the reported injury.[10] Qualitative data collected in this same study[10] suggested other challenges to more complete data, including the problem of who "owned" the reporting process (security, house supervisors, or leadership), the timing of the reporting (some systems required onsite real-time documentation), and to whom the report was made (a phone call to a supervisor vs an online database).

In addition, other researchers identified a gap between incidents that are reported through formal WPV incident reporting systems and those that are reported informally to ED leadership.[7,11] These barriers to reporting impede efforts to describe and address incidents of violence, with implications not only for researchers but also for clinical staff. We recommend describing any reporting processes clearly in institutional review board proposal, methods, and results sections and encouraging study participants to report all incidents that meet the definition chosen for the study.

Unclear Outcomes and Metrics

The outcome measures of studies involving WPV focus on the knowledge or satisfaction of health care staff[12,13] in isolation, rather than a more holistic reduction of incidents. Research examining the effects of educational and training interventions report on the knowledge acquisition and satisfaction of participants without discussing outcomes in clinical settings (eg, changes in WPV incidents preintervention to postintervention).[12,13] Other literature reviews[5,14] report that few studies examined a reduction in assaults and/or threats to nurses as intervention outcomes. We recommend that research examining the effects of interventions to mitigate WPV focus on the reduction of number and severity of WPV incidents.

Methodological Limitations

The ways in which studies are designed and the ways in which data are collected also can make it difficult to compare the efficacy of interventions across studies. Fricke et al[12] reported a low level of evidence for interventions in their scoping review, mostly owing to methodological heterogeneity, potential bias of reporting clinicians, and data collection biases. Nikathil et al[5] found that cross-sectional surveys have been the principal tool used to establish incidence and prevalence findings and that they are limited in establishing true incidence owing to subjective definitions of violence and underreporting of patient-perpetrated assault. The complexity of the problem can lead researchers to use lower-level study designs (descriptive designs, qualitative designs, single group predesign/postdesign), and so the ways in which researchers attempt to study the phenomenon can be, as Nikathil et al[5] suggest, subjective and hampered by underreporting. Similarly, interventions tend to focus on individuals and do not account for problems such as bias and underreporting.[14]

Perhaps a more useful framework is the social-ecological model, a framework posited by the Centers for Disease Control and Prevention and recommended by Gillespie et al[15] used to examine prevention efforts that simultaneously address individual, relationship, community, and societal elements of violence. We recommend that WPV researchers consider using more advanced research designs such as randomized controlled trials and quasi-experimental or case control designs. This might require the coordination of health care systems, rather than individual sites.

Other methodological limitations include the social context of WPV. Nurses tend to normalize WPV as "part of the job"[8,16] for a variety of reasons, including a customer service orientation, an unwillingness to ascribe intent to patients who are intoxicated, demented, or delirious, or learned helplessness.[16] Often, interventions to reduce or mitigate WPV are aimed at individuals, such as educational training or new reporting systems, but do not address the unit or organizational environment of care, which creates a social environment that places the onus for improvement on the individual nurse rather than the unit or organization. In particular, although de-escalation training is required by many health care organizations and studied as an intervention to reduce WPV, studies evaluating de-escalation training focused on outcomes of knowledge and confidence[14] with little evidence that training reduces the frequency and severity of WPV. We suggest that research on WPV take a system-level, organizational approach.

Conclusions

The challenges to studying WPV are many but not impossible to overcome. Prevalence and risk factors are well understood. More work in preventing WPV needs to be done that considers organizational, community, and societal drivers of violence. It is important to design and conduct more comparative effectiveness research that would help to determine which interventions work best.[12] We encourage researchers to use precise language to define the problem they are examining, system-focused interventions that target the environmental conditions that facilitate violence, and outcome measures that focus specifically on frequency and severity of WPV incidents. Our call to action is for

researchers to join forces to tackle this complex problem, develop potential intervention bundles, and test them using more sophisticated research designs and methods.

Author Disclosure

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Workplace Violence Emergency Nursing Review Questions: May 2023

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These review questions are based on the Emergency Nursing Core Curriculum and other pertinent resources to emergency nursing practice. They offer emergency nurses an opportunity to test their knowledge about their practice.

QUESTIONS

1. Preparation of staff to manage workplace violence includes training and education. Which of the following has demonstrated the ability to increase the level of preparedness for workplace violence in the emergency department?
   - **A.** Hybrid training programs
   - **B.** Online education including video and knowledge testing
   - **C.** Classroom-based training
   - **D.** All options show positive outcomes
2. According to research, on average, how often are emergency nurses exposed to workplace violence during working hours?
   - **A.** Every 2 years
   - **B.** Every year
   - **C.** Every 6 months
   - **D.** Every 2 months
3. When confronted by an angry patient or family member who you suspect has a concealed weapon, the most important thing you should do is:
   - **A.** throw something to distract the individual and run away.
   - **B.** make noise to attract attention from coworkers about a potential threat.
   - **C.** isolate the person until you ascertain if they are armed.
   - **D.** remain calm and allow the individual to express their concerns.
4. Engineering control strategies and workplace adaptations that minimize risk to health care workers from workplace violence do not include:
   - **A.** bulletproof enclosures for triage areas.
   - **B.** closed-circuit videos of patient waiting and holding areas.
   - **C.** a code word used to inform someone of an incident/threat.
   - **D.** silent alarm systems.
5. Which is true regarding the prevalence of violence against nursing staff post pandemic in 2022?
   - **A.** Violence against physicians is more common than violence against nurses.
   - **B.** Most assailants are visitors.
   - **C.** Incidents of violence continue to decline since the pandemic.
   - **D.** More than 2 nurses are assaulted every hour.
6. A patient appears agitated in triage. Which of the following de-escalation techniques would be the best approach for managing this patient?
   - **A.** Call the crisis team to talk with the patient.
   - **B.** Respect your and their personal space.
   - **C.** Elevate your voice to demonstrate your authority.
   - **D.** Do not give the patient your name.
7. According to Bowie's typology of violence, which type of violence is most commonly seen by emergency nurses?
   - **A.** Intrusive
   - **B.** Consumer
   - **C.** Relationship
   - **D.** Organizational

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8. Which of the following is a true statement concerning workplace violence?
   - **A.** Studies on the use of metal detectors have shown a positive effect on decreasing violence.
   - **B.** A strong security program reduces the risk of injury to health care workers.
   - **C.** Hospitals in high-crime areas have a higher incidence of violence.
   - **D.** Crowding and staff shortages in emergency departments have not been shown to be a cause of increased violence.
9. A nurse is assaulted in the emergency department. Which of the following is considered best practice following the assault?
   - **A.** The patient or assailant should be removed from the emergency department without treatment.
   - **B.** The nurse should request the hospital security to report the event to appropriate authorities.
   - **C.** The nurse should report the event to law enforcement and hospital administration.
   - **D.** The incident should be recorded as an Emergency Medical Treatment and Active Labor Act (EMTALA) violation if injury has occurred.
10. Following a workplace violence event, which of the following actions should occur?
    - **A.** Supportive care for the nurse involved should be of top priority.
    - **B.** The nurse should be removed from the area for the period of investigation.
    - **C.** A cooling-off period should occur for staff before an investigation is conducted.
    - **D.** The patient should be denied any further treatment in the facility or department.

ANSWERS

1. Answer: D

According to evidence, the use of any of the listed techniques have some level of positive increase in staff preparedness for workplace violence events. A, B, and C are all correct in this situation, and all have a benefit with violence preparedness.[1,2]

2. Answer: D

According to data from the Emergency Nurses Association and U.S. Occupational Safety and Health Administration, it is reported that emergency nurses experience workplace violence in either verbal or physical violence situations every 2 months. Unfortunately, many cases of violence are not reported.[3,4]

3. Answer: D

De-escalation is the recommended first-line response to potential violence and aggression in health care settings. By allowing the individual to express their concerns and remaining calm may de-escalate the violent behavior. Making noise and startling the person may cause further violent behavior and negative actions (A, B). Isolation may also cause further aggression and use of any potential weapons (C).[5]

4. Answer: C

Engineering controls are physical changes that either remove the hazard from the workplace or create a barrier between the worker and the hazard. Code words can be an effective means for communicating potential danger but are considered an administrative intervention. The other selections would be described as engineering controls (A, B, D).[6]

5. Answer: D

According to Press Ganey quarter 2, 2022 reports released in September 2022, violence against nursing staff is at an all-time high, reaching epidemic proportions. The Press Ganey report surveyed 483 facilities across the United States and revealed that more than 2 nurses were assaulted every hour, equaling more than 5000 assaulted nurses. According to the U.S. National Institute for Occupational Safety and Health, of all health care workers, nurses and those providing direct patient care are most at risk for violence (A). Most assailants are patients (B). Incidents of violence against nurses continue to rise since the pandemic (C).[7]

6. Answer: B

A demonstrated de-escalation technique involves giving respect to the patient and your and their personal space. Crowding the patient may increase their tendency toward violence. It is suggested to have only one person deal with the patient and talk with them, avoiding a crowd (A). Elevation of your voice could further escalate the tendency for

violent behavior (C). Active listening should be employed. It is recommended to introduce yourself and your role in their care in a professional manner (D).[8]

7. Answer: B

Consumer violence involves acts of violence based on employee and consumer relationships. Consumer violence is the most common type of violence experienced by emergency nurses and takes place while they are providing care for their patients. Intrusive violence involves assailants with no legitimate relationships to the place of business (A). Relationship violence includes aggressive acts among coworkers (C). Organizational violence is characterized by employers ignoring known aggressive behaviors and violent situations in the workplace (D).[9]

8. Answer: B

A strong and effective security program has been shown to reduce the risk of injury to health care workers. The program should be well visible, well planned, and actively involved in the department operations. Metal detectors are not effective for physical violence (A). Hospitals in high-crime areas have not shown to be more likely to experience violence (C). Many variables have shown to increase the incidence for workplace violence including overcrowding and long wait times because of staffing issues (D).[8]

9. Answer: C

One person intentionally assaulting another person is a crime and should be reported to law enforcement and hospital administration. Further investigation should occur as to the nature and cause of the crime. The patient's treatment may be delayed until the situation is safe, but the patient cannot be refused treatment, which could constitute an EMTALA violation (A). Although the nurse should work with security to assure safety for the staff and the department, the involved nurse should report the event and not have someone else do it for them (B). The EMTALA violation could occur by the hospital if the patient is refused treatment (D).[8]

10. Answer: A

Following any potential or actual violent event in the department, the nurse or staff involved should receive appropriate supportive care. Compassionate care for the nurse after a significant event can decrease the potential negative effects of violence (A). The nurse should not be disciplined or removed from the work area, as support by colleagues is essential (B). Appropriate investigations should begin immediately to obtain all facts and develop any plans for interventions (C). EMTALA violations could occur if patients are refused medical treatment by a facility (D).[8]

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Pharmacologic Therapy to Mitigate Acute Agitation in the Emergency Department: Case Reports of Diverse Patient Presentations

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Contribution to Emergency Nursing Practice

- Workplace violence is a national concern for nurses working in the emergency department.
- Patients with acute agitation can pose a threat to themselves and staff.
- Nurses need to be familiar with therapeutic pharmacologic treatments for patients with aggressive behavior.

Abstract

Nurses in the emergency department often encounter patients exhibiting signs of aggressive behavior. Nurses need to know the pharmacologic treatment appropriate for the patient scenario to ensure safety for the patient and the emergency department team. This case review examines 4 common scenarios where a patient exhibits aggressive behavior. After each case review is a discussion about the appropriate pharmacologic therapy for that patient. The cases portrayed are fictional but based on experience and previous observations.

Key words: Acute agitation; Emergency department; Behavioral health; Pharmacologic therapy; Case reports; Aggressive behavior

Introduction

Patients with acute agitation are often seen in the emergency department and behavioral health settings. Although de-escalation and nonpharmacologic techniques should be considered initially for treatment, some patients require chemical restraints or pharmacologic management to prevent acute agitation from progressing to aggressive violent behavior.[1] The purpose of this paper is to discuss effective pharmacological treatment for patients with acute agitation. Several case reviews are presented to highlight the various treatment modalities available based on unique patient presentations.

Case Reviews

The following case reviews portray diverse patients with various histories. After each scenario is a discussion of potential pharmacologic therapy appropriate for the patient presentation. Information on commonly used medications discussed in this section is presented in Table 1.

CASE REVIEW 1

A 28-year-old male is brought into the emergency department by Emergency Medical Services (EMS). The patient has a 3-inch laceration to his right upper arm during a street fight. Bleeding is controlled, and the arm is wrapped securely with Kerlix by EMS. The patient smells of alcohol, has an unsteady gait, and is loudly arguing with EMS personnel who escort the patient to a room to await triage. When the nurse enters the room, the patient becomes

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TABLE 1
Antipsychotic medications for acute agitation

Route	Medication	Initial dose (mg)	T_{max}*	Can repeat†	Maximum dose (per 24 h), mg
Oral	RisperiDONE	2	1 h	2 h	6
	OLANZapine	5-10	6 h	2 h	20
	Haloperidol	5	30-60	15 min	20
	LORazepam	2	20-30	2 h	12
Intramuscular	Ziprasidone	10-20	15	10 mg every 2 h; 20 mg every 4 h	40
	OLANZapine	10	15-45	20 min	30
	ARIPiprazole	9.75	1 h	2 h	30
	Haloperidol	5	30-60	15 min	20
	LORazepam	2	20-30	2 h	12
	Midazolam	2.5-5	15-60	5-10 min	20
Intravenous	Haloperidol	2-5	Immediate	4 h	10
	Midazolam	2.5-5	3-5	3-5 min	20

* Values are expressed as minutes unless otherwise noted. Tmax is the time it takes for a drug to reach the maximum concentration.
† Values are expressed as hours unless otherwise noted.

verbally abusive, swears at the nurse, and makes verbal threats.

WHAT PHARMACOLOGIC THERAPY IS APPROPRIATE FOR THIS PATIENT?

Previous expert consensus statements would recommend benzodiazepines as first-line treatment, because agitation and aggression could be an aspect of alcohol withdrawal.[2] However, the patient appears acutely intoxicated owing to his odor and unsteady gait; therefore, benzodiazepines should be avoided owing to the compounded risk of respiratory depression when benzodiazepines and alcohol are used together. Instead, oral or intramuscular (IM) first-generation antipsychotics are the first-line recommendation for agitation in the setting of acute intoxication with a central nervous system depressant.[3,4] If the patient has had an adverse reaction to a first-generation medication, oral second-generation antipsychotics may be used, but risperiDONE is not available in an IM formulation if needed. IM OLANZapine should be avoided, because its use in alcohol-intoxicated patients is associated with significant oxygen desaturations.[3,5]

CASE REVIEW 2

A 70-year-old female is brought into the emergency department by family members. Family are concerned that she has been extremely forgetful for 2 days, has not remembered to take her medications, has kept her pajamas on during the day, and confused the names of her 2 sons. Family members state this is very uncharacteristic for the patient. The patient was seen in the emergency department previously and has a documented history of heart failure, hypertension, and frequent urinary tract infections. There is no documentation of Parkinson's disease or dementia. She currently has a urinary tract infection for which she is being treated.

The patient refuses to stay on the ED stretcher or stay in the room, continually trying to walk out and stating she must go home to feed her dog. Staff are unable to redirect the patient, and family are unable to persuade the patient to remain in the room. The most recent set of vital signs are as follows: blood pressure, 138/76 mm Hg; pulse, 70 bpm; respirations, 18 cpm; oxygen saturations, 100% on room air; and oral temperature, X °C (37.3°C).

What pharmacologic therapy is appropriate for this patient?

The Best Practices in the Evaluation and Treatment of Agitation Psychopharmacology Workgroup recommends oral second-generation antipsychotics as first-line therapy for agitation associated with delirium (when alcohol or benzodiazepine withdrawal is not suspected).[3] Considering the patient's age, these agents also are appropriate given older adult patients are more susceptible to extrapyramidal symptoms, which first-generation antipsychotics are more

likely to exacerbate.[6] If haloperidol needs to be used, it is recommended to use low doses (<3 mg/d).[7]

Other oral options not discussed in the Best Practices in the Evaluation and Treatment of Agitation guidelines, but studied and used in clinical practice, are low-dose oral QUEtiapine or traZODone.[8,9] If IM therapy is necessary, because the patient cannot take an oral medication, OLANZapine 5 to 10 mg is recommended. Ziprasidone 10 to 20 mg IM also is recommended; however, this may be an unrealistic option considering time to reconstitution and the National Institute for Occupational Safety and Health classification requiring gowning and chemotherapy gloves for administration.[3]

CASE REVIEW 3

The local police department brings in a 32-year-old male who is verbally and physically abusive when arriving in the department, cursing loudly, and attempting to kick and bite the officers. The patient is known in the emergency department and has a history of schizophrenia. Past records show the patient is prescribed haloperidol daily but has been noncompliant with his medication in the past owing to the extrapyramidal side effects.

What pharmacologic therapy is appropriate for this patient?

Recommendations for treating agitation in patients with a known psychiatric disorder focus on oral second-generation antipsychotics, which can be given with oral or parenteral benzodiazepines if antipsychotics are not effective alone. First-generation antipsychotics with a benzodiazepine also may be used if a patient has had an adverse reaction to a second-generation antipsychotic.[2]

If parenteral administration is necessary, second-generation antipsychotics are recommended first line, but IM OLANZapine cannot be administered within 1 hour of parenteral benzodiazepines owing to the risk of excessive sedation and cardiorespiratory depression. As discussed earlier, IM ziprasidone is complicated by the powder's time to reconstitution, National Institute for Occupational Safety and Health classification, and need for additional personal protective equipment.

Parenteral first-generation antipsychotics with a benzodiazepine are indicated last line but are highly used in clinical practice. Parenteral LORazepam 1 to 2 mg is typically paired with haloperidol and diphenhydraMINE, known as the "B52."[3] Considering the limited supply of intravenous and IM LORazepam, IM Midazolam 2.5 to 5 mg may be used with quicker time to sedation and time to arousal than LORazepam.[10,11] In regard to the "B52," diphenhydrAMINE is useful to induce a sedating effect and avert extrapyramidal side effects. However, haloperidol and diphenhydrAMINE are not compatible in a syringe with precipitates forming within 5 minutes to 2 hours of mixing.[12,13] Therefore, haloperidol and a benzodiazepine should be drawn up in separate syringes from the diphenhydrAMINE.

CASE REVIEW 4

EMS is dispatched to assist police with a 56-year-old female patient in a group home who has become combative and abusive toward staff and family. On arrival, EMS finds the patient combative and threatening to harm or kill anyone who tries to help her. Staff state the patient has been depressed recently, has a history of bipolar disorder, and has refused to take her medications for several days.

The patient is placed in protective custody and treated with haloperidol 5 mg IM. The patient continues to be acutely agitated and is given another haloperidol 5 mg IM with Midazolam 2.5 mg IM. After approximately 20 minutes, EMS provides transport via ambulance. The patient's vital signs are carefully monitored during transport and are recorded as follows: blood pressure, 160/94 mm Hg; pulse, 121 bpm; respirations, 26 cpm; temperature, X °C (99.1 °F); saturations, 94% on 2L via nasal cannula; end-tidal carbon dioxide, 45 mm Hg; and blood glucose level, 168 mg/dL. On arrival to the emergency department, the patient becomes combative again.

What pharmacologic therapy is appropriate for this patient?

Treatment of agitation in patients with a known psychiatric disorder are reviewed in the previous cases. Either oral first-generation antipsychotic and benzodiazepine dual therapy or second-generation antipsychotic monotherapy is first line followed by parenteral options. The patient has already received a total of 10 mg haloperidol IM and 2.5 mg of midazolam IM. Another dose of haloperidol can be administered 15 minutes after the last dose not to exceed a total of 20 mg in a 24-hour period.[3] Another dose of Midazolam can be administered 10 minutes after the last dose not to exceed a total of 20 mg in a 24-hour period. For additional agents, please refer to Table 1.

TABLE 2
Potential causes of acute agitation

System	Possible causes
Cardiovascular	Shock
Integumentary	Burns
Metabolic and endocrine	Acidosis Hyper or hypoglycemia Hepatic encephalopathy Wernicke's encephalopathy Thyroid disorder
Neurologic	Stroke Seizure Dementia Hyper or hypothermia Head Injury Psychosis Schizophrenia Personality disorder
Respiratory	Hypoxia Hypercarbia
Urologic	Urinary tract infection

Discussion

Agitation is characterized by increased motor activity, restlessness, aggressiveness, and emotional distress that can begin at a mild level and escalate to aggressive behavior in a short period of time.[1] The etiology of acute agitation is not always immediately clear. Patients who present with acute agitation need to be triaged quickly and have a focused history and physical examination completed. However, the acute state of agitation can interfere with this process, hindering the treatment of a possible underlying cause for the behavior. The pathogenesis of acute agitation can stem from numerous medical conditions.[14,15] Some of the causes of acute agitation are presented in Table 2. Many of these conditions can pose life-threatening concerns for the patient if not treated immediately.

Acute agitation also can progress to aggressive violent behavior if not treated in a timely manner, posing physical risks to the patient and staff. One study reported the prevalence of agitation in the emergency department as 2.6%[16]; however, the rising statistics of violence by patients toward emergency clinicians suggest a higher percentage. In a systematic review and meta-analysis, Liu et al[17] reported alarming statistics showing 61.9% of health care workers had exposure to some type of workplace violence, and almost 25% of health care workers had experienced physical violence.

Behind prehospital settings, emergency departments have the second highest rate of physical violence (31%), with nurses (55.7%), followed by physicians (36.5%), representing the occupations with the highest percentages of reported physical violence.[18] In 2021, the Emergency Nurses Association published a position statement acknowledging violence in the workplace, summarizing its impact on emergency nurses, and outlining ways to combat this epidemic.[19]

Time is a factor when caring for a patient showing signs and symptoms of acute agitation. It is essential for nurses and/or EMS providers to recognize escalating behavior, appropriate pharmacologic treatments, and accurate administration methods.[1] Although experienced emergency nurses may be familiar with the pharmacologic needs of agitated patients, novice emergency nurses may benefit from case reviews that enhance their clinical reasoning related to patients with acute agitation.

Conclusion and Implications for Emergency Nursing

Acute agitation can be a serious safety threat and early recognition, de-escalation, and/or treatment can prevent emotional and physical injury to the patient and staff. Selecting an appropriate pharmacologic treatment for agitation requires an understanding of the patient's history, observations of the current presentation, and an appreciation for adverse effects of each medication. Although it is not ultimately the responsibility of nurses to select an agent, their perspective and knowledge are an invaluable tool in choosing pharmacologic treatment.

Author Disclosures

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Submissions to this column are encouraged and may be submitted at jenonline.org where submission instructions can be found in the Author Instructions.

Mental Health and Harassment in the Workplace

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Contribution to Emergency Nursing Practice

- What is already known about this topic? Harassment experienced by emergency nurses in the clinical setting, can be detrimental to their mental health.
- What does this paper add to the currently published literature? This article adds to the current published literature the importance of supporting emergency nurses who are experiencing harassment in the workplace.
- What is the most important implication for clinical practice? The most important implication for emergency nursing is to be empowered to take action to stop harassment in the workplace when witnessing uncivil behavior and bullying.

Abstract

Harassment in the workplace has become all too common in today's society. Acts of uncivil behavior and bullying create stressful and difficult working environments. Individuals or groups are targeted without legitimate cause, thus creating feelings of stress, fear, anger, and anxiety that can affect mental health. Fear of speaking up owing to retaliation allows the uncivil behavior to continue. Emergency nurses should take action to stop the behavior and may need to seek professional help for mental health care.

Key words: Harassment; Mental health; Workplace; Employees; Employers; Emergency nursing

Introduction

Workplace environments including emergency departments should promote a culture of safety and respect. Unfortunately, that is not always the case for many individuals. Workplace bullying is noted in various settings, from health care to office workers. It has been reported that up to 94% of the workforce within the preceding 5 years was subjected to toxic working environments, with 64% still working in such conditions.[1] The stress of dealing with a toxic working environment can put a toll on the physical and mental health of the emergency nurse. Daily stress affects their job performance, productivity, and lack of interest in daily functions. Absenteeism is common, because the emergency nurse can find it difficult coping going to work on a daily basis; mental health signs of depression, anxiety, and posttraumatic stress disorder are common in toxic working environments. Working environments suffer owing to uncivil behaviors; the loss of well-qualified nurses within the emergency department can contribute to job turnover, and many times leadership either is not aware of the reason employees leave or looks the other way to avoid confrontations.

Case Study: You Are Not Welcome Here

Kim Chan had worked in 3 Magnet teaching hospitals over the course of her 25 years of nursing practice within emergency nursing. She was excited to begin a new position as a nurse educator at the emergency department of a small

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West Coast hospital after completing her master's in education degree 1 year earlier.

Upon arrival to her new position, Kim was introduced to the emergency department staff. The charge nurse Nancy was abrupt with Kim upon meeting her. Kim decided to give Nancy the benefit of the doubt, because she may have been busy. Nancy had worked in that emergency department for 15 years and had applied for the nurse educator position that was awarded to Kim. Nancy resented Kim for obtaining the job instead of her and made derogatory remarks to other staff members about Kim's suggestions on nursing education and in-services. During Kim's first in-service to the ED staff, Nancy mocked her teaching methods and did not accept the new practice, because "her ED did things their way and they were not going to change their practice." One of the emergency nurses explained to Kim the reason Nancy did not like her, disclosing she was a tough nurse and gave the new nurses a hard time.

Owing to the toxic work environment created by Nancy, Kim had difficulty performing her role and began developing anxiety about going to work. Her stress level negatively affected her sleep pattern and appetite, and she considered resigning from her position. Kim decided to speak with the nurse manager regarding the situation. The nurse manager listened to Kim's concerns and stated she would speak to Nancy; however, she was newer to the emergency department although Nancy had been there for an extended time and had a reputation for being difficult.

After speaking to the nurse manager, the toxic work environment did not improve. Kim reached out to Human Resources regarding the situation, and she asked to be transferred out of the emergency department, because her physical and mental health were being adversely affected. Human Resources was able to offer Kim another position within the hospital. The nurse manager received additional training on harassment in the workplace, and Nancy received a verbal warning and counseling. If additional complaints of harassment were to be made against Nancy, the next steps, per Human Resources, would be a written warning and possible termination.

The emergency department lost an experienced emergency nurse and qualified nurse educator owing to a toxic workplace environment. Kim attended counseling offered by the hospital's employee assistance program (EAP) to help her cope with the emotional distress she endured during her employment in the emergency department. Kim transferred to her new position as a nurse educator on a medical-surgical unit and remained in the position for 2 years before securing a position at another hospital working as an emergency nurse educator.

Harassment and Bullying

When we discuss uncivil comportment, the terms harassment and bullying are commonly used. The terms are indicative of persistent toxic behavior. Actions of harassment and bullying are used for control; they include demeaning verbal, emotional, and physical acts and abuse of power.[2] When the emergency nurse or other individuals are related to a protected class defined by sex, age, race, religion, culture, or disability, the behavior can be defined as harassment.[2] Bullying is defined as repeated ongoing actions aimed at an individual or group with the purpose to cause harm.[3] Minority groups are often targeted; this can be regarded as unlawful behavior. Workers in various roles and positions are affected by harassment, and the actions perpetrated against affected workers present in various ways. Online bullying is a form of harassment commonly used. Derogatory, blameful, and demeaning emails undermine the emergency nurse's ability to be productive by causing them to experience embarrassment and low self-esteem. Emails may be sent to only the individual being bullied or may include others in the workplace; the purpose most often is to falsely blame the receiver for errors and humiliate them.

Bullying has been noted as physical harm: pushing, shoving, threatening, stalking, and intimidating. The latter are all actions used to harass coworkers.[3] Gossip, false rumors, and inappropriate comments are conducive to workplace harassment.[4] Sexual harassment and gender-based harassment are common in health care where females are more prone than males to encounter the behavior.[5] Sexual harassment can be experienced by both sexes through physical advances or comments made directly to the individual and derogatory rumors in the workplace, via email or social media.

Harm of Harassment on Mental Health

Harassment or bullying is harmful to mental health; the emergency nurse subjected to the repeated behavior should act to stop it, because it can cause health issues, affect their performance in the workplace, and negatively affect their personal lives. The anxiety of having to face on a daily basis the individual or group can negatively affect coping

mechanisms. The emergency nurse may feel isolated and helpless without support or guidance on how to stop the situation. They also may feel embarrassed and blame themselves for the uncivil behavior.

Effects of Harassment in the Workplace

Workplace bullying promotes social isolation; the affected individual may be excluded from meetings at work and information pertaining to their job function or may be criticized on their work performance.[4] Most often, the person that performs the uncivil conduct is popular in the workplace, which can cause challenges for the affected individual wanting to speak up. Unfortunately, when the unhealthy bullying behavior goes unaddressed by coworkers, managers, directors, departments of Human Resources, and administrators, the employees actively engaging in these negative behaviors, unchecked, intensify the frequency and worsen their behaviors.

Harassment can be difficult to cope with in the workplace and impacts affected nurses' professional and personal lives. Nonetheless, harassment can be quickly identified and intervened upon in workplace settings. The key to ending harassment begins by acknowledging that an unhealthy work environment exists, confronting the employees fostering this environment, and establishing workplace policies that address expectations of professional conduct. Policies also must include consequences for harassment in the workplace that employees will face if their behavior does not change.

TIPS FOR EMPLOYERS IN CEASING WORKPLACE HARASSMENT

- Develop workplace policies that provide clear definitions of harassment and bullying behaviors within the workplace and the expectation of employees to demonstrate civility.
- Require all employees to attend annual mandatory training on the identification and reporting of harassment in the workplace.
- Provide orientation for all new hires that includes training about harassment within the workplace.
- Take progressive actions with employees who have been identified as harassing others in the workplace: verbal warning, offer of EAP support (eg, counseling, anger management), warning in writing, mediation (with the affected person), suspension, and termination.
- Provide support to employees (eg, mediation, EAP, time off from work, shift reassignment or transfer within the organization if available as an option and only if requested by the employee) that have been affected by harassment within the workplace.

Seeking Mental Health Care

Sometimes after experiencing harassment, mental health treatment is indicated as part of the recovery process. Employees that have been psychologically affected by workplace harassment should be referred to EAP programs at their workplaces. This referral process should be explained to all emergency nurses and other employees when hired and annually during harassment training. By addressing employees' mental health associated with harassment sustained in the workplace, quality emergency nurses can be retained and the trauma experienced during bullying can be eradicated early. Hence, healing can begin for affected employees and they can successfully move forward in their professions. Unfortunately, interventions were not deployed early enough to retain Kim in the initial emergency department or the hospital.

Conclusion

It is unfortunate that harassment is experienced in the workplace. However, when it is not tolerated or ignored, it can be stopped. Healthy workplaces can be easily achieved through the commitment by employers to put the health and well-being of all of their employees at the forefront of workplace behavioral expectations and adherence to policies that do not tolerate uncivil conduct.

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Workplace Violence in the Hospital: Strategies for Meaningful Change

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Abstract

Background: Workplace violence is not a unique problem to organizations. Evidence-based toolkits and strategies are available to help provide a guiding framework for the reduction of workplace violence events. As times and stressors (both personal and environmental) change, hospitals must keep constant attention on how to address and implement initiatives to keep staff safe. This manuscript addresses steps taken at 1 hospital to meet this challenge.

Process: Although a workplace violence committee had been in place for some time, it was identified that not all of the key players were included. Membership was evaluated, and executive-level support was provided. A review of literature was conducted and identified top priorities upon which to focus efforts. Subcommittees were formed to be responsible for these categories of work and to report back to the committee.

Evaluation: Data points and a dashboard were created to monitor trends and effectiveness, especially regarding combating the culture of underreporting. Processes and resources were formalized and made easily accessible to staff. Case studies and direct feedback from staff have been impactful and helped identify additional barriers. Evaluation will continue to occur using process-improvement methodology along with technological assistance.

Conclusions: Workplace violence is not part of the job. Ongoing work is needed to continue to move the needle and make hospitals a safer place to work. Engagement from all levels of the organization is necessary to have a successful program.

Key words: Workplace violence; Violence prevention; Workplace violence committee

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Introduction

The University of Colorado Health (UCHealth) has been striving to create a culture of zero tolerance for workplace violence (WPV). In 2011, before joining the UCHealth system, a city run hospital, Memorial Hospital, recognized the devastating impact of WPV events on staff members. In fact, they identified a disproportionately high rate of assaults on emergency nurses. When surveyed, approximately 70% of Memorial staff reported experiencing physical abuse and 90% reported verbal abuse and threats while working in the emergency department. These findings coincided with the 2011 Emergency Nurses Association (ENA) study illustrating that, during a week's time frame, half of the 6504 nurses surveyed online reported verbal or physical abuse from patients and/or visitors.[1] In response to these local and national statistics, the hospital formed an interdisciplinary task force to evaluate and implement measures to keep staff safe. The hospital had

already developed a multidisciplinary behavioral health (BH) emergency response code in the emergency department to manage escalating patient-related emergencies (called a code gray). In addition, a group of UCHealth Memorial emergency nurses and BH team members, inspired by the 2013 ENA Safe Work Environment Intensive event, implemented additional WPV prevention measures. Following this momentum, in 2015, representatives from the UCHealth Memorial team joined Colorado statewide efforts to pass a bill making it a felony to assault a health care provider in the emergency department. Emergency nurse Heather B. Finch provided a compelling and impactful testimonial that helped pass Senate Bill 15-067. Despite this rich history of striving to keep staff members safe, the UCHealth continued to face challenges surrounding WPV.

UCHealth Memorial Central became a level I trauma center in early 2018. It has become the busiest trauma center in Southern Colorado and lands in the top 3 for volume in the state annually. This growth and challenges from the pandemic have directly affected bedside staff related to WPV, causing increased turnover, a culture of acceptance, and increased frequency of WPV events. The purpose of this project is to share one hospital's experience and the steps taken to address and mitigate WPV.

Methods

LITERATURE REVIEW

In February 2022, a review of the current literature was conducted. Focus was put on best practices, evidence-based toolkits, and position statements from multiple agencies and organizations including American Nurses Association, Occupational Safety and Health Administration, American Organization for Nursing Leadership, Emergency Nurses Association (ENA), The Joint Commission, and International Association for Healthcare Security and Safety. The literature supported that a culture change needed to occur and that WPV should not be considered acceptable.[2-4] One key element prominently identified was that WPV awareness and prevention are everyone's responsibility. Leaders at every level and discipline are needed to develop and sustain a successful program.[2,3,5,6] Other key focus areas that include items that can be categorized as having system and staff impact are highlighted in Table 1.[2-9] The American Organization for Nursing Leadership and ENA WPV toolkit provided a consolidated and easytouse framework to prioritize efforts of the committee.[5]

TABLE
Focus areas for WPV prevention[2-9]

Identified areas of focus for WPV prevention	
System impact	**Staff impact**
Conduct risk assessments.	Encourage a culture of reporting.
Identify outcome metrics.	Develop and encourage education and training programs.
Develop guiding policies and protocols.	

WPV, workplace violence.

UNDERREPORTING—BATTLING A CULTURE OF ACCEPTANCE

Although WPV events occurred before the coronavirus disease 2019 outbreak, the number of violent events seemed to increase after the pandemic. This followed the identified positive correlation, documented at other institutions, between the increase of coronavirus disease 2019 positivity rates and the frequency of WPV events.[10] Varying reasons exist as to why this eruption of violent events occurred, but regardless of the reason, a culture shift became a realization. Staff has acknowledged their acceptance of violent events and lack of documentation or notification to leadership as factors that contribute to a lack of understanding about frequency of WPV events. It is evident that staff need clear guidance and support on when to document, escalate, and, when appropriate, file a report with law enforcement against patients when violent events occur. All of these issues further contribute to staff unintentionally exposing themselves to continued verbal abuse and physical violence.

LOCAL CHANGE EFFORTS

To decrease violent events, UCHealth Memorial initiated a campaign of "zero tolerance" in early 2022. This included signs in every patient room and banners in the lobbies describing what types of behaviors by patients and visitors in facilities would not be tolerated. An issue identified with this campaign was that little education was provided to staff about what "zero tolerance" meant. This led to confusion and frustration among the care teams. Complicating matters, many violent events occurring in a hospital setting are from patients with dementia or delirium or

who do not have the capacity to make decisions. This additional layer of complexity requires significant preparation, education, training, and documentation to ensure staff have the right tools to deal with these challenging circumstances. Without this, staff will continue to think that "this is just part of the job" and a culture of acceptance will be perpetuated.

COMMITTEE RESTRUCTURE

Starting in March 2021**,** the nurse administrator at UCHealth Memorial reviewed occurrence reports as part of normal activities in the hospital's daily safety huddle. Documented WPV events are part of these occurrence reports that include both verbal abuse and physically violent events recorded by nurses and other staff after occurrence. A development of violent events resulting in staff injury precipitated an intense review of our WPV policies, protocols, and committee. After this review, it was apparent that a complete restructure of every facet of WPV activities, including the committee, needed to occur.

The Chief Nursing Officer (CNO) identified her responsibility to lead this group as the executive sponsor in August of 2021. The CNO understood the importance of having bedside nurses as members of the WPV committee and requested an emergency registered nurse to cochair this important work. The cochairs reviewed current committee membership. They did not want to eliminate individuals who were passionate about this work; however, they recognized that key stakeholders were needed at the table. A priority was to keep the committee nimble to make changes quickly. A multidisciplinary group was imperative given that WPV events do not occur only in a hospital setting. In addition to the emergency department and inpatient units, the committee solicited members from off-site facilities such as urgent care sites, outpatient clinics, and free-standing emergency departments. Additional key players to support a well-rounded and robust committee included security partners, human resource personnel, professional development educators, clinical nurse specialists, BH specialists, forensic nurse examiners, and clinical and nonclinical staff and leaders.

COMMUNITY PARTNERS

In March 2022, the WPV committee discovered that community partnerships play a significant role in providing education to clinical staff about WPV. During after-action reviews, staff stated that, when they filed a report with law enforcement after a WPV incident, they quickly were overwhelmed with the next steps in the process. Staff received communication many years after the event and felt discouraged to report anything further. The committee understood they could not immediately fix the challenges of the justice system. Instead they recognized that educating the team about the process was key. Several executive leaders including the CNO, Associate CNO, and Vice President of Operations met with the local district attorney to provide the feedback from staff. This engagement and collaboration produced a document that allowed a process to be outlined leading to education of the managers and staff to be better prepared, and understand the justice system process. The committee also has collaborated with and provided feedback to local law enforcement, requesting the need for additional support when staff file a criminal report. The partnership with community leaders continues to improve and evolve as they learn more from the WPV committee.

SUBCOMMITTEE DEVELOPMENT

The committee realized the significant work that needed to be accomplished. They were meeting biweekly for 4 months (March to June 2022) and determined that, to be efficient but thorough, they needed a better strategy. In March 2022, a brainstorming session was scheduled. During the session, the group identified 4 areas of needed work to move the committee forward.

- Awareness and algorithms: a focus on making staff aware of the committee's existence and work being accomplished. In addition, providing teams with a step-by-step method for what to do when a violent event occurred. This included developing and distributing an electronic resource for bedside staff and leaders outlining and explaining the process and what to expect after the event. Another key element included in the resource was making key policies accessible to staff. One of those was a hospital document discussing expectations for an environment of mutual respect. This policy includes the organization's zero-tolerance stance on bullying and incivility.
- Response team: creating a team of BH specialists and other key members to be proactive in identifying escalating patients/families/visitors before calling a BH emergency response code (such as how a rapid

response team would function to try to reduce code blue events).
- Case review: this team reviews and analyzes BH emergency event responses.
- Data review: the data group developed a dashboard that includes National Database of Nursing Quality Indicators benchmark data and other internal data sets to identify opportunities and trends.

Implementation

Each working group quickly expanded into functional subcommittees starting in March 2022. The groups identified a chair and cochair to lead the charge who helped with prioritization and ownership. The subcommittees began meeting on a bimonthly basis, recognized the need for interdisciplinary representation, and added various key stakeholders (eg, frontline nurses, technicians, security officers, and BH specialists). The groups were small, with 5 to 7 members, allowing them to efficiently focus and identify priorities. Various initiatives were identified, and the engaged members provided input, design, and implement projects. During the monthly WPV committee meetings, the subcommittee chairs provided overview of the group's focus and project updates and received feedback and/or approval.

ROOT CAUSE ANALYSIS

The prevalence of WPV events trended up throughout 2020 and into 2021. In June 2021, 3 particularly violent events against staff members resulting in significant injury to staff were reported via RL Datix Safety Incident Management (https://rldatix.com/en-nam/company/about-rldatix/) system, and a root cause analysis (RCA2) was performed by the Patient Safety and Quality Team. When interviewing individual staff members involved in the 3 incidents, several trends started to emerge. Staff shared that the patients who assaulted them had been involved in previous violent interactions with other staff members, but the behaviors were never reported in handoff. Second, patients often had concerning behaviors leading up to the assault, that is, verbal abuse, physical aggression, and balling of fists. Multiple staff members did not feel that they had adequate resources or education to care for aggressive patients. Finally, staff were reluctant to report safety events committed by patients with dementia or other cognitive diagnoses. To gain further insight into violent events and the impact on staff, a questionnaire was developed. After each reported incident of violence, an email was sent to staff by the quality and human resources departments offering support to staff involved and asking questions to get a better understanding of the event, including what could be learned, and what ongoing support may be needed. This process continued to evolve as more work was done in the subcommittees.

In February 2022, staff responses were shared with the committee highlighting the impact of WPV events on employees and providers also encompassing their overall well-being. The details of the abuse and violence along with the suggestions and frustrations shared by staff in the surveys were visceral. The committee chairs requested that the WPV committee invite a staff victim of assault to the committee to share their story in person. This became an opportunity to focus the committee on its mission and the "why" behind the group's efforts. Multiple staff members have shared their stories, provided both insight and solutions, and have asked to join the committee to support other victims of violence.

AWARENESS AND ALGORITHM COMMITTEE

Many hospital system resources were available to staff. However, most staff members were unaware of their existence or unable to locate the information. The awareness and algorithms committee consolidated all the available system resources into one location on the hospital SharePoint site. In September 2022, the committee took one step further by disseminating flyers with a QR code to every unit to ensure ease of access. This allowed staff to access resources aimed at preparing them for, and supporting them during and after, a WPV event. The QR code allowed staff to register for de-escalation classes, review policies and procedures, and sign up for the hospital's peer support program on their mobile device.

CASE REVIEW SUBCOMMITTEE

To further evaluate violent events, a case review subcommittee was formed in August of 2022 initially consisting of 2 patient safety specialists (PSS). All incidents reported in the patient safety incident management were reviewed by the PSS team. Cases involving actual staff harm, significant violence, or emotional harm, along with repeated violent events by the same individual, were considered for additional review. A WPV committee member highlighted that violent events also were reviewed monthly by the BH

Review Committee and suggested that the cases be reviewed in one space. Currently, cases are reviewed initially by a PSS as a primary level of review. They then can be taken to the BH Review Committee for second review, and then findings and trends are presented to the WPV committee for awareness and resource allocation needed for change. Other topics discussed during case reviews include enforcement of the zero-tolerance policy and strategies for dealing with bullying and incivility, especially regarding visitors. Nursing administrators are engaged and are willing to talk to any staff, patient, or family member to explain and assist with enforcement of the policy.

DATA REVIEW SUBCOMMITTEE

Another priority task of the WPV committee was looking at data and trends that could help monitor outcomes, challenges, and successes of the committee's work. In April 2022, a dashboard was created that incorporated information from multiple sources. One of the main challenges was getting a sense of how many incidents were occurring inside of the hospitals. Events were included from databases such as the safety reporting system, security, and employee health records. This information then was broken down on the dashboard by individual clinical units/areas so that higher-risk areas could be targeted. In addition, National Database of Nursing Quality Indicators data and benchmarks were used to gain a semblance of how the organization was comparing with similar ones. As new interventions were implemented, committee discussion occurred on how to display data and track impact. Although it was known that underreporting was a concern, the workgroup felt that establishing a baseline and monitoring trends was a priority.

- A couple of trends surfaced during the review of the data. Two of the units with the highest incidences of WPV were the emergency department and a medical unit that specializes in the treatment of patients with substance abuse and mental health disorders. As a result, focused education opportunities are being provided to include de-escalation training classes, simulation training, and hands-on mock scenarios. In addition, it was identified that some WPV events were related to patients with dementia. The professional development department engaged with a specialist to give staff the opportunity to learn how to effectively interact with patients with dementia to prevent or limit escalation and potential WPV episodes. The committee will continue to assess trends and strategize ways to mitigate staff exposure to WPV.

MONITORING FOR EFFECTIVENESS

One intervention that was implemented across the UCHealth system was the Broset Violence Checklist (BVC) in May of 2022. This allowed easy identification of patients at risk of escalation or those who had physical or verbal outbursts. Screenings of at-risk patients based on behaviors or assessment findings were conducted by nurses in the emergency department. On the inpatient side, screenings were done on admission and at least once per shift during the patient's stay. Once a patient was flagged, visual indicators and electronic notifications increased staff's awareness and interdisciplinary communication. The BVC rollout also permitted the team to look at data from a new perspective. The committee had an appreciation for how underreported WPV events were; however, when a comparison was made from April to June 2022, it was eye opening (Figure 1). The number of physical or verbal events reported in the safety reporting system versus what was being captured out of BVC documentation in the electronic health record was clearly disproportionate. These data supported that additional work needed to be done to support staff at the bedside.

Next Steps

Data analysis and case review allowed the response team subcommittee to identify opportunities to preclude a violent event or behavioral emergency response code. The subcommittee developed a preventative response team led by a BH specialist and comprised a smaller group that could be easily activated when a patient was starting to become escalated or agitated. The goal is to implement measures to address or treat the agitation before a WPV event. The subcommittee is still working through a pilot program and, if successful, will implement this preventative behavioral response team on a larger scale. In reaction to an unstandardized approach in supporting staff members after an event, 2 of the subcommittees (response team and awareness and algorithms) developed a streamlined resource for managers in offering support to staff available on the hospital interweb. One element included was an electronic post-WPV huddle tool (Figure 2), which is completed after all WPV events. The post-WPV huddle tool documents the event, notifies leadership, prompts implementation of safety measures, and ensures follow-up with involved staff. The resource is organized by time limits and recommendations on how to support staff when they file a law enforcement report and the district attorney has decided to press charges. This document was developed in collaboration with BH experts,

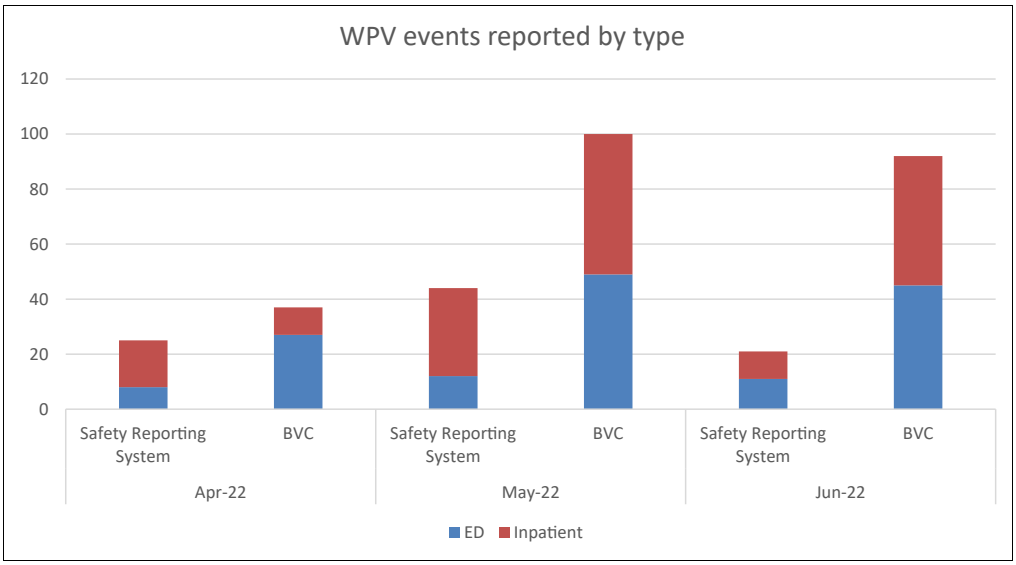

FIGURE 1

BVC score >3 vs incident reporting. BVC, Broset Violence Checklist; WPV, workplace violence.

hospital risk management, legal, employee health, and the forensic nurse examiner teams. It continues to be refined based on feedback. As the committee worked to implement tools in the inpatient setting, it became apparent that it would be necessary to modify these activities to meet the outpatient setting. In these facilities outside the hospital's walls, resources are significantly different. Security presence is often not available 24 hours a day, 7 days a week, and response teams are not an option. In addition, verbal abuse in the form of telephone aggression is a common occurrence. A significant ongoing action for the WPV committee is continued assessment of employee satisfaction surveys

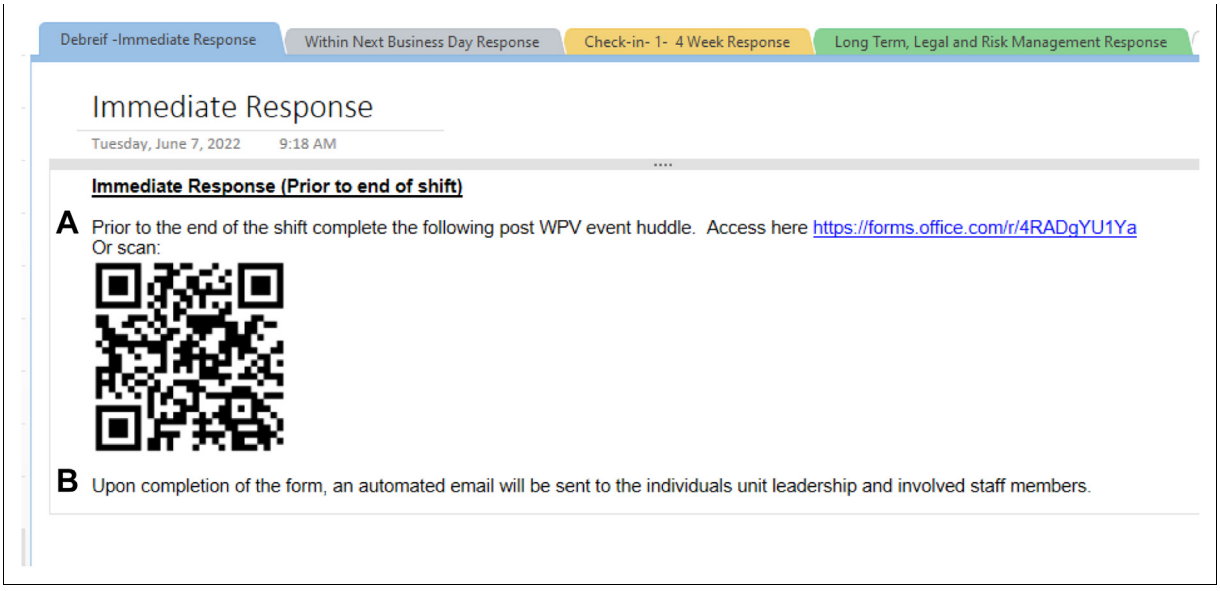

FIGURE 2

Sample screenshot of step-by-step method after a WPV event. WPV, workplace violence.

with specific questions addressing WPV. Staff need to feel supported, safe, educated, and heard in the work environment. The WPV committee supports ongoing staff safety surveys to trend and verify the outcomes of implemented process improvement interventions. A great deal of work has been accomplished by the WPV committee. However, progress must evolve in each of these areas.

Conclusion

Literature, data, direct staff stories, and investigations have clearly identified that a change in addressing WPV is warranted. Emergency and inpatient nurses have been called upon to stand up for change. Organizational transformation can begin with one bedside nurse's voice being heard and in joining forces with strong leadership support. In addition, the use of process improvement and technology tools can help provide data to drive change in practice. The bottom line is tolerating WPV, and accepting it as part of the job can no longer be the norm.

The rich history of staff advocacy, legislative support, engaged bedside staff, and executive leadership, along with an active local WPV prevention committee, have allowed one hospital the ability to collaborate toward keeping staff safer. All of the previously mentioned WPV prevention efforts have gone through varying degrees of the quality improvement process with bedside staff input that has created a sense of ownership and buyin. Looking at the scope of work needed to prevent and address WPV can be overwhelming. The committee found it to be beneficial to divide into subcommittees and use the committee as more of an oversight group. Evidence-based toolkits and innovative ideas have helped drive change. More work is needed to keep the momentum and address ongoing concerns. Finally, dissemination of progress to the frontline staff is a priority along with using process improvement methodology to assess effectiveness of interventions.

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Author Disclosures

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Violence Risk Assessment in the Emergency Department

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Contribution to Emergency Nursing Practice

- Violence in the emergency department is a significant problem that is often under-reported, and hospital-based tracking systems are frequently underused by emergency nurses resulting in inadequate reporting of the true incidence of violence.
- Violence risk assessment may empower nurses to recognize potential for violence and intervene early.
- Including violence risk assessment into regular practice allows for more robust data collection to guide decision-making regarding protection of staff and patients.

Abstract

Introduction: Workplace violence is a prevalent problem in health care, with mental health and emergency departments being the most at-risk settings. The aim of this evidence-based practice project was to pilot use of a violence risk assessment tool, the Broset Violence Checklist, to assess for risk of type II violence and record the interventions that nurses chose to implement to mitigate the situation. Additionally, reports made to the hospital reporting system were tracked and compared to previous reporting frequency.

Methods: Following staff education, nurses were instructed to complete checklists for all patients who have a score of 1 or higher, which indicates the presence of at least 1 high-risk behavior, and continue hourly scoring until the score returned to 0 or the patient was dispositioned. The number of incidents recorded, time of day, scores, interventions applied to mitigate violence, and change in scores after interventions were evaluated. The number of Broset Violence Checklist scoring sheets submitted and reports made via the hospital reporting system were compared.

Results: Incidents were most frequent from 11 AM until 3 AM. The highest scores occurred in the late evening and early morning hours. There were significantly more incidents captured with the use of the Broset Violence Checklist as compared to the hospital reporting system. Incidents significantly associated with higher scores included providing comfort measures, addressing concerns, and applying restraints.

Discussion: The Broset Violence Checklist was used successfully in the emergency department setting to identify behaviors associated with violence. Under-reporting to the hospital report system was identified in this project, consistent with reports in the literature. Specific interventions were not associated with a decrease in Broset Violence Checklist scores.

Key words: Workplace violence; Workplace aggression; Emergency department; Violence risk assessment; Broset Violence Checklist

Introduction

The most significant occupational hazard faced by health care workers is violence in the workplace.[1] Workplace violence (WPV) in health care is a common occurrence. In fact, health care and social service workers are 5 times more likely to experience WPV than those in other professions.[2] Of all nonfatal workplace injuries among health care workers in 2018, 73% were due to violence.[2] The Federal Bureau of Investigation[3] identifies 4 types of WPV as illustrated in Table 1.

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TABLE 1
Types of workplace violence[3]

Type of WPV	Description of WPV
Type I	Random violent acts by a person who has no connection to the workplace
Type II	Violence committed by customers, clients, patients, students, inmates, or any person who receives services in the workplace
Type III	Violence committed by a current or former employee of a workplace
Type IV	Violence committed by a person who has a current or former relationship with an employee of the workplace

PROBLEM DESCRIPTION

The emergency department is a unique setting that creates an atmosphere where violence may occur. Patients that have a history of violence, are intoxicated, or are mentally ill may present for treatment of acute illness and injury.[4] The emergency department environment creates additional risk factors, including easy access to the public, understaffing, and long wait for times.[4]

Additionally, WPV in the emergency department often goes unreported. Fear of stigmatizing patients with mental illness or cognitive dysfunction, or those who are experiencing extraordinary stress contributes to the culture of tolerating violent behavior.[1] Underreporting of WPV is attributable to the perception that nothing will be done by the organization to protect staff. According to Buterakos et al,[5] 68% of emergency nurses surveyed did not report WPV, because they felt reporting would not lead to change, and 44% felt that WPV was just part of the job. These cultural perceptions ultimately lead to staff burnout, turnover, serious injury, or even death, all of which are costly to hospitals on many levels. In 2016, in-facility violence cost United States health care organizations $234.2 million due to staff turnover, $42.3 million in medical care and liability, and $90.7 million for disability and absenteeism costs for a total of $428.5 million.[6] In addition, underreporting can be attributed to a lack of administrative support, cumbersome reporting mechanisms, and a culture that accepts WPV as part of the job.[1]

At the project onset, there was not a patient risk assessment routinely completed by nursing staff. A computer-based system was in place for staff to report incidents. Eighty incidents were reported for the 18-month period consisting of fiscal years 2018 and the first half of 2019, which is an average of 3.3 incidents per month.

AVAILABLE KNOWLEDGE

The evidence supports the use of a violence risk tool to assess for the potential for violence. Cue recognition allows for early intervention to prevent and reduce injuries.[7] Similarly, Sarver et al[8] reported that early recognition of behavioral cues allows for prevention and early intervention. In their retrospective cohort study, Sarver et al[8] compared scores of the Broset Violence Checklist (BVC) to the actual occurrence of violence. They found that for every additional point on the BVC, there was a 3.4 times increased likelihood of violence. They concluded that the BVC is an optimal tool for routine screening of patients to provide early recognition of potential escalation to violence. Research demonstrates that the use of the BVC for early identification of escalation helps nurses to direct care and apply appropriate interventions to the situation.[8]

The BVC has been shown to be a valid tool for the prediction of violence. The area under the curve (AUC) is a value of true positives (sensitivity) and true negatives (specificity), where a value of 0.5 is simply chance prediction, and 1.0 indicates perfect predictive value.[9] Values of 0.9 or greater are considered excellent, and 0.80 to 0.89 are good for predictive value. The lower limit to determine a useful tool is 0.75.[9]

Hvidhjelm et al[10] studied the BVC on an inpatient psychiatry unit. They found the AUC for the BVC was 0.915. When the score was 3 or higher, the sensitivity was 0.656, and the specificity was 0.997 for the prediction of violence in the next 24 hours. Ghosh et al[9] conducted an integrative review of the literature and found the BVC consistently had a strong AUC of 0.86 to 0.87 and was one of the few tools that could potentially be used in acute care settings.

SPECIFIC AIMS

The specific aims of this project were to evaluate the use of the BVC in an ED setting to record incidents of violence or potential for violence in real-time, record the interventions that nurses used, and track the reporting of such incidents.

Methods

CONTEXT

The project commenced in March 2020 and continued for 8 weeks. This coincided with the onset of the coronavirus disease-2019 (COVID-19) pandemic. This project was conducted in a 390-bed community hospital in a suburb of a large midwestern city. This community hospital holds an academic partnership with a university health care system. Staff nurses from the adult emergency department were invited to

TABLE 2
Intervention codes

Symbol	Intervention
C	Comfort measures: any of the following–quiet environment, food/drink, blanket, TV
Q	Answer and address questions or concerns
CN	Alert the charge nurse
B	Buddy system—enter a room with another staff member for safety
ST	Secure a sitter for the patient
SC	Call security
P	Pain medication, if appropriate
M	Medication
R	Restraints

TV, television.

participate. Nurses who worked exclusively in the pediatric emergency department were excluded as the BVC had not been adequately studied in the pediatric population. A total of 65 nurses were eligible to participate in the project.

INTERVENTIONS

After nursing education regarding the project was completed, paper BVC scoring sheets (see Supplementary Appendix) were made available on each of the 3 adult pods of the emergency department. Once completed, they were deposited in a locked drop box to be collected by the project leader. Nurses were asked to start a BVC scoring sheet on any patient that would score at least a 1 and record hourly scores until the patient was discharged or the score returned to 0. Scoring sheets were collected on a weekly basis. Of the 27 unique patients evaluated, 68 score assessments were completed with the frequency of scores summarized in Table 3. Of those 27 unique patients, 12 (44%) had only a single score assessment completed. It is unclear if the lack of documentation of serial scores was due to attrition or if the patient was dispositioned prior to return to a 0 score. Serial score comparison was completed on the remaining 15 (56%) patients for a total of 41 score comparisons.

MEASURES

The BVC is a violence risk assessment tool consisting of 6 behaviors that are scored 1 point each for a maximum of 6 points. A point is scored if the patient displays any of the following behaviors: confusion, irritability, boisterousness, making verbal threats, making physical threats, or attacking objects.[11] A BVC score of 0 indicates a low risk for violence, 1 to 2 indicates moderate risk, and 3 or greater suggests a high risk for violence.[8] For this project, nurses were instructed to begin to implement interventions for scores of ≥1 and document which interventions were implemented to address the behavior. The types of interventions used also were recorded on the scoring sheet.

To evaluate WPV reporting trends, data were pulled from the hospital reporting system from the 18 months prior to the project. Data then were again pulled from the same reporting system for the 8 weeks of the project timeline. The comparison was made to evaluate any discrepancy in reporting trends.

ANALYSIS

Data analysis was performed using IBM SPSS Statistics 26.0 (Armonk, NY). Each BVC total score was considered to be an independent assessment with 68 individual assessments completed on 27 total patients. One assessment was lacking intervention information resulting in 67 usable intervention data points for intervention assessments and analysis. At the end of the 8-week intervention period, the BVC scoring sheets and drop boxes were removed from the department by the project leader. The information on the scoring sheets was entered into an Excel spreadsheet to prepare for statistical analysis. Information on the spreadsheet included sheet number (1-27), time of day, which was categorized in 4-hour increments, BVC score, and interventions. The BVC scores range from 0 to 6, with increasing values implying the increased potential for violence. For the purposes of data entry, the interventions were classified as a nominal value of either 1 or 2, indicating done or not done per the classifications in Table 2. Serial assessments were compared with prior scores to trend risk of violence over time. Chi-square analysis was completed to assess the associations between BVC score categories and each independent variable.

ETHICAL CONSIDERATIONS

No patient names or identifiers were used to collect the data. Nursing participation in the project was strictly voluntary. The project was reviewed extensively by the chairperson of the hospital nursing research committee, who approved the project as an evidence-based project and determined that an Institutional Review Board review was not necessary.

Results

A total of 27 unique patients yielded 68 unique BVC score assessments. The highest number of incidents occurred between 11 AM and 3 AM, with the highest scores occurring

TABLE 3
Variable frequencies

Characteristic	n	%
BVC score category ($N = 68$)		
0	8	12
1	25	37
2	14	21
3	17	25
4	4	6
5	0	0
6	0	0
Time of day ($N = 68$)		
07:01 AM-11 AM	0	0
11:01 AM-03 PM	10	15
03:01 PM-7 PM	9	13
7:01 PM-11 PM	18	27
11:01 PM-03 AM (n = 67)	21	31
03:01 AM -07 AM	9	13
Comfort measures employed (N = 67)		
Yes	47	70
No	20	30
Questions and concerns addressed ($N = 67$)		
Yes	46	69
No	21	31
Alert charge nurse ($N = 67$)		
Yes	2	3
No	65	97
Implement buddy system ($N = 67$)		
Yes	2	3
No	65	97
Used sitter ($N = 67$)		
Yes	20	31
No	47	70
Used security ($N = 67$)		
Yes	6	9
No	61	91
Administered pain medication ($N = 67$)		
Yes	3	5
No	64	96
Administered medication ($N = 67$)		
Yes	3	5
No	64	96
Used restraints ($N = 67$)		
Yes	5	8
No	62	93

between 7 PM and 11 PM. Of the possible 0 to 6 range for BVC scores, no scores of 5 or 6 were recorded. The interventions that nurses implemented when faced with an incident of potential violence that demonstrated statistical significance included offering comfort measures, answering patient questions and concerns, and applying restraints. These interventions were significantly associated with higher BVC scores. No statistical significance was found with alerting the charge nurse, maintaining a buddy system, using a sitter, involving security, and providing sedative, antipsychotic, or anxiolytic medication. During the 8-week-long intervention, 3.5 incidents occurred per week as compared to 3.3 incidents per month for the previous 18 months, as reported to the hospital tracking system. The BVC was successfully used to identify patients with potential for physical violence. A limited percentage of nurses participated in the project, which may have been due to the parallel onset of the COVID-19 pandemic during project implementation. The occurrence of incidents was most frequent and significant during the late evening and early morning hours. Interventions were not significantly associated with a decrease in BVC scores. Incidents were under-reported to the hospital reporting system compared to the data of incidents from use of the BVC in real time.

A BVC score of 1 was most reported, with nearly equal numbers of scores 3 and 2; no scores of 5 or 6 were reported. Most surveys were completed between 7:01 PM and 3 AM, with no scores being completed between 7:01 AM to 11 AM. For most patients, comfort measures were employed, and questions/concerns were answered. The charge nurse was not alerted, the buddy system was not used, security was not used, pain medications were not given, patients were not medicated, and restraints were not used for most patients. See Table 3.

Chi-square analysis was completed to assess for associations between BVC score categories 0 to 4 and each independent variable. There were no BVC scores of 5 or 6 and no responses from 7:01 AM-11 AM; therefore, these items were not included in the chi-square analysis. Lower BVC scores were more frequent during the 11:01 PM-3 AM and 3:01 AM-7 AM time slots, while higher scores were more frequent during the 7:01 PM-11 PM time slots (chi-square $P = .001$, see Table 4). Those with higher BVC scores were more likely to have comfort measures employed compared to those with lower BVC scores (chi-squared $P = .003$, see Table 4). Those with higher BVC scores also were more likely to have questions and concerns answered compared to those with lower BVC scores (chi-squared $P = .000$, see Table 4). Restraints were more likely used for patients with a BVC score of 4 compared to those with lower BVC scores (chi-squared $P = .000$, see Table 2).

TABLE 4
Association between BVC score and independent variables

Characteristic	BVC 0 *n*	BVC 0 %	BVC 1 *n*	BVC 1 %	BVC 2 *n*	BVC 2 %	BVC 3 *n*	BVC 3 %	BVC 4 *n*	BVC 4 %	Chi-square p
Time of day ($N = 68$)											.001
11:01 AM-3 PM	0	0	0	0	5	50	4	40	1	10	
3:01 PM-7 PM	1	11	3	33	2	22	1	11	2	22	
7:01 PM-11 PM	0	0	5	28	3	17	9	50	1	6	
11:01 PM-3 AM ($N = 67$)	2	100	13	62	3	14	3	14	0	0	
3:01 AM-7 AM	4	50	4	40	1	10	0	0	0	0	
Comfort measures employed ($N = 67$)											.003
Yes	2	4	21	45	8	17	15	32	1	2	
No	5	25	4	20	6	30	2	10	3	15	
Questions/concerns answered ($N = 67$)											.000
Yes	1	2	18	39	11	24	16	35	0	0	
No	6	29	7	33	3	14	1	5	4	19	
Alerted charge nurse ($N = 67$)											.060
Yes	0	0	0	0	1	50	0	0	1	50	
No	7	11	25	39	13	20	17	26	3	5	
Implemented buddy system ($N = 67$)											.060
Yes	0	0	0	0	1	50	0	0	1	50	
No	7	11	25	39	13	20	17	26	3	5	
Used sitter ($N = 67$)											.128
Yes	0	0	7	35	5	25	5	25	3	15	
No	7	15	18	38	9	19	12	26	1	2	
Used security ($N = 67$)											.055
Yes	0	0	2	33	1	17	1	17	2	33	
No	7	12	23	38	13	21	16	26	2	3	
Provided pain medication ($N = 67$)											.296
Yes	0	0	0	0	2	67	1	33	0	0	
No	7	11	25	39	12	19	16	25	4	6	

continued

TABLE 4
Continued

Characteristic	BVC 0 *n*	BVC 0 %	BVC 1 *n*	BVC 1 %	BVC 2 *n*	BVC 2 %	BVC 3 *n*	BVC 3 %	BVC 4 *n*	BVC 4 %	Chi-square p
Medicated patient ($N = 67$)											.286
Yes	0	0	1	33	0	0	1	33	1	33	
No	7	11	24	38	14	22	16	25	3	5	
Used restraints ($N = 67$)											.000
Yes	0	0	1	20	1	20	0	0	3	60	
No	7	11	24	39	13	21	17	27	1	2	

BVC, Broset Violence Checklist.

There was no statistically significant difference associated with BVC score categories for the following independent variables: alerted charge nurse, implemented the buddy system, used sitter, used security, provided pain medication, or medicated patient (see Table 4).

ANOVA was completed to compare mean BVC scores for all independent variables. Significantly higher mean BVC scores were recorded between 11:01 AM-11 PM, compared to mean BVC scores recorded between 11:01 PM-7 AM (ANOVA $P = .000$). Mean BVC scores also were higher for patients requiring restraints (mean BVC score 3, SD = 1.414) compared to those with no restraints (mean BVC score 1.69, SD = 1.049). Mean BVC scores for those requiring a sitter (mean 2.2, SD = 1.105) were slightly higher than those not requiring a sitter (mean 1.62, SD = 1.095) but only approached statistical significance. Comparison for the following independent variables: comfort measures employed, questions/concerns answered, alerted charge nurse, implemented a buddy system, used security, provided pain medication or medicated patient did not reach statistical significance.

Finally, subanalysis was done to look for a change in BVC scores compared to prior recorded BVC score for the same patient. There were 41 assessments that had a prior BVC score recorded for comparison. Of those, scores were unchanged from prior for 24 events, worse from prior (higher BVC score) for 3 events, and improved from prior (lower BVC score) for 14 events. There were no consistent associations noted between independent variables and score change.

During the 8-week intervention period of this project, 27 unique patients were recorded by way of BVC scoring sheets, and 4 incidents were reported to the hospital reporting system for a total of 28 incidents in 8 weeks (1 incident was reported to the hospital reporting system that was not reported via BVC scoring sheets). This is an average of 15.1 incidents per month reporting using the BVC scoring sheet as compared to 3.3 incidents per month for the previous 18 months reported using the hospital tracking system. Incidents were under-reported to the hospital reporting system compared to the data of incidents from the BVC scoring sheet in real time.

Discussion and Implications for Emergency Nursing

Emergency nurses are frequently exposed to workplace violence only to be met with a lack of support when reporting these incidents. There are multiple anecdotes from nurses who were dismissed by hospital administration, law enforcement, and the judicial system when they reported violence. Lipscomb and London[1] report a nurse who had her jaw broken by a patient only to be met with suggestions of "what did you expect?" Copeland and Henry[12] reported emergency nurses perceived that the administration reflexively sides with the patient rather than support the emergency nurse's concern. The culture of acceptance of WPV must be shifted toward a culture of reporting and mutual respect. Frick et al[13] report that nurses desire consistent support from ED management subsequent to violent incidents. They further report the importance of tangible policies for protecting staff, an increased presence of security, and de-escalation training to mitigate violence.[13] Hospital administrators can start by creating policies to encourage reporting, implementation of effective tools to assess the potential for aggression, and communication with clear support of hospital leadership with consistent follow-up of reports and incidents. Further study of effective interventions to prevent and de-escalate violence is warranted in order to create a safer workplace for emergency nurses.

Current methods of reporting violence in the emergency department are not reflective of the actual violence that occurs.[14] ED leadership should recognize the high

workload of ED staff and the impact that has on reporting.[14] This project highlights the importance of reporting violence in the workplace. Incidents often occur in the evening and very early morning. These are vulnerable time frames for staff as ED volumes and wait times tend to be highest during these hours. Increased nursing staff and security presence may be indicated to ensure a safer environment.

Consistent support of and follow-up on incidents from leadership have been shown to increase reporting.[15] Although many organizations have a policy for zero tolerance for violence, the lack of follow through on reports results in further apathy related to reporting.[14] Emergency nurses deserve to have a safe working environment. Our efforts need to focus on nurse safety with the same determination that we have for patient safety.

This project also demonstrated the feasibility of using the BVC in the ED setting. The BVC has been successfully used to predict the potential for violence in the ED setting with strong validity per Cabilan and Johnston.[16] The literature also supports the use of a violence risk assessment tool in the ED setting starting at triage per Cabilan and Johnston.[15] Sarver et al[8] suggest that the BVC is a violence risk tool suitable for the ED setting. During this project, the BVC was used to identify 27 incidents in an 8-week time frame, illustrating a higher frequency of incidents than the hospital incident reporting system captured. This is consistent with the under-reporting found in the literature.[1,5,12,14] The frequency and severity of incidents were shown to be higher in the late evening and early morning hours, suggesting an increased risk for emergency nurses working during those hours. Multiple interventions were used by nurses to mitigate potentially violent situations. The interventions that were significantly associated with higher BVC scores included providing comfort measures and addressing patient questions and concerns. The interventions documented in this project did not have a statistically significant impact on lowering BVC scores, which leads to the question of which interventions would help. Do nurses have the tools they need to de-escalate situations? Nurses made efforts to de-escalate by providing comfort measures and ensuring that questions and concerns were answered, but when that is not working, what else is available short of restraints? Further study is warranted to explore interventions that reduce the risk for ED staff.

Limitations

Despite pre-education provided to the nursing staff in the form of meetings and emails, as well as the regular presence of the project leader on the unit for support in completing the scoring sheets, only 21.5% of nurses participated in the project. This project took place at the onset of the COVID-19 pandemic, which may have altered nurse participation as well as the available number of patients. Further study is needed to evaluate the interventions that nurses attempt to implement to mitigate potential violence.

Due to the short-term nature of the project and financial considerations, the BVC assessment tool was not added to the electronic health record for the purposes of this project. Ideally, this addition would provide ease of use and potentially minimize the need for reporting in an alternate system, as well as enable more robust data mining.

Conclusions

The use of a violence risk assessment tool such as the BVC can empower nurses to record scores and identify at-risk patients in real time. Providing a quick, accessible tool for violence risk assessment allows nurses to record incidents without having to spend excess time away from patient care or staying overtime to complete a cumbersome report. There is a great opportunity to gather more significant and accurate data regarding the prevalence of WPV, which can allow hospital administrators to make better staffing and safety decisions.

Underreporting of incidents involving verbal and physical abuse toward emergency nurses must be addressed. Administrators can start by creating open discussions with their staff regarding their perception of violence in their own workplace. Transparency is key. Sharing the data with staff may help validate staff reports and encourage reporting. During this project, nurses were willing to record patients' risk for violence in real time, as opposed to completing a separate incident report, captured far more incidents. The use of the BVC as a routine assessment tool in the ED electronic health record, coupled with intervention strategies, may provide for more accurate data to increase the safety of emergency nurses.

Author Disclosures

Conflicts of interest: none to report.

Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2023.02.006.

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SUPPLEMENTARY APPENDIX

BVC Scoring Sheet

NURSE Name:

Broset Violence Checklist
Scoring Sheet
Adult Patients Only

Time	Confusion	Irritable	Boisterous	Verbal Threats	Physical Threats	Attacking Objects	Total score	Interventions and comments

C= Comfort measures: Any of the following-quiet environment, food/drink, blanket, TV
Q= Answer and address questions or concerns
CN= Alert Charge Nurse
B= Buddy system-Enter room with another staff member for safety
ST= Secure a sitter for the patient
SC= Security response
P= Pain medication, if appropriate
M=Medication
R=Restraints

Introducing a Digital Occupational Violence Risk Assessment Tool Into an Emergency Department: A Pilot Implementation Study

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Contribution to Emergency Nursing Practice

- Occupational violence perpetrated by patients is a worldwide issue that is particularly prevalent in emergency departments. Risk assessment is one of many emerging solutions to prevent occupational violence, but there is limited evidence for its effectiveness in emergency settings.
- In this paper, we describe the pragmatic implementation of and early evidence for the effectiveness of a simple, validated risk assessment tool for emergency departments.
- Anticipating broader translation of the tool, we believe that the paper would be of interest and useful to individuals, because it describes practical steps and strategies to optimize adoption of a risk assessment tool and ultimately to improve occupational violence prevention.

Abstract

Introduction: Occupational violence in emergency departments is prevalent and detrimental to staff and health services. There is an urgent call for solutions; accordingly, this study describes the implementation and early impacts of the digital Queensland Occupational Violence Patient Risk Assessment Tool (kwov-pro).

Methods: Since December 7, 2021, emergency nurses have been using the Queensland Occupational Violence Patient Risk Assessment Tool to assess 3 occupational violence risk factors in patients: aggression history, behaviors, and clinical presentation. Violence risk then is categorized as low (0 risk factors), moderate (1 risk factor), or high (2-3 risk factors). An important feature of this digital innovation is the alert and flagging system for high-risk patients. Underpinned by the Implementation Strategies for Evidence-Based Practice Guide, from November 2021 to March 2022 we progressively mobilized a

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range of strategies, including e-learning, implementation drivers, and regular communications. Early impacts measured were the percentage of nurses who completed their e-learning, the proportion of patients assessed using the Queensland Occupational Violence Patient Risk Assessment Tool, and the number of reported violent incidents in the emergency department.

Results: Overall, 149 of 195 (76%) of emergency nurses completed their e-learning. Further, adherence to Queensland Occupational Violence Patient Risk Assessment Tool was good, with 65% of patients assessed for risk of violence at least once. Since implementing the Queensland Occupational Violence Patient Risk Assessment Tool, there has been a progressive decrease in violent incidents reported in the emergency department.

Discussion: Using a combination of strategies, the Queensland Occupational Violence Patient Risk Assessment Tool was successfully implemented in the emergency department with the indication that it could reduce the number of incidents of occupational violence. The work herein provides a foundation for future translation and robust evaluation of the Queensland Occupational Violence Patient Risk Assessment Tool in emergency departments.

Key words: Behavior change; Emergency department; Emergency nursing; Implementation science; Nursing; Risk assessment tool; Workplace violence

Background

Occupational violence (OV) is defined as "any physical attack or verbal abuse that occurs in the workplace or is associated with the workplace that could potentially lead to physical and/or psychological harm.[1] OV perpetrated by patients is a global problem, with ED staff disproportionately at risk compared to other health care staff.[2] Associated detrimental impacts of OV on patients,[3] staff, and health services have been well documented,[4] hence the need for prevention and management.

Risk assessment of patients is a preventive strategy that is gaining substantial traction in emergency departments.[5-7] Risk assessment involves identifying the presence or absence of violence risk factors, ideally through application of a validated assessment tool.[8] The premise for prevention is that timely recognition of a patient's violence risk prompts de-escalation and proactive management[7] to reduce the likelihood of OV incidents occurring (see Figure 1). Without a risk assessment, a common trajectory is that a patient presents to the emergency department and later becomes verbally or physically aggressive. A team is called for help, and then the patient is verbally de-escalated, offered nonpharmacological and, if appropriate, oral pharmacological interventions. If unresponsive to these interventions, the patient might receive restrictive interventions in the form of forced chemical restraint and/or physical restraint. With a risk assessment, a proactive rather than a reactive approach may be taken. A patient in the emergency department is assessed for their violence risk using a tool. The primary nurse (the emergency nurse allocated to the patient) then engages with the patient, attempts verbal de-escalation, and offers nonpharmacological and oral pharmacological interventions. The nurse alerts their team leader or security for monitoring purposes. In this scenario, use of the risk assessment to recognize violence risk and instigate early proactive interventions could prevent OV and the need for more restrictive interventions.

Emergency nurses have proposed that the necessary attributes for a risk assessment tool to be embedded in practice include the tool being comprehensive, brief, objective, and digital with alerts.[9] The Queensland Occupational Violence Patient Risk Assessment Tool (QOVPRAO) was developed and rigorously validated to meet these requirements.[10,11] It prompts review of 3 violence risk factors: aggression history, behavioral concerns, and clinical presentation concerns. The patient then is scored as low (score = 0 risk factors), moderate (score = 1 risk factor), or high (score = 2-3 risk factors) risk of perpetrating OV in the emergency department.[11] The QOVPRAO was digitalized and implemented in 1 emergency department that uses an electronic health record (EHR) system. Nurses should have completed the QOVPRAO electronically within 30 minutes of a patient's ED arrival to optimize timely OV risk identification and proactive management (see Supplementary File 1).

In this paper, we describe our methods for implementing the QOVPRAO using the Implementation Strategies for Evidence-Based Practice Guide or Implementation Guide for brevity.[12] In addition, we report on its adoption and impacts on OV incidents. The implications of this implementation paper are 2-fold.

First, because many emergency departments internationally are faced with the problem of OV,[2] many also would likely be interested in solutions. Accordingly, knowledge of implementation approaches would be useful to translate potential solutions to OV[13] such as the QOVPRAO from theory into practice. Furthermore, OV risk assessment using a validated tool is becoming more

common in emergency settings,[5-7] but with limited evidence to establish its place in OV prevention.[14] The work presented herein would be valuable to emergency clinicians and researchers who may want to use the QOVPRAO to minimize the occurrence of OV in their emergency departments.

Second, adoption and translation of new clinical processes is challenging.[15] For example, previous implementations of risk assessment tools in mental health settings have been met with end user-related and context-related barriers that have precluded their successful adoption.[16] For this reason, implementation should be guided by a conceptual underpinning that helps to explore and overcome such barriers,[17] but fewer than 50% of implementation efforts have done this.[18,19] Our use of a conceptual underpinning (Implementation Guide[12]) and the way in which it was operationalized in the emergency department would make a valuable contribution to implementation research.

Aims

The aim of this paper was to describe the implementation of the digital QOVPRAO in 1 emergency department and report on early adoption metrics according to the Standards for Reporting Implementation Studies Statement.[20]

Ethics

The project was approved by the Metro South Human Research Ethics Committee (EX/2022/QMS/91990).

Methods

CONTEXT

The emergency department is a public, metropolitan, adult tertiary referral hospital in Brisbane, Australia, with over 69,000 presentations annually (in 2021). The emergency department has resuscitation, acute care, short-stay, toxicology, ambulatory care, procedural, and mental health units. An overflow tent, just external to the emergency department, was available from January to October 2022 to accommodate the higher demand placed on the hospital by the COVID-19 surge. The health information system used in the emergency department is FirstNet (Cerner Corporation, Kansas City, USA), which is an EHR system for patient tracking and health information documentation. It also provided a live in-house patient tracking screen, active throughout the patient's emergency department stay, that included the QOVPRAO. FirstNet is a component of a health service-wide EHR through which all patients' health information is documented and can be accessed.

DESIGN IMPLEMENTATION

The Implementation Guide[12] was used to map and plan implementation strategies (see Figure 2). The QOVPRAO implementation had 4 action stages, each with corresponding interventions for organizational leaders and key stakeholders to:

- Stage 1: Create awareness and interest
- Stage 2: Build knowledge and commitment
- Stage 3: Promote action and adoption and
- Stage 4: Pursue integration and sustained use

Organizational leaders were heads of clinical governance structures with influence on and oversight of the emergency department, OV-related initiatives, and the EHR. Key stakeholders in the implementation were emergency nurses who were end users of the QOVPRAO. Therefore, stakeholders also included the nursing leadership team including clinical nurse consultants who were responsible for coordinating team huddles at the start of ED shifts; nurse educators who were responsible for monitoring and providing for emergency nurses' educational needs; and Response to Occupational Violence Emergencies (ROVE)[21] nurses, whose primary responsibilities in the emergency department are to monitor, de-escalate, and respond to violence risk and incidents.

Implementation Stage 1: Create Awareness and Interest (July 2020-November 2021)

Several approaches were taken to create awareness and interest among departmental leaders and key stakeholders. First, the tool was formally named the QOVPRAO and disseminated through media releases to fuel local interest and promote a sense of ownership within the health service.[22-24] Second, key stakeholders were consulted about the design and workflow of the digital QOVPRAO in the emergency department.[9] This led to it being a mandatory assessment field in the emergency department, capable of triggering a pop-up alert and visual flag for high-risk patients (Supplementary File 1). Third, the principal investigator (CJC) and nurse informatician (JMcR) engaged with organizational leaders

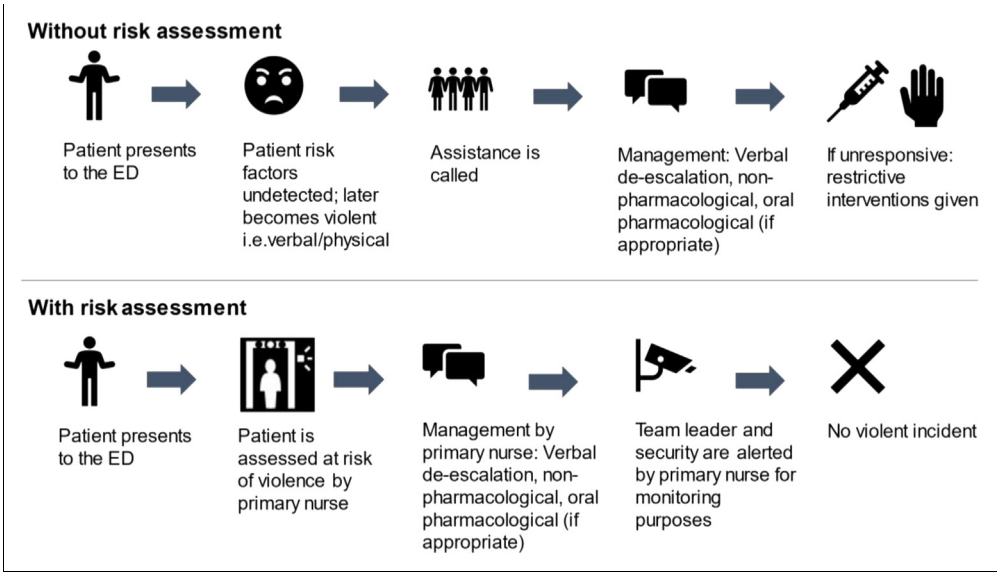

FIGURE 1

Scenario depicting how a risk assessment tool could work in the ED. ED, emergency department.

to gain feedback and approval to embed QOVPRAO in the health service EHR. Once in the EHR, clinical informaticians (including CJC and JMcR) conducted an accuracy check to ensure that the QOVPRAO was functioning as intended (ie, automatic calculation of risk factors–when a high score is calculated an icon is to appear on the tracking list) (see Supplementary File 1).

Implementation Stage 2: Build Knowledge and Commitment (September-November 2021)

Stakeholder's lack of knowledge and confidence can preclude successful implementation.[16] Therefore, education and training are essential to help build knowledge and commitment.[16,25]

E-learning

E-learning was the default learning modality in the study emergency department. An e-learning package was developed and divided into 2 parts of 15 minutes each to minimize the time commitment involved and conform with emergency nurses' limited availability. The first part, launched on September 3, 2021, focused on understanding the need for and the benefits of using the QOVPRAO, including how to identify patient risk factors, score, and use risk ratings of violence. The second part, which commenced on November 25, 2021, focused more pragmatically on how to use the QOVPRAO in the EHR, providing practice with accessing and applying the QOVPRAO in 2 patient scenarios, identification of the high-risk icon in the EHR, and identification of procedures and interventions for managing patients who pose OV risks.

Emergency nurse educators were pivotal in making the e-learning an essential learning module for all emergency nurses, including newly employed staff. Notifications and reminders for the e-learning were communicated to nurses in shift huddles by clinical nurse consultants and by emails from the principal investigator (CJC).

Implementation Drivers

Commitment to the implementation of the QOVPRAO from organizational leaders was evidenced in part by approvals for staff to be employed as implementation drivers. These implementation drivers, recruited from the nursing workforce, were deployed in the study emergency department to advocate the use of the QOVPRAO among nurses, promote its potential benefits, reinforce shared goals to reduce OV in the emergency department, and provide coverage while nurses undertook and completed the e-learning package.[26,27] The latter meant that the implementation drivers relieved bedside nurses of their clinical responsibilities for a period of approximately 30 minutes while

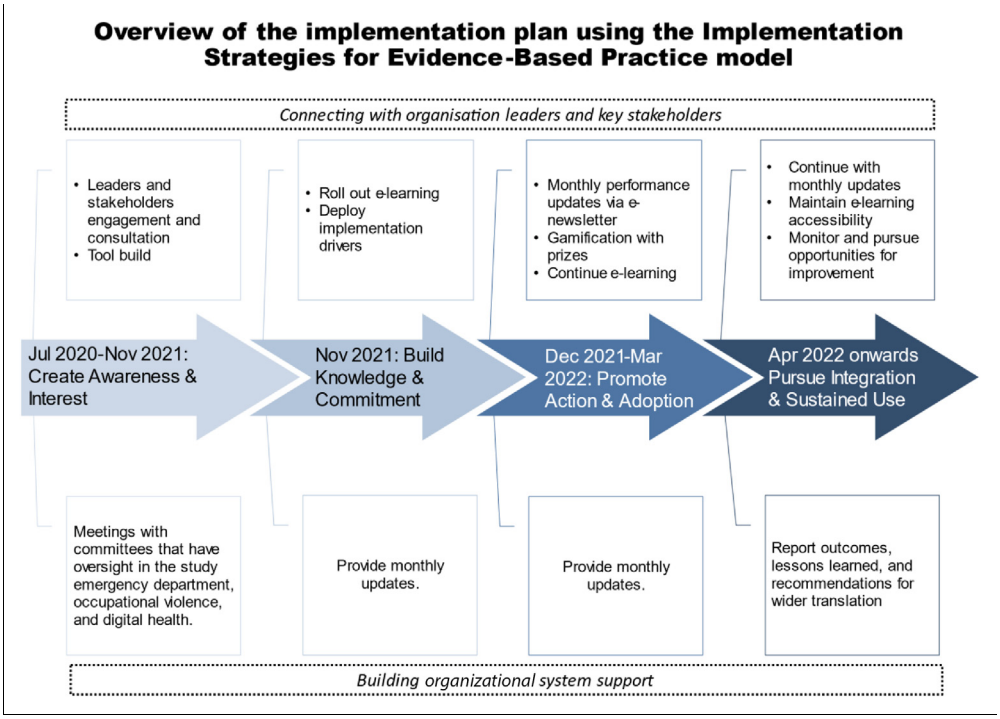

FIGURE 2

Chronological stages of implementation of the digital Queensland Occupational Violence Risk Assessment Tool using the Implementation Strategies for Evidence-Based Practice Guide.[12] The tasks indicated in the upper row of boxes at each stage of implementation were strategies for organization leaders and key stakeholders at each stage. The activities and interventions described in the lower row were designed to build and maintain organizational system support.

they completed the QOVPRAO e-learning. In the 2-week period leading up to the QOVPRAO becoming operational, 26 hours over 5 days were covered by 3 implementation drivers (KG, CA, MOS). Skill and staff shortages impacted the study emergency department broadly, particularly from December 2021 to February 2022[28] due to shifting priorities as a consequence of the COVID-19 surge, staff sick leave due to COVID-19 infection, and a higher than usual number of casual nurses recruited to meet emergency care demands. These staff shortages forced discontinuation of Implementation Driver time after that initial 2-week period.

Implementation Stage 3: Promote Action and Adoption (December 2021-March 2022)

The QOVPRAO officially became part of emergency nurses' responsibilities beginning on December 7, 2021. Patient assessment and completion of the QOVPRAO required a behavior change[12] in that nurses would begin to form an intention or habit of routinely using the QOVPRAO as part of clinical care. Evidence from a systematic review[16] has suggested that nurses' behaviors toward risk assessment can be influenced by a variety of factors. Barriers to successful adoption include a lack of perceived advantage over current practice, insufficient communication about the implementation, poor access to information about the implementation, and staff turnover (Table).[16] Therefore, the strategies used to promote action and adoption attempted to address each of these barriers (Table) and are discussed in detail in this section.

Activities and Games with Incentives

The potential lack of advantage over current practice was identified during tool development.[9] Risk assessment tools such as the QOVPRAO need to be complemented by meaningful interventions to enhance their value.[9] Without such interventions, the QOVPRAO could simply be deemed a data collection tool and abandoned.[29,30] Meaningful interventions that complement risk assessment tools include

TABLE
Summary of potential barriers and response strategies used to promote action and adoption of the QOVPRAO in the emergency department.

Common barriers	Strategies to subvert/ overcome barriers
Lack of relative advantage over current practice	1) e-Learning drag-and-drop activity and 2) treasure hunt game (with incentives) to promote action when occupational violence risk is identified
Dearth of communication about the implementation	Daily reminders in start of shift huddles. Monthly e-newsletters containing performance and clinical updates on QOVPRAO.
Poor access to information about the implementation	
Skill shortage due to staff turnover	Daily reminders in start of shift huddles. New nurses in the study ED were directed to complete the QOVPRAO e-learning by nurse educators.

ED, emergency department; QOVPRAO, Queensland Occupational Violence Patient Risk Assessment Tool.

verbal de-escalation techniques, behavioral management teams (similar to a ROVE Team[21] in the local emergency department that responds to violence risk and incidents), safe de-escalation rooms, buddy systems, oral medications, restrictive intervention policies, allocative strategy, security presence or assistance, and fast-tracking of care.[31]

Implementing a full package of OV interventions including those identified above with the QOVPRAO is a much larger project and is outside the scope of this implementation. However, recognizing that it is pivotal to successful adoption, 2 main approaches were used to prompt nurses to action when OV risk was identified using the QOVPRAO. One component of the e-learning was an activity where nurses were required to "drag-and-drop" from a list of all possible interventions they could use to manage patients with OV risk (eg, verbal de-escalation techniques); maintain their personal safety (eg, buddy system); and enhance overall safety in the emergency department (eg, security presence). These interventions were aligned with local policies and procedures for OV management. We then collaborated with nurse educators to launch a treasure hunt game during March and April 2022. The mechanics of the game involved nurses looking for 23 different intervention stickers (the treasure) in the department (Supplementary File 2). The person who collected the largest number of stickers won a cash voucher redeemable at the hospital café. Those who participated but did not win were able to redeem their intervention stickers for confectionery.

Reminders and Feedback

Action and adoption were supported by ongoing reminders and feedback. Two strategies were used to remind workers about and maintain their access to information about the QOVPRAO. First, clinical nurse consultants were tasked with reminding staff during the start of every shift huddle about completing the QOVPRAO for every patient within 30 minutes of ED arrival. Second, the principal investigator (CJC) emailed monthly e-newsletters with the purpose of communicating impacts of the QOVPRAO, such as QOVPRAO adherence, OV incidents, and e-learning adherence. This information and feedback could help motivate nurses to use the QOVPRAO.[32]

Strategies for New Nursing Workforce

A higher-than-usual number of contract and agency nurses were recruited to meet emergency care demands and compensate for staff sick leave due to COVID-19 infection. To promote action and adoption among the new nursing workforce, nurse educators made the QOVPRAO e-learning a core learning requirement for contract nurses starting in the emergency department. The agency nurses who did not have access to the e-learning were prompted to complete the QOVPRAO at shift huddles or during their orientation to the department at the start of their shift.

Implementation Stage 4: Pursue Integration and Sustained Use (April 2022 Onward)

Sustainability of implementation involves maintenance of innovation, maintenance or enhancement of behavior change, and (ideally) continuation of benefits after a defined period of time.[33] Recommendations for sustainability of innovations should consider knowledge maintenance, wider translation, continued engagement, and monitoring effectiveness.[34]

In the local health service, we are engaging and collaborating with organizational leaders to pursue the integration of the QOVPRAO in other emergency departments with the EHR in the health service. Considering the sustainability

recommendations above,[34] the e-learning was designed so that it readily transferred across e-learning platforms in the health service. Moreover, the effectiveness of the QOVPRAO has been evaluated against clinically relevant outcomes, including safety, patient-centeredness, timeliness, efficiency, and cost effectiveness (will be reported separately).

Data Collection and Analysis

The data collection period was from September 2021 to September 2022. The implementation outcomes of interest were the percent of nurses who completed their e-learning, the percent of patients who had QOVPRAO assessment, and the percent of patients who had a QOVPRAO assessment within 30 minutes (defined as early assessment).

The percentage of emergency nurses who completed their e-learning was readily extracted as a report from the e-learning platform (host). For QOVPRAO adherence, data were available as an Excel file download from the EHR, which contained patient details, date and time of ED arrival, date, time of first QOVPRAO assessment, and first QOVPRAO scores. The formula for percent of patients who had a QOVPRAO assessment was $\frac{\textit{number patients who had QOVPRAO score}}{\textit{total number of patients who presented}} \times 100$. Subsequently, the percentage of patients who had early QOVPRAO assessments was calculated. The number of incidents related to OV perpetrated by patients was extracted from the hospital risk register. For adoption outcomes, descriptive analyses were conducted from the first month of the QOVPRAO (December 2021) and then quarterly until September 2022. Comparisons of OV incidents were made before (September-November 2021) and after the QOVPRAO was introduced (quarterly from January-September 2022).

Results

E-LEARNING COMPLETION

Before the QOVPRAO was operational, 64 of 107 (60%) of enrolled emergency nurses completed their QOVPRAO e-learning. As of September 30, 2022, a 149 of 195 enrolled (76.4%) e-learning completion rate had been achieved.

Adherence to the QOVPRAO

In the first month (December 2021) of using the QOVPRAO, overall adherence was 63%, which subsequently improved quarterly in 2022 (Figure 3A). Adherence to early assessment was relatively low at 35% in the first month (December 2021) and throughout 2022 (Figure 3B).

OV Incidents Reported

There was a consistent quarterly reduction in the number of reported incidents in the emergency department since the implementation of the QOVPRAO compared to the baseline period of September 2021 to November 2021 (Figure 3C). The greatest reduction was observed in the third quarter of 2022 (n = 5), representing an 88.6% reduction in incidents compared to before the QOVPRAO was implemented (n = 44; September 2021 to November 2021).

Discussion

The digital QOVPRAO was successfully implemented in the target emergency department, demonstrating the value of the use of a conceptual underpinning (Implementation Guide[12]). Success was evidenced in part by the majority of nurses completing the e-learning, good adoption of the QOVPRAO, and reduction of reported OV incidents in the emergency department. Following the Implementation Guide[12] the implementation strategies described herein were progressively operationalized over 4 stages. In summary, first consultation meetings with key stakeholders and organizational leaders were held to create awareness and interest. Second, e-learning and implementation drivers were deployed to build knowledge and commitment. Third, incentives, reminders, and feedback were added to promote action and adoption. Fourth, collaboration with organizational leaders and monitoring of clinical outcomes were ongoing to encourage integration and sustained use.

The strategies used herein align with previous risk assessment tools for implementation efforts in the emergency department.[35-38] The advantage of our study is the use of an implementation framework that provides structure and a rationale for others to tailor or translate for use in their settings. Future users of the QOVPRAO should consider its limitations and their practice implications below.

Limitations and Implications for Emergency Nursing

A potential limitation of e-learning is that not all organizations have the infrastructure to deliver such online learning, nor does everyone have the technological literacy to engage with e-learning.[39] In the study setting, e-learning is the

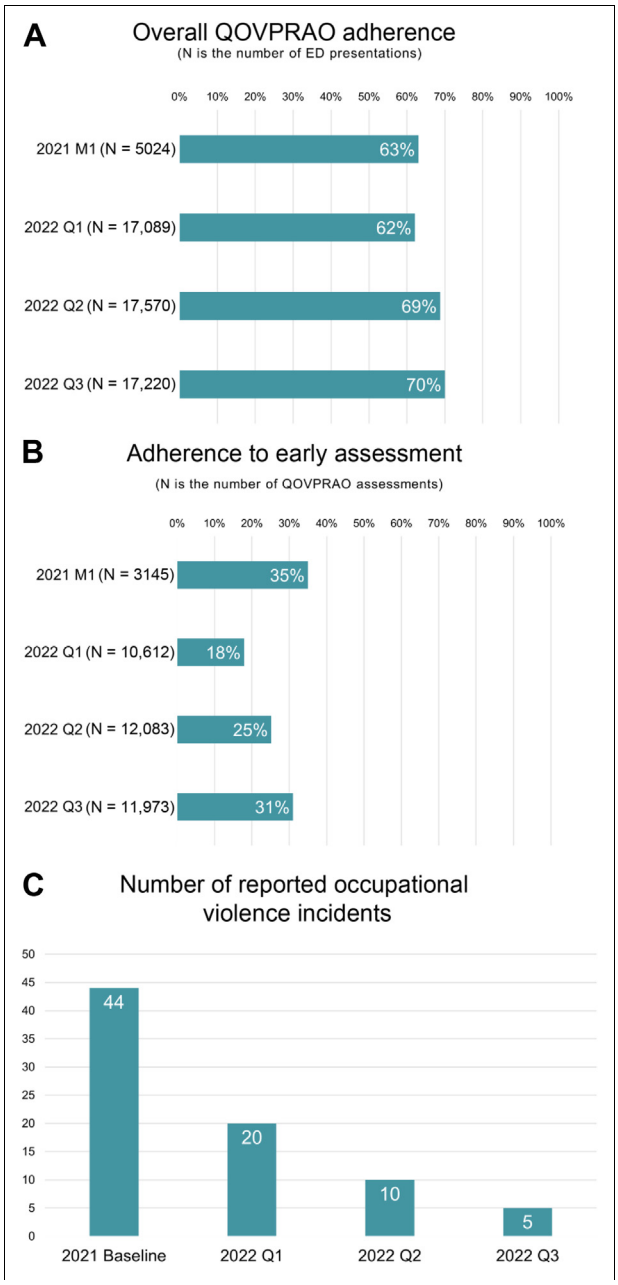

FIGURE 3

Early adoption outcomes of the Queensland Occupational Violence Patient Risk Assessment Tool (QOVPRAO). M1 is December 2021, the first month of QOVPRAO implementation; Q, quarter; 2021 Baseline was September to November 2021. ED, emergency department; QOVPRAO, Queensland Occupational Violence Patient Risk Assessment Tool.

primary mode of education, so that by default, nurses are expected to navigate and engage with the QOVPRAO e-learning. Other settings may need to tailor their approach to their default learning modality to build knowledge and commitment. We recommend that the content cover the importance of the QOVPRAO, how to use it, and how it links to local OV management procedures or policies. Without this knowledge, nurses may undervalue and disengage from the innovation,[16] thereby limiting the benefits of the tool for preventing and mitigating OV.

Implementation drivers were unable to comprehensively fulfill their roles due to staffing constraints. This could have influenced the completion of the QOVPRAO e-learning component. However, the absence of implementation drivers enhanced the involvement of nurse educators and clinical nurse consultants in enabling e-learning completion and facilitating QOVPRAO adherence. Something that can be learned from this experience is that successful implementation can be achieved using existing human resources.

There was low adherence to early assessment, which could be explained by the dramatic increase in ED presentations and wave of COVID-19 that overwhelmed emergency departments in local health services, particularly from January to March 2022.[28,40] As observed previously, overcapacity increases the likelihood of missed nursing care as nurses reprioritize tasks or ration their time.[41] During this time, it is possible that violence risk assessment was not seen as a priority, hence the delay in risk assessment. It also is possible that there might have been a higher-than-usual number of casual or agency nurses working in the department to meet care demands and and minimize effects of workforce constraints. Casual or agency nurses may not be familiar with the QOVPRAO, hence the relative lack of adherence to early assessment. Furthermore, discontinuation (redeployment back to ED direct care) of implementation drivers meant that they were not able to fully advocate the use of the QOVPRAO among nurses and promote the importance of early violence risk assessment.

The generalizability of the QOVPRAO and its impacts may be limited to emergency departments and to settings with an EHR. The utility of the QOVPRAO has not yet been tested in inpatient settings, and there is local interest in extending the QOVPRAO beyond the emergency department. It may be advantageous to use the QOVPRAO over other risk assessment tools validated for inpatients (ie, Broset Violence Checklist, ABRAT, M55)[42] for 3 reasons. First, the QOVPRAO is a validated tool that is easy to use to assess aggression history, behavioral concerns, and clinical presentation concerns.[11] Our recent study showed that the QOVPRAO was used consistently by nurses with varying experiences.[10] Second, unlike other tools that have been exclusively predictive of physical OV,[42] the QOVPRAO risk ratings—low (score = 0 risk factors), moderate (score = 1 risk factor), and high (score = 2-3 risk factors)—are good

predictors of any verbal or physical OV. Third, inpatient risk assessment tools are predictive of physical violence occurring within 24 hours of the risk being identified.[42] Given that the QOVPRAO was validated in the emergency department, when violence risk is identified, the patient could potentially perpetrate verbal or physical OV in a much shorter period of time conforming with typical ED length of stay. With the QOVPRAO, there could be more urgency to proactively manage the patient's violence risk more quickly.

The QOVPRAO can be adapted to settings without an EHR, and it would still be possible to alert clinicians who are at risk of experiencing OV. In previous studies,[43,44] patients' paper charts and wristbands were flagged to caution staff about patients' violence risk.

We reinforce the importance of OV management plans to optimize the benefits of the QOVPRAO.[16] Future QOVPRAO users should tailor management plans to their local context. For further guidance, one may refer to a list of interventions proposed by emergency nurses that could prevent OV.[31]

The impact of the QOVPRAO was preliminarily measured using the number of reported OV incidents in the emergency department. Underreporting of OV is universally acknowledged,[45] so it is questionable whether the reduction observed in this study was a consequence of underreporting, particularly against the backdrop of a COVID-19 surge,[28] instead of evidence of effectiveness. Underreporting is a cultural by-product of the individual and also operates at the organizational level. At the individual level, nurses do not report, because they see OV as part of the job or do not have the time to complete incident reports.[46] At the organizational level, nurses do not report, because of complex reporting infrastructure and poverty of management support when they report an incident.[47,48] These factors could be in play in the study emergency department. However, during the study period, approaches that are now standard practice were put in place to encourage reporting of incidents. For example, the ROVE nurses (behavioral management team) assisted nurses with completing incident reports.[21] Subliminally, reminders and feedback as part of the implementation strategy could have shifted nurses' beliefs that management is limiting OV. Therefore, we presume that the likelihood of underreporting is low, and so the reduction of OV that was observed in this study is likely to be a direct outcome of the QOVPRAO.

In summary, future users of the QOVPRAO need to include education and training, recognize the influence of nurse leaders in adoption, tailor OV management plans to the context, and ensure the accuracy of incident reports.

Conclusions

The QOVPRAO, a digital OV risk assessment tool, was successfully implemented in a local emergency department following the Implementation Guide. A combination of implementation strategies addressing key elements from the Implementation Guide that included e-learning, staff implementation drivers, incentives, reminders, and feedback were used. Successful implementation was evidenced by good e-learning completion, good adoption of the QOVPRAO, and reduction of reported OV incidents in the emergency department. Future users of the QOVPRAO could translate or tailor our implementation methods to bolster their success implementing it into their clinical settings.

Data, Code, and Research Materials Availability

Study data are available on request and on approval of Metro South Human Research Ethics Committee.

Author Disclosures

Conflicts of interest: none to report.

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Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2023.01.007.

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EMERGENCY NURSING

Graphical Abstract

A Systematic Review of Violence Risk Assessment Tools Currently Used in Emergency Care Settings

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Violence risk assessment in emergency care settings

Aim: To examine the psychometric properties, acceptability, feasibility and usability of violence risk assessment tools currently used in emergency care.

Methods

Design
Systematic literature review

Included papers
Intervention study (n=4)
Tool development/testing (n=4)

Countries
Australia (n=4) USA (n=4)

Setting
Emergency dept. (n=7)
Mixed (n=1)

Findings

Tools
- ✧ Existing violence risk assessment tools (n=3) developed for use with mental health patients.
- ✧ Adaption of existing tool (n=1).
- ✧ Newly developed tools (n=3).

Psychometric properties*
- ✧ Predictive validity: moderate to good
- ✧ Interrater reliability: moderate
- ✧ Usability: Good

*Where tested

Implications

Violence risk assessment can identify patients in emergency care who are at risk of becoming violence

No evidence to support choosing one tool over another

Sammut D, Hallett N, Lees-Deutsch L, Dickens G. A systematic review A systematic review of violence risk assessment tools currently used in emergency care settings. *J Emerg Nurs.* TBA

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A Systematic Review of Violence Risk Assessment Tools Currently Used in Emergency Care Settings

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Contribution to Emergency Nursing Practice

- Workplace violence is common in emergency care settings and has negative consequences for patients, staff, and services. Structured violence risk assessment is commonplace in mental health settings and is gradually becoming more accepted within emergency care.
- This review has found that violence risk assessment tools may be feasible for use in emergency department. There is currently, however, insufficient high-quality evidence to draw conclusions about the predictive capability of these tools in emergency care settings.
- Violence risk assessment can identify patients in emergency care who are at risk of becoming violent, but the evidence to support choosing one tool over another is not yet available. Further research using these tools in emergency settings is needed before evidence-based recommendations can be made.

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Abstract

Introduction: Violence risk assessment is commonplace in mental health settings and is gradually being used in emergency care. The aim of this review was to explore the efficacy of undertaking violence risk assessment in reducing patient violence and to identify which tool(s), if any, are best placed to do so.

Methods: CINAHL, Embase, Medline, and Web of Science database searches were supplemented with a search of Google Scholar. Risk of bias assessments were made for intervention studies, and the quality of tool development/testing studies was assessed against scale development criteria. Narrative synthesis was undertaken.

Results: Eight studies were included. Three existing violence risk assessment tools featured across the studies, all of which were developed for use with mental health patients. Three newly developed tools were developed for emergency care, and 1 additional tool was an adaptation of an extant tool. Where tested, the tools demonstrated that they were able to predict patient violence, but did not reduce restraint use. The quality issues of the studies are a significant limitation and highlight the need for additional research in this area.

Discussion: There is a paucity of high-quality evidence evaluating the psychometric properties of violence risk assessment tools currently used along the emergency care pathway. Multiple tools exist, and they could have a role in reducing violence in emergency care. However, the limited testing of their psychometric properties, acceptability, feasibility, and usability in emergency care means that it is not possible to favor one tool over another until further research is conducted.

Key words: Patient violence; Risk assessment; Workplace aggression; Workplace violence

Introduction

Globally, staff working in emergency care settings experience violence from patients and visitors at a disproportionate rate. A recent international systematic review and meta-analysis[1] found that emergency departments had the highest 12-month prevalence of violence across all hospital settings. The same review found that nurses had the highest exposure to violence across occupational groups. For the purposes of our study, we use the term violence to describe any nonverbal, verbal, or physical behavior exhibited by a person that makes it difficult to deliver good care safely.[2] Staff working in emergency department appear resigned to the inevitability of experiencing such violence.[3]

Workplace violence has wide-ranging detrimental consequences.[4] Staff absence because of the physical or emotional effects of workplace violence has significant financial implications.[5] It is estimated that 2% of staff are lost as a consequence of workplace violence, leading to significant recruitment costs.[6] Violence also causes disruptions to patient care, with nurses losing concentration and working at reduced efficiency[7] and functioning at a heightened level of anxiety.[8] Violence also is associated with task delays and medication errors.[9]

Several structured tools have been developed to aid risk assessment of imminent violence, most commonly in mental health settings, but they are being used increasingly in other areas.[10-12] A recent scoping review by Cabilan and Johnston[13] identified 5 violence risk assessment tools with a history of use in ED settings; however, the review reported that 3 lacked any evidence of predictive validity. In fact, of the 5 tools identified, only 1, the Brøset Violence Checklist (BVC),[14] was intended for use as a risk assessment prediction tool rather than an aide memoire and was the only one whose psychometric properties were evaluated in an emergency care setting. The BVC was developed, and has been used with some success, to predict violence in mental health settings.[15]

With evidence that violence risk assessment tools are gradually finding their way into emergency care,[16] it is important not only to identify those that have been implemented but also to establish which tools are practical and effective. Therefore, we aimed to examine the psychometric properties, acceptability, feasibility, and usability of violence risk assessment tools that have been evaluated in emergency care. For the purposes of this review, the constructs of acceptability, feasibility, and usability will be interpreted broadly, respectively, relating to factors affecting users' willingness to adopt interventions, individual or structural factors affecting the extent to which interventions can be implemented effectively, and factors pertaining to the user experience.[17] In doing so, we aimed to explore the efficacy of undertaking violence risk assessment in predicting and reducing patient violence and to identify which tool(s), if any, are best placed to do so.

Methods

DESIGN

We undertook a systematic review; our reporting follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.[18] The protocol for this review was registered at the International Prospective Register of Ongoing Systematic Reviews (CRD42021285461). The protocol was registered as a rapid review, but during conduct of the review, the team agreed that a full systematic review was preferable and achievable within existing resources.

ELIGIBILITY CRITERIA

Eligible studies were (1) primary research; (2) published in peer-reviewed journals; (3) in English language; (4) published since 2007 (the earliest publication date of the tools identified by Cabilan and Johnston[13]); (5) evaluations of the psychometric properties, acceptability, feasibility, or usability of violence risk assessment tools; and (6) focused on emergency care pathways (emergency department and acute medical units [AMUs] or equivalent: for example, admission areas for acute medical patients with a length of stay up to 48 hours). Studies within specialist emergency care pathways (eg, pediatric, psychiatric) were excluded. For the purposes of our review, "violence" refers to both actual and threatened physical acts or verbal abuse perpetrated by emergency attendees (patients or their relatives/friends/companions) against others or objects.

As the broad constructs of feasibility, usability, and acceptability can be captured by both quantitative and qualitative data, we did not exclude any primary research studies based on methodological approach alone.

SEARCH STRATEGY

A study by Bramer et al[19] found that optimal searches in systematic reviews should include the following databases: Embase, Medline, Web of Science, and Google Scholar. Accordingly, we used these 4 databases for our searches and added Cumulative Index to Nursing and Allied Health Literature Plus to ensure that we captured relevant nursing literature. Owing to the limited search functionality of Google Scholar, we only screened the first 200 references identified by this database, ranked by relevance.[19] Our search strategy was based on Cabilan and Johnston's[13]

TABLE 1
Population or problem, intervention, comparison, outcomes, context framework

Criterion	Description
Population or problem	Violence toward others, perpetrated by emergency care attendees
Intervention	Structured risk assessment tools
Comparison	Not applicable
Outcomes	Psychometric properties (including validity, reliability, internal consistency and predictive validity), feasibility, usability, and acceptability
Context	Emergency care pathways

strategy but was amended to capture literature related to our broader conceptualization of the emergency care pathway and to the relevant properties of tools identified. Our search terms were mapped according to the population or problem, intervention, comparison, outcomes, context framework (Table 1), see Supplementary Tables 1-4 for full search terms.

Searches were undertaken in October 2021 and supplemented by regular ongoing searches for keyword terms via Google Scholar until July 2022. In addition, the authors of any relevant articles that were not published in peer-reviewed journals (eg, dissertations) were contacted to ensure that we did not miss any work they might have published. Screening by title and abstract was undertaken independently by 2 reviewers (D.S. and N.H.), with 1 reviewer (D.S.) then completing full-text screening. The shortlist of papers possibly eligible for inclusion was screened by a third reviewer (L.L.D.). Forward and backward chain searching was conducted on all eligible papers.

RISK OF BIAS AND QUALITY ASSESSMENT

All intervention studies were assessed for risk of bias using the Risk of Bias in Non-randomized Studies of Interventions tool.[20] The studies that described tool development/testing were assessed against scale development criteria described by Boateng et al[21]; criteria relating to factors and dimensionality were removed as these were not relevant to the development of risk assessment tools. Quality assessment of included studies was undertaken by D.S. and N.H. and checked by L.L.D. and G.D.

DATA EXTRACTION AND SYNTHESIS

Data were extracted by D.S. and checked independently by N.H. As presented in our protocol, predefined subheadings were amended and/or discarded as appropriate. These decisions were initially made by D.S. and later discussed with the whole team until consensus was reached.

Because of methodological and clinical heterogeneity in the included studies, we were unable to undertake a statistical meta-analysis; therefore, narrative synthesis was undertaken. Statistical information about predictive efficacy, interrater reliability, and intervention efficacy were extracted. Predictive efficacy data included sensitivity and specificity (true positive and true negative cases as proportions of all positive and negative predictions, respectively), positive predictive validity (odds of those predicted to be violent who actually went on to be violent), area under the receiver operating characteristic curve (AUC; a summary statistic [range 0-1] of a tool's overall ability to discriminate between positive and negative cases; interpretation AUC = 0.5 equivalent to chance, 0.7-0.79 acceptable, 0.8-0.89 excellent, 9.0-1.0 outstanding), and odds ratios (the odds that an individual who is violent was assessed as at increased risk of violence compared with the odds that a nonviolent individual was assessed as not at increased risk of violence). Information was extracted for all cut-off points reported. Information about interrater reliability involved kappa, a measure of agreement between independent raters: 0.40 to 0.59 = weak agreement, 0.60 to 0.79 = moderate agreement, 0.80 to 0.90 = strong agreement, and above 0.90 is almost perfect.[22] Information about intervention efficacy included *P* values indicating statistical significance and relative risk for all outcomes reported. Data about the feasibility and usability of tools were extracted where available.

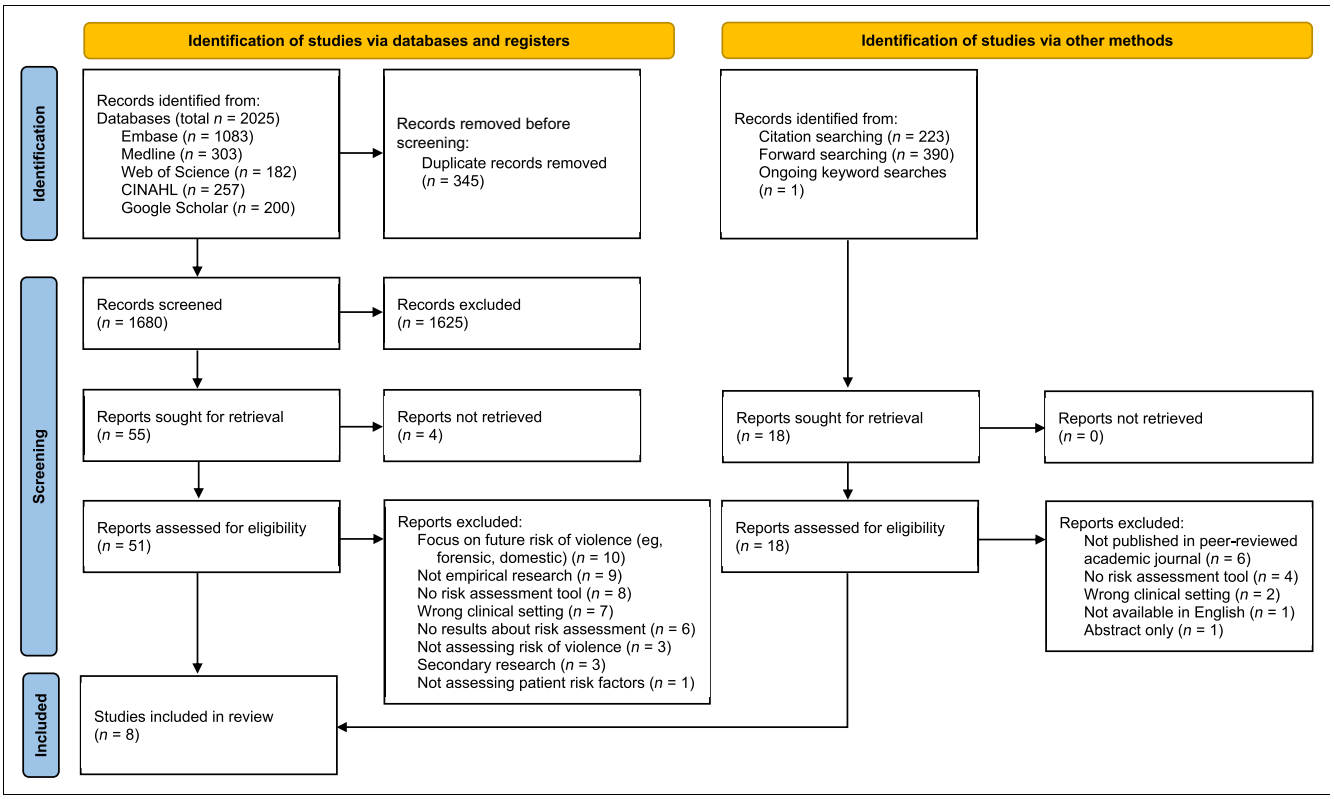
Results

SEARCH OUTCOME

As a result of the search strategy, 8 studies were deemed eligible for inclusion (Figure).

SUMMARY OF INCLUDED STUDIES

Of the 8 included studies, 2 used cohort designs, of which 1 was retrospective[23] and 1 prospective[16]; 2 used quality improvement designs[24,25]; 1 used a before-and-after design[26]; 1 used tool development methods[27]; 1 tested a



FIGURE

Preferred reporting items for systematic reviews and meta-analyses flow diagram.18 CINAHL, Cumulative Index to Nursing and Allied Health Literature.

tool[28]; and 1 used nonparticipant observation.[29] Four studies were deemed intervention studies, with various outcomes,[23-26] whereas 4 aimed to test/develop tools.[16,27-29] Seven studies were conducted entirely in emergency departments, and 1[29] included observations of which 82.4% of the observations were conducted in the emergency department. No studies took place in AMUs or equivalent. Four studies were conducted in Australia[16,26,27,29] and 4 in the United States.[23–25,28]

VIOLENCE RISK ASSESSMENT TOOLS

Three of the studies described the development and testing of new risk assessment tools.[24,27,29] These were all created for use within emergency care pathways. One was created using extant literature and expert opinion (Queensland Occupational Violence Patient Risk Assessment tOol [QOVPRAO])[27]; 1 supplemented this approach with chart audits, (Emergent Documentation Aggression Rating Tool [EDART])[24]; and 1 used nonparticipant observation (Violence Assessment Tool [VAT]).[29] Four studies tested existing tools: the Behavioral Activity Rating Scale (BARS),[23,25] the BVC,[16] and the Dynamic Appraisal of Situational Aggression (DASA)[28] (Table 2). The final study combined the BVC with a response framework for use in the emergency department to create the behaviors of concern (BOC) chart.[26] All of the existing tools were originally developed either for use in mental health settings (BVC, DASA) or for use with patients with psychosis (BARS).

QUALITY OF INCLUDED STUDIES

Four studies were assessed for risk of bias,[23-26] and all were deemed at serious risk (Table 3). Although no studies were excluded based on quality, we were unable to include data from 2 studies in our syntheses of predictive efficacy, validity, and reliability owing to serious risk of confounding. Schumacher et al[23] measured the predictive validity of the BARS in relation to administration of behavioral management (ie, sedation or physical restraint). However, these interventions were prescribed by medical staff on the basis of BARS scores, thus ensuring a circular relationship where

TABLE 2
Risk assessment tools

Tool	Included studies; developed by (if different)	Development setting/ country	Content	Scoring	Interpretation	Risk management
Behavioral Activity Rating Scale	Legambi et al,[25] Schumacher et al[23]; Swift et al[30]	Setting not stated (developed to evaluate the effect of psychotropic medication on agitated behavior in patients experiencing psychosis), United States	Single-item question consisting of 7 categories: 1 = difficult or unable to rouse; 2 = asleep, but responds normally to verbal or physical contact; 3 = drowsy, appears sedated; 4 = quiet and awake (normal level of activity); 5 = signs of overt (physical or verbal) activity, calms down with instruction; 6 = extremely or continuously active, not requiring restraint; 7 = violent, requires restraint	1-7	1-4 = nonresponsive/no agitation 5-7 = increasing severity of agitation	None identified
BVC/BOC	BVC: Partridge and Affleck[16]; Almvik and Woods[14] BOC: Senz et al[26]	BVC: secure mental health, Norway BOC: additional management matrix developed in emergency department, Australia	Six items: - confusion - irritability - boisterousness - physical threats - verbal threats - attacking objects	Each item scored 0 (absent) or 1 (present)	BVC 0 = low risk 1-2 = moderate risk ≥3 = high risk BOC 0 = low risk 1 = moderate risk ≥2 = high risk	BVC: None identified BOC: interventions identified for each level of risk by: general, nursing, medical, security
Dynamic Appraisal of Situational Aggression	Connor et al[28]; Ogloff and Daffern[31]	Secure mental health, Australia	Seven items: -irritability -impulsivity -unwillingness to follow directions -sensitivity to perceived provocation -easily angered -negative attitudes -verbal threats	Each item scored 0 (normal for patient) or 1 (increase in described behavior)	0-1 = low risk 2-3 = moderate risk >3 = high risk	None identified

continued

TABLE 2
Continued

Tool	Included studies; developed by (if different)	Development setting/ country	Content	Scoring	Interpretation	Risk management
Emergent Documentation Aggression Rating tool	Campbell et al[24]	Emergency department, United States	Single-item chart listing 6 behavior levels ranging from "no signs of aggression" to "danger to self and others" (multiple behaviors listed within each level)	0-5	0 = no signs of aggression 1 = early indicators 2-5 = increasing severity	Interventions identified for each level of aggression
Queensland Occupational Violence Patient Risk Assessment tool	Cabilan et al[27]	Emergency department, Australia	Three items: - Aggression history - Behavioral concerns - Clinical presentation	0 (absent) 1 (present/yes)	0 = low risk 1 = moderate risk 2-3 = high risk	None identified
Violence Assessment tool	Jackson et al[29]	Acute hospital, Australia	Eighteen behavioral cues: - Threat of harm - Aggressive statements or threats - Intimidation - Clenched fists - Resisting care - Prolonged or intense glaring - Name calling - Yelling - Increase in volume of speech - Irritability - Pacing near nurses' area - Pacing in confined areas - Sharp or caustic retorts - Demeaning inflection - Belligerence - Demanding attention - Humiliating remarks - Mumbling	Not stated	Not stated	None identified

BOC, behaviors of concern; BVC, Brøset Violence Checklist.

TABLE 3
Risk of bias table

Authors	Bias due to confounding	Bias in selection of participants	Bias in classification of interventions	Bias due to deviations from intended interventions	Bias due to missing data	Bias in measurement of outcomes	Bias in selection of the reported results	Overall assessment
Schumacher et al[23]	Serious	Serious	Low	Serious	Moderate	Moderate	Low	Serious risk of bias
Campbell et al[24]	Moderate	Moderate	Low	Serious	Moderate	Moderate	Low	Serious risk of bias
Legambi et al[25]	Serious	Serious	Low	Moderate	Serious	Moderate	Low	Serious risk of bias
Senz et al[26]	Moderate	Moderate	Low	Serious	Moderate	Low	Low	Serious risk of bias

the outcome was inevitable if the predictor was positive. A similar confounder was noted in the quality improvement project described by Legambi et al,[25] where preassessment and postassessment data were collected on restraint use. The BARS was incorporated into the electronic health record, which automatically prompted staff to apply restraints on patients who scored 7 (violent). Although all studies were at low risk of bias in classification of interventions because risk assessment was routinely recorded, they were all at moderate to serious risk of bias owing to deviation from intended intervention. The 2 studies at moderate risk either did not provide adequate information on how nurses decided to undertake risk assessment[25] or only assessed patients once rather than at regular intervals.[23] The other 2 studies had more serious issues. Campbell et al[24] did not report whether restrained patients had been risk-assessed. Risk assessment occurred before the intervention as reported by Senz et al[26] as well as after, but no detail was provided about differences in how risk assessment occurred pre- or post-test.

Two studies detailed tool development,[27,29] and 2 tested pre-existing tools[16,28] (Table 4). Items for the newly developed tools were generated within emergency settings, through observation[29] and from the literature,[27] whereas items for the preexisting tools were generated in mental health settings.[16,28] Similarly, content validity and pretesting of questions occurred in mental health settings for the preexisting tools,[16,28] thus raising some concerns as neither tool was tested for these within the emergency care context. Researchers administered the tools in the development studies through observations[29] and from electronic records.[27]

DATA SYNTHESIS

Studies were grouped by risk assessment tool; however, only 2 tools featured in more than 1 study (the BARS and the BVC). The psychometric properties of the tools, where available, are presented in Table 5.

BARS

Legambi et al[25] examined restraint use before and after implementation of the BARS and found a nonsignificant difference. During the final weeks of BARS implementation, they administered the System Usability Scale (SUS) to emergency nurses. From 30 (31% response rate) responses, the BARS received a high SUS score (83.46; SD = 11.73), indicating good usability (citing Usability.gov, the authors note that SUS scores greater than 68 indicate good usability, even with a small sample size).

TABLE 4
Critical appraisal of tool development studies table

Authors	Item generation	Content validity	Pretesting of questions	Administration	Sample size	Predictive validity testing	Interrater reliability
Jackson et al[29]	Good	Good	Good	Some concerns	Some concerns	Some concerns	Poor
Partridge and Affleck[16]	Some concerns	Some concerns	Some concerns	Some concerns	Good	Good	Some concerns
Connor et al[28]	Some concerns	Some concerns	Some concerns	Good	Good	Good	Some concerns
Cabilan et al[27]	Some concerns	Good	Poor	Poor	Good	Good	Good

However, only 13 (43%) reported feeling as though the BARS helped them to better detect and manage behavioral health patients (the primary target group requiring BARS assessment in the study emergency department). In their review of patient records, Schumacher et al[23] found that only 46% of patients with a psychiatric complaint received a BARS rating at triage, indicating low adoption of the tool.

BVC/BOC

Partridge and Affleck[16] calculated positive likelihood ratios (odds ratios) for the BVC using cut-off scores of 1, 2, and 3. Their findings showed that violent patients were 71.4 times more likely to have a score of ≥3 than nonviolent patients; they were 30.3 times more likely to have a score of ≥2 and 11.6 times more likely to have a score of ≥1. The study found a predictive value of 16.7% for scores ≥1, 34.3% for scores ≥2, and 55.2% for scores ≥3. This means that more than half the patients who scored 3 or more would go on to exhibit violent behaviors. When using 3 as a cut-off for BVC scores to indicate high risk of violence, sensitivity was 45.7%, and specificity was 99.4%, meaning that just under half of all violent patients and nearly all nonviolent patients were identified by the BVC.

Before implementation of the BOC, violence risk assessment was documented 30% of the time; after implementation, this increased to 82%.[26] Furthermore, before implementation, violence risk assessment was documented 54% of the time for patients with a mental health or drug and alcohol presentation, increasing to 100% after implementation. Senz et al[26] did not assess usability of the BOC; however, they explored nurses' confidence and abilities in a before-and-after survey. Despite statistically significant improvements in confidence to perform risk screening, there was no change in perceived ability to prevent violence.

DASA

Connor et al[28] calculated positive and negative predictive values for the DASA, comparing scores of ≥1 with scores of 0. They found that 23% of patients with a score of ≥1 would go on to be violent, and 95% of patients with a score of 0 would not exhibit violent behaviors. The summary AUC score of 0.79 fell in the "acceptable" category.

EDART

Campbell et al[24] found no statistically significant difference in restraint use before and after implementation of the EDART as assessed by a logistic interrupted time series

model with time F = 2.01, $P = .13$.[24] To explore the usability of the EDART, a survey was administered to emergency nurses 3 months into the study's implementation phase, receiving responses from 30 participants (62.5% response rate). Feedback about the EDART was overwhelmingly positive, with all respondents agreeing that the tool was easy to use and 28 of 30 reporting that the tool increased their ability to offer early interventions.

QOVPRAO

In the development of the QOVPRAO, Cabilan et al[27] found that of the 34 risk items forwarded to end users for relevance rating, 5 achieved a relevant item-level content validity index (I-CVI) (≥0.78), with consensus moderation used to direct the inclusion of additional risk items (despite achieving I-CVI scores below the 0.78 threshold). However, in a second round of content validity to rate the relevance of each of the tool's 3 risk domains, all 3 achieved I-CVIs above the 0.78 threshold. Sensitivity for the QOVPRAO domains ranged from 22% for aggression history to 55% for concerns with clinical presentation; specificity was high for all (92%-98%). The AUC using risk rating of low (no risk domains present), moderate (1 risk domain present), and high (≥2 risk domains present) for the QOVPRAO indicated acceptable predictive validity (AUC = 0.77). Testing interrater reliability between a trained and an untrained assessor, the analysis revealed kappa values ranging from 0.60 to 0.75 for the tool's 3 domains ($P < .01$), indicating moderate agreement.[22]

VAT

Jackson et al[29] examined the association between the 18 behavioral cues in the VAT and subsequent violence. Patients who resisted health care were 11 times more likely to exhibit violent behaviors than those who did not; those who made aggressive statements were 7.2 times more likely; those who yelled were 6.8 times more likely; and those who used abusive language were 6.0 times more likely.

Discussion

This review identified 8 studies that evaluated the psychometric properties of 7 violence risk assessment tools in emergency departments. The tools were either originally developed in mental health settings or specifically for ED settings. Only 2 tools, the BARS and the BVC, featured in more than 1 study, limiting our ability to pool results. Our findings also are limited by the quality of the included studies, with some suffering from significant methodological flaws such as unmeasured confounding variables and deviations from the intended intervention(s). However, our review addresses an important gap in the literature. The paucity of evidence about these tools' performance in emergency settings stands in contrast to the significant body of literature on violent risk assessment in psychiatric settings,[15] despite the similarities in violence prevalence across these settings.[32]

Only 2 studies examined predictive validity, 1 each of the DASA and the QOVPRAO,[27,28] with both tools demonstrating moderate performance. In studies of the DASA in mental health settings, results have ranged from acceptable to outstanding,[33-35] reflecting similar findings to the 2 studies in this review. However, the clinical context should be factored into any comparisons drawn with findings from ED settings. Violence risk assessment does not occur in a vacuum. In psychiatric inpatient settings, where the DASA and BVC have seen most use and evaluation, patients are risk-assessed repeatedly throughout an inpatient stay, which will typically be much longer than in emergency care settings. Clinicians' familiarity with patients is likely to factor into their interpretation of patient behaviors and characteristics,[36] and the nature of violent incidents also may differ across these very different clinical contexts.[37] This underpins the importance of evaluating tools in the settings where they will be implemented, particularly as clinician expertise, preferences, and needs also will differ.

Clinical approaches to risk assessment, which involve unstructured clinical judgment, are largely subjective and reliant on the assessor's expertise, whereas actuarial approaches aim to eliminate bias by standardizing all aspects of the assessment. In mental health settings, this polarity has been somewhat addressed by the introduction of structured professional judgment approaches, which combine ratings of empirically derived risk factors together with consideration of idiosyncratic individual factors, eg, Short Term Assessment of Risk and Treatability.[38] Consideration could be given to the development of such approaches in the emergency department.

The tools included in this review all use an actuarial approach, although, as Doyle and Dolan[39] note, all risk assessment involves a degree of subjectivity. Only 1 study[27] evaluated interrater reliability, reporting moderate results. Some scholars have proposed that a combined clinical-actuarial approach would be optimal for ED settings,

TABLE 5
Properties of risk assessment tools

Tool; included studies	Outcome	Cut-off	Predictive efficacy	Content validity	Reliability	Intervention efficacy
BARS; Legambi et al[25]	Restraint use	-	-	-	-	1. No statistically significant difference in restraint use following implementation ($\chi^2 = 0.72$, $P = .40$)
BOC; Senz et al[26]	Planned and emergency security responses (code gray); mechanical restraint	-	-	-	-	1. Reduction in planned Code Grays (RR 2.22) and emergency Code Grays (RR 0.75, absolute risk reduction 0.18%). 2. No reduction in mechanical restraint use.
BVC; Partridge and Affleck[16]	Violence	1 2 3 ≥1 ≥2 ≥3 3	OR 11.6 OR 30.3 OR 71.4 PPV 16.7% PPV 34.3% PPV 55.2% Sens. 45.7% Spec. 99.4%	Not assessed in emergency care, only in mental health settings	-	-
DASA; Connor et al[28]	Violent or aggressive behavior	Score: 1+ vs 0	PPV 23% vs 5% AUC 0.77	Not assessed in emergency care, only in mental health settings	-	-
EDART; Campbell et al[24]	Restraint use	-	-	-	-	1. No statistically significant difference in restraint use before and after implementation (logistic interrupted time series model with time $F = 2.01$, $P = .13$)

continued

TABLE 5
Continued

Tool; included studies	Outcome	Cut-off	Predictive efficacy	Content validity	Reliability	Intervention efficacy
QOVPRAO; Cabilan et al[27]	Occupational violence	Aggression history	OR 9.0 Sens. 22% Spec. 98%	I-CVI 0.86	K 0.60-0.75	-
		Behavioral	OR 13.6 Sens. 31% Spec. 98%	I-CVI 0.95		
		Clinical	OR 7.1 Sens. 55% Spec. 92%	I-CVI 0.89		
		Risk rating 0, 1, 2+	AUC 0.77	-		
		Moderate risk	Sens. 61% Spec. 91%			
		High risk	Sens. 37% Spec. 97%			
VAT; Jackson et al[29]	Violence	Resisting health care	OR 11	-	-	-
		Aggressive statements	OR 7.16	-		
		Yelling	OR 6.79	-		
		Abusive language	OR 5.98	-		

AUC, area under the curve; BARS, Behavioral Activity Rating Scale; BOC, behaviors of concern; BVC, Brøset Violence Checklist; DASA, Dynamic Appraisal of Situational Aggression; EDART, Emergent Documentation Aggression Rating Tool; I-CVI, item-level content validity index; OR, odds ratio; PPV, positive predictive value; QOVPRAO, Queensland Occupational Violence Patient Risk Assessment Tool; RR, relative risk; Sens., sensitive; Spec., specificity; VAT, Violence Assessment Tool.

allowing clinicians to use the empirical categories set out in an actuarial tool to aid, rather than replace, clinical judgment.[40] In contrast, emergency nurses have expressed the need for a standardized tool that focuses on objective risk factors, particularly as ED risk assessments must be rapid.[13] Other studies have similarly concluded that clinicians prefer risk assessment to contain an element of structure, with some suggesting that reliance on clinical judgment alone puts less experienced staff at a disadvantage.[41] In fact, numerous studies have found that staff with less experience (both clinically and in the emergency department specifically) are more likely to experience patient violence in emergency settings.[42,43] Cabilan et al[27] point out that a structured approach to risk assessment does not preclude sensitivity to context and argue that a multidimensional approach, addressing both static and dynamic risk factors, is most appropriate.

Even if a tool improves violence prediction, if it is not implemented properly, it is essentially useless. We found variability in levels of implementation but cannot identify why this was the case. Usability of the BARS and the EDART were examined, with both reporting positive findings,[24,25] whereas an evaluation of nurses' confidence and perceived ability to prevent violence before and after implementation of the BOC reported mixed findings.[26] None of the included studies explicitly assessed feasibility or acceptability. Whereas lengthy risk assessment tools may be impractical in ED settings,[27] the BARS, a single-item tool, had low adoption.[23,25] Lack of understanding and enthusiasm for the tool were cited as possible reasons for this outcome, perhaps pointing to the importance of a strong implementation strategy.[23]

The true success of these tools should, of course, ultimately be measured in terms of reductions in violence rather than simply its prediction. Patient violence is harmful in and of itself, yet the interventions used to manage patient violence can be equally damaging. The use of physical, mechanical, and chemical restraint can be physically and psychologically harmful to all involved.[44] This review found no or nonsignificant reductions in violence after tool implementation, but this is based on limited and poor-quality evidence, so no firm conclusions can be drawn. Measuring outcomes in terms of restraint use or emergency security responses is, in our view, mistaken because the aim of prediction is to facilitate the early intervention of less coercive measures.

The only strong recommendation that we can make as a result of this review is about what needs to be done to address our identified gap in the literature. Ideally, large-scale, multisite randomized controlled trials are needed to provide good-quality evidence on the use of violence risk assessment tools in emergency settings, exploring their efficacy in terms of predicting and also reducing violent incidents. Based on the recency of the included literature, we anticipate that small-scale studies will continue to proliferate, and we hope that in the not-too-distant future, systematic review with meta-analysis will be achievable.

Strengths and Limitations

The strength of our findings is limited by the quality of the included studies. However, the lack of strong evidence in this area is a significant finding in itself. By excluding unpublished literature, we may have missed relevant research, although we sought to mitigate this by directly contacting the authors of all relevant unpublished literature to ascertain whether the work was taken further. Finally, the generalizability of our results is limited by the geographical distribution of our included studies, which were all conducted in the United States or Australia. Given the significant body of literature exploring patient violence globally,[32] it was disappointing that we could not capture any evidence about violence risk assessment more widely. Similarly, the fact that no studies took place in the AMU limits the assumptions we can make about the tools' suitability for this clinical area. By uncovering these gaps in the literature, this review has highlighted important areas for future research.

Implications for Emergency Nursing

Violence risk assessment can identify patients in emergency care settings who are at risk of becoming violent. However, there is currently insufficient high-quality evidence to draw conclusions about the predictive capacity, acceptability, feasibility, and usability of existing tools in emergency care settings. In the meantime, researchers and emergency nurses looking to implement violence risk assessment strategies should take steps to ensure a strong implementation strategy to maximize uptake. Such strategies may include the use of a violence risk assessment tool, and, in the absence of any strong evidence for choosing one over another, we

recommend choosing the tool that aligns most strongly with the specific context it will be used in.

Conclusion

Patient-perpetrated violence is a significant problem in emergency care settings globally. Despite its prevalence, there is a paucity of high-quality evidence evaluating the psychometric properties of violence risk assessment tools currently used along the emergency care pathway. Multiple tools exist, however, and the recency of much of the evidence evaluating their effectiveness indicates that this clinical issue is gaining traction. There is a long way to go before violence risk assessment is as established in emergency care settings as it is in mental health settings. Finding out which tools are most effective in predicting and preventing violence would be a good starting point; the evidence to support choosing one tool over another is not yet available, but the evidence from this review suggests that we are well on our way.

Data, Code, and Research Materials Availability

We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing, we confirm that we have followed the regulations of our institutions concerning intellectual property.

Author Disclosures

Conflicts of interest: None to report.

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Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2022.11.006.

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SUPPLEMENTARY TABLE 1

DATABASE: MEDLINE

Search terms:		
1	Subject headings	Risk assessment
	Keywords	risk* adj3 assess*, risk* adj3 screen*, risk* adj3 checklist*, risk* adj3 tool*, risk* adj3 scale*, risk* adj3 measur*, risk* adj3 instrument*, "Staring and eye contact, Tone and volume of voice, Anxiety, Mumbling, and Pacing", STAMP, "17-cue assessment tool", "17-cue violence assessment tool", "Staring, Tone, Anxiety, Mumbling, Pacing, Emotions, Disease progress, Assertive, Resources", STAMPEDAR, "Violence Risk Screen Decision Support in triage", VRSDSiT, "Broset Violence Checklist", BVC
		AND
2	Subject headings	Emergency Medical Services, Emergency Service Hospital [exp]
	Keywords	"emergency room*", "emergency department*", "emergency service*", "emergency ward*", "emergency care", "accident and emergency", "accident & emergency", "emergency health service*", triag*, "ED", "ER", "A&E", "acute medical unit*", "AMU", "clinical decision unit*", "CDU", "acute admissions unit*", "acute assessment unit*", "AAU", "acute medical receiving unit*", "AMRU", "assessment and diagnostic unit*", "ADU", "emergency assessment unit*", "EAU", "emergency care unit*", "ECU", "EMAU", "medical assessment unit*", "MAU", "medical assessment and planning unit*", "MAPU", "medical admissions unit*"
		AND
3	Subject headings	Workplace violence, Aggression [exp], Violence
	Keywords	violen*, aggress*, assault*, attack*, harass*, verbal adj3 abus*, physical adj3 abus*, "verbal hostility"
		AND
4	Subject headings	Psychometrics, Reproducibility of results [exp]
	Keywords	"psychometric properties", valid*, reliab*, "internal* consisten*", feasib*, acceptab*, usab*, predict*, evaluat*

Key: Commas indicate terms combined with OR; [exp] = search term exploded

SUPPLEMENTARY TABLE 2

DATABASE: Embase

Search terms:		
1	Subject headings	Risk assessment [exp]
	Keywords	risk* adj3 assess*, risk* adj3 screen*, risk* adj3 checklist*, risk* adj3 tool*, risk* adj3 scale*, risk* adj3 measur*, risk* adj3 instrument*, "Staring and eye contact, Tone and volume of voice, Anxiety, Mumbling, and Pacing", STAMP, "17-cue assessment tool", "17-cue violence assessment tool", "Staring, Tone, Anxiety, Mumbling, Pacing, Emotions, Disease progress, Assertive, Resources", STAMPEDAR, "Violence Risk Screen Decision Support in triage", VRSDSiT, "Broset Violence Checklist", BVC
		AND
2	Subject headings	Emergency Health Service [exp], Emergency Ward [exp]
	Keywords	"emergency room*", "emergency department*", "emergency service*", "emergency ward*", "emergency care", "accident and emergency", "accident & emergency", "emergency health service*", "triag*", "ED", "ER", "A&E", "acute medical unit*", "AMU", "clinical decision unit*", "CDU", "acute admissions unit*", "acute assessment unit*", "AAU", "acute medical receiving unit*", "AMRU", "assessment and diagnostic unit*", "ADU", "emergency assessment unit*", "EAU", "emergency care unit*", "ECU", "EMAU", "medical assessment unit*", "MAU", "medical assessment and planning unit*", "MAPU", "medical admissions unit*"
		AND
3	Subject headings	Workplace violence {prevention}, Aggression {prevention}, Violence {prevention}, Verbal hostility {prevention}, Assault {prevention}
	Keywords	violen*, aggress*, assault*, attack*, harass*, verbal* adj3 abus*, physical* adj3 abus*, "verbal hostility"
		AND
4	Subject headings	Psychometry [exp], Reproducibility [exp], Validity [exp], Reliability [exp], Usability
	Keywords	"psychometric properties", valid*, reliab*, "internal* consisten*", feasib*, acceptab*, usab*, predict*, evaluat*

Key: Commas indicate terms combined with OR; [exp] = search term exploded; {text in braces} = subheadings selected (NB. where not specified, all subheadings were included)

SUPPLEMENTARY TABLE 3

DATABASE: Web of Science

Search terms:

1 AND (TS=(risk* NEAR/3 assess*) OR TS=(risk* NEAR/3 screen*) OR TS=(risk* NEAR/3 checklist*) OR TS=(risk* NEAR/3 tool*) OR TS=(risk* NEAR/3 scale*) OR TS=(risk* NEAR/3 measur*) OR TS=(risk* NEAR/3 instrument*) OR TS=("Staring and eye contact, Tone and volume of voice, Anxiety, Mumbling, and Pacing") OR TS=(STAMP) OR TS=("17-cue assessment tool") OR TS=("17-cue violence assessment tool") OR TS=("Staring, Tone, Anxiety, Mumbling, Pacing, Emotions, Disease progress, Assertive, Resources") OR TS=(STAMPEDAR) OR TS=("Violence Risk Screen Decision Support in triage") OR TS=(VRSDSiT) OR TS=("Broset Violence Checklist") OR TS=(BVC))

2 AND (TS=("emergency room*") OR TS=("emergency department*") OR TS=("emergency service*") OR TS=("emergency ward*") OR TS=("emergency care") OR TS=("accident and emergency") OR TS=("accident & emergency") OR TS=("emergency health service*") OR TS=("ED") OR TS=("ER") OR TS=("A&E") OR TS=("acute medical unit*") OR TS=("AMU") OR TS=("clinical decision unit*") OR TS=("CDU") OR TS=("acute admissions unit*") OR TS=("acute assessment unit*") OR TS=("AAU") OR TS=("acute medical receiving unit*") OR TS=("AMRU") OR TS=("assessment and diagnostic unit*") OR TS=("ADU") OR TS=("emergency assessment unit*") OR TS=("EAU") OR TS=("emergency care unit*") OR TS=("ECU") OR TS=("EMAU") OR TS=("medical assessment unit*") OR TS=("MAU") OR TS=("medical assessment and planning unit*") OR TS=("MAPU") OR TS=("medical admissions unit*"))

3 AND

4 (TS=("psychometric properties") OR TS=(valid*) OR TS=(reliab*) OR TS=("internal* consisten*") OR TS=(feasib*) OR TS=(acceptab*) OR TS=(usab*) OR TS=(predict*) OR TS=(evaluat*))

Key: TS = Searched in 'Topic' field

SUPPLEMENTARY TABLE 4

DATABASE: CINAHL Plus

Search terms:			
1	Subject headings	Risk assessment, Clinical assessment tools	
	Keywords	risk* adj3 assess*, risk* adj3 screen*, risk* adj3 checklist*, risk* adj3 tool*, risk* adj3 scale*, risk* adj3 measur*, risk* adj3 instrument*, "Staring and eye contact, Tone and volume of voice, Anxiety, Mumbling, and Pacing", STAMP, "17-cue assessment tool", "17-cue violence assessment tool", "Staring, Tone, Anxiety, Mumbling, Pacing, Emotions, Disease progress, Assertive, Resources", STAMPEDAR, "Violence Risk Screen Decision Support in triage", VRSDSiT, "Broset Violence Checklist", BVC	
		AND	
2	Subject headings	Emergency Service, Emergency Medical Services	
	Keywords	"emergency room*", "emergency department*", "emergency service*", "emergency ward*", "emergency care", "accident and emergency", "accident & emergency", "emergency health service*", "triag*", "ED", "ER", "A&E", "acute medical unit*", "AMU", "clinical decision unit*", "CDU", "acute admissions unit*", "acute assessment unit*", "AAU", "acute medical receiving unit*", "AMRU", "assessment and diagnostic unit*", "ADU", "emergency assessment unit*", "EAU", "emergency care unit*", "ECU", "EMAU", "medical assessment unit*", "MAU", "medical assessment and planning unit*", "MAPU", "medical admissions unit*"	
		AND	
3	Subject headings	Workplace violence, Aggression, Violence, Verbal abuse, Patient assault, Assault and battery	
	Keywords	violen*, aggress*, assault*, attack*, harass*, verbal adj3 abus*, physical adj3 abus*, "verbal hostility"	
		AND	
4	Subject headings	Psychometrics, Measurement issues and assessments [exp]	
	Keywords	"psychometric properties", valid*, reliab*, "internal* consisten*", feasib*, acceptab*, usab*, predict*, evaluat*	

Key: Commas indicate terms combined with OR; [exp] = search term exploded

Google Scholar

NB. 256 character limit

2007-2021: ((risk AND assess) OR (risk AND tool) OR (risk AND instrument)) AND (emergency OR "acute medical unit") AND (violence OR aggression OR assault OR attack OR abuse) AND (psychometric OR validity OR reliability OR predictability OR feasibility OR usability)

Results then limited to top 200 (by relevance)

Introducing a Digital Occupational Violence Risk Assessment Tool Into an Emergency Department: A Pilot Implementation Study

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Contribution to Emergency Nursing Practice

- Occupational violence perpetrated by patients is a worldwide issue that is particularly prevalent in emergency departments. Risk assessment is one of many emerging solutions to prevent occupational violence, but there is limited evidence for its effectiveness in emergency settings.
- In this paper, we describe the pragmatic implementation of and early evidence for the effectiveness of a simple, validated risk assessment tool for emergency departments.
- Anticipating broader translation of the tool, we believe that the paper would be of interest and useful to individuals, because it describes practical steps and strategies to optimize adoption of a risk assessment tool and ultimately to improve occupational violence prevention.

Abstract

Introduction: Occupational violence in emergency departments is prevalent and detrimental to staff and health services. There is an urgent call for solutions; accordingly, this study describes the implementation and early impacts of the digital Queensland Occupational Violence Patient Risk Assessment Tool (kwov-pro).

Methods: Since December 7, 2021, emergency nurses have been using the Queensland Occupational Violence Patient Risk Assessment Tool to assess 3 occupational violence risk factors in patients: aggression history, behaviors, and clinical presentation. Violence risk then is categorized as low (0 risk factors), moderate (1 risk factor), or high (2-3 risk factors). An important feature of this digital innovation is the alert and flagging system for high-risk patients. Underpinned by the Implementation Strategies for Evidence-Based Practice Guide, from November 2021 to March 2022 we progressively mobilized a

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range of strategies, including e-learning, implementation drivers, and regular communications. Early impacts measured were the percentage of nurses who completed their e-learning, the proportion of patients assessed using the Queensland Occupational Violence Patient Risk Assessment Tool, and the number of reported violent incidents in the emergency department.

Results: Overall, 149 of 195 (76%) of emergency nurses completed their e-learning. Further, adherence to Queensland Occupational Violence Patient Risk Assessment Tool was good, with 65% of patients assessed for risk of violence at least once. Since implementing the Queensland Occupational Violence Patient Risk Assessment Tool, there has been a progressive decrease in violent incidents reported in the emergency department.

Discussion: Using a combination of strategies, the Queensland Occupational Violence Patient Risk Assessment Tool was successfully implemented in the emergency department with the indication that it could reduce the number of incidents of occupational violence. The work herein provides a foundation for future translation and robust evaluation of the Queensland Occupational Violence Patient Risk Assessment Tool in emergency departments.

Key words: Behavior change; Emergency department; Emergency nursing; Implementation science; Nursing; Risk assessment tool; Workplace violence

Background

Occupational violence (OV) is defined as "any physical attack or verbal abuse that occurs in the workplace or is associated with the workplace that could potentially lead to physical and/or psychological harm.[1] OV perpetrated by patients is a global problem, with ED staff disproportionately at risk compared to other health care staff.[2] Associated detrimental impacts of OV on patients,[3] staff, and health services have been well documented,[4] hence the need for prevention and management.

Risk assessment of patients is a preventive strategy that is gaining substantial traction in emergency departments.[5-7] Risk assessment involves identifying the presence or absence of violence risk factors, ideally through application of a validated assessment tool.[8] The premise for prevention is that timely recognition of a patient's violence risk prompts de-escalation and proactive management[7] to reduce the likelihood of OV incidents occurring (see Figure 1). Without a risk assessment, a common trajectory is that a patient presents to the emergency department and later becomes verbally or physically aggressive. A team is called for help, and then the patient is verbally de-escalated, offered nonpharmacological and, if appropriate, oral pharmacological interventions. If unresponsive to these interventions, the patient might receive restrictive interventions in the form of forced chemical restraint and/or physical restraint. With a risk assessment, a proactive rather than a reactive approach may be taken. A patient in the emergency department is assessed for their violence risk using a tool. The primary nurse (the emergency nurse allocated to the patient) then engages with the patient, attempts verbal de-escalation, and offers nonpharmacological and oral pharmacological interventions. The nurse alerts their team leader or security for monitoring purposes. In this scenario, use of the risk assessment to recognize violence risk and instigate early proactive interventions could prevent OV and the need for more restrictive interventions.

Emergency nurses have proposed that the necessary attributes for a risk assessment tool to be embedded in practice include the tool being comprehensive, brief, objective, and digital with alerts.[9] The Queensland Occupational Violence Patient Risk Assessment Tool (QOVPRAO) was developed and rigorously validated to meet these requirements.[10,11] It prompts review of 3 violence risk factors: aggression history, behavioral concerns, and clinical presentation concerns. The patient then is scored as low (score = 0 risk factors), moderate (score = 1 risk factor), or high (score = 2-3 risk factors) risk of perpetrating OV in the emergency department.[11] The QOVPRAO was digitalized and implemented in 1 emergency department that uses an electronic health record (EHR) system. Nurses should have completed the QOVPRAO electronically within 30 minutes of a patient's ED arrival to optimize timely OV risk identification and proactive management (see Supplementary File 1).

In this paper, we describe our methods for implementing the QOVPRAO using the Implementation Strategies for Evidence-Based Practice Guide or Implementation Guide for brevity.[12] In addition, we report on its adoption and impacts on OV incidents. The implications of this implementation paper are 2-fold.

First, because many emergency departments internationally are faced with the problem of OV,[2] many also would likely be interested in solutions. Accordingly, knowledge of implementation approaches would be useful to translate potential solutions to OV[13] such as the QOVPRAO from theory into practice. Furthermore, OV risk assessment using a validated tool is becoming more

common in emergency settings,[5-7] but with limited evidence to establish its place in OV prevention.[14] The work presented herein would be valuable to emergency clinicians and researchers who may want to use the QOVPRAO to minimize the occurrence of OV in their emergency departments.

Second, adoption and translation of new clinical processes is challenging.[15] For example, previous implementations of risk assessment tools in mental health settings have been met with end user-related and context-related barriers that have precluded their successful adoption.[16] For this reason, implementation should be guided by a conceptual underpinning that helps to explore and overcome such barriers,[17] but fewer than 50% of implementation efforts have done this.[18,19] Our use of a conceptual underpinning (Implementation Guide[12]) and the way in which it was operationalized in the emergency department would make a valuable contribution to implementation research.

Aims

The aim of this paper was to describe the implementation of the digital QOVPRAO in 1 emergency department and report on early adoption metrics according to the Standards for Reporting Implementation Studies Statement.[20]

Ethics

The project was approved by the Metro South Human Research Ethics Committee (EX/2022/QMS/91990).

Methods

CONTEXT

The emergency department is a public, metropolitan, adult tertiary referral hospital in Brisbane, Australia, with over 69,000 presentations annually (in 2021). The emergency department has resuscitation, acute care, short-stay, toxicology, ambulatory care, procedural, and mental health units. An overflow tent, just external to the emergency department, was available from January to October 2022 to accommodate the higher demand placed on the hospital by the COVID-19 surge. The health information system used in the emergency department is FirstNet (Cerner Corporation, Kansas City, USA), which is an EHR system for patient tracking and health information documentation. It also provided a live in-house patient tracking screen, active throughout the patient's emergency department stay, that included the QOVPRAO. FirstNet is a component of a health service-wide EHR through which all patients' health information is documented and can be accessed.

DESIGN IMPLEMENTATION

The Implementation Guide[12] was used to map and plan implementation strategies (see Figure 2). The QOVPRAO implementation had 4 action stages, each with corresponding interventions for organizational leaders and key stakeholders to:

- Stage 1: Create awareness and interest
- Stage 2: Build knowledge and commitment
- Stage 3: Promote action and adoption and
- Stage 4: Pursue integration and sustained use

Organizational leaders were heads of clinical governance structures with influence on and oversight of the emergency department, OV-related initiatives, and the EHR. Key stakeholders in the implementation were emergency nurses who were end users of the QOVPRAO. Therefore, stakeholders also included the nursing leadership team including clinical nurse consultants who were responsible for coordinating team huddles at the start of ED shifts; nurse educators who were responsible for monitoring and providing for emergency nurses' educational needs; and Response to Occupational Violence Emergencies (ROVE)[21] nurses, whose primary responsibilities in the emergency department are to monitor, de-escalate, and respond to violence risk and incidents.

Implementation Stage 1: Create Awareness and Interest (July 2020-November 2021)

Several approaches were taken to create awareness and interest among departmental leaders and key stakeholders. First, the tool was formally named the QOVPRAO and disseminated through media releases to fuel local interest and promote a sense of ownership within the health service.[22-24] Second, key stakeholders were consulted about the design and workflow of the digital QOVPRAO in the emergency department.[9] This led to it being a mandatory assessment field in the emergency department, capable of triggering a pop-up alert and visual flag for high-risk patients (Supplementary File 1). Third, the principal investigator (CJC) and nurse informatician (JMcR) engaged with organizational leaders

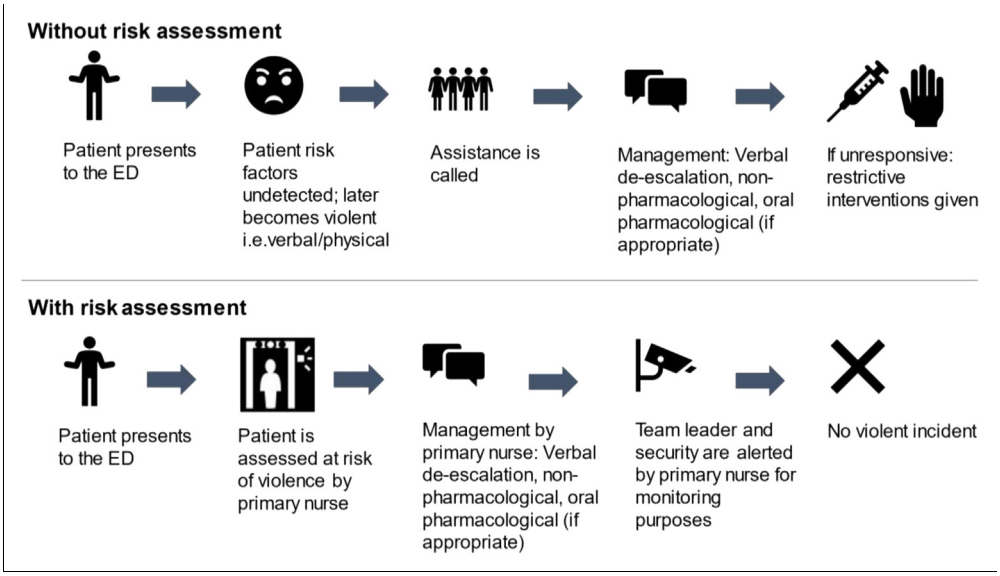

FIGURE 1

Scenario depicting how a risk assessment tool could work in the ED. ED, emergency department.

to gain feedback and approval to embed QOVPRAO in the health service EHR. Once in the EHR, clinical informaticians (including CJC and JMcR) conducted an accuracy check to ensure that the QOVPRAO was functioning as intended (ie, automatic calculation of risk factors–when a high score is calculated an icon is to appear on the tracking list) (see Supplementary File 1).

Implementation Stage 2: Build Knowledge and Commitment (September-November 2021)

Stakeholder's lack of knowledge and confidence can preclude successful implementation.[16] Therefore, education and training are essential to help build knowledge and commitment.[16,25]

E-learning

E-learning was the default learning modality in the study emergency department. An e-learning package was developed and divided into 2 parts of 15 minutes each to minimize the time commitment involved and conform with emergency nurses' limited availability. The first part, launched on September 3, 2021, focused on understanding the need for and the benefits of using the QOVPRAO, including how to identify patient risk factors, score, and use risk ratings of violence. The second part, which commenced on November 25, 2021, focused more pragmatically on how to use the QOVPRAO in the EHR, providing practice with accessing and applying the QOVPRAO in 2 patient scenarios, identification of the high-risk icon in the EHR, and identification of procedures and interventions for managing patients who pose OV risks.

Emergency nurse educators were pivotal in making the e-learning an essential learning module for all emergency nurses, including newly employed staff. Notifications and reminders for the e-learning were communicated to nurses in shift huddles by clinical nurse consultants and by emails from the principal investigator (CJC).

Implementation Drivers

Commitment to the implementation of the QOVPRAO from organizational leaders was evidenced in part by approvals for staff to be employed as implementation drivers. These implementation drivers, recruited from the nursing workforce, were deployed in the study emergency department to advocate the use of the QOVPRAO among nurses, promote its potential benefits, reinforce shared goals to reduce OV in the emergency department, and provide coverage while nurses undertook and completed the e-learning package.[26,27] The latter meant that the implementation drivers relieved bedside nurses of their clinical responsibilities for a period of approximately 30 minutes while

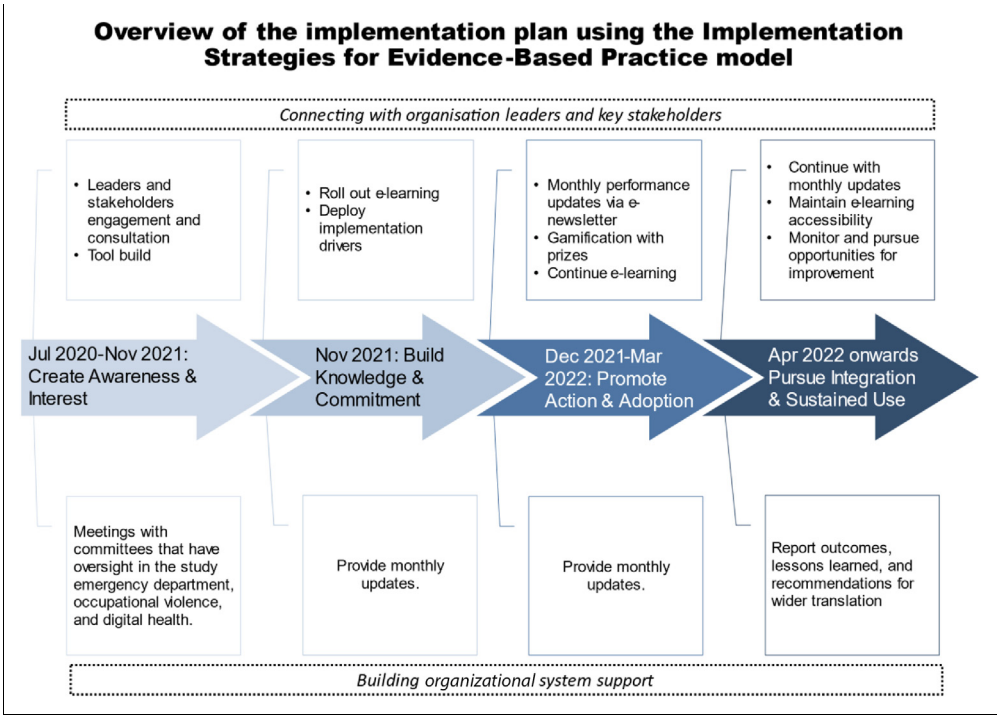

FIGURE 2

Chronological stages of implementation of the digital Queensland Occupational Violence Risk Assessment Tool using the Implementation Strategies for Evidence-Based Practice Guide.[12] The tasks indicated in the upper row of boxes at each stage of implementation were strategies for organization leaders and key stakeholders at each stage. The activities and interventions described in the lower row were designed to build and maintain organizational system support.

they completed the QOVPRAO e-learning. In the 2-week period leading up to the QOVPRAO becoming operational, 26 hours over 5 days were covered by 3 implementation drivers (KG, CA, MOS). Skill and staff shortages impacted the study emergency department broadly, particularly from December 2021 to February 2022[28] due to shifting priorities as a consequence of the COVID-19 surge, staff sick leave due to COVID-19 infection, and a higher than usual number of casual nurses recruited to meet emergency care demands. These staff shortages forced discontinuation of Implementation Driver time after that initial 2-week period.

Implementation Stage 3: Promote Action and Adoption (December 2021-March 2022)

The QOVPRAO officially became part of emergency nurses' responsibilities beginning on December 7, 2021. Patient assessment and completion of the QOVPRAO required a behavior change[12] in that nurses would begin to form an intention or habit of routinely using the QOVPRAO as part of clinical care. Evidence from a systematic review[16] has suggested that nurses' behaviors toward risk assessment can be influenced by a variety of factors. Barriers to successful adoption include a lack of perceived advantage over current practice, insufficient communication about the implementation, poor access to information about the implementation, and staff turnover (Table).[16] Therefore, the strategies used to promote action and adoption attempted to address each of these barriers (Table) and are discussed in detail in this section.

Activities and Games with Incentives

The potential lack of advantage over current practice was identified during tool development.[9] Risk assessment tools such as the QOVPRAO need to be complemented by meaningful interventions to enhance their value.[9] Without such interventions, the QOVPRAO could simply be deemed a data collection tool and abandoned.[29,30] Meaningful interventions that complement risk assessment tools include

TABLE
Summary of potential barriers and response strategies used to promote action and adoption of the QOVPRAO in the emergency department.

Common barriers	Strategies to subvert/ overcome barriers
Lack of relative advantage over current practice	1) e-Learning drag-and-drop activity and 2) treasure hunt game (with incentives) to promote action when occupational violence risk is identified
Dearth of communication about the implementation	Daily reminders in start of shift huddles. Monthly e-newsletters containing performance and clinical updates on QOVPRAO.
Poor access to information about the implementation	
Skill shortage due to staff turnover	Daily reminders in start of shift huddles. New nurses in the study ED were directed to complete the QOVPRAO e-learning by nurse educators.

ED, emergency department; QOVPRAO, Queensland Occupational Violence Patient Risk Assessment Tool.

verbal de-escalation techniques, behavioral management teams (similar to a ROVE Team[21] in the local emergency department that responds to violence risk and incidents), safe de-escalation rooms, buddy systems, oral medications, restrictive intervention policies, allocative strategy, security presence or assistance, and fast-tracking of care.[31]

Implementing a full package of OV interventions including those identified above with the QOVPRAO is a much larger project and is outside the scope of this implementation. However, recognizing that it is pivotal to successful adoption, 2 main approaches were used to prompt nurses to action when OV risk was identified using the QOVPRAO. One component of the e-learning was an activity where nurses were required to "drag-and-drop" from a list of all possible interventions they could use to manage patients with OV risk (eg, verbal de-escalation techniques); maintain their personal safety (eg, buddy system); and enhance overall safety in the emergency department (eg, security presence). These interventions were aligned with local policies and procedures for OV management. We then collaborated with nurse educators to launch a treasure hunt game during March and April 2022. The mechanics of the game involved nurses looking for 23 different intervention stickers (the treasure) in the department (Supplementary File 2). The person who collected the largest number of stickers won a cash voucher redeemable at the hospital café. Those who participated but did not win were able to redeem their intervention stickers for confectionery.

Reminders and Feedback

Action and adoption were supported by ongoing reminders and feedback. Two strategies were used to remind workers about and maintain their access to information about the QOVPRAO. First, clinical nurse consultants were tasked with reminding staff during the start of every shift huddle about completing the QOVPRAO for every patient within 30 minutes of ED arrival. Second, the principal investigator (CJC) emailed monthly e-newsletters with the purpose of communicating impacts of the QOVPRAO, such as QOVPRAO adherence, OV incidents, and e-learning adherence. This information and feedback could help motivate nurses to use the QOVPRAO.[32]

Strategies for New Nursing Workforce

A higher-than-usual number of contract and agency nurses were recruited to meet emergency care demands and compensate for staff sick leave due to COVID-19 infection. To promote action and adoption among the new nursing workforce, nurse educators made the QOVPRAO e-learning a core learning requirement for contract nurses starting in the emergency department. The agency nurses who did not have access to the e-learning were prompted to complete the QOVPRAO at shift huddles or during their orientation to the department at the start of their shift.

Implementation Stage 4: Pursue Integration and Sustained Use (April 2022 Onward)

Sustainability of implementation involves maintenance of innovation, maintenance or enhancement of behavior change, and (ideally) continuation of benefits after a defined period of time.[33] Recommendations for sustainability of innovations should consider knowledge maintenance, wider translation, continued engagement, and monitoring effectiveness.[34]

In the local health service, we are engaging and collaborating with organizational leaders to pursue the integration of the QOVPRAO in other emergency departments with the EHR in the health service. Considering the sustainability

recommendations above,[34] the e-learning was designed so that it readily transferred across e-learning platforms in the health service. Moreover, the effectiveness of the QOVPRAO has been evaluated against clinically relevant outcomes, including safety, patient-centeredness, timeliness, efficiency, and cost effectiveness (will be reported separately).

Data Collection and Analysis

The data collection period was from September 2021 to September 2022. The implementation outcomes of interest were the percent of nurses who completed their e-learning, the percent of patients who had QOVPRAO assessment, and the percent of patients who had a QOVPRAO assessment within 30 minutes (defined as early assessment).

The percentage of emergency nurses who completed their e-learning was readily extracted as a report from the e-learning platform (host). For QOVPRAO adherence, data were available as an Excel file download from the EHR, which contained patient details, date and time of ED arrival, date, time of first QOVPRAO assessment, and first QOVPRAO scores. The formula for percent of patients who had a QOVPRAO assessment was $\frac{\textit{number patients who had QOVPRAO score}}{\textit{total number of patients who presented}} \times 100$. Subsequently, the percentage of patients who had early QOVPRAO assessments was calculated. The number of incidents related to OV perpetrated by patients was extracted from the hospital risk register. For adoption outcomes, descriptive analyses were conducted from the first month of the QOVPRAO (December 2021) and then quarterly until September 2022. Comparisons of OV incidents were made before (September-November 2021) and after the QOVPRAO was introduced (quarterly from January-September 2022).

Results

E-LEARNING COMPLETION

Before the QOVPRAO was operational, 64 of 107 (60%) of enrolled emergency nurses completed their QOVPRAO e-learning. As of September 30, 2022, a 149 of 195 enrolled (76.4%) e-learning completion rate had been achieved.

Adherence to the QOVPRAO

In the first month (December 2021) of using the QOVPRAO, overall adherence was 63%, which subsequently improved quarterly in 2022 (Figure 3A). Adherence to early assessment was relatively low at 35% in the first month (December 2021) and throughout 2022 (Figure 3B).

OV Incidents Reported

There was a consistent quarterly reduction in the number of reported incidents in the emergency department since the implementation of the QOVPRAO compared to the baseline period of September 2021 to November 2021 (Figure 3C). The greatest reduction was observed in the third quarter of 2022 (n = 5), representing an 88.6% reduction in incidents compared to before the QOVPRAO was implemented (n = 44; September 2021 to November 2021).

Discussion

The digital QOVPRAO was successfully implemented in the target emergency department, demonstrating the value of the use of a conceptual underpinning (Implementation Guide[12]). Success was evidenced in part by the majority of nurses completing the e-learning, good adoption of the QOVPRAO, and reduction of reported OV incidents in the emergency department. Following the Implementation Guide[12] the implementation strategies described herein were progressively operationalized over 4 stages. In summary, first consultation meetings with key stakeholders and organizational leaders were held to create awareness and interest. Second, e-learning and implementation drivers were deployed to build knowledge and commitment. Third, incentives, reminders, and feedback were added to promote action and adoption. Fourth, collaboration with organizational leaders and monitoring of clinical outcomes were ongoing to encourage integration and sustained use.

The strategies used herein align with previous risk assessment tools for implementation efforts in the emergency department.[35-38] The advantage of our study is the use of an implementation framework that provides structure and a rationale for others to tailor or translate for use in their settings. Future users of the QOVPRAO should consider its limitations and their practice implications below.

Limitations and Implications for Emergency Nursing

A potential limitation of e-learning is that not all organizations have the infrastructure to deliver such online learning, nor does everyone have the technological literacy to engage with e-learning.[39] In the study setting, e-learning is the

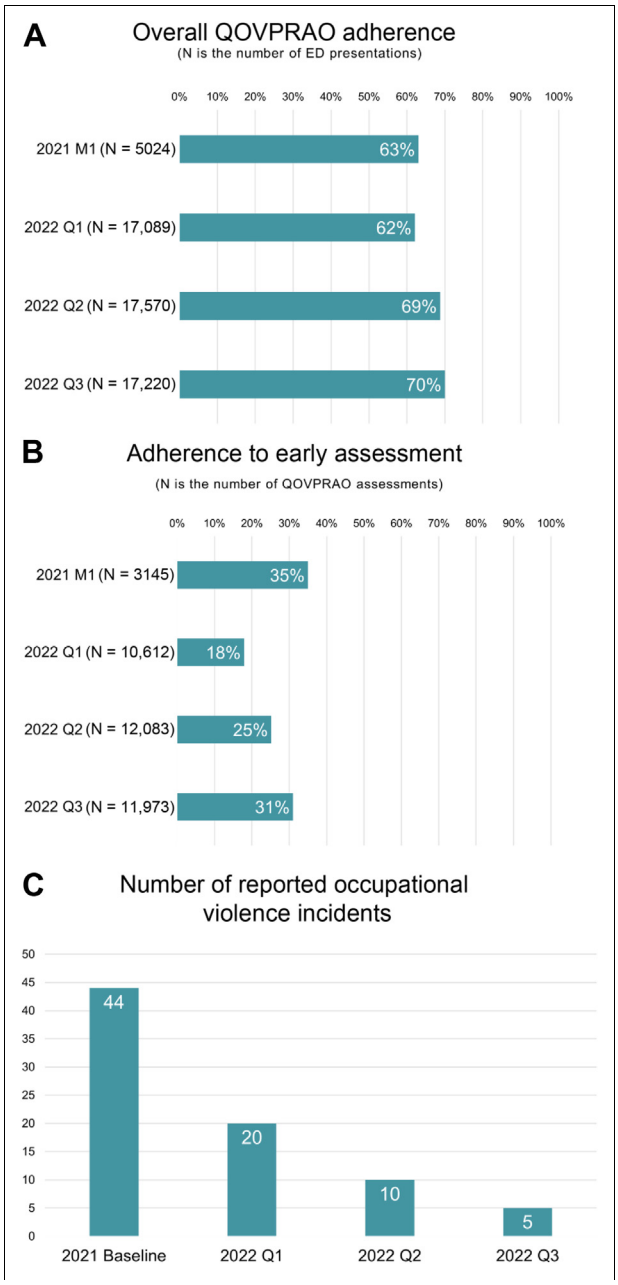

FIGURE 3

Early adoption outcomes of the Queensland Occupational Violence Patient Risk Assessment Tool (QOVPRAO). M1 is December 2021, the first month of QOVPRAO implementation; Q, quarter; 2021 Baseline was September to November 2021. ED, emergency department; QOVPRAO, Queensland Occupational Violence Patient Risk Assessment Tool.

primary mode of education, so that by default, nurses are expected to navigate and engage with the QOVPRAO e-learning. Other settings may need to tailor their approach to their default learning modality to build knowledge and commitment. We recommend that the content cover the importance of the QOVPRAO, how to use it, and how it links to local OV management procedures or policies. Without this knowledge, nurses may undervalue and disengage from the innovation,[16] thereby limiting the benefits of the tool for preventing and mitigating OV.

Implementation drivers were unable to comprehensively fulfill their roles due to staffing constraints. This could have influenced the completion of the QOVPRAO e-learning component. However, the absence of implementation drivers enhanced the involvement of nurse educators and clinical nurse consultants in enabling e-learning completion and facilitating QOVPRAO adherence. Something that can be learned from this experience is that successful implementation can be achieved using existing human resources.

There was low adherence to early assessment, which could be explained by the dramatic increase in ED presentations and wave of COVID-19 that overwhelmed emergency departments in local health services, particularly from January to March 2022.[28,40] As observed previously, overcapacity increases the likelihood of missed nursing care as nurses reprioritize tasks or ration their time.[41] During this time, it is possible that violence risk assessment was not seen as a priority, hence the delay in risk assessment. It also is possible that there might have been a higher-than-usual number of casual or agency nurses working in the department to meet care demands and and minimize effects of workforce constraints. Casual or agency nurses may not be familiar with the QOVPRAO, hence the relative lack of adherence to early assessment. Furthermore, discontinuation (redeployment back to ED direct care) of implementation drivers meant that they were not able to fully advocate the use of the QOVPRAO among nurses and promote the importance of early violence risk assessment.

The generalizability of the QOVPRAO and its impacts may be limited to emergency departments and to settings with an EHR. The utility of the QOVPRAO has not yet been tested in inpatient settings, and there is local interest in extending the QOVPRAO beyond the emergency department. It may be advantageous to use the QOVPRAO over other risk assessment tools validated for inpatients (ie, Broset Violence Checklist, ABRAT, M55)[42] for 3 reasons. First, the QOVPRAO is a validated tool that is easy to use to assess aggression history, behavioral concerns, and clinical presentation concerns.[11] Our recent study showed that the QOVPRAO was used consistently by nurses with varying experiences.[10] Second, unlike other tools that have been exclusively predictive of physical OV,[42] the QOVPRAO risk ratings—low (score = 0 risk factors), moderate (score = 1 risk factor), and high (score = 2-3 risk factors)—are good

predictors of any verbal or physical OV. Third, inpatient risk assessment tools are predictive of physical violence occurring within 24 hours of the risk being identified.[42] Given that the QOVPRAO was validated in the emergency department, when violence risk is identified, the patient could potentially perpetrate verbal or physical OV in a much shorter period of time conforming with typical ED length of stay. With the QOVPRAO, there could be more urgency to proactively manage the patient's violence risk more quickly.

The QOVPRAO can be adapted to settings without an EHR, and it would still be possible to alert clinicians who are at risk of experiencing OV. In previous studies,[43,44] patients' paper charts and wristbands were flagged to caution staff about patients' violence risk.

We reinforce the importance of OV management plans to optimize the benefits of the QOVPRAO.[16] Future QOVPRAO users should tailor management plans to their local context. For further guidance, one may refer to a list of interventions proposed by emergency nurses that could prevent OV.[31]

The impact of the QOVPRAO was preliminarily measured using the number of reported OV incidents in the emergency department. Underreporting of OV is universally acknowledged,[45] so it is questionable whether the reduction observed in this study was a consequence of underreporting, particularly against the backdrop of a COVID-19 surge,[28] instead of evidence of effectiveness. Underreporting is a cultural by-product of the individual and also operates at the organizational level. At the individual level, nurses do not report, because they see OV as part of the job or do not have the time to complete incident reports.[46] At the organizational level, nurses do not report, because of complex reporting infrastructure and poverty of management support when they report an incident.[47,48] These factors could be in play in the study emergency department. However, during the study period, approaches that are now standard practice were put in place to encourage reporting of incidents. For example, the ROVE nurses (behavioral management team) assisted nurses with completing incident reports.[21] Subliminally, reminders and feedback as part of the implementation strategy could have shifted nurses' beliefs that management is limiting OV. Therefore, we presume that the likelihood of underreporting is low, and so the reduction of OV that was observed in this study is likely to be a direct outcome of the QOVPRAO.

In summary, future users of the QOVPRAO need to include education and training, recognize the influence of nurse leaders in adoption, tailor OV management plans to the context, and ensure the accuracy of incident reports.

Conclusions

The QOVPRAO, a digital OV risk assessment tool, was successfully implemented in a local emergency department following the Implementation Guide. A combination of implementation strategies addressing key elements from the Implementation Guide that included e-learning, staff implementation drivers, incentives, reminders, and feedback were used. Successful implementation was evidenced by good e-learning completion, good adoption of the QOVPRAO, and reduction of reported OV incidents in the emergency department. Future users of the QOVPRAO could translate or tailor our implementation methods to bolster their success implementing it into their clinical settings.

Data, Code, and Research Materials Availability

Study data are available on request and on approval of Metro South Human Research Ethics Committee.

Author Disclosures

Conflicts of interest: none to report.

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Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2023.01.007.

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Journal of
EMERGENCY NURSING

Graphical Abstract

A Systematic Review of Violence Risk Assessment Tools Currently Used in Emergency Care Settings

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Violence risk assessment in emergency care settings

Aim: To examine the psychometric properties, acceptability, feasibility and usability of violence risk assessment tools currently used in emergency care.

Methods

Design
Systematic literature review

Included papers
Intervention study (n=4)
Tool development/testing (n=4)

Countries
Australia (n=4) USA (n=4)

Setting
Emergency dept. (n=7)
Mixed (n=1)

Findings

Tools
- ✧ Existing violence risk assessment tools (n=3) developed for use with mental health patients.
- ✧ Adaption of existing tool (n=1).
- ✧ Newly developed tools (n=3).

Psychometric properties*
- ✧ Predictive validity: moderate to good
- ✧ Interrater reliability: moderate
- ✧ Usability: Good

*Where tested

Implications

Violence risk assessment can identify patients in emergency care who are at risk of becoming violence

No evidence to support choosing one tool over another

Sammut D, Hallett N, Lees-Deutsch L, Dickens G. A systematic review A systematic review of violence risk assessment tools currently used in emergency care settings. *J Emerg Nurs.* TBA

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A Systematic Review of Violence Risk Assessment Tools Currently Used in Emergency Care Settings

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Contribution to Emergency Nursing Practice

- Workplace violence is common in emergency care settings and has negative consequences for patients, staff, and services. Structured violence risk assessment is commonplace in mental health settings and is gradually becoming more accepted within emergency care.
- This review has found that violence risk assessment tools may be feasible for use in emergency department. There is currently, however, insufficient high-quality evidence to draw conclusions about the predictive capability of these tools in emergency care settings.
- Violence risk assessment can identify patients in emergency care who are at risk of becoming violent, but the evidence to support choosing one tool over another is not yet available. Further research using these tools in emergency settings is needed before evidence-based recommendations can be made.

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Abstract

Introduction: Violence risk assessment is commonplace in mental health settings and is gradually being used in emergency care. The aim of this review was to explore the efficacy of undertaking violence risk assessment in reducing patient violence and to identify which tool(s), if any, are best placed to do so.

Methods: CINAHL, Embase, Medline, and Web of Science database searches were supplemented with a search of Google Scholar. Risk of bias assessments were made for intervention studies, and the quality of tool development/testing studies was assessed against scale development criteria. Narrative synthesis was undertaken.

Results: Eight studies were included. Three existing violence risk assessment tools featured across the studies, all of which were developed for use with mental health patients. Three newly developed tools were developed for emergency care, and 1 additional tool was an adaptation of an extant tool. Where tested, the tools demonstrated that they were able to predict patient violence, but did not reduce restraint use. The quality issues of the studies are a significant limitation and highlight the need for additional research in this area.

Discussion: There is a paucity of high-quality evidence evaluating the psychometric properties of violence risk assessment tools currently used along the emergency care pathway. Multiple tools exist, and they could have a role in reducing violence in emergency care. However, the limited testing of their psychometric properties, acceptability, feasibility, and usability in emergency care means that it is not possible to favor one tool over another until further research is conducted.

Key words: Patient violence; Risk assessment; Workplace aggression; Workplace violence

Introduction

Globally, staff working in emergency care settings experience violence from patients and visitors at a disproportionate rate. A recent international systematic review and meta-analysis[1] found that emergency departments had the highest 12-month prevalence of violence across all hospital settings. The same review found that nurses had the highest exposure to violence across occupational groups. For the purposes of our study, we use the term violence to describe any nonverbal, verbal, or physical behavior exhibited by a person that makes it difficult to deliver good care safely.[2] Staff working in emergency department appear resigned to the inevitability of experiencing such violence.[3]

Workplace violence has wide-ranging detrimental consequences.[4] Staff absence because of the physical or emotional effects of workplace violence has significant financial implications.[5] It is estimated that 2% of staff are lost as a consequence of workplace violence, leading to significant recruitment costs.[6] Violence also causes disruptions to patient care, with nurses losing concentration and working at reduced efficiency[7] and functioning at a heightened level of anxiety.[8] Violence also is associated with task delays and medication errors.[9]

Several structured tools have been developed to aid risk assessment of imminent violence, most commonly in mental health settings, but they are being used increasingly in other areas.[10-12] A recent scoping review by Cabilan and Johnston[13] identified 5 violence risk assessment tools with a history of use in ED settings; however, the review reported that 3 lacked any evidence of predictive validity. In fact, of the 5 tools identified, only 1, the Brøset Violence Checklist (BVC),[14] was intended for use as a risk assessment prediction tool rather than an aide memoire and was the only one whose psychometric properties were evaluated in an emergency care setting. The BVC was developed, and has been used with some success, to predict violence in mental health settings.[15]

With evidence that violence risk assessment tools are gradually finding their way into emergency care,[16] it is important not only to identify those that have been implemented but also to establish which tools are practical and effective. Therefore, we aimed to examine the psychometric properties, acceptability, feasibility, and usability of violence risk assessment tools that have been evaluated in emergency care. For the purposes of this review, the constructs of acceptability, feasibility, and usability will be interpreted broadly, respectively, relating to factors affecting users' willingness to adopt interventions, individual or structural factors affecting the extent to which interventions can be implemented effectively, and factors pertaining to the user experience.[17] In doing so, we aimed to explore the efficacy of undertaking violence risk assessment in predicting and reducing patient violence and to identify which tool(s), if any, are best placed to do so.

Methods

DESIGN

We undertook a systematic review; our reporting follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.[18] The protocol for this review was registered at the International Prospective Register of Ongoing Systematic Reviews (CRD42021285461). The protocol was registered as a rapid review, but during conduct of the review, the team agreed that a full systematic review was preferable and achievable within existing resources.

ELIGIBILITY CRITERIA

Eligible studies were (1) primary research; (2) published in peer-reviewed journals; (3) in English language; (4) published since 2007 (the earliest publication date of the tools identified by Cabilan and Johnston[13]); (5) evaluations of the psychometric properties, acceptability, feasibility, or usability of violence risk assessment tools; and (6) focused on emergency care pathways (emergency department and acute medical units [AMUs] or equivalent: for example, admission areas for acute medical patients with a length of stay up to 48 hours). Studies within specialist emergency care pathways (eg, pediatric, psychiatric) were excluded. For the purposes of our review, "violence" refers to both actual and threatened physical acts or verbal abuse perpetrated by emergency attendees (patients or their relatives/friends/companions) against others or objects.

As the broad constructs of feasibility, usability, and acceptability can be captured by both quantitative and qualitative data, we did not exclude any primary research studies based on methodological approach alone.

SEARCH STRATEGY

A study by Bramer et al[19] found that optimal searches in systematic reviews should include the following databases: Embase, Medline, Web of Science, and Google Scholar. Accordingly, we used these 4 databases for our searches and added Cumulative Index to Nursing and Allied Health Literature Plus to ensure that we captured relevant nursing literature. Owing to the limited search functionality of Google Scholar, we only screened the first 200 references identified by this database, ranked by relevance.[19] Our search strategy was based on Cabilan and Johnston's[13]

TABLE 1
Population or problem, intervention, comparison, outcomes, context framework

Criterion	Description
Population or problem	Violence toward others, perpetrated by emergency care attendees
Intervention	Structured risk assessment tools
Comparison	Not applicable
Outcomes	Psychometric properties (including validity, reliability, internal consistency and predictive validity), feasibility, usability, and acceptability
Context	Emergency care pathways

strategy but was amended to capture literature related to our broader conceptualization of the emergency care pathway and to the relevant properties of tools identified. Our search terms were mapped according to the population or problem, intervention, comparison, outcomes, context framework (Table 1), see Supplementary Tables 1-4 for full search terms.

Searches were undertaken in October 2021 and supplemented by regular ongoing searches for keyword terms via Google Scholar until July 2022. In addition, the authors of any relevant articles that were not published in peer-reviewed journals (eg, dissertations) were contacted to ensure that we did not miss any work they might have published. Screening by title and abstract was undertaken independently by 2 reviewers (D.S. and N.H.), with 1 reviewer (D.S.) then completing full-text screening. The shortlist of papers possibly eligible for inclusion was screened by a third reviewer (L.L.D.). Forward and backward chain searching was conducted on all eligible papers.

RISK OF BIAS AND QUALITY ASSESSMENT

All intervention studies were assessed for risk of bias using the Risk of Bias in Non-randomized Studies of Interventions tool.[20] The studies that described tool development/testing were assessed against scale development criteria described by Boateng et al[21]; criteria relating to factors and dimensionality were removed as these were not relevant to the development of risk assessment tools. Quality assessment of included studies was undertaken by D.S. and N.H. and checked by L.L.D. and G.D.

DATA EXTRACTION AND SYNTHESIS

Data were extracted by D.S. and checked independently by N.H. As presented in our protocol, predefined subheadings were amended and/or discarded as appropriate. These decisions were initially made by D.S. and later discussed with the whole team until consensus was reached.

Because of methodological and clinical heterogeneity in the included studies, we were unable to undertake a statistical meta-analysis; therefore, narrative synthesis was undertaken. Statistical information about predictive efficacy, interrater reliability, and intervention efficacy were extracted. Predictive efficacy data included sensitivity and specificity (true positive and true negative cases as proportions of all positive and negative predictions, respectively), positive predictive validity (odds of those predicted to be violent who actually went on to be violent), area under the receiver operating characteristic curve (AUC; a summary statistic [range 0-1] of a tool's overall ability to discriminate between positive and negative cases; interpretation AUC = 0.5 equivalent to chance, 0.7-0.79 acceptable, 0.8-0.89 excellent, 9.0-1.0 outstanding), and odds ratios (the odds that an individual who is violent was assessed as at increased risk of violence compared with the odds that a nonviolent individual was assessed as not at increased risk of violence). Information was extracted for all cut-off points reported. Information about interrater reliability involved kappa, a measure of agreement between independent raters: 0.40 to 0.59 = weak agreement, 0.60 to 0.79 = moderate agreement, 0.80 to 0.90 = strong agreement, and above 0.90 is almost perfect.[22] Information about intervention efficacy included *P* values indicating statistical significance and relative risk for all outcomes reported. Data about the feasibility and usability of tools were extracted where available.

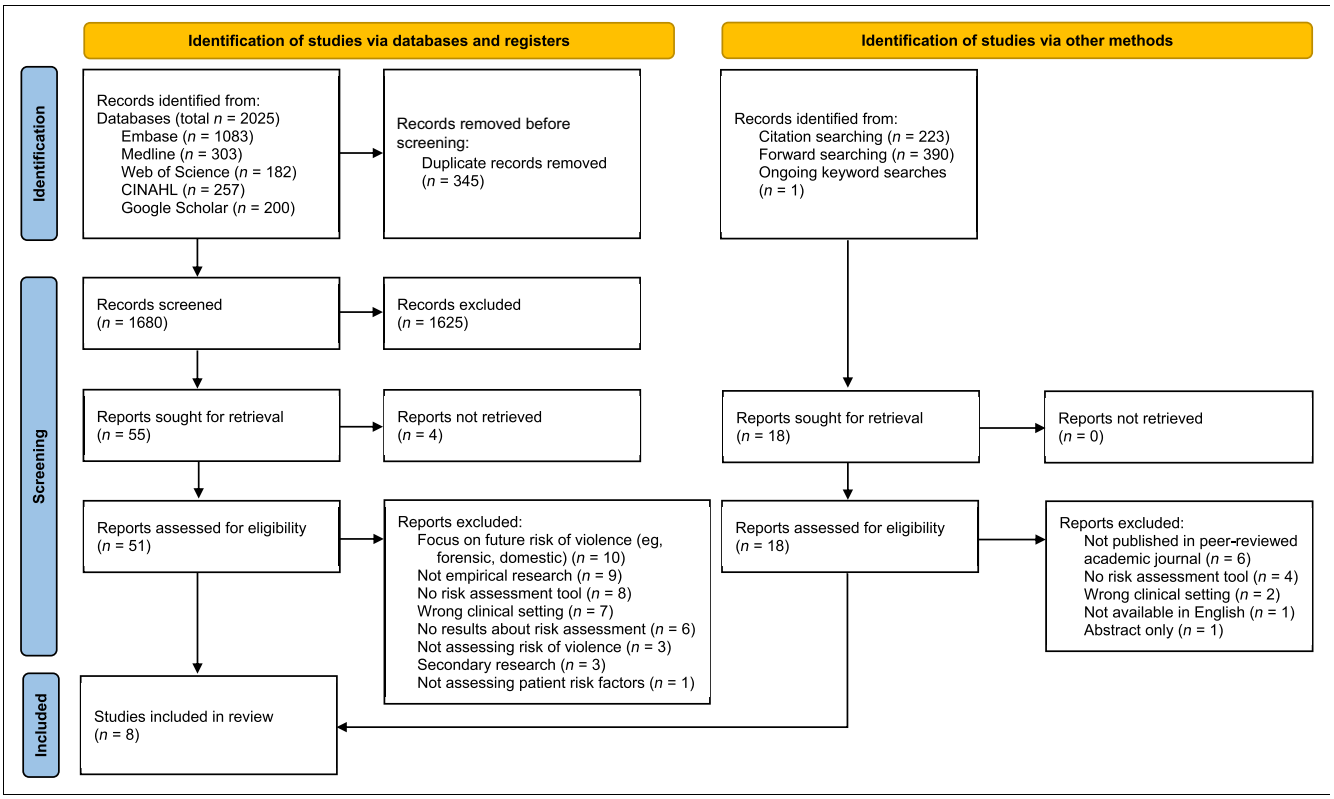
Results

SEARCH OUTCOME

As a result of the search strategy, 8 studies were deemed eligible for inclusion (Figure).

SUMMARY OF INCLUDED STUDIES

Of the 8 included studies, 2 used cohort designs, of which 1 was retrospective[23] and 1 prospective[16]; 2 used quality improvement designs[24,25]; 1 used a before-and-after design[26]; 1 used tool development methods[27]; 1 tested a



FIGURE

Preferred reporting items for systematic reviews and meta-analyses flow diagram.18 CINAHL, Cumulative Index to Nursing and Allied Health Literature.

tool[28]; and 1 used nonparticipant observation.[29] Four studies were deemed intervention studies, with various outcomes,[23-26] whereas 4 aimed to test/develop tools.[16,27-29] Seven studies were conducted entirely in emergency departments, and 1[29] included observations of which 82.4% of the observations were conducted in the emergency department. No studies took place in AMUs or equivalent. Four studies were conducted in Australia[16,26,27,29] and 4 in the United States.[23–25,28]

VIOLENCE RISK ASSESSMENT TOOLS

Three of the studies described the development and testing of new risk assessment tools.[24,27,29] These were all created for use within emergency care pathways. One was created using extant literature and expert opinion (Queensland Occupational Violence Patient Risk Assessment tOol [QOVPRAO])[27]; 1 supplemented this approach with chart audits, (Emergent Documentation Aggression Rating Tool [EDART])[24]; and 1 used nonparticipant observation (Violence Assessment Tool [VAT]).[29] Four studies tested existing tools: the Behavioral Activity Rating Scale (BARS),[23,25] the BVC,[16] and the Dynamic Appraisal of Situational Aggression (DASA)[28] (Table 2). The final study combined the BVC with a response framework for use in the emergency department to create the behaviors of concern (BOC) chart.[26] All of the existing tools were originally developed either for use in mental health settings (BVC, DASA) or for use with patients with psychosis (BARS).

QUALITY OF INCLUDED STUDIES

Four studies were assessed for risk of bias,[23-26] and all were deemed at serious risk (Table 3). Although no studies were excluded based on quality, we were unable to include data from 2 studies in our syntheses of predictive efficacy, validity, and reliability owing to serious risk of confounding. Schumacher et al[23] measured the predictive validity of the BARS in relation to administration of behavioral management (ie, sedation or physical restraint). However, these interventions were prescribed by medical staff on the basis of BARS scores, thus ensuring a circular relationship where

TABLE 2
Risk assessment tools

Tool	Included studies; developed by (if different)	Development setting/ country	Content	Scoring	Interpretation	Risk management
Behavioral Activity Rating Scale	Legambi et al,[25] Schumacher et al[23]; Swift et al[30]	Setting not stated (developed to evaluate the effect of psychotropic medication on agitated behavior in patients experiencing psychosis), United States	Single-item question consisting of 7 categories: 1 = difficult or unable to rouse; 2 = asleep, but responds normally to verbal or physical contact; 3 = drowsy, appears sedated; 4 = quiet and awake (normal level of activity); 5 = signs of overt (physical or verbal) activity, calms down with instruction; 6 = extremely or continuously active, not requiring restraint; 7 = violent, requires restraint	1-7	1-4 = nonresponsive/no agitation 5-7 = increasing severity of agitation	None identified
BVC/BOC	BVC: Partridge and Affleck[16]; Almvik and Woods[14] BOC: Senz et al[26]	BVC: secure mental health, Norway BOC: additional management matrix developed in emergency department, Australia	Six items: - confusion - irritability - boisterousness - physical threats - verbal threats - attacking objects	Each item scored 0 (absent) or 1 (present)	BVC 0 = low risk 1-2 = moderate risk ≥3 = high risk BOC 0 = low risk 1 = moderate risk ≥2 = high risk	BVC: None identified BOC: interventions identified for each level of risk by: general, nursing, medical, security
Dynamic Appraisal of Situational Aggression	Connor et al[28]; Ogloff and Daffern[31]	Secure mental health, Australia	Seven items: -irritability -impulsivity -unwillingness to follow directions -sensitivity to perceived provocation -easily angered -negative attitudes -verbal threats	Each item scored 0 (normal for patient) or 1 (increase in described behavior)	0-1 = low risk 2-3 = moderate risk >3 = high risk	None identified

continued

TABLE 2
Continued

Tool	Included studies; developed by (if different)	Development setting/ country	Content	Scoring	Interpretation	Risk management
Emergent Documentation Aggression Rating tool	Campbell et al[24]	Emergency department, United States	Single-item chart listing 6 behavior levels ranging from "no signs of aggression" to "danger to self and others" (multiple behaviors listed within each level)	0-5	0 = no signs of aggression 1 = early indicators 2-5 = increasing severity	Interventions identified for each level of aggression
Queensland Occupational Violence Patient Risk Assessment tool	Cabilan et al[27]	Emergency department, Australia	Three items: - Aggression history - Behavioral concerns - Clinical presentation	0 (absent) 1 (present/yes)	0 = low risk 1 = moderate risk 2-3 = high risk	None identified
Violence Assessment tool	Jackson et al[29]	Acute hospital, Australia	Eighteen behavioral cues: - Threat of harm - Aggressive statements or threats - Intimidation - Clenched fists - Resisting care - Prolonged or intense glaring - Name calling - Yelling - Increase in volume of speech - Irritability - Pacing near nurses' area - Pacing in confined areas - Sharp or caustic retorts - Demeaning inflection - Belligerence - Demanding attention - Humiliating remarks - Mumbling	Not stated	Not stated	None identified

BOC, behaviors of concern; BVC, Brøset Violence Checklist.

TABLE 3
Risk of bias table

Authors	Bias due to confounding	Bias in selection of participants	Bias in classification of interventions	Bias due to deviations from intended interventions	Bias due to missing data	Bias in measurement of outcomes	Bias in selection of the reported results	Overall assessment
Schumacher et al[23]	Serious	Serious	Low	Serious	Moderate	Moderate	Low	Serious risk of bias
Campbell et al[24]	Moderate	Moderate	Low	Serious	Moderate	Moderate	Low	Serious risk of bias
Legambi et al[25]	Serious	Serious	Low	Moderate	Serious	Moderate	Low	Serious risk of bias
Senz et al[26]	Moderate	Moderate	Low	Serious	Moderate	Low	Low	Serious risk of bias

the outcome was inevitable if the predictor was positive. A similar confounder was noted in the quality improvement project described by Legambi et al,[25] where preassessment and postassessment data were collected on restraint use. The BARS was incorporated into the electronic health record, which automatically prompted staff to apply restraints on patients who scored 7 (violent). Although all studies were at low risk of bias in classification of interventions because risk assessment was routinely recorded, they were all at moderate to serious risk of bias owing to deviation from intended intervention. The 2 studies at moderate risk either did not provide adequate information on how nurses decided to undertake risk assessment[25] or only assessed patients once rather than at regular intervals.[23] The other 2 studies had more serious issues. Campbell et al[24] did not report whether restrained patients had been risk-assessed. Risk assessment occurred before the intervention as reported by Senz et al[26] as well as after, but no detail was provided about differences in how risk assessment occurred pre- or post-test.

Two studies detailed tool development,[27,29] and 2 tested pre-existing tools[16,28] (Table 4). Items for the newly developed tools were generated within emergency settings, through observation[29] and from the literature,[27] whereas items for the preexisting tools were generated in mental health settings.[16,28] Similarly, content validity and pretesting of questions occurred in mental health settings for the preexisting tools,[16,28] thus raising some concerns as neither tool was tested for these within the emergency care context. Researchers administered the tools in the development studies through observations[29] and from electronic records.[27]

DATA SYNTHESIS

Studies were grouped by risk assessment tool; however, only 2 tools featured in more than 1 study (the BARS and the BVC). The psychometric properties of the tools, where available, are presented in Table 5.

BARS

Legambi et al[25] examined restraint use before and after implementation of the BARS and found a nonsignificant difference. During the final weeks of BARS implementation, they administered the System Usability Scale (SUS) to emergency nurses. From 30 (31% response rate) responses, the BARS received a high SUS score (83.46; SD = 11.73), indicating good usability (citing Usability.gov, the authors note that SUS scores greater than 68 indicate good usability, even with a small sample size).

TABLE 4
Critical appraisal of tool development studies table

Authors	Item generation	Content validity	Pretesting of questions	Administration	Sample size	Predictive validity testing	Interrater reliability
Jackson et al[29]	Good	Good	Good	Some concerns	Some concerns	Some concerns	Poor
Partridge and Affleck[16]	Some concerns	Some concerns	Some concerns	Some concerns	Good	Good	Some concerns
Connor et al[28]	Some concerns	Some concerns	Some concerns	Good	Good	Good	Some concerns
Cabilan et al[27]	Some concerns	Good	Poor	Poor	Good	Good	Good

However, only 13 (43%) reported feeling as though the BARS helped them to better detect and manage behavioral health patients (the primary target group requiring BARS assessment in the study emergency department). In their review of patient records, Schumacher et al[23] found that only 46% of patients with a psychiatric complaint received a BARS rating at triage, indicating low adoption of the tool.

BVC/BOC

Partridge and Affleck[16] calculated positive likelihood ratios (odds ratios) for the BVC using cut-off scores of 1, 2, and 3. Their findings showed that violent patients were 71.4 times more likely to have a score of ≥3 than nonviolent patients; they were 30.3 times more likely to have a score of ≥2 and 11.6 times more likely to have a score of ≥1. The study found a predictive value of 16.7% for scores ≥1, 34.3% for scores ≥2, and 55.2% for scores ≥3. This means that more than half the patients who scored 3 or more would go on to exhibit violent behaviors. When using 3 as a cut-off for BVC scores to indicate high risk of violence, sensitivity was 45.7%, and specificity was 99.4%, meaning that just under half of all violent patients and nearly all nonviolent patients were identified by the BVC.

Before implementation of the BOC, violence risk assessment was documented 30% of the time; after implementation, this increased to 82%.[26] Furthermore, before implementation, violence risk assessment was documented 54% of the time for patients with a mental health or drug and alcohol presentation, increasing to 100% after implementation. Senz et al[26] did not assess usability of the BOC; however, they explored nurses' confidence and abilities in a before-and-after survey. Despite statistically significant improvements in confidence to perform risk screening, there was no change in perceived ability to prevent violence.

DASA

Connor et al[28] calculated positive and negative predictive values for the DASA, comparing scores of ≥1 with scores of 0. They found that 23% of patients with a score of ≥1 would go on to be violent, and 95% of patients with a score of 0 would not exhibit violent behaviors. The summary AUC score of 0.79 fell in the "acceptable" category.

EDART

Campbell et al[24] found no statistically significant difference in restraint use before and after implementation of the EDART as assessed by a logistic interrupted time series

model with time F = 2.01, $P = .13$.[24] To explore the usability of the EDART, a survey was administered to emergency nurses 3 months into the study's implementation phase, receiving responses from 30 participants (62.5% response rate). Feedback about the EDART was overwhelmingly positive, with all respondents agreeing that the tool was easy to use and 28 of 30 reporting that the tool increased their ability to offer early interventions.

QOVPRAO

In the development of the QOVPRAO, Cabilan et al[27] found that of the 34 risk items forwarded to end users for relevance rating, 5 achieved a relevant item-level content validity index (I-CVI) (≥0.78), with consensus moderation used to direct the inclusion of additional risk items (despite achieving I-CVI scores below the 0.78 threshold). However, in a second round of content validity to rate the relevance of each of the tool's 3 risk domains, all 3 achieved I-CVIs above the 0.78 threshold. Sensitivity for the QOVPRAO domains ranged from 22% for aggression history to 55% for concerns with clinical presentation; specificity was high for all (92%-98%). The AUC using risk rating of low (no risk domains present), moderate (1 risk domain present), and high (≥2 risk domains present) for the QOVPRAO indicated acceptable predictive validity (AUC = 0.77). Testing interrater reliability between a trained and an untrained assessor, the analysis revealed kappa values ranging from 0.60 to 0.75 for the tool's 3 domains ($P < .01$), indicating moderate agreement.[22]

VAT

Jackson et al[29] examined the association between the 18 behavioral cues in the VAT and subsequent violence. Patients who resisted health care were 11 times more likely to exhibit violent behaviors than those who did not; those who made aggressive statements were 7.2 times more likely; those who yelled were 6.8 times more likely; and those who used abusive language were 6.0 times more likely.

Discussion

This review identified 8 studies that evaluated the psychometric properties of 7 violence risk assessment tools in emergency departments. The tools were either originally developed in mental health settings or specifically for ED settings. Only 2 tools, the BARS and the BVC, featured in more than 1 study, limiting our ability to pool results. Our findings also are limited by the quality of the included studies, with some suffering from significant methodological flaws such as unmeasured confounding variables and deviations from the intended intervention(s). However, our review addresses an important gap in the literature. The paucity of evidence about these tools' performance in emergency settings stands in contrast to the significant body of literature on violent risk assessment in psychiatric settings,[15] despite the similarities in violence prevalence across these settings.[32]

Only 2 studies examined predictive validity, 1 each of the DASA and the QOVPRAO,[27,28] with both tools demonstrating moderate performance. In studies of the DASA in mental health settings, results have ranged from acceptable to outstanding,[33-35] reflecting similar findings to the 2 studies in this review. However, the clinical context should be factored into any comparisons drawn with findings from ED settings. Violence risk assessment does not occur in a vacuum. In psychiatric inpatient settings, where the DASA and BVC have seen most use and evaluation, patients are risk-assessed repeatedly throughout an inpatient stay, which will typically be much longer than in emergency care settings. Clinicians' familiarity with patients is likely to factor into their interpretation of patient behaviors and characteristics,[36] and the nature of violent incidents also may differ across these very different clinical contexts.[37] This underpins the importance of evaluating tools in the settings where they will be implemented, particularly as clinician expertise, preferences, and needs also will differ.

Clinical approaches to risk assessment, which involve unstructured clinical judgment, are largely subjective and reliant on the assessor's expertise, whereas actuarial approaches aim to eliminate bias by standardizing all aspects of the assessment. In mental health settings, this polarity has been somewhat addressed by the introduction of structured professional judgment approaches, which combine ratings of empirically derived risk factors together with consideration of idiosyncratic individual factors, eg, Short Term Assessment of Risk and Treatability.[38] Consideration could be given to the development of such approaches in the emergency department.

The tools included in this review all use an actuarial approach, although, as Doyle and Dolan[39] note, all risk assessment involves a degree of subjectivity. Only 1 study[27] evaluated interrater reliability, reporting moderate results. Some scholars have proposed that a combined clinical-actuarial approach would be optimal for ED settings,

TABLE 5
Properties of risk assessment tools

Tool; included studies	Outcome	Cut-off	Predictive efficacy	Content validity	Reliability	Intervention efficacy
BARS; Legambi et al[25]	Restraint use	-	-	-	-	1. No statistically significant difference in restraint use following implementation ($\chi^2 = 0.72$, $P = .40$)
BOC; Senz et al[26]	Planned and emergency security responses (code gray); mechanical restraint	-	-	-	-	1. Reduction in planned Code Grays (RR 2.22) and emergency Code Grays (RR 0.75, absolute risk reduction 0.18%). 2. No reduction in mechanical restraint use.
BVC; Partridge and Affleck[16]	Violence	1 2 3 ≥1 ≥2 ≥3 3	OR 11.6 OR 30.3 OR 71.4 PPV 16.7% PPV 34.3% PPV 55.2% Sens. 45.7% Spec. 99.4%	Not assessed in emergency care, only in mental health settings	-	-
DASA; Connor et al[28]	Violent or aggressive behavior	Score: 1+ vs 0	PPV 23% vs 5% AUC 0.77	Not assessed in emergency care, only in mental health settings	-	-
EDART; Campbell et al[24]	Restraint use	-	-	-	-	1. No statistically significant difference in restraint use before and after implementation (logistic interrupted time series model with time $F = 2.01$, $P = .13$)

continued

TABLE 5
Continued

Tool; included studies	Outcome	Cut-off	Predictive efficacy	Content validity	Reliability	Intervention efficacy
QOVPRAO; Cabilan et al[27]	Occupational violence	Aggression history	OR 9.0 Sens. 22% Spec. 98%	I-CVI 0.86	K 0.60-0.75	-
		Behavioral	OR 13.6 Sens. 31% Spec. 98%	I-CVI 0.95		
		Clinical	OR 7.1 Sens. 55% Spec. 92%	I-CVI 0.89		
		Risk rating 0, 1, 2+	AUC 0.77	-		
		Moderate risk	Sens. 61% Spec. 91%			
		High risk	Sens. 37% Spec. 97%			
VAT; Jackson et al[29]	Violence	Resisting health care	OR 11	-	-	-
		Aggressive statements	OR 7.16	-		
		Yelling	OR 6.79	-		
		Abusive language	OR 5.98	-		

AUC, area under the curve; BARS, Behavioral Activity Rating Scale; BOC, behaviors of concern; BVC, Brøset Violence Checklist; DASA, Dynamic Appraisal of Situational Aggression; EDART, Emergent Documentation Aggression Rating Tool; I-CVI, item-level content validity index; OR, odds ratio; PPV, positive predictive value; QOVPRAO, Queensland Occupational Violence Patient Risk Assessment Tool; RR, relative risk; Sens., sensitive; Spec., specificity; VAT, Violence Assessment Tool.

allowing clinicians to use the empirical categories set out in an actuarial tool to aid, rather than replace, clinical judgment.[40] In contrast, emergency nurses have expressed the need for a standardized tool that focuses on objective risk factors, particularly as ED risk assessments must be rapid.[13] Other studies have similarly concluded that clinicians prefer risk assessment to contain an element of structure, with some suggesting that reliance on clinical judgment alone puts less experienced staff at a disadvantage.[41] In fact, numerous studies have found that staff with less experience (both clinically and in the emergency department specifically) are more likely to experience patient violence in emergency settings.[42,43] Cabilan et al[27] point out that a structured approach to risk assessment does not preclude sensitivity to context and argue that a multidimensional approach, addressing both static and dynamic risk factors, is most appropriate.

Even if a tool improves violence prediction, if it is not implemented properly, it is essentially useless. We found variability in levels of implementation but cannot identify why this was the case. Usability of the BARS and the EDART were examined, with both reporting positive findings,[24,25] whereas an evaluation of nurses' confidence and perceived ability to prevent violence before and after implementation of the BOC reported mixed findings.[26] None of the included studies explicitly assessed feasibility or acceptability. Whereas lengthy risk assessment tools may be impractical in ED settings,[27] the BARS, a single-item tool, had low adoption.[23,25] Lack of understanding and enthusiasm for the tool were cited as possible reasons for this outcome, perhaps pointing to the importance of a strong implementation strategy.[23]

The true success of these tools should, of course, ultimately be measured in terms of reductions in violence rather than simply its prediction. Patient violence is harmful in and of itself, yet the interventions used to manage patient violence can be equally damaging. The use of physical, mechanical, and chemical restraint can be physically and psychologically harmful to all involved.[44] This review found no or nonsignificant reductions in violence after tool implementation, but this is based on limited and poor-quality evidence, so no firm conclusions can be drawn. Measuring outcomes in terms of restraint use or emergency security responses is, in our view, mistaken because the aim of prediction is to facilitate the early intervention of less coercive measures.

The only strong recommendation that we can make as a result of this review is about what needs to be done to address our identified gap in the literature. Ideally, large-scale, multisite randomized controlled trials are needed to provide good-quality evidence on the use of violence risk assessment tools in emergency settings, exploring their efficacy in terms of predicting and also reducing violent incidents. Based on the recency of the included literature, we anticipate that small-scale studies will continue to proliferate, and we hope that in the not-too-distant future, systematic review with meta-analysis will be achievable.

Strengths and Limitations

The strength of our findings is limited by the quality of the included studies. However, the lack of strong evidence in this area is a significant finding in itself. By excluding unpublished literature, we may have missed relevant research, although we sought to mitigate this by directly contacting the authors of all relevant unpublished literature to ascertain whether the work was taken further. Finally, the generalizability of our results is limited by the geographical distribution of our included studies, which were all conducted in the United States or Australia. Given the significant body of literature exploring patient violence globally,[32] it was disappointing that we could not capture any evidence about violence risk assessment more widely. Similarly, the fact that no studies took place in the AMU limits the assumptions we can make about the tools' suitability for this clinical area. By uncovering these gaps in the literature, this review has highlighted important areas for future research.

Implications for Emergency Nursing

Violence risk assessment can identify patients in emergency care settings who are at risk of becoming violent. However, there is currently insufficient high-quality evidence to draw conclusions about the predictive capacity, acceptability, feasibility, and usability of existing tools in emergency care settings. In the meantime, researchers and emergency nurses looking to implement violence risk assessment strategies should take steps to ensure a strong implementation strategy to maximize uptake. Such strategies may include the use of a violence risk assessment tool, and, in the absence of any strong evidence for choosing one over another, we

recommend choosing the tool that aligns most strongly with the specific context it will be used in.

Conclusion

Patient-perpetrated violence is a significant problem in emergency care settings globally. Despite its prevalence, there is a paucity of high-quality evidence evaluating the psychometric properties of violence risk assessment tools currently used along the emergency care pathway. Multiple tools exist, however, and the recency of much of the evidence evaluating their effectiveness indicates that this clinical issue is gaining traction. There is a long way to go before violence risk assessment is as established in emergency care settings as it is in mental health settings. Finding out which tools are most effective in predicting and preventing violence would be a good starting point; the evidence to support choosing one tool over another is not yet available, but the evidence from this review suggests that we are well on our way.

Data, Code, and Research Materials Availability

We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing, we confirm that we have followed the regulations of our institutions concerning intellectual property.

Author Disclosures

Conflicts of interest: None to report.

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Supplementary Data

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SUPPLEMENTARY TABLE 1

DATABASE: MEDLINE

Search terms:		
1	Subject headings	Risk assessment
	Keywords	risk* adj3 assess*, risk* adj3 screen*, risk* adj3 checklist*, risk* adj3 tool*, risk* adj3 scale*, risk* adj3 measur*, risk* adj3 instrument*, "Staring and eye contact, Tone and volume of voice, Anxiety, Mumbling, and Pacing", STAMP, "17-cue assessment tool", "17-cue violence assessment tool", "Staring, Tone, Anxiety, Mumbling, Pacing, Emotions, Disease progress, Assertive, Resources", STAMPEDAR, "Violence Risk Screen Decision Support in triage", VRSDSiT, "Broset Violence Checklist", BVC
		AND
2	Subject headings	Emergency Medical Services, Emergency Service Hospital [exp]
	Keywords	"emergency room*", "emergency department*", "emergency service*", "emergency ward*", "emergency care", "accident and emergency", "accident & emergency", "emergency health service*", triag*, "ED", "ER", "A&E", "acute medical unit*", "AMU", "clinical decision unit*", "CDU", "acute admissions unit*", "acute assessment unit*", "AAU", "acute medical receiving unit*", "AMRU", "assessment and diagnostic unit*", "ADU", "emergency assessment unit*", "EAU", "emergency care unit*", "ECU", "EMAU", "medical assessment unit*", "MAU", "medical assessment and planning unit*", "MAPU", "medical admissions unit*"
		AND
3	Subject headings	Workplace violence, Aggression [exp], Violence
	Keywords	violen*, aggress*, assault*, attack*, harass*, verbal adj3 abus*, physical adj3 abus*, "verbal hostility"
		AND
4	Subject headings	Psychometrics, Reproducibility of results [exp]
	Keywords	"psychometric properties", valid*, reliab*, "internal* consisten*", feasib*, acceptab*, usab*, predict*, evaluat*

Key: Commas indicate terms combined with OR; [exp] = search term exploded

SUPPLEMENTARY TABLE 2

DATABASE: Embase

Search terms:		
1	Subject headings	Risk assessment [exp]
	Keywords	risk* adj3 assess*, risk* adj3 screen*, risk* adj3 checklist*, risk* adj3 tool*, risk* adj3 scale*, risk* adj3 measur*, risk* adj3 instrument*, "Staring and eye contact, Tone and volume of voice, Anxiety, Mumbling, and Pacing", STAMP, "17-cue assessment tool", "17-cue violence assessment tool", "Staring, Tone, Anxiety, Mumbling, Pacing, Emotions, Disease progress, Assertive, Resources", STAMPEDAR, "Violence Risk Screen Decision Support in triage", VRSDSiT, "Broset Violence Checklist", BVC
		AND
2	Subject headings	Emergency Health Service [exp], Emergency Ward [exp]
	Keywords	"emergency room*", "emergency department*", "emergency service*", "emergency ward*", "emergency care", "accident and emergency", "accident & emergency", "emergency health service*", "triag*", "ED", "ER", "A&E", "acute medical unit*", "AMU", "clinical decision unit*", "CDU", "acute admissions unit*", "acute assessment unit*", "AAU", "acute medical receiving unit*", "AMRU", "assessment and diagnostic unit*", "ADU", "emergency assessment unit*", "EAU", "emergency care unit*", "ECU", "EMAU", "medical assessment unit*", "MAU", "medical assessment and planning unit*", "MAPU", "medical admissions unit*"
		AND
3	Subject headings	Workplace violence {prevention}, Aggression {prevention}, Violence {prevention}, Verbal hostility {prevention}, Assault {prevention}
	Keywords	violen*, aggress*, assault*, attack*, harass*, verbal* adj3 abus*, physical* adj3 abus*, "verbal hostility"
		AND
4	Subject headings	Psychometry [exp], Reproducibility [exp], Validity [exp], Reliability [exp], Usability
	Keywords	"psychometric properties", valid*, reliab*, "internal* consisten*", feasib*, acceptab*, usab*, predict*, evaluat*

Key: Commas indicate terms combined with OR; [exp] = search term exploded; {text in braces} = subheadings selected (NB. where not specified, all subheadings were included)

SUPPLEMENTARY TABLE 3

DATABASE: Web of Science

Search terms:

1 AND (TS=(risk* NEAR/3 assess*) OR TS=(risk* NEAR/3 screen*) OR TS=(risk* NEAR/3 checklist*) OR TS=(risk* NEAR/3 tool*) OR TS=(risk* NEAR/3 scale*) OR TS=(risk* NEAR/3 measur*) OR TS=(risk* NEAR/3 instrument*) OR TS=("Staring and eye contact, Tone and volume of voice, Anxiety, Mumbling, and Pacing") OR TS=(STAMP) OR TS=("17-cue assessment tool") OR TS=("17-cue violence assessment tool") OR TS=("Staring, Tone, Anxiety, Mumbling, Pacing, Emotions, Disease progress, Assertive, Resources") OR TS=(STAMPEDAR) OR TS=("Violence Risk Screen Decision Support in triage") OR TS=(VRSDSiT) OR TS=("Broset Violence Checklist") OR TS=(BVC))

2 AND (TS=("emergency room*") OR TS=("emergency department*") OR TS=("emergency service*") OR TS=("emergency ward*") OR TS=("emergency care") OR TS=("accident and emergency") OR TS=("accident & emergency") OR TS=("emergency health service*") OR TS=("ED") OR TS=("ER") OR TS=("A&E") OR TS=("acute medical unit*") OR TS=("AMU") OR TS=("clinical decision unit*") OR TS=("CDU") OR TS=("acute admissions unit*") OR TS=("acute assessment unit*") OR TS=("AAU") OR TS=("acute medical receiving unit*") OR TS=("AMRU") OR TS=("assessment and diagnostic unit*") OR TS=("ADU") OR TS=("emergency assessment unit*") OR TS=("EAU") OR TS=("emergency care unit*") OR TS=("ECU") OR TS=("EMAU") OR TS=("medical assessment unit*") OR TS=("MAU") OR TS=("medical assessment and planning unit*") OR TS=("MAPU") OR TS=("medical admissions unit*"))

3 AND

4 (TS=("psychometric properties") OR TS=(valid*) OR TS=(reliab*) OR TS=("internal* consisten*") OR TS=(feasib*) OR TS=(acceptab*) OR TS=(usab*) OR TS=(predict*) OR TS=(evaluat*))

Key: TS = Searched in 'Topic' field

SUPPLEMENTARY TABLE 4

DATABASE: CINAHL Plus

Search terms:			
1	Subject headings	Risk assessment, Clinical assessment tools	
	Keywords	risk* adj3 assess*, risk* adj3 screen*, risk* adj3 checklist*, risk* adj3 tool*, risk* adj3 scale*, risk* adj3 measur*, risk* adj3 instrument*, "Staring and eye contact, Tone and volume of voice, Anxiety, Mumbling, and Pacing", STAMP, "17-cue assessment tool", "17-cue violence assessment tool", "Staring, Tone, Anxiety, Mumbling, Pacing, Emotions, Disease progress, Assertive, Resources", STAMPEDAR, "Violence Risk Screen Decision Support in triage", VRSDSiT, "Broset Violence Checklist", BVC	
		AND	
2	Subject headings	Emergency Service, Emergency Medical Services	
	Keywords	"emergency room*", "emergency department*", "emergency service*", "emergency ward*", "emergency care", "accident and emergency", "accident & emergency", "emergency health service*", "triag*", "ED", "ER", "A&E", "acute medical unit*", "AMU", "clinical decision unit*", "CDU", "acute admissions unit*", "acute assessment unit*", "AAU", "acute medical receiving unit*", "AMRU", "assessment and diagnostic unit*", "ADU", "emergency assessment unit*", "EAU", "emergency care unit*", "ECU", "EMAU", "medical assessment unit*", "MAU", "medical assessment and planning unit*", "MAPU", "medical admissions unit*"	
		AND	
3	Subject headings	Workplace violence, Aggression, Violence, Verbal abuse, Patient assault, Assault and battery	
	Keywords	violen*, aggress*, assault*, attack*, harass*, verbal adj3 abus*, physical adj3 abus*, "verbal hostility"	
		AND	
4	Subject headings	Psychometrics, Measurement issues and assessments [exp]	
	Keywords	"psychometric properties", valid*, reliab*, "internal* consisten*", feasib*, acceptab*, usab*, predict*, evaluat*	

Key: Commas indicate terms combined with OR; [exp] = search term exploded

Google Scholar

NB. 256 character limit

2007-2021: ((risk AND assess) OR (risk AND tool) OR (risk AND instrument)) AND (emergency OR "acute medical unit") AND (violence OR aggression OR assault OR attack OR abuse) AND (psychometric OR validity OR reliability OR predictability OR feasibility OR usability)

Results then limited to top 200 (by relevance)

Staff Duress Alarms for Workplace Violence in the Emergency Department: A Mixed-Methods Evaluation

Authors: Meredith A. Carr, DNP, RN-BC, CEN, EMT and Anne Derouin, DNP, APRN, CPNP-PC, PMHS, FAANP, Durham, NC

Abstract

Introduction: Complex personal duress alarms may be implemented as part of a multicomponent approach to preventing and mitigating workplace violence in emergency departments. Evaluation of duress alarms after implementation has been identified as a gap in the literature. The purpose of this quality improvement project was to examine the impact of a duress alarm system on workplace violence and user experience in an urban emergency department.

Methods: A comprehensive system evaluation was performed using a mixed-methods approach, which included retrospective data review, key informant interviews, observations, and a survey. Forty clinical staff at an emergency department in North Carolina were interviewed and provided feedback on the duress system.

Results: Findings indicated that the duress system was not associated with a decrease in workplace violence, and that the majority of clinical staff did not even wear the duress alarm. Staff indicated that the primary barriers to use of the alarm were the bulky design of the alarm badge, inadequate education about the alarm device and process, and the lack of a reliable and timely response from security.

Discussion: Ongoing engagement of clinical staff is critical to the success of health care technology implementations. Staff feedback, periodic re-education, and recurring process evaluations are vital to ensuring the continued relevance of systems, especially when staff safety is the intended purpose.

Key words: Emergency nursing; Workplace violence; Workplace aggression; Duress alarm

Introduction: Problem Description

Violence in health care has gone viral, but unlike the desirable social media status, this is an insidious virus that is fundamentally corrupting the profession, culture, and environment of care. The updated U.S. Joint Commission (TJC) standards on workplace violence (WPV) prevention call for a multicomponent approach that incorporates 4 ongoing elements: risk assessment, environmental monitoring, training, and an accessible and responsive safety reporting process.[1] Technology can be used to support this methodology but should have structured implementations, be continuously re-evaluated, and include bedside staff in the selection, implementation, and maintenance of the system.

Background

In 2021, more than 411,100 health care professionals were injured at work.[2] A press statement released by Press Ganey[3] indicated that over 5200 nurses reported an assault at work between April and June of 2022. The prevention and mitigation of violence in health care settings is a priority for sustaining the health care workforce; thus, governmental, accreditation, and professional organizations have provided standards, guidelines, frameworks, and tool kits with evidence-based strategies.[4-6] Interventions endorsed in TJC standards, Occupational Safety and Health Administration guidelines, and National Institute for Occupational Safety and Health recommendations include the following: staff education and training, organizational safety policies, continuous improvement guided by internal safety reporting systems,

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periodic risk assessments, and environmental modifications such as safety alarm systems.[1,7,8,9]

Emergency nurses are at the greatest risk for WPV, largely due to the unique environment in which they work, which is characterized by diverse patient conditions, rapidly varying patient acuity, general accessibility of the department to the local community, physical architecture, excessive wait times, a unique negative progression in patient flow, and patient overcrowding.[10,11] Environmental interventions represent the largest portion of modifiable factors impacting WPV.[5,9,12,13] The literature also provides substantial evidence associating reductions in WPV with strategic architectural design of emergency departments, strategic patterns of physical patient flow through the emergency department, and enhanced security presence at high-risk locations within the department.[5,9,12,13]

Recent systematic reviews have indicated that the most effective strategy to decrease WPV is using a multicomponent approach that includes the combination of health professional and security team education, policy, and environmental interventions to create comprehensive strategies.[5,9,12,13] The Emergency Nurses Association's position statement supports the multicomponent approach with periodic re-evaluation.[14] Technologies such as module-based virtual education and ongoing training, accessible and responsive safety reporting systems, data tracking and analytics, local and remote environmental monitoring, and safety/security alarm devices are available to facilitate and support WPV initiatives.[5,12] Although preventing WPV is a clear priority, evidence evaluating security alarms after their implementation in hospitals, and more specifically emergency departments, is lacking.[10,11,15]

Safety and security alarms are devices that are manually activated by a health care worker when they experience an active or rapidly escalating duress situation while located in the environment of care.[10,11,15] Three types of health care duress/security alarms have been systematically reviewed: stationary panic buttons, audible personal alarms, and complex mobile personal alarms. Stationary panic buttons are silent alarms installed in discrete locations in high-risk areas, which when activated send alerts directly to a base console for a response.[15] These alarms are not mobile, so their locations are predesignated in the associated notification software, and security responds to the general location of the button. Audible personal alarms worn by health care workers emit an extremely loud alarm when activated. This type of alarm is designed to startle the aggressor and prompt responses from nearby individuals; however, notifications to security teams are not sent.[15] Complex mobile personal alarms are the third type of alarm that includes real-time location tracking system technology.[15] These alarms are linked to a central monitoring system to initiate a rapid, location-specific security response. Complex mobile personal alarms are thought to be the most effective type of safety system, although evidence is limited, and evaluations in various settings have not been published.[10,11,15]

The Agency for Healthcare Research and Quality recommends that electronic duress-system evaluations use both quantitative and qualitative data to capture a comprehensive picture of clinical and user experience outcomes.[16] Best practice for the life cycle of systems recommends evaluating user acceptance of a new system after 3 to 6 months and then performing continued re-evaluations as part of system maintenance.[17] To regain alignment with the nursing process and the life cycle of systems, an evaluation of an ED WPV response safety alarm system is paramount.

Project Aims

This quality improvement project was planned to comprehensively evaluate the functionality, use, and impact of the personal duress alarm system that was implemented in a busy urban emergency department located in the southeastern United States. The project was designed to evaluate staff satisfaction, fidelity in using the alarm system, and outcomes of activation. The project was approved as an exempt project by the institutional review board where the emergency department was located.

Methods

DESIGN

This project is presented in accordance with the Revised Standards for Quality Improvement Reporting Excellence.[18] This quality improvement process evaluation used a mixed-methods, convergent parallel design with preimplementation and postimplementation data. Preimplementation data were collected retrospectively from 3 sources: 2 electronic data dashboards managed by the health system and an electronic location tracking system containing quantitative and qualitative records. Postimplementation data were concurrently obtained from these sources, with additional qualitative and quantitative data obtained through unstructured observations, key informant interviews, and a questionnaire.

SETTING

This project was conducted in a community hospital located in the southeastern United States in an emergency department that sees approximately 64,000 patients per year.

The emergency department at this facility is structured as 2 overlapping but independent units. The main emergency department is a 49-bed unit for standard emergency medical care, and the behavioral health emergency department is an 18-bed secured unit designed for patients with behavioral health emergencies.

PARTICIPANTS

The participants included the clinical frontline staff of the ED team, the intended end-users of the duress alarm system. This sample ($N = 131$) included nurses, paramedics, nursing assistants, or ED technicians, and behavioral health technicians who worked clinically in the emergency department between April 2021 and November 2022. Additionally, key informant interviews included nurses, travel nurses, paramedics, nursing assistants/ED technicians, and behavioral health technicians who worked clinical shifts during the survey and observation period from October 14, 2022 to November 19, 2022. Public safety and security officer team participants were interviewed directly and surveyed via email during the study period.

INTERVENTION AND MEASURES

The components of the duress system evaluation were modeled after the "Health IT Evaluation Toolkit" published by the digital health care research branch of the Agency for Healthcare Research and Quality.[16] Quantitative and qualitative data were collected and integrated to evaluate the objectives of user experience and reduction of WPV. First, quantitative data were retrieved and collected concurrently from multiple sources. Qualitative data were transformed into quantitative data and then merged to describe the outcomes.

Reduction of WPV was evaluated using the following 2 strategies: First, preimplementation and postimplementation data were retrieved retrospectively from the health system's interactive electronic WPV dashboard, where data are consolidated and displayed from the safety reporting system; the employee injury reporting system; and incidents reported by health system police/security. Event data from the duress alarm's event tracking system were retrospectively reviewed, cleaned, and transformed by the principal investigator. All data used for this project were deidentified prior to review. Second, the duress alarm system's impact on WPV risk was evaluated using standardized environmental risk assessment preimplementation and postimplementation data. The tool used to perform the environmental risk assessment followed guidelines recommended by TJC and Occupational Safety and Health Administration.[1,8]

User experience was evaluated through a 3-part gap analysis that was structured around staff involvement and responses. The importance of including end-user feedback in the development and ongoing evaluation of systems is emphasized not only in the literature, but also by professional organizations. In their 2019 position statement on WPV, the Emergency Nurses Association announced that not only should nurses be provided with the opportunity to contribute their knowledge and experience to WPV initiatives but also that emergency nurses have a responsibility to do so.[12,14,19] Components of the gap analysis included key informant interviews, a utilization and usability survey, and a workflow diagram.

Observations included baseline workflow of ED staff on day and night shift as well as the workflow/chain of events that occurred during a duress alarm activation. The duress alarm activation was defined as an incident when the personal duress alarm badge was pressed and resulted in the audible alarm; notification and response of nearby staff; and notification, dispatch, and response of security staff. Prior to data collection, the ED clinical team received education on the duress system during staff trainings, through in-person and email communications, and through a mock duress event.

On the first day of data collection, none of the frontline staff in the medical emergency department or the behavioral emergency department were wearing a duress badge. This finding was unexpected, and to promote the validity of the sample, 3 (previously unplanned) observations were conducted to record the number of clinical staff who were wearing badges. These observations took place between 5 AM and 11 PM on nonconsecutive days. Only 5 of the 67 frontline staff observed were actively wearing duress badges.

The duress evaluation project was revised to re-educate the frontline staff about the system and survey, and informant interviews were designed to solicit end-user feedback using electronic survey and key informant interviews. The 6-question electronic survey was sent to all frontline staff members via the electronic health record secure chat feature while they were on shift and active in the electronic health record. Those who did not complete the survey during the first request were sent a reminder to complete the survey 1 week following the initial request.

The principal investigator conducted key informant interviews in a standardized format during randomly selected clinical shifts (7 PM, 7 AM, and 11 AM) on nonconsecutive days. Observations of the frontline staff were used to gather information about staff wearing badges. Key informant participants were selected from the frontline clinical team for brief key informant interviews. Each participant was asked whether they recognized the duress badge, whether they

had worn one during a full shift since the implementation of the duress system, and whether they could demonstrate how to use the duress alarm badge. For those who were not able to identify or activate the duress badge correctly, education was offered. The de-identified key informant responses were recorded on a data collection tool, including the indication for duress activation education. Following the in-person questions (and education), the participants were asked to complete the 6-question survey. A total of 6 interview days took place during the observation period from October 14, 2022 to November 19, 2022.

DATA ANALYSIS

Use of the duress alarm system was determined through analysis of the following data: total number of duress alarm activations, number of false alarms, type of duress events (intervention required, officers responding, accidental press, event cleared), and percentage of staff who consistently wore duress alarm badges. System usability was evaluated through the following: current knowledge of badge operation, narrative feedback on barriers to wearing or using duress alarms, suggestions for optimization and improvement and general comments from users, and the process workflow. To evaluate the system's impact on WPV, the number of WPV safety reporting system reports and reported employee injuries were compared to the number of duress alarm activations. The survey data included the demographics of participants working in clinical roles, their number of years of service in the emergency department, and their number of years of service in the profession.

All data transformations and analyses were performed using Microsoft Excel (Version 2211) (Microsoft Corporation) and IBM SPSS Statistics (Version 27) (IBM Corporation). Narrative comments from the survey and duress events in the duress tracking system were individually reviewed, categorized by theme, consolidated, and numerically coded based on frequency. Frequencies were analyzed for all variables, and median notification response times were reported due to outliers. To increase the validity of the comparison of duress alarm events and actual reported WPV events, records labeled as tests were removed and duplicate event records were consolidated. For duress events with multiple badge presses from users in the same location, the first recorded press was considered the event activation. The total number of additional button presses and the number of users were recorded separately. Activations greater than 2 minutes apart or simultaneous activations from unrelated locations were considered separate events. Key informant interviews were conducted with the security team and the frontline staff were interviewed during the same shifts. In addition to the badge survey questions, they were asked open-ended questions about duress alarms, "false alarm" attributes, and policy on response time and activities.

Results

QUANTITATIVE ANALYSIS

A total of 1896 duress activation event records were evaluated during the 1-month evaluation period. There were 360 valid button presses, 90 different tags, and a total of 255 duress alarm events between April 2021 and September 2022. The median time from a duress button press to event resolution was 3 minutes. Between January 2020 and September 2022, 226 WPV events were officially reported, 147 by security staff and 81 by clinical staff. Between April 2021 and September 2022, 168 WPV events were reported, 104 by security staff and 64 by clinical staff. The frequency of duress alarms and actual safety reports from January 2020 to September 2022 are included in Figure.

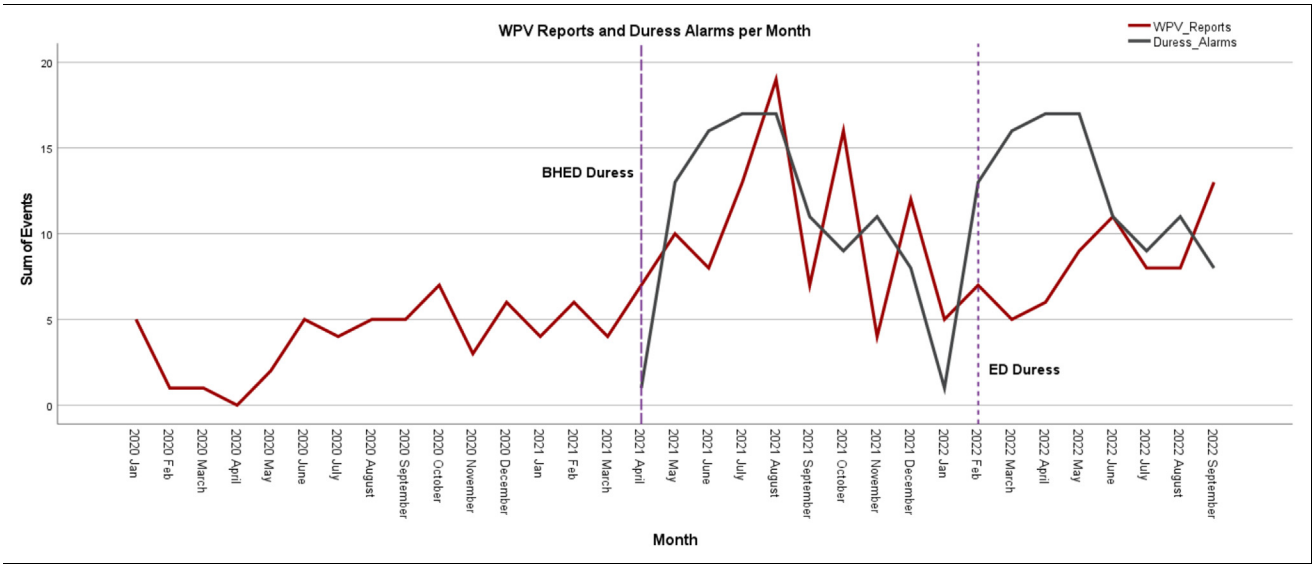
QUALITATIVE ANALYSIS

A total of 40 staff members participated in the key informant interviews and completed the survey. Results from interview questions are shown in Table 1.

Narrative responses from the interviews and survey indicated the following 3 primary themes: (1) concerns about the reliability and functionality of the device and process, (2) poor duress badge device design, and (3) lack of knowledge about the system and duress response. The most frequent comments were that the badge is heavy/bulky (28%, $n = 13$), that it does not work when activated (17%, $n = 8$), and that it takes too long for help to arrive (26%, $n = 12$). Twenty percent ($n = 9$) of staff indicated that they did not know either where to obtain a badge or how to use it. Comments made by security dispatchers were divided into 9 different categories, with "false alarm" being the most frequent comment (43.1%, $n = 110$). See Table 2 for categories and frequency.

Discussion

Two key findings emerged from the evaluation of the duress system. First, there was not a decrease in WPV after the implementation of the duress alarm system. Instead, results indicated a dramatic increase in WPV events documented after the duress alarm system was implemented. This should



FIGURE

Time series of WPV events before and after implementations. BHED, behavioral health emergency departments; ED, emergency department; WPV, workplace violence.

be interpreted with caution—false alarms were common, and the need for validation of a "real" vs "false" alarm were indicated to ensure that there was a shared mental model between the staff, security team, and administration. Secondly, the project demonstrated that communication and frontline user buy-in are needed to support an effective and appropriately responsive duress alarm system. The unfortunate state of ED overcrowding has persisted beyond the peak of the COVID-19 pandemic, and behavioral health-related safety concerns have become more pronounced as emergency departments remain the primary point of entry into health care for patients in crisis. A component of this duress alarm system implementation plan included an agreement with local emergency services to deliver patients with behavioral crises directly to behavioral health emergency departments (if medically appropriate) rather than to alternate emergency departments in the area, which likely contributed to unstable and/or violent patients presenting to this facility. A lack of clinical team participation in the selection of the duress system, unstable staffing issues, and limited education on the new duress system prior to it being activated might have contributed to poor user uptake and the number of false alarms.

The process flow diagram (see Supplementary Appendix) facilitated the identification of opportunities for improvement. The system uses flashing red lights as a visual cue to alert nearby clinical staff of the location of a user in a duress situation. If a user is inside a patient room, then only the lights outside that door flash; if the lights in the hallway of that room were to flash also, then the likelihood of staff seeing

TABLE 1

Utilization and usability survey

Utilization/Usability survey					
Can you explain what this badge is for?	Can you demonstrate how to operate the badge?	Was badge operation demonstrated correctly?	Have you received official training on duress?	Do you regularly wear a badge?	Have you ever responded to or been involved in a duress event?
Yes: 26 (93%)	Yes: 21 (75%)	Yes: 13 (62%)	Yes: 22 (55%)	Yes: 9 (22.5%)	Yes: 28 (70%)
No: 2 (7%)	No: 7 (25%)	No: 8 (38%)	No: 18 (45%)	No: 31 (77.5%)	No: 12 (30%)
n = 28		n = 21		n = 40	

TABLE 2
Comments entered by security dispatcher closing event notification

	ED		BHED		Total combined	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
False alarm	30	60.0	80	39.0	110	43.1
Multiple officers responding	5	10.0	25	12.2	30	11.8
Officer(s) arrived; event cleared	4	8.0	49	23.9	53	20.8
Cleared by supervisor	4	8.0	21	10.2	25	9.8
Acknowledged	2	4.0	4	2.0	6	2.4
Intervention required	3	6.0	9	4.4	12	4.7
Accidental press	1	2.0	3	1.5	4	1.6
Other	1	2.0	14	6.8	15	5.9
Total	50	100.0	205	100.0	255	100.0

BHED, behavioral health emergency departments; ED, emergency department.

that visual alert would increase. Another opportunity is to strategically place the nurse call bell consoles throughout the unit so that the audible alarms emitted from those consoles can be heard throughout the department. This would maximize the likelihood that nearby clinical staff hear the alarm and physically respond to the location of the individual who is experiencing duress. The current placement of the audible alarm consoles only allows those sitting at the same desk as the console to hear the alarm. The data suggest that frontline staff would benefit from carrying mobile devices that enable duress alarms and communication. Most of the duress buttons, if not worn via a badge, are located behind the head of the bed in patient rooms, and the stationary panic alarms are located under computer desks at the nurse stations—both potentially inaccessible for frontline staff experiencing violence in a patient room.

The project identified key findings relevant to planning and implementing a duress system in an emergency department. Common themes emerged from the coding of key informant data and the survey responses. Frontline staff need to be engaged in aspects of selecting the duress system (and badges), implementing the system, and educating the entire staff in a systematic process. As the primary stakeholders, nurses and other frontline health care providers in the emergency department must be engaged in the entire process.

Finally, the results indicate a need for structured documentation of security officer responses to duress alarms and associated data. Although the comment most frequently used by dispatchers when closing duress events was "false alarm," records indicated that there was no standard definition for what a false alarm indicates and suggested that "false alarm" could mean numerous things, from an accidental press to a de-escalated event, and use of the comment was at the dispatcher's personal discretion. This project illuminated the need for process improvement to ensure that information on security response times to clinical staff and the resolution of events is documented. Evidence supports the recommendation for detailed documentation of the security officers' initial arrival on the scene in response to duress alarms and collection of critical data such as length of time from alarm to response, length of response to the incident, resolution of the incident data, and who was involved if an injury occurred.

Limitations

There are two notable limitations of this evaluation. This was a single-site study performed by a single investigator, and participants were a convenience sample of ED staff on 6 randomly selected days.

Implications for Emergency Nursing

This project identified 4 components that are critical to consider when implementing staff duress alarm systems in emergency departments. First and foremost, bedside nurses should be invited to participate and remain engaged throughout the entire process of the system life cycle. When an alarm device (including the associated infrastructure and software) is selected, it must be a user-centered design. In the case of this project, staff do not wear the badge, because it is impractical and uncomfortable. Future work will focus on working with ED staff to identify potentially comfortable methods of "wearing" the badge (belt, on

the back of shirt, neck lanyard, on a vest or sash, on wrist). If staff continue to decline to wear the alarm because of the design, the facility may need to investigate the financial implications of purchasing additional infrastructure or selecting an alternate product for activating the duress alarms (mobile devices, outside-of-room lighting, button at door of patient room).

Including bedside staff in the process of device selection is another way to facilitate user buy-in. If users do not feel that a product is useful, reliable, or relevant, there is a low probability of it being used. Recommendations that may increase buy-in of the project among ED staff include partnering with security to investigate barriers to rapid response to duress locations, involving staff in ongoing testing of the system (planned and unplanned), and encouraging the submission of incident reports when issues with badges are experienced.

Lastly, it is imperative that adequate and timely training is provided to clinical staff. The following recommendations were identified locally, but they are universally applicable to new process implementations in health care. A competency document should be completed at the time of initial training and then included as part of annual revalidation requirements. Training on and education about the duress alarm system, devices, and process should be included as a required part of onboarding orientation. Finally, structured education should be provided in-person to all current staff, and then periodic refresher education should be provided as trends in WPV or safety reports are noted.

Conclusion

Ensuring the safety and well-being of frontline health care workers in the emergency department is critically important. Duress alarm systems, as part of a multimodal real-time response, may be 1 solution to mitigating WPV, but only when all frontline staff and security responders are engaged and working in harmony as a team. The results of this project suggest that frontline staff engagement in the planning and implementation of a duress system is vital. This project also emphasized the need for ongoing staff support, process improvement efforts, and periodic re-education after an implementation has taken place. These elements are critical in the maintenance of technology systems and continued applicability of technology for its end users. Clinical user buy-in, feedback, and partnership with health care technology are vital to the success of complex staff safety interventions in clinical settings.

Author Disclosures

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Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2023.01.008.

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Implementation of a Behavioral Emergency Response Team in the Emergency Department

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Contribution to Emergency Nursing Practice

- Emergency nurses are frequently exposed to occurrences of workplace violence.
- Workplace violence occurrences can be mitigated with the creation and implementation of a behavioral emergency response team to reduce injuries and increase perception of safety.
- Emergency nurses can employ the behavioral emergency response team approach to create safer practice environments for patients to receive care.

Abstract

Introduction: Emergency nurses, physicians, and patients experience occurrences of workplace violence. Having a team to respond to escalating behavioral events provides a consistent approach to reducing occurrences of workplace violence and increasing safety. The purpose of this quality improvement project was to design, implement, and evaluate the effectiveness of a behavioral emergency response team in an emergency department to reduce occurrences of workplace violence and increase the perception of safety.

Methods: A quality improvement design was used. The behavioral emergency response team protocol was created using evidenced-based protocols that have been shown to be effective in reducing the number of occurrences of workplace violence. Emergency nurses, patient support technicians, security personnel, and a behavioral assessment and referral team were trained in the behavioral emergency response team protocol. Data on occurrences of workplace violence were collected from March 2022 to November 2022. Postbehavioral emergency response team debriefings were conducted, and real-time education was provided after implementation. Survey data were collected to evaluate the emergency team members' perceptions of safety and of the effectiveness of the behavioral emergency response team protocol. Descriptive statistics were calculated.

Results: The number of reported occurrences of workplace violence decreased by to 0 postimplementation of the behavioral emergency response team protocol. The perception of safety increased 36.5% postimplementation (mean 2.2 preimplementation, mean 3.0 postimplementation). In addition, an increase in awareness about reporting occurrences of workplace violence resulted from education and implementation of the behavioral emergency response team protocol.

Conclusion: Postimplementation, participants reported an increase in the perception of safety. Implementation of a behavioral emergency response team was effective in reducing assaults toward emergency department team members and increasing the perception of safety.

Key words: Workplace violence, Emergency department, Assaults, Behavioral emergency response team, Workplace aggression, Perception of safety

Problem Description

Behavioral emergencies from patients and visitors that result in occurrences of workplace violence (OWPV) continue to occur in emergency departments worldwide.[1–4] Many factors in the emergency department contribute to increased violence and assaults. Increased wait times, understaffing, lack of security support, increased drug and alcohol use in society, lack of mental health resources, and lack of policies and

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training supported by the organization are several contributing factors.[5] The effects of physical and psychological assaults range from decreased work satisfaction and performance to missing workdays from injuries to leaving the profession.[2] Reducing or mitigating assaults is essential to ensuring the safety of the emergency department environment. Accordingly, some researchers have suggested having a response team to reduce the prevalence of OWPV and improve safety.[1] Implementing a behavioral emergency response team (BERT) to respond to people demonstrating increased agitation or violence in the emergency department may be a process that mitigates and eliminates assaults.

Local Problem

In March 2022, OWPV were reported at a rate of 1 to 2 per month at the project site emergency department. The actual number of threats or occurrences was unknown due to lack of reporting by the emergency nurses as identified in the perception of safety survey. Researchers have concluded that OWPV have become significantly higher in emergency departments and that lack of training, lack of security support, and overcrowding are contributing factors.[6] As the number of OWPV continues to rise in the emergency department setting, the numbers are underreported, and processes need to be put into place to mitigate the events.[7] The impact of OWPV has a negative impact on nurses' perceptions of safety.[8] Implementing a BERT protocol focused on responding to OWPV provides a team approach using individuals who have been trained in de-escalation techniques.

Available Knowledge

Workplace violence is defined as actions taken against an individual while in the workplace, either verbal or physical, which are intended to cause intimidation, bodily harm, or property damage.[6] Threats, intimidation, and abusive actions toward authority are examples of workplace violence.[6] A literature review of emergency department-specific protocols revealed that using a team approach to behavioral emergencies had produced successful outcomes.[1,9] The number of aggressive and violent occurrences continues to rise across acute care organizations, and emergency departments are frequently the place where the events occur.[7] More than 10% of incidents of violence in the workplace occur in health care settings, mainly in the emergency department, but prevalence appears low due to underreporting.[7] As researchers[2] have suggested, reducing occurrences of assault can improve the work environment and increase workers' perceptions of safety.[8]

Rationale

The Joint Commission and the Occupational Safety and Health Administration are encouraging organizations to create and implement processes to address OWPV and create safe environments for nurses to work in and for patients to receive care.[5,6,10] Introducing a process such as a BERT to mitigate OWPV has been shown to improve the environment in which health care providers practice.[9,10]

Specific Aims

The purpose of the project was to design, implement, and evaluate the effectiveness of a BERT protocol in the emergency department to reduce the number of OWPV by 25% and increase the perceptions of safety of the emergency department nurses, physicians, and technicians by 10%.

Methods

DESIGN

A quality improvement (QI) design used a preimplementation and postimplementation survey. Approval was granted by the hospital Institutional Review Board. Participants were informed of voluntary participation in the survey and ability to withdraw at any time without penalty. Consent was obtained via active participation in the survey.

CONTEXT

The QI project was implemented in an inner-city not-for-profit hospital in central South Carolina. The hospital has 296 inpatient beds, 35 emergency department beds, and a locked 5-bed unit for patients with behavioral health problems. The emergency department is 1 of 10 within the 12 campuses in the health care system. The number of annual emergency department visits for fiscal year 2020 was 21,191,[11] and for fiscal year 2021 the number was 33,090.[12] There were 85 team members employed in the emergency department at the project site, including registered nurses, licensed

practical nurses, patient support technicians, physicians, and physician assistants.

INITIAL INTERVENTION DEVELOPMENT AND IMPLEMENTATION

BERT Respondents

A team approach was used to respond to occurrences of aggression, verbal threats, threatening behavior, and violence toward people or property and begin to de-escalate such events to reduce harm to patients or emergency staff. The team comprised 3 individuals: an emergency RN, a behavioral health assessment and referral team member, and a member from security. Behavioral health assessment and referral team members are licensed social workers trained to deal with the behavioral health population. All team members assigned to the BERT responder role received individual training before implementing the BERT protocol. Emergency nurses, behavioral health assessment and referral team members, and security members rotated in and out of the team based on their working schedule and shift, because team members work rotating days. Their role in implementing the BERT protocol was in addition to their regular daily assignments, because BERT was not a free-standing team.

Intervention Training

The program director provided in-person educational in-services to nurses, security personnel, and behavioral assessment and referral team members who would be BERT respondents. An educational PowerPoint presentation was sent out to the physicians and physician assistants simultaneously. Education included data related to OWPV that had occurred in the setting during the past 4 months to provide for the intervention's needs and teach workers the process of the BERT protocol, including notification when a patient or visitor starts to have increased anxiety or aggression. BERT notification was an overhead page in the emergency department to notify the BERT respondents to report to the nurse's station to receive a preintervention briefing on a patient. The expected response time was as short as possible. A team lead or designee recorded the time on the electronic debriefing tool postintervention. A preintervention report was provided by the primary nurse or team member who initiated the BERT protocol. The report included a brief history of the patient, any known escalating events, potential safety risks for a patient or team members, and information about what led to the increased aggression. Education included completing a security event report through the hospital security department. Lastly, the team lead or designee completed an electronic debriefing form to provide real-time wins and opportunities related to the OWPV.

TABLE 1
Project timeline

Week of project	Project implementation
Weeks 1-2	Obtained email addresses for surveys, emailed surveys to recruit participants, provided informed consent via survey email, and collected preimplementation data related to occurrences of workplace violence during the previous 4 months. Provided in-person in-service educational sessions
Weeks 3-8	Ongoing intervention, debriefings with CPI instructor 24-48 hours post-BERT protocol implementation, real-time training related to feedback from debriefings, DNP project manager observing and coaching and providing real-time education related to not calling BERT
Weeks 9-12	Extended project timeline due to lack of BERT data; intervention increased to cover every day and 24 hours a day
Weeks 13-14	Postimplementation survey sent out, collection of occurrences of workplace violence during the implementation phase
Weeks 15-20	Collection of occurrences of workplace violence during the postimplementation period

BERT, behavioral emergency response team; CPI, Crisis Prevention Institute; DNP, Doctor of Nursing Practice.

Instruments/Data Collection

Implementation of the project started with education and survey distribution simultaneously on June 22, 2022 (Table 1). The survey was distributed to the participants within 24 hours after review and approval by the institutional review board. At the 2-week mark, the survey was closed, education was completed, and implementation of the BERT protocol started on July 6, 2022 at 7 AM (on

TABLE 2
Perception of safety survey results

Variable	Preimplementation	Postimplementation
Shift		
Day	61.9%	66.7%
Mid	23.8%	9.5%
Night	16.7%	23.8%
Perception of safety		
N	42	21
Mean	2.16	2.95
Median	2	3
SD	0.92	0.86
Confidence interval	0.7619, 1.1744	0.6615, 1.2486
Trained to report occurrences of workplace violence (%)	85%	90%

day shift); BERT implementation-related activities took place only on Monday through Friday. This time frame was chosen, because the project chair was available to provide support and education, and to answer questions related to the QI project during these times.

Two weeks into the implementation, data for OWPV from the security database was completed. After 8 weeks of implementation, the survey was administered to the participants for postimplementation assessment. The data for OWPV were collected for the 8-week implementation period. The assessment of perception of safety was obtained within 2 weeks postimplementation. Analysis of the influence of the BERT protocol on the number of OWPV took place within 8 weeks postimplementation.

Intervention Implementation

The BERT protocol was initiated by any team member in the emergency department who felt that a patient or visitor had shown escalating behavior that was dangerous to the patient, members of the health care team, or the environment. An overhead page was sent out to the emergency department staff. The team responded to the location as quickly as possible. Information from the primary nurse or designee, including patient name, admitting diagnosis, any health history, and events leading up to the BERT activation was provided during the preintervention huddle. Any increased safety issues such as violent behavior or threats also were communicated about with the BERT. The BERT protocol checklist was a template that provided a list of the information that was necessary to have during the preintervention huddle. Once the team received the information, the most appropriate lead from the team was chosen based on the individual's ability to relate to the patient or visitor. The remainder of the team served as support for the team lead and to provide aid if needed. The team engaged with the patient/visitor using de-escalation techniques. The goal of the BERT was to de-escalate the situation without either the patient or the emergency staff being harmed.

After the event had been resolved, the team leader or designee completed the electronic debriefing form. An in-person/virtual verbal debriefing was used to identify opportunities to improve and also the wins that were present. Within 24 to 48 hours, a Crisis Prevention Institute (CPI) lead instructor from the inpatient behavioral health department performed a verbal debriefing with the BERT respondents about successes and opportunities for improvement, if necessary. CPI training focuses on prevention and de-escalating techniques using verbal skills to decrease OWPV and injuries and increase patient and staff safety.[13] The CPI instructor was a subject matter expert in de-escalation techniques who provided real-time education to the BERT respondents. The project director was included in the debriefing sessions to capture the information and share it with the stakeholders and implement any necessary changes to the BERT protocol. Debriefings discussed what worked well, how the team felt the situation had been managed, any barriers identified, any lessons learned, and how the team felt mentally and emotionally to determine

whether follow up was needed. After the debriefing, written documentation of the discussion was provided to the project manager.

INTERVENTION REVISION

At the 4-week mark of implementation of the BERT protocol, only 1 activation of the BERT had been initiated. Feedback from the team members was to extend the project to include every day of the week and make it 24 hours a day, because many events were occurring at night. Due to the lack of data and at the request of team members, the project timeline was extended by 4 weeks. On July 28, 2022, BERT protocol activation changed to 7 days a week and 24 hours a day.

STUDY OF THE INTERVENTION

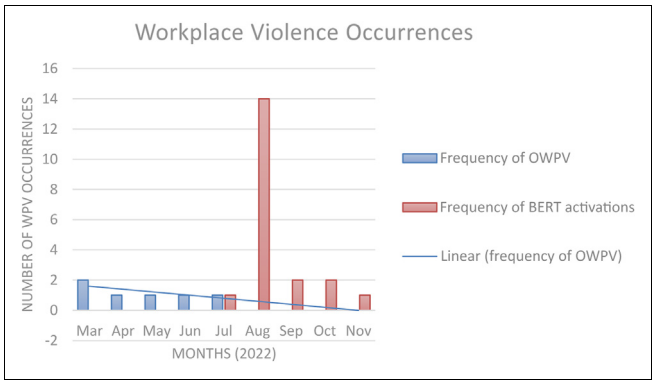
Data Sources

From March 1, 2022 to November 9, 2022, the number of OWPV was obtained from the security services event report and imported into an Excel spreadsheet in Research Electrocin Data Capture (REDCap) for analysis. REDcap is a secure, HIPAA compliant web application used for surveys. The emergency team members were surveyed preimplementation and postimplementation of the BERT protocol using a perception of safety survey from the Emergency Nurses Association after permission was obtained to use and modify the survey. Modification of the Emergency Nurses Association tool narrowed the focus to specifics related to the QI project. Survey modifications resulted in our using 3 questions from the survey with an additional demographic question. Survey questions included the shift the team member worked, a rating of how safe the team member felt from OWPV, whether the team member had been instructed to report WPV, and whether the team member had reported OWPV.

Analysis

In the perception of safety survey, the number of participants, shift worked, perception of safety, and instruction to report OWPV were obtained pre- and postimplementation. A 5-point Likert scale was used in the survey to measure perception of safety, with 0 indicating not safe at all to 5 indicating completely safe. Data on the number of OWPV reported, shift team member worked, and event time were collected.

Descriptive statistics were used to compare the nominal data related to groups identified in the survey related to shift work and the perception of safety. Means, medians, standard deviations, and confidence intervals were used to analyze the data. The number of OWPV was calculated each month using the security services event reporting system.



FIGURE

Total number of occurrences of workplace violence per month pre-, intra-, and post-implementation of the BERT protocol. BERT, behavioral emergency response team; OWPV, occurrences of workplace violence.

Results

Forty-three participants were included in analyses of the preimplementation data, and 21 participants were included in the postimplementation data related to perception of safety. Professional role, age, and the respondent's name were not included in the survey to maintain confidentiality (Table 2). Most of the participants worked day shift, 61.9% (n = 26 of 42) of them preimplementation and 66.7% (n = 14 of 21) of them postimplementation.

PERCEPTIONS OF SAFETY

Participants' perception of safety was lower preimplementation (mean = 2.16, SD = 0.92, 95% CI [0.76, 1.17]). Participant had a higher perception of safety postimplementation with mean 2.95 (SD = 0.86, 95% CI [0.66, 1.25]) (Table 2). The percentage increase in perception of safety was 36.5%. Although the increase was not statistically significant, the participants demonstrated that they were aware of the risk for violence.

REPORTING OCCURRENCES OF WORKPLACE VIOLENCE

OWPV were to be reported to allow tracking of prevalence and follow up. The majority of the participants stated that they had reported occurrences both preimplementation

and postimplementation (71.4% [n = 30 of 42] and 70% [n = 14 of 20], respectively). No significant difference was noted after the implementation of the BERT protocol. Most participants (83.7% [n = 36 of 42] pre and 90.4% [n = 19 of 21] post) stated that they had been instructed to report physical and verbal abuse regardless of the level of severity or harm. Comparing preimplementation (83.7% [n = 36 of 42]) and postimplementation (90.4% [n = 19 of 21]) data indicated a slightly higher rate in response to trained to report OWPV after implementation of the BERT protocol when training included instructions to report. An unintended positive outcome of increased reporting is that it provides more accurate data, such as data on prevalence and type of WPV, for future interventions.

OCCURRENCES OF WORKPLACE VIOLENCE

Data on OWPV were obtained through the security reporting database. Preimplementation, 1 to 2 occurrences were reported per month. Intraimplementation and postimplementation, 0 occurrences were reported (Figure).

During the initial 4-week data collection period, there was only 1 BERT activation. Reeducation then was provided to the team. A competitive approach to having the highest number of BERT activations was initiated between the day shift and night shift staff. Over the next 4 weeks, a total of 14 more BERTs were activated.

Workers' perceptions of safety increased by 36.5% along with a reduction of OWPV to 0 postimplementation of the BERT protocol, higher than the expected outcomes of a 10% increase in the perception of safety and a 25% decrease in OWPV.

Discussion

SUMMARY

The aim of the QI project described herein was to decrease the number of OWPV in the emergency department and increase the perception of safety of the team members employed at the project site. Researchers have concluded that implementing BERT protocols reduce OWPV and positively affects team member satisfaction and perception of safety.[9] Before implementing the BERT protocol, the site did not have a protocol in place to address OWPV. Reporting of OWPV decreased as BERT activations were reported using the organization's safety reporting tool. The perception of safety survey preimplementation and postimplementation was essential to determine how the BERT protocol affected the team members.

The utilization of descriptive statistics following the implementation demonstrated a decreased number of occurrences reported (14 occurrences vs. 0) and an increase in perception of safety (36.5% increase). During the QI project, the times when the team could activate the BERT were changed to 24 hours a day 7 days a week in response to feedback from the participants. After this change, the number of activations of the BERT protocol increased from 1 to 14, likely a co-result of the competition between shifts.

The project's outcomes have been disseminated within the organization. Other emergency departments and inpatient units within the health company have requested more information to implement the BERT protocol. Nonemergency settings in health care are also at risk for OWPV and need processes in place to address the problem.[14] The BERT protocol can be an effective process for an emergency department and any inpatient setting within an organization. Non-mental health or emergency personnel may not have the de-escalation skills to effectively deal with OWPV, and the BERT process can assist with ensuring the safety of the team members.[1] The BERT protocol can increase the safety of the patients, team members, and visitors by creating a safer environment in which to receive and practice health care.[14]

Future research can include implementation of the BERT protocol in other health care settings, including inpatient settings, to evaluate whether protocol implementation has the same impact that we observed in an emergency department.[1,14] The team approach has been shown to be effective.[9,14,15] Additional research should include a debriefing tool to obtain data post-event on team members' input regarding the event.[13]

INTERPRETATION

The results of this project indicate that the BERT protocol may be an effective process to implement within the emergency department setting. The protocol was used around the clock to capture OWPV during any time of the day. The standardized team approach provided an effective process to increase the safety of the team and patients seeking care in the emergency department setting.

Limitations

Limitations of the project include the number of participants in the survey preimplementation and postimplementation. Due to the need for anonymity of the survey participants, our choices of statistical tests for a comparison

of presurvey and postsurvey data were limited. The project was implemented at only 1 site, which limits generalizability. Due to the requirement that study participants be anonymous, no independent samples could be used for statistical analysis. During the first 4 weeks of implementation, an increased need for activating a BERT was noted. After education and development of a competitive atmosphere among team members, a significant increase in BERT team member activations occurred over the next 4 weeks.

Implications for Emergency Nursing

Creating a BERT team should start with identifying individuals engaged in creating a safer workplace. The BERT team may consist of other members of the organization, such as engineering, chaplaincy, administrators on duty, supervisors, or others. The team will need structured education in de-escalation skills through training such as CPI. Once implemented, the appropriate team members should meet regularly to analyze the data related to events and outcomes that have been collected.

OWPV affects all nursing disciplines, although it occurs most often in emergency and behavioral health settings.[15] The increased mental stress, perception of lack of safety, and increased emotional and physical injuries related to OWPV have a negative impact on the nursing profession and patient outcomes.[3,15-17] Implementing a BERT protocol in the emergency department reduced the number of OWPV to 0 during the project implementation period. It also increased the team members' perceptions of safety. Emergency nurses equipped with the skills to effectively decrease OWPV may have an impact on the mental well-being and stress experienced by nurses and other team members.

Conclusion

The BERT protocol was developed, implemented, and evaluated for its effectiveness in decreasing OWPV and increasing the perception of safety among the team members in an emergency department. BERT protocol activation increased over time through initial training, just-in-time training, and the incorporation of team member feedback. Activating the BERT protocol empowered the team to decrease the number of reported OWPV and increased the perception of safety. Additional research is recommended to determine the implications of the protocol within other disciplines of nursing and other emergency departments.

Author Disclosures

Conflicts of interest: none to report.

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Screening for Behavioral Health Patient Aggression in Emergency Departments to Reduce Workplace Violence

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Contribution to Emergency Nursing Practice

- Patient aggression affects health care workers beyond the physical impact; psychological trauma also occurs due to unsafe health care work settings. Supported by recent literature, structured risk assessments that prompted aggression reducing interventions were found to be more successful than staff observations alone within the BH inpatient setting.
- Protocols including early multicomponent interventions including de-escalation, diversional activities, and/or medications may be instrumental when reducing the risk of aggressive outbursts with BH patients.
- Incorporating a screening tool that empowers emergency nurses and technicians to use observation skills and quickly identify which patients may be more prone to aggressive outbursts can provide a safer environment for both patients and health care workers alike.

Abstract

Introduction: Patient violence in health care facilities occurs daily. Structured risk assessments, when regularly completed, have been effective in prompting interventions to reduce aggression in Behavioral Health (BH) settings.

Methods: This quasi-experimental study evaluated the effectiveness of the Dynamic Appraisal of Situational Aggression – Inpatient Version (DASA) validated screening tool to reduce aggressive outbursts in an emergency department (ED) setting with BH patients awaiting transfer to a psychiatric facility. The tool was used in 4 non-psychiatric EDs from a large health care system. Chart audits were completed to record initial patient DASA scores observed at triage and at subsequent intervals during the ED encounter. ED staff documented interventions used for patients. Inclusion criteria included adults 21 years and older following a telepsychiatry consultation with a recommendation for BH inpatient admission. Pre-/post-implementation aggressive events were collected to assess ED DASA use. DASA scores from BH ED patients were examined to increase understanding of patient utilization. Staff workplace safety was examined to compare staff safety perception pre- and post-DASA implementation.

Results: Violent events were reported statistically significantly higher post-DASA implementation. There was an increased risk of elevated DASA scores for specific diagnoses and genders. An increased awareness of the importance of reporting workplace violence improved documentation.

Discussion: Using an evidence-based screening tool helped identify BH patients with behaviors associated with aggressive ED events. Proactive use of interventions, including use of Comfort Cart items, de-escalation, and prescribed medications, can positively influence reduction of risk from aggressive behaviors within BH patient populations in EDs.

Key words: Psychiatric; Aggression; Screening; DASA; Emergency department; Workplace violence; Comfort cart

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Introduction

Health care workers are at risk of workplace violence (WPV) from patients in all settings, not just psychiatric facilities, and it occurs daily.[1-7] Behavioral health (BH) patients in crisis arrive at emergency departments and require stabilization, often waiting extended periods of time for hospital admission. Often, BH patients remain under ED care while waiting for an inpatient bed rather than wait in admissions for medical care.[8-10] BH patients are more likely to require admission than patients with other conditions and remain in emergency departments for days, and even weeks, without definitive mental health or BH care.[11-13]

Patient aggression affects health care workers beyond the physical impact; psychological trauma also occurs owing to unsafe health care work settings.[14-16] In 2018, the Joint Commission released Sentinel Event Alert #59: "Physical and verbal violence against health care workers."[17] The Sentinel Event Alert recommended hospitals implement a screening tool for potential violent patient events. Supported by recent literature, structured risk assessments that prompted aggression-reducing interventions were found to be more successful than staff observations alone within the BH inpatient setting.[18,19] Exploring the effectiveness of structured assessment tools in other health care settings may be beneficial to reduce occurrences of patient violent events.[20-22]

The Dynamic Appraisal of Situational Aggression (DASA)–Inpatient Version is a validated, predictive risk evaluation tool used to identify a patient's likelihood of aggression within inpatient BH settings.[23] It consists of 7 observed behavioral elements that allow for consistent recognition of high-risk patients. The tool proactively allows staff to provide support or initiate interventions to de-escalate patients before outbursts occur.[24] The DASA tool elements include (1) irritability, (2) impulsivity, (3) unwillingness to follow directions, (4) sensitive to perceived provocation, (5) easily angered when requests are denied, (6) negative attitudes, and (7) verbal threats. DASA uses binary scoring, with "yes" to indicate this behavior is present (and a score of 1 is assigned) or "no" the behavior is not present (and a score of 0 is assigned). The possible range of scores is 0 to 7 with 0 to 1 indicating low risk, 2 to 3 indicating medium risk, and 4 to 7 indicating high risk.[23]

Using the DASA tool in BH inpatient settings has shown positive results that include reduced number of restrictive interventions, decreased time in restraints, and fewer patient injuries.[23,25,26] DASA was found to be highly effective when evaluating BH patients for violence or aggression in an ED setting.[18] In addition, DASA was more effective when it was completed on a frequent, consistent basis.[18,27,28] Using the DASA tool and associated interventions to prevent violent episodes may be an important step to increasing safety in health care environments.

Regardless of screening tool use, ED staff under-report WPV, because they accept this as a part of their typical shift work; therefore, the actual frequency and occurrence of WPV are largely unknown.[29-31] ED staff reported violence using methods other than the organization's event reporting system (eg, hospital security/police reports). Formal documentation reporting systems have been cited as a barrier to reporting owing to being difficult and time consuming to use.[32,33]

Multiple aggression screening tools are available for BH patients, such as the Broset Violence Checklist, Brief Psychiatric Rating Scale-Excited Component, SMART Medical Clearance Form, and Short-Term Assessment of Risk and Treatability.[34-37] These tools showed similar outcomes to DASA regarding utility and results compared with unaided clinical judgments.[38-41] DASA also was shown to be more efficient, because it took less time for providers to complete.[25,35,37] There is limited evidence of using DASA in the emergency department for BH patients, which warrants further investigation.[18]

PRELIMINARY WORK AND STUDY PURPOSE

In 2018, a large health care organization in the southeastern United States successfully conducted an internal pilot study implementing and examining DASA's effectiveness in 2 inpatient psychiatric units. Unpublished study results included decreased patient/staff injuries, reduced number of restrictive interventions, and reduced number of minutes in restraints. The BH nursing leadership team agreed to implement DASA documentation across the entire inpatient service line. The DASA tool was built within the electronic health record (EHR) as part of the BH service line's implementation. The BH nursing leadership team requested incorporating DASA documentation into BH ED records, which resulted in similar findings to the inpatient BH units. The DASA tool was chosen for this study owing to current use across the organization's BH inpatient and ED locations.

The purposes of this study were to (1) examine the utility of the DASA tool to identify and reduce potential aggressive events by ED patients awaiting transfer to a BH inpatient facility, (2) coordinate DASA scores with appropriate interventions including administration of PRN (as needed) medications to address agitation, and (3) evaluate

staff perception of safety before implementation/after implementation.

Methods

Guided by the Strengthening the Reporting of Observational Studies in Epidemiology observational research checklist, this quasi-experimental study evaluated the effectiveness of using the DASA screening tool to guide interventions aimed at reducing violent and aggressive behavior in an ED setting with BH patients awaiting transfer to a BH facility. The time period for this research study was September 1, 2019, to March 31, 2020. The pre-DASA implementation time period was September 1, 2018, to March 31, 2019. Using the same protocol for all consultations, psychiatric assessments were completed virtually with the psychiatrist who then provided the BH patient care recommendation to ED staff.

DASA SCREENING TOOL IMPLEMENTATION PROCEDURES

The study team received permission from the author/creator of the screening tool to use the DASA scores in a non-BH patient care setting for study purposes.

The ED clinical nurse specialist and ED leaders from all study locations agreed to (1) add DASA documentation elements to the EHR for emergency departments including scoring totals and (2) emergency nurses recording DASA scores every 8 hours at 6 AM, 2 PM, and 10 PM and document behaviors seen during the previous 8 hours. The first DASA score for the patient was recorded when the ED BH patient care protocol was initiated at triage and then continued with 8-hour intervals during the ED stay. Consistent documentation of DASA scores was a primary focus during DASA implementation training.

DE-ESCALATION TRAINING AND INTERVENTIONS

Prerequisite ED training from the Crisis Prevention Institute Nonviolent Crisis Intervention Training was reinforced with emergency nurses and ED technicians, which included de-escalation skills.[42] The research team created an online learning module that included information about the ED staff's role in this study and how the reduction of violent events can improve workplace safety. ED leaders ensured staff completed the module through the organization's learning management system. ED staff were aware the research team would be collecting and reviewing data for all aggressive events, restrictive interventions, medications administered, and reported injuries.

Physician/advanced practice provider training included education regarding study awareness and goals to reduce WPV. Education included reviewing DASA scores and associated risk levels in the EHR. Nurses were educated to notify providers of escalating DASA scores with aggressive behaviors and ask for medication orders as needed.

Supplemental education regarding the use of complementary interventions (ie, therapeutic items, self-soothing methods, or providing distraction) also was provided to ED staff to support BH patients (see Table 1). Comfort Carts were stocked with items such as stress balls, puzzles, coloring books/crayons, and sugar-free hard candies, among other soothing items, and were available for staff to offer any patient needing distraction or help managing their emotions while waiting for care (ie, telepsychiatry evaluation, BH inpatient bed placement, or transport).

SETTING AND SAMPLE

The target population for this study included patients from 4 acute care (nonpsychiatric) emergency departments: a trauma center, a freestanding emergency department, and

TABLE 1
Interventions based on DASA score

DASA score	Interventions
"Low" risk (scores 0-1)	• No interventions needed • Continue routine monitoring
"Medium" risk (scores 2-3)	• Increased awareness of behaviors • Consider interventions ○ Offer PRN medications ○ Limit setting with patient ○ Distraction
"High" risk (scores 4 or higher)	• Increased awareness of behaviors • Notify emergency provider of increased aggression or elevated DASA score • Consider interventions ○ Offer PRN medications ○ Limit setting with patient ○ Distraction ○ Restraints if ordered

DASA, Dynamic Appraisal of Situational Aggression; PRN, as needed.

TABLE 2
Aggressive events in the workplace 2018 to 2019 vs 2019 to 2020

DASA implementation time period	DASA monthly aggressive events (median)	*P* value
Pre-DASA implementation (September 2018-March 2019)	2.0	.029*
Post-DASA implementation (September 2019-March 2020)	7.0	

DASA, Dynamic Appraisal of Situational Aggression.
* Statistically significant *P* value ($P < .05$).

2 rural emergency departments from a large health care system; locations were selected based on their geographic location and utilization of same telepsychiatry protocols. Inclusion criteria for this study included patients who (1) were at least 21 years of age, (2) had a telepsychiatry consult, and (3) received a recommendation for BH inpatient admission after the BH provider consultation. Exclusion criteria excluded patients who (1) were admitted for acute medical care, (2) died during ED stay, or (3) were discharged from the emergency department. To examine patient drug use upon ED admission, the substance use panel screened for amphetamines, barbiturates, benzodiazepines, cocaine, marijuana, and opiates.

Approval was obtained from the institutional review board before study commencement. Following the DASA guidelines for inpatient BH care, the same risk categories were implemented in the ED setting for this study.

PROCEDURES: RETROSPECTIVE DATA REVIEW

The research team purposefully used retrospective data from the same sequential months in the previous year to avoid any seasonal bias for BH-related admissions (September 1, 2018, to March 31, 2019). There were 961 ED telepsychiatry adult consults completed, with an average 50% to 60% of those patients being admitted. The comparative sample size calculations were completed before data collection at 80% power.

Approximately 1200 patient records were reviewed by registered nurses on the research team to identify records that met the inclusion criteria for a final sample size of 498 patients.

Data were entered and managed using Research Electronic Data Capture (REDCap; project-redcap.org) hosted by the large health care system. REDCap is a secure, web-based application designed to support data capture for research studies.[43] The first 10 DASA scores, as well as documented interventions for each patient encounter, were entered into a REDCap database. The average ED length of stay for patients awaiting BH admission was approximately 3 days.

PRE-DASA/POST-DASA IMPLEMENTATION STAFF SURVEY

The research team developed a brief 8-item Likert scale survey for staff to provide their perception of indirect benefit of DASA implementation. The ED staff at the study locations completed this survey before the initiation of DASA and at the end of the study. The frontline ED staff were asked whether they worked with aggressive patients and to rate their knowledge identifying and addressing potential patient aggression.

MEASURES AND DATA ANALYSIS

Using a quasi-experimental study design, a nonparametric Wilcoxon rank sum statistical test assessed the number of aggressive patient events between pre-DASA and post-DASA implementation groups to examine the effect of DASA use in the emergency departments.

In addition, documented interventions for each DASA score (ie, nonpharmacological interventions, restrictive interventions, and use of medication) were collected for the post-DASA implementation patient group. Medication names or administered doses were not collected for this study. Medications were administered to provide a safer care environment for patients/staff and decrease crisis symptoms. Recorded interventions included medications and nonmedications such as distraction, time spent talking with patient, providing comfort items such as a warm blanket, use of a Comfort Cart item, medication, restraint, or any other action to prevent or respond to an aggressive outburst. Interventions were recorded as medication or nonmedication interventions for this study. Medication intervention use also was examined to understand which DASA scores are linked to medication use. In addition, demographics (including patient gender/ethnicity, admitting diagnosis and positive/negative screening for substance use) of the post-DASA implementation patient group were examined to understand the characteristics of BH patients being admitted to the emergency department.

TABLE 3
DASA score level at each scoring period (each 8 hours) by intervention and medication

Score	Low DASA score (0-1)		Medium DASA score (2-3)		High DASA score (4-7)		Score	Low DASA score (0-1)		Medium DASA score (2-3)		High DASA score (4-7)	
Score 1	Yes	No	Yes	No	Yes	No	Score 6	Yes	No	Yes	No	Yes	No
Was any intervention used? (medication and nonmedication)	96.8% n = 397	3.2% n = 13	69.8% n = 30	30.2% n = 13	83.3% n = 35	16.7% n = 7	Was any intervention used? (medication and nonmedication)	100.0% n = 117	0.0% n = 0	66.7% n = 2	33.3% n = 1	100.0% n = 3	0.0% n = 0
Medication intervention used?			Yes 60.0 n = 18	No 40.0% n = 12	Yes 70.6% n = 24	No 29.4% n = 10	Medication intervention used?			Yes 100.0% n = 1	No 0.0% n = 0	Yes 100.0% n = 3	No 0.0% n = 0
Score 2	Yes	No	Yes	No	Yes	No	Score 7	Yes	No	Yes	No	Yes	No
Was any intervention used? (medication and nonmedication)	96.8% n = 390	3.2% n = 13	70.0% n = 14	30.0% n = 6	72.7% n = 16	27.3% n = 6	Was any intervention used? (medication and nonmedication)	97.6% n = 80	2.4% n = 2	100.0% n = 5	0.0% n = 0	100.0% n = 6	0.0% n = 0
Medication or intervention used?			Yes 61.5% n = 8	No 38.5% n = 5	Yes 68.8% n = 11	No 31.2% n = 5	Medication intervention used?			Yes 80.0% n = 4	No 20.0% n = 1	Yes 100.0% n = 5	No 0.0% n = 0
Score 3	Yes	No	Yes	No	Yes	No	Score 8	Yes	No	Yes	No	Yes	No
Was any intervention used? (medication and nonmedication)	98.4% n = 308	1.6% n = 5	73.7% n = 14	26.3% n = 5	73.7% n = 14	26.3% n = 5	Was any intervention used? (medication and nonmedication)	100.0% n = 66	0.0% n = 0	50.0% n = 1	50.0% n = 1	0.0% n = 0	0.0% n = 0
Medication intervention used?			Yes 66.7% n = 8	No 33.3% n = 4	Yes 76.9% n = 10	No 23.1% n = 3	Medication intervention used?			Yes 100.0% n = 1	No 0.0% n = 0	Yes 0.0% n = 0	No 0.0% n = 0
Score 4	Yes	No	Yes	No	Yes	No	Score 9	Yes	No	Yes	No	Yes	No
Was any intervention used? (medication and nonmedication)	97.5% n = 236	2.5% n = 6	69.2% n = 9	30.8% n = 4	63.2% n = 13	36.8% n = 6	Was any intervention used? (medication and nonmedication)	100.0% n = 47	0.0% n = 0	100.0% n = 1	0.0% n = 0	100.0% n = 3	0.0% n = 0
Medication intervention used?			Yes 77.8% n = 7	No 22.2% n = 2	Yes 84.6% n = 11	No 15.4% n = 2	Medication intervention used?			Yes 0.0% n = 0	No 0.0% n = 0	Yes 100.0% n = 2	No 0.0% n = 0

continued

TABLE 3
Continued

Score	Low DASA score (0-1)		Medium DASA score (2-3)		High DASA score (4-7)		Score	Low DASA score (0-1)		Medium DASA score (2-3)		High DASA score (4-7)	
Score 5 Was any intervention used? (medication and nonmedication)	Yes	No	Yes	No	Yes	No	Score 10 Was any intervention used? (medication and nonmedication)	Yes	No	Yes	No	Yes	No
	99.4% n = 163	0.6% n = 1	66.7% n = 4	33.3% n = 2	100.0% n = 9	0.0% n = 0		100.0% n = 36	0.0% n = 0	100.0% n = 2	0.0% n = 0	100.0% n = 2	0.0% n = 0
Medication intervention used?			Yes	No	Yes	No	Medication intervention used?			Yes	No	Yes	No
			75.0% n = 3	25.0% n = 1	44.4% n = 4	55.6% n = 5				100.0% n = 2	0.0% n = 0	50.0% n = 1	50.0% n = 1

DASA, Dynamic Appraisal of Situational Aggression.

Responses to the 8-item staff survey were compared using chi-square analyses to examine the differences between the pre-implementation and post-implementation responses, because the data were not normally distributed. *P* value was set to .05 for all analyses.

Results

When comparing the number of pre-DASA implementation and post-DASA implementation aggressive events, there was a statistically significant increase in documented aggressive events reported by staff (Table 2).

Patient records were reviewed for documentation of interventions or medications administered for DASA scores medium risk (2-3) or high risk (4-7) (Table 3).

The final sample size for the post-DASA implementation patient group was 498 patients—approximately 55.0% males and 45.0% females (Table 4). The primary ED discharge diagnoses for BH inpatient admission included 36.1% for depression, 12.1% for schizophrenia, 14.3% for bipolar disorder, 11.5% for suicidality, 4.6% admitted for substance use, and 21.4% for other diagnoses.

The diagnoses with the most high-risk scores were schizophrenia and bipolar for all time periods ranging from 21.1% to 0.0%; DASA scores decreased over time for schizophrenia but not those with a bipolar diagnosis. Patients with a bipolar diagnosis also had, on average, consistently longer ED stays than the overall BH sample population (2.4 days vs 1.8 days, respectively). The diagnoses with the fewest number of High DASA scores were depression, suicidality, and substance use disorders. Each of these diagnoses accounted for less than 5% of high-risk scores over the 3-day window (Figure). More than half of the study population had a positive test result for substance use, regardless of diagnosis (55.3%). There was a small number of patients with positive alcohol results (17.9%).

When examining gender differences, women had slightly more high-risk scores for day 1 than men (score 1, 52.4% vs 47.6%; score 2, 59.1% vs 40.9%; score 3, 57.9% vs 42.1%). This trend was reversed on day 2 (score 4, 36.8% vs 63.2%; score 5, 22.2% vs 77.8%; score 6, 0.0% vs 100.0%). Day 3 scores included 3 recorded high-risk scores; all were men.

When comparing the pre-implementation and post-implementation responses (130 vs 101, respectively), 2 of the 8 survey questions demonstrated statistically significant differences before and after DASA implementation, indicating an improved perception of workplace safety (Table 5).

TABLE 4
Demographics of patient sample ($N = 498$)

Demographic variable	N	%
Sex		
Male	273	54.8
Female	223	44.8
Other	2	0.4
Race		
Caucasian	300	60.2
African American/Black	174	39.9
Asian	4	0.8
Native Hawaiian/Pacific Islander	1	0.2
American Indian/Alaskan Native	11	2.2
Unknown	8	1.6
Ethnicity		
Hispanic or Latino	30	6.1
Not Hispanic or Latino	463	93.9
Positive for substance use		
Yes	268	55.3
No	217	44.7
Positive for alcohol use		
Yes	87	17.9
No	399	82.1
Diagnosis		
Depression	179	36.1
Other	106	21.4
Bipolar	71	14.3
Schizophrenia	60	12.1
Suicidal	57	11.5
Substance use	23	4.6
Mania	0	0.0
Other diagnosis ($N = 106$)		
Schizoaffective disorder	30	28.3
Psychosis	16	15.1
Mood disorder	14	13.2
Adjustment disorder	9	8.5
Neurocognitive disorder	8	7.6
PTSD	7	6.6
Anxiety	6	5.7
Personality disorder	5	4.7
Substance-induced disorder	3	2.8
Violent thoughts/behavior	2	1.9
Panic disorder	2	1.9
Acute stress reaction	1	0.9
Autism	1	0.9
Selective mutism	1	0.9
Social phobia	1	0.9

PTSD, posttraumatic stress disorder.

Discussion

The aims for this study were successfully attained, although provided unexpected results. When examining the utility of the DASA tool in the emergency department, the results indicated that there was a statistically significant increase in aggressive events between pre-DASA and post-DASA implementation, which was not expected. When comparing the pre-DASA period (September 2018-March 2019) with the post-DASA period (September 2019-March 2020), it was noted that documentation of use of restrictive interventions increased by 116% (18 vs 39) and number of reported aggression events increased by 25% (47 vs 59) for all sites. The DASA study team raised awareness that WPV events should be consistently reported through the organization's incident reporting database; therefore, the increased reporting of WPV events was likely caused by increased education and the encouragement to report violent/aggressive events. Consistent with the team's findings, previous research also has indicated that increased reporting of WPV events was caused by WPV education.[44]

In addition, there were gender differences in our study population. Results revealed female patients had more aggressive events and higher DASA scores than males for day 1 of ED admission. However, male patients had higher DASA scores documented on days 2 and 3 with increased documented length of stay. This finding aligns with the Morbidity and Mortality Weekly Report (2016-2018) that stated there were 43.9 ED visits per 1000 persons per year with a BH disorder and represented more female visits overall.[45] These findings also coincide with previous research; however, the previous study's population differed from this study's population (inpatient mental health setting vs ED setting, respectively).[28] Future research may be valuable identifying correlations between aggressive events with substance use screening results in relation to diagnosis.

Upon further review of DASA scores stratified by diagnosis, the study team felt this information could assist with identifying patient populations at a higher risk of aggressive events. Patients seeking emergency BH care with a

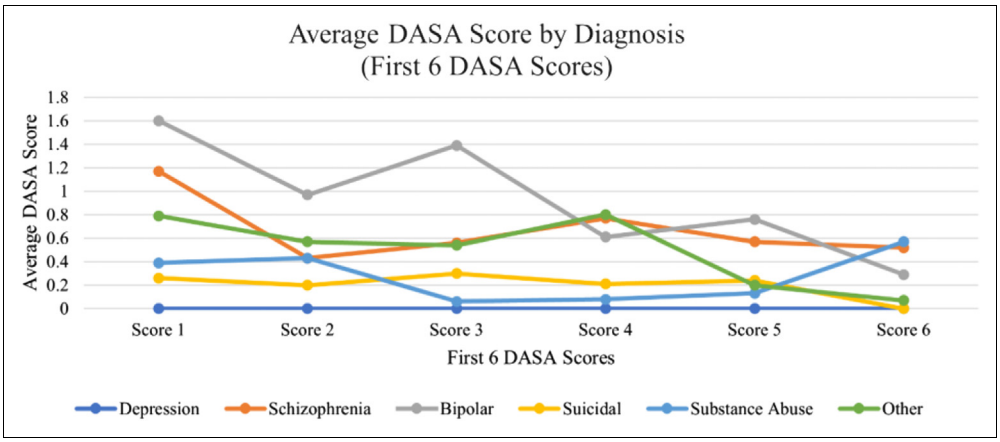

FIGURE 1

Average DASA score by diagnosis at each score every 8 hours. DASA, Dynamic Appraisal of Situational Aggression.

schizophrenia or bipolar disorder diagnosis were more likely to have elevated DASA scores. These diagnoses also were previously identified in the inpatient mental health population with having higher DASA scores.[28]

In addition, these findings support the ongoing collaborative efforts between the pharmacy department and physician leadership in developing medication and intervention protocols to standardize care for high-risk patients. Earlier identification of risk of aggression and the use of interventions may improve patient management and reduce ED lengths of stay. Patients with higher acuity may take longer to secure inpatient admission for proper level of care.

As a supplemental intervention, the primary goal for using Comfort Cart items was to decrease possible conflict occurrences with high-risk individuals. Earlier interventions can help mitigate escalating behaviors and provide a safer environment for staff and patients. Treating the symptoms underlying agitation/aggression promotes therapeutic alliance and supports patients in regaining self-control. Given the limited research on the direct effect of Comfort Cart use, future research could be useful to evaluate the effectiveness of diversional activities with BH patients.

The DASA tool identified differences in risk among patients, supporting its ability to predict aggression. Similar to previous research, the research team concluded that patient aggression event documentation was not consistently completed.[44] Anecdotal comments made by staff nurses such as "it takes too much time" or "nobody looks at that anyway" support the ED staff's lack of consistent reporting.

Staff survey results identified a difference in perceived workplace safety between pre-DASA and post-DASA implementation; however, the direct cause of this difference cannot be determined. Post-implementation survey responses demonstrated favorable increases to the statements "In general, I feel safe when working on my unit" and "My safety is important to my manager/leader." Future research could evaluate the direct relationship between DASA implementation and workplace safety perception.

Limitations

Using the sample limited exclusively to admitted BH patients is a primary limitation. Not all patients with BH-related ED visits are referred for telepsychiatry consults, and approximately half of those evaluated by telepsychiatry do not meet the criteria for inpatient admission. It is unknown how many of these patients had aggressive events. The research team used the top BH-related reasons for ED encounters for analysis rather than the primary admitting diagnosis. Patients were not excluded from the study due to BH diagnosis; this limitation was an observation that did not affect the overall study analysis and results.

During the study phase, a concurrent pilot program was introduced at one study site to include psychiatric technicians (PTs) in the ED staffing matrix to help with milieu management for psychiatric hold patients. The PTs were specially trained in Crisis Prevention Intervention and de-escalation skills focused on managing BH patients. The effect of PTs in the ED setting is an unknown variable for this research study; therefore, we cannot determine the specific impact, because it was not included as part of the initial study scope. Future research regarding the value of PTs in the ED setting may be useful.

TABLE 5
Staff survey results

Survey questions	Pre-study (*N* = 138), %	Post-study (*N* = 101), %	*P* value
I deal with aggressive patients on a daily basis.			
Strongly agree	25.6	30.0	.098
Agree	45.3	29.0	
Neither agree nor disagree	16.8	19.0	
Disagree	11.7	21.0	
Strongly disagree	0.7	1.0	
In general, I feel safe working on my unit.			
Strongly agree	10.87	18.81	.048*
Agree	52.17	60.40	
Neither agree nor disagree	16.67	10.89	
Disagree	17.39	6.93	
Strongly disagree	2.90	2.97	
I receive adequate training in recognizing aggressive behaviors.			
Strongly agree	21.01	27.72	.573
Agree	61.59	56.25	
Neither agree nor disagree	11.59	7.92	
Disagree	3.62	1.98	
Strongly disagree	2.17	0.99	
There is discussion with leaders when patient incidents and/or teammate injuries occur.			
Strongly agree	23.19	31.68	.098
Agree	44.93	48.51	
Neither agree nor disagree	16.67	14.85	
Disagree	13.77	4.95	
Strongly disagree	1.45	0.00	
My safety is important to my manager/leader.			
Strongly agree	37.68	53.47	.015*
Agree	44.20	41.58	
Neither agree nor disagree	10.87	1.98	
Disagree	5.80	2.97	
Strongly disagree	1.45	0.00	
There is enough staff to handle the patient workload (acuity).			
Strongly agree	5.07	9.90	.314
Agree	32.61	32.67	
Neither agree nor disagree	27.54	18.81	
Disagree	26.09	25.74	
Strongly disagree	8.70	12.87	

continued

TABLE 5
Continued

Survey questions	Pre-study (*N* = 138), %	Post-study (*N* = 101), %	*P* value
We often work in "crisis mode" on my unit.			
Strongly agree	8.70	10.89	.961
Agree	32.61	28.71	
Neither agree nor disagree	28.99	29.70	
Disagree	26.09	26.73	
Strongly disagree	3.62	3.96	
Communication between shifts is effective and provides information on patients before I begin my shift.			
Strongly agree	21.01	21.78	.331
Agree	57.25	62.38	
Neither agree nor disagree	10.87	11.88	
Disagree	10.14	2.97	
Strongly disagree	0.72	0.99	
Strongly agree	21.01	21.78	

* Statistically significant *P* value ($P < .05$).

The study design did not evaluate the effectiveness of Comfort Cart use, the specific medications administered based on patient DASA scores, or WPV prevalence. A stronger emphasis on intervention responses to DASA scores would have strengthened this study.

Implications for Emergency Nursing

Tools for detection of potential aggressive events are available to help staff decrease events of WPV. It is imperative that when using these tools, staff follow through on interventions appropriately to maximize efficacy and intended results. When introducing screening tools, such as DASA, nurses and providers must be educated on how to respond appropriately. Empowering clinical staff to recognize potential aggressive behaviors promotes departmental safety preparedness and readiness to proactively intervene when necessary.

The benefit of using the same tool in the emergency department that is currently used by the inpatient BH unit is that the DASA scores can be incorporated in with nursing report. The nurses from the sending/receiving departments using the same scale to evaluate observed behaviors support a more consistent and effective nursing handoff report.

Creating age-appropriate Comfort Carts (toy/play focused vs activity/diversional stimulation) relevant to the patient population provides additional nonpharmacologic patient care options to also help reduce patient aggression. Despite the lack of documentation, anecdotal reports by emergency nurses support the value of Comfort Carts as alternatives to offering medications to prevent or reduce patient aggression.

Incorporating a screening tool that empowers emergency nurses and technicians to use observation skills and quickly identify which patients may be more prone to aggressive outbursts can provide a safer environment for both patients and health care workers alike. As evidenced by the limited survey results, the implementation of the DASA tool improved the surveyed staff perception of safety within their department and perception of leadership's concern for a safe working environment. DASA screening in conjunction with protocols for responding to escalating patients could support and empower ED staff to recognize that patient violence should not be considered a "normal occurrence" and that earlier interventions can help mitigate the risk of aggressive outbursts.

Conclusion

Using a validated screening tool was beneficial when identifying BH patients with behaviors associated with aggressive events. Developing ED BH protocols to respond to elevated DASA scores is a crucial component to assess and mitigate risk to reduce WPV in ED settings. Protocols including early multicomponent interventions including de-escalation, diversional activities, and/or medications may be instrumental when reducing the risk of aggressive outbursts with

BH patients. Increasing staff awareness of the importance of reporting WPV may lead to improved documentation and create safer health care work environments for all.

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Data, Code, and Research Materials Availability

Institutional review board (IRB) approval was granted via expedited review by the organization's IRB panel for this retrospective medical record review (IRB# 04-19-10E).

Author Disclosures

Conflicts of interest: none to report.

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Predicting Workplace Violence in the Emergency Department Based on Electronic Health Record Data

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Abstract

Introduction: Emergency departments are extremely vulnerable to workplace violence, and emergency nurses are frequently exposed to workplace violence. We developed workplace violence prediction models using machine learning methods based on data from electronic health records.

Methods: This study was conducted using electronic health record data collected between January 1, 2016 and December 31, 2021. Workplace violence cases were identified based on violence-related mentions in nursing records. Workplace violence was predicted using various factors related to emergency department visit and stay.

Results: The dataset included 1215 workplace violence cases and 6044 nonviolence cases. Random Forest showed the best performance among the algorithms adopted in this study. Workplace violence was predicted with higher accuracy when both ED visit and ED stay factors were used as predictors (0.90, 95% confidence interval 0.898-0.912) than when only ED visit factors were used. When both ED visit and ED stay factors were included for prediction, the strongest predictor of risk of WPV was patient dissatisfaction, followed by high average daily length of stay, high daily number of patients, and symptoms of psychiatric disorders.

Discussion: This study showed that workplace violence could be predicted with previous data regarding ED visits and stays documented in electronic health records. Timely prediction and mitigation of workplace violence could improve the safety of emergency nurses and the quality of nursing care. To prevent workplace violence, emergency nurses must recognize and continuously observe the risk factors for workplace violence from admission to discharge.

Key words: Emergency department; Machine learning; Workplace aggression; Electronic health record; Predictive modeling

Introduction

Workplace violence (WPV) in health facilities has a significant effect on the physical and emotional health of medical staff, causing a negative impact on the quality of care.[1] WPV against medical staff is mainly perpetrated by patients and patients` family or friends.[2] Furthermore, it has been noted that emergency departments have the highest incidence of WPV in health care, with up to 90% of ED staff reporting having suffered from WPV.[3-6] In a previous study, up to 82% of emergency nurses reported experiencing WPV.[2,7] Numerous factors lead to WPV in the emergency department, including 24-hour accessibility, a high-stress environment, and unidentified traits of patients.[8] Consequently, emergency nurses are constantly exposed to the potential for WPV.[9] In Korea, to guarantee the health and safety of emergency medical staff,

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the law stipulates that anybody who assaults emergency medical personnel and causes harm or death can be imprisoned with labor for up to 10 years.[10]

However, WPV in the emergency department remains an unresolved issue in the health care system. In particular, emergency departments in tertiary hospitals can be more vulnerable to WPV due to severe overcrowding and prolonged wait times.[11] WPV could make emergency nurses apathetic and adversely affect the quality of nursing care.[12] In addition, emergency nurses experiencing WPV may encounter a variety of physical and psychological stressors, which leads to adverse outcomes such as job burnout and high staff turnover.[2,13,14] Therefore, it is critical to identify risk factors for WPV in order to predict and prevent WPV in the emergency department. It has been reported in previous studies that night time, patient pain, high acuity, patient dissatisfaction, substance use, alcohol intoxication, and psychiatric disorders were related to WPV.[3,15-20] The Centers for Disease Control and Prevention of the United States has emphasized the importance of a violence prevention model developed using big data and data analysis technologies.[21] Nonetheless, previous studies on WPV in the emergency department have focused primarily on health care providers' experiences of violence, stress, job dissatisfaction, and burnout.[13,14,22-24] Few studies have developed a model to predict WPV.

The aim of this study was to develop a machine learning model for predicting WPV based on electronic health records in the emergency department at a tertiary hospital.

Methods

STUDY SITE AND SAMPLE

This study was conducted at a 1761-bed tertiary hospital with a regional emergency medical center in Korea. Between January 1, 2016 and December 31, 2021, more than 260,000 adult patients received emergency care at the study hospital. Data were obtained from the clinical data warehouse of the hospital. WPV cases were identified based on nursing statements related to violence documented in nursing records using the International Classification of Nursing Practice.[25] (Supplementary Appendix 1) Each WPV case was counted only once, even if multiple statements for the case were found. In addition, when a patient committed multiple acts of violence, only the first incident was included in the dataset. Each patient was classified as a WPV case or a non-WPV case based on the presence or absence of violence-related nursing records. Perpetrators were categorized into patients and patients' family or friends.

THE ED VISIT AND ED STAY FACTORS

The ED visit factors refer to the data that emergency triage nurses collect when a patient arrives at the emergency department, such as the reason for the visit, signs and symptoms, vital signs, and medical history. Age was categorized as <60 or ≥ 60, visit day as weekday or weekend, and visit time as daytime (07:01 AM-3 PM), evening (3:01 PM-9:30 PM), or overnight (10:31 PM-07 AM). Visit routes were categorized as direct, via outpatient departments, or via other hospitals, visit mode as by a private vehicle or an ambulance, and visit type as disease or injury. The 5 levels of severity of the Korean Triage and Acuity Scale (KTAS) were grouped into the following 3 categories: emergency (level 1-2), urgent (level 3), and nonemergency (level 4-5). Mental status was categorized as alert, disoriented, stuporous, pain response, or unresponsive. The presence of coexisting symptoms of pain, bleeding, or dyspnea; a comorbid condition of hypertension, diabetes mellitus, or cancer; and presence of psychiatric disorders were included as binary variables. Chief complaints were categorized into 17 groups according to the KTAS chief complaint classification.[26]

The ED stay factors refer to characteristics of the ED situation and the patient's treatment status that affects the patient's experience during the ED stay. For the ED stay factor, 4 variables were identified. WPV in the emergency department might be due to delayed wait time[5,27,28] and deterioration of the condition during the ED stay.[18] Delayed waiting time also has been reported to lead to emergency department overcrowding and increased patient dissatisfaction.[29] The ED stay factors included the daily number of patients and the average daily length of stay (LOS). Specialty consultations were included as binary variables. Patient dissatisfaction was determined based on the nursing statements of patient discontent documented in the electronic health record (EHR), such as dissatisfaction, noncooperation, and hostility. The full definitions of the predictors are presented in Supplementary Appendix 2.

DATA ANALYSIS

The study data were analyzed using R software version 4.1.3 (R Development Core Team, 2011). Descriptive statistics and Pearson's chi-squared test were used to evaluate the data. For data preparation, categorical variables were encoded as binary variables with One-hot Encoding. The prediction models implemented Logistic Regression, Decision Tree, and Random Forest. The classification models' performances were evaluated with 10-fold cross-validation, and accuracy, sensitivity, specificity, positive predictive value, negative predictive value, and the area under the

receiver operating characteristic curves also were examined. The area under the receiver operating characteristic curves of the models were compared using Delong's test.

ETHICAL CONSIDERATIONS

This study was approved by the Institutional Review Board of the Seoul National University Hospital (H-2205-119-1327).

Results

SAMPLE CHARACTERISTICS

Among the patients who received emergency care at the study site between January 1, 2016 and December 31, 2021, less than 0.5% ($n = 1215$) were WPV cases. To obtain a balanced sample with WPV and non-WPV cases for better model learning for prediction,[30] 6044 nonviolence cases were randomly selected from the data pool to maintain the ratio of WPV to nonviolence cases at least at 1:5 in the dataset.

Descriptive statistics for the ED visit factors are shown in Table 1. In the WPV group, there was a higher prevalence of WPV among male patients (59.9%) and patients over 60 (53.0%). More WPV cases were reported during the daytime (37.0%) and evening (37.0%) than overnight (26%). More WPV cases were reported for patients who used private vehicles (75.8%), patients who visited the emergency department with a disease (81.2%), patients who were deemed urgent (45.1%) in triage, and those who were mentally alert (82.1%). About one-third of the patients (35.5%) in the WPV group had chronic diseases and 13.5% had psychiatric disorders. Comorbidity of chronic diseases and psychiatric disorders were 35.5% and 13.5% in the WPV and non-WPV groups, respectively. Two hundred thirty-eight WPV patients (19.6%) visited the emergency department for symptoms of psychiatric disorders. Descriptive statistics for the ED stay factors are shown in Table 2. A total of 766 WPV patients (57.9%) had consultations with health care providers from other specialties, and 36.7% expressed dissatisfaction during their stay. The average daily number of patients was about 138 in both the WPV and the non-WPV group. In contrast, the average daily LOS was 8.07 $\pm$ 6.14 hours in the WPV group and 7.62 $\pm$ 5.62 hours in the non-WPV group, which represents a statistically significant difference ($P < .001$).

CHARACTERISTICS RELATED TO WORKPLACE VIOLENCE IN THE EMERGENCY DEPARTMENT

WPV was most often caused by patients' family or friends (71.0%, $n = 864$ of 1215). The most common nursing statements regarding WPV documented in the EHR were about incidents of verbal abuse (54.9%, $n = 1214$ of 2211), followed by incidents of acting out (30.1%, $n = 664$ of 2211) and aggressive behavior (11.0%, $n = 242$ of 2211) (Supplementary Appendix 3). Notably, 29.9% ($n = 351$) of all WPV cases were repeated incidents perpetrated by the same patients.

PREDICTION MODELS OF WORKPLACE VIOLENCE IN THE EMERGENCY DEPARTMENT

Prediction models were developed with Logistic Regression, Decision Tree, Naive Bayes, and Random Forest algorithms using the ED visit factors only and using both the ED visit and the ED stay factors. The performances of the WPV prediction models are shown in Table 3 and Figure 1. Among all algorithms, the Random Forest model showed the best prediction performance. In addition, the model that used both the ED visit and ED stay factors performed significantly better than the model that used the ED visit factors only.

FACTORS ASSOCIATED WITH ED WORKPLACE VIOLENCE

The feature importance as measured by the Gini index is shown in Figure 2 for the Random Forest model, which showed the best performance in WPV prediction. The Gini index, also known as Gini impurity, measures the probability of misclassification by each predictor. A lower Gini index indicates greater predictive power.[31] The Mean Decrease Gini shows the average decrease in misclassification when a predictor was added for classification.[31] The feature importance, as measured by Mean Decrease Gini, is shown in Figure 2 for the Random Forest model, which showed the best performance in predicting WPV. When only the ED visit factors were included as predictors, the strongest predictor of risk of WPV was symptoms of psychiatric disorders, followed by comorbidity of psychiatric disorders, injury, ambulance use, emergency severity level (KTAS 1, 2), and disorientation with a verbal response. In contrast, when both the ED visit and ED stay factors were included for prediction, the strongest predictor of risk of WPV was patient dissatisfaction, followed by high average daily LOS, high daily number of patients, symptoms of psychiatric disorders, ambulance use, injury, and comorbidity of psychiatric disorders.

TABLE 1
The distribution of the ED visit factors in relation to workplace violence

ED visit factors		Total	Workplace violence (*N* = 1215)	Nonworkplace violence (*N* = 6044)	*P*-value (Chi-square)
Gender	Male	3846 (53.0%)	728 (59.9%)	3118 (51.6%)	<.001
	Female	3413 (47.0%)	487 (40.1%)	2926 (48.4%)	
Age	< 60	2931 40.4%)	571 (47.0%)	2360 (39.0%)	<.001
	≥60	4328 (59.6%)	644 (53.0%)	3684 (61.0%)	
Visit day	Weekday	5263 (72.5%)	864 (71.1%)	4399 (72.8%)	.25
	Weekend	1996 (25.5%)	351 (28.9%)	1645 (27.2%)	
Visit time	Day (07:01 AM-3 PM)	3105 (42.8%)	449 (37.0%)	2656 (43.9%)	<.001
	Evening (3:01 PM-10:30 PM)	2731 (37.6%)	450 (37.0%)	2281 (37.7%)	
	Overnight (10:31 PM-7 AM)	1423 (19.6%)	316 (26.0%)	1107 (18.3%)	
Visit route	Direct visit	5586 (77.0%)	974 (80.2%)	4612 (76.3%)	.004
	Refer from outpatient department	575 (7.9%)	71 (5.8%)	504 (8.3%)	
	Transfer from other hospital	1098 (15.1%)	170 (14.0%)	928 (15.4%)	
Visit mode	Private vehicle	6100 (84.0%)	921 (75.8%)	5179 (85.%)	<.001
	Ambulance	1159 (16.0%)	294 (24.2%)	865 (14.3%)	
Visit type	Disease	6306 (86.9%)	986 (81.2%)	5320 (88.0%)	<.001
	Injury	953 (13.1%)	229 (18.8%)	724 (12.0%)	
Severity level	Emergency (KTAS level 1, 2)	260 (3.6%)	341 (28.1%)	1163 (19.2%)	<.001
	Urgent (KTAS level 3)	3893 (53.6%)	548 (45.1%)	3345 (55.3%)	
	Nonemergency (KTAS 4,5)	1575 (21.7%)	326 (26.8%)	1536 (25.4%)	
Mental status	Alert	6496 (89.5%)	998 (82.1%)	5498 (91.0%)	<.001
	Verbal response (disoriented)	411 (5.7%)	125 (10.3%)	286 (4.7%)	
	Verbal response (stuporous)	171 (2.4%)	47 (3.9%)	124 (2.1%)	
	Pain response	141 (1.9%)	35 (2.9%)	106 (1.8%)	
	Unresponsive	40 (0.6%)	10 (0.8%)	30 (0.5%)	
Comorbidities	Chronic disease	3042 (41.9%)	431 (35.5%)	2611 (43.2%)	<.001
	Psychiatric disorder	410 (5.6%)	164 (13.5%)	246 (4.1%)	<.001
Chief complaint of KTAS classification	Symptoms of psychiatric disorder and substance abuse	501 (6.9%)	238 (19.6%)	263 (4.4%)	<.001
	Neurological symptoms	1336 (18.4%)	247 (20.3%)	1089 (18.0%)	.06
	Cardiovascular symptoms	741 (10.2%)	96 (7.9%)	645 (10.7%)	.003
	Respiratory symptoms	704 (9.7%)	89 (7.3%)	615 (10.2%)	.006
	Gastrointestinal symptoms	1277 (17.6%)	137 (11.3%)	1140 (18.9%)	<.001
	Musculoskeletal symptoms	564 (7.8%)	103 (8.5%)	461 (7.6%)	.16
	Male and female genital symptoms	268 (3.7%)	37 (3.0%)	231 (3.8%)	.21
	Eye, nose, ear, neck and facial, skin symptoms	687 (9.5%)	108 (8.9%)	579 (9.6%)	.49
	Trunk traumas and environmental injuries	49 (0.7%)	11 (0.9%)	38 (0.6%)	.33
	General symptoms	1124 (15.5%)	145 (11.9%)	979 (16.2%)	.001

ED, emergency department; KTAS, Korean Triage and Acuity Scale.

TABLE 2
The distribution of the ED stay factors in relation to workplace violence

ED stay factors		Total	Workplace violence (N = 1215)	Nonworkplace violence (N = 6044)	P-value
Expression of dissatisfaction	Yes	1250 (17.2%)	446 (36.7%)	804 (13.3%)	<.001[i]
	No	6009 (82.8%)	769 (63.3%)	5240 (86.7%)	
Consultation of other specialties	Yes	4202 (57.9%)	766 (63.0%)	3436 (56.8%)	<.001*
	No	3057 (42.1%)	449 (37.0%)	2608 (43.2%)	
The average daily number of patients		138.1±27.2	138.1±26.6	138.1±27.3	0.9†
The average daily length of stay (h)		7.40±5.7	8.07± 6.1	7.62±5.6	<.001†

ED, emergency department.
* Tested with the Chi-square test.
† Tested with the t-test.

Discussion

This study demonstrated that WPV could be predicted with high accuracy using data from EHRs. A significantly higher level of accuracy in predicting WPV was achieved when both the ED visit and the ED stay factors were considered than when only the ED visit factors were considered ($P < .001$). The findings of this study are consistent with findings from a previous study, which revealed that WPV was affected by patient, organizational, and environmental factors.[32] It is well-known that mental health problems are associated with WPV,[2,19,20] and many WPV risk assessment tools used in the ED setting have included psychiatric disorders, symptoms, and signs as key predictors.[33–35] This study confirmed the strong influence of psychiatric-related factors on WPV.

In the model that used both the ED visit and the ED stay factors, patients' expression of dissatisfaction had the greatest influence on WPV. The daily average LOS and total number of patients, which indicate ED overcrowding, were also strong predictors of WPV. With limited resources in the emergency department, dissatisfaction increases and may lead to WPV, because many patients wait for a long time without getting an ED treatment bed.[5,28,29]

The model using the ED visit factors only also indicated that ED overcrowding was an important issue related to WPV in the emergency department. In this model, the presence of injuries and using an ambulance were important predictors of WPV in the emergency department. This study also showed that urgent and nonemergency patients used ambulances more frequently than emergency patients, because they believed that their symptoms were an emergency. We can speculate that prolonged waiting time could be the reason for WPV among the nonemergency injury patients who came to the emergency department in an ambulance. An increase in nonemergency patients causes ED overcrowding,[36] resulting in delayed waiting times for nonemergency patients, which can in turn lead to WPV. It is crucial to mitigate ED overcrowding to prevent WPV in EDs, for example by running a fast-track care service to manage low acuity patients[37] or diverting nonemergency patients to urgent or primary care clinics.[38] In some EDs, waiting room nurses have been assigned to reduce patient dissatisfaction.[39] A real-time dashboard displaying ED flow information and medical staff also helped reduce patient dissatisfaction.[40] However, these attempts have been limited to only some emergency departments.

In this study, 54.9% of WPV-related nursing records were reports of verbal abuse. This finding is consistent with the findings of a previous study in which the investigators found that verbal abuse occurred most frequently in the emergency department.[13] In addition, it is especially worrisome that 28.9% of all WPV cases extracted for this study were recurrent cases, i.e., multiple instances of WPV perpetrated by the same patients. This high rate of recurrence may indicate insufficient active interventions in response to first incidents. According to previous studies, emergency nurses tended to believe that violence was inevitable or didn't consider it to be a significant issue if no physical violence was involved and therefore did not seek assistance.[13] In addition, insufficient security personnel at the emergency department has been reported as an issue.[41] A security system and proper violence handling strategies can protect emergency nurses and promote an organizational culture that encourages emergency nurses to proactively report even minor acts of WPV.

TABLE 3
Prediction model performance

Models	Performance metrics	Prediction methods			
		Logistic regression	Decision Tree	Naïve Bayes	Random Forest
Model 1: ED visit factors as predictors	Accuracy	0.72	0.74	0.73	0.81
	Sensitivity	0.71	0.73	0.72	0.82
	Specificity	0.70	0.75	0.72	0.80
	Positive predict value	0.72	0.71	0.71	0.79
	Negative predict value	0.69	0.76	0.74	0.84
	AUROC	0.77	0.79	0.78	0.88
	95% CI (DeLong's test)	0.774-0.785	0.783-0.818	0.780-0.813	0.876-0.898
Model 2: ED visit and stay factors as predictors	Accuracy	0.75	0.81	0.74	0.86
	Sensitivity	0.76	0.80	0.73	0.86
	Specificity	0.74	0.82	0.74	0.86
	Positive predict value	0.77	0.79	0.71	0.84
	Negative predict value	0.73	0.83	0.76	0.87
	AUROC	0.81	0.88	0.79	0.90
	95% CI (DeLong's test)	0.807-0.830	0.868-0.892	0.802-0.832	0.898-0.912

CI, confidnece interval; ED, emergency department.

Limitations

This study has several limitations including its retrospective design and the use of EHR data from a single tertiary hospital. As a regional emergency medical center, the study site's ED overcrowding is very severe, which may limit the generalizability of the findings of this study. The WPV identification method is another limitation. We extracted the WPV cases based on nursing records, and so cases not documented in the nursing records might have been neglected. Finally, the absence of detailed descriptions of WPV in the nursing record hindered in-depth analysis of types, causes, and situations associated with WPV.

Implications for Emergency Nursing

To protect emergency nurses from WPV and provide high-quality nursing care, continuous education about WPV prevention should be offered to emergency nurses so that they can recognize and identify various risk factors for violence in advance. In addition, emergency nurses should pay attention to various risk factors for WPV, including both ED visit and ED stay factors. Hospitals also need to consider these factors when developing a security system and safe workplace policies to protect emergency nurses from WPV.

Conclusion

Emergency departments are extremely vulnerable to WPV, and emergency nurses are frequently exposed to it. It is crucial to prevent WPV by identifying the risk factors for violence in the emergency department in order to provide high-quality nursing care in a safe environment. This study developed a prediction model for WPV in the emergency department of a tertiary hospital using machine learning based on data from EHRs. Emergency nurses must recognize and continuously observe various risk factors from admission to discharge of a patient.

Data, Code, and Research Materials Availability

This study used electronic health record data (de-identified) from the Seoul National University Hospital. The dataset used in this study is not publicly available due to its sensitive nature and the data use agreement condition. However, aggregated analysis results are available upon request.

This retrospective study was approved by the Institutional Review Board of the Seoul National University Hospital (H-2205-119-1327). The requirement for informed consent was waived by this institutional review board. Only the researcher can access the data. All methods

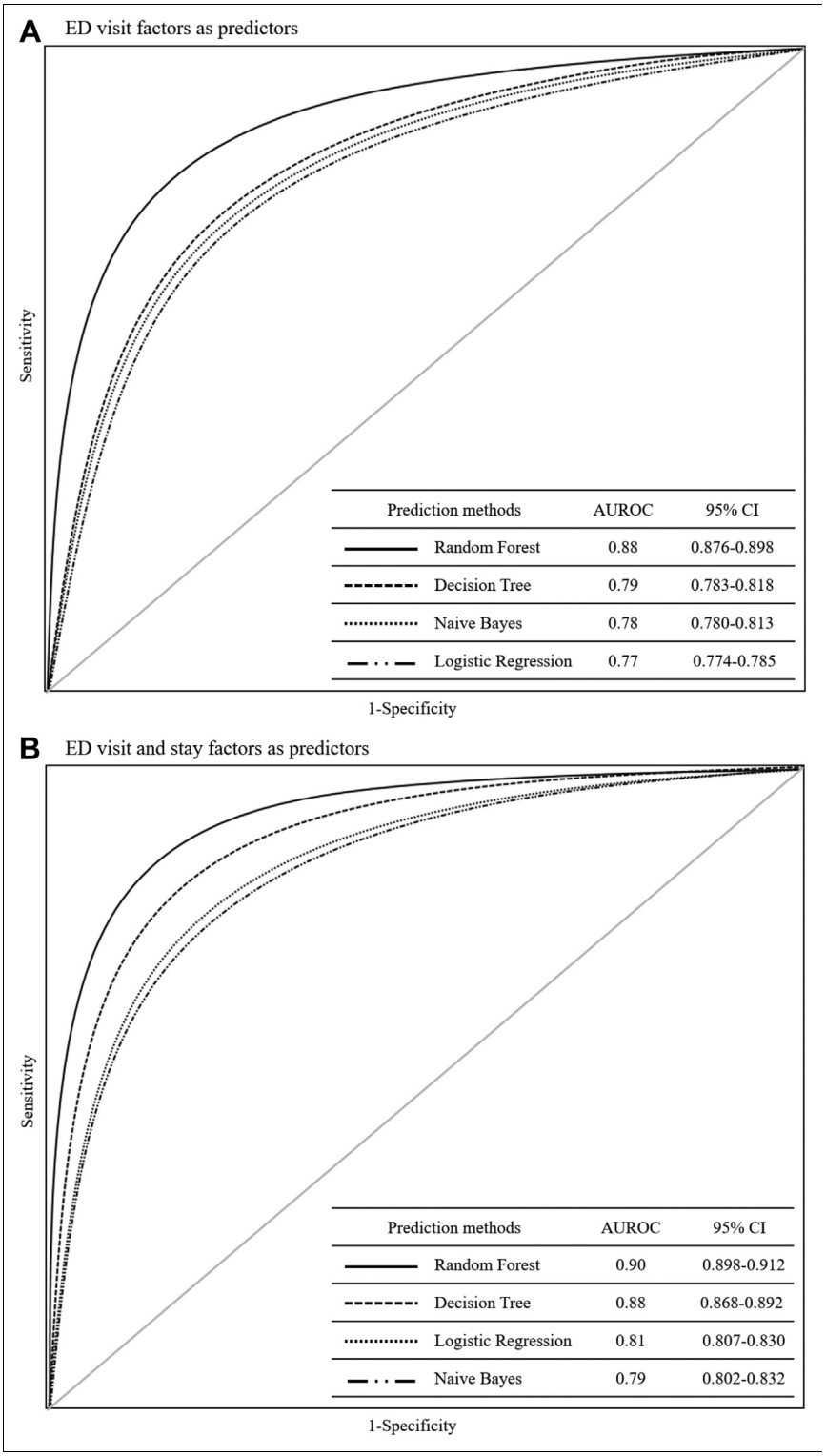

FIGURE 1

The ROC curve of the prediction models. (A) ED visit factors as predictors. (B) ED visit and stay factors as predictors. AUROC, area under the receiver operating characteristic curve; CI, confidence interval; ED, emergency department; ROC, receiver operating characteristic curve.

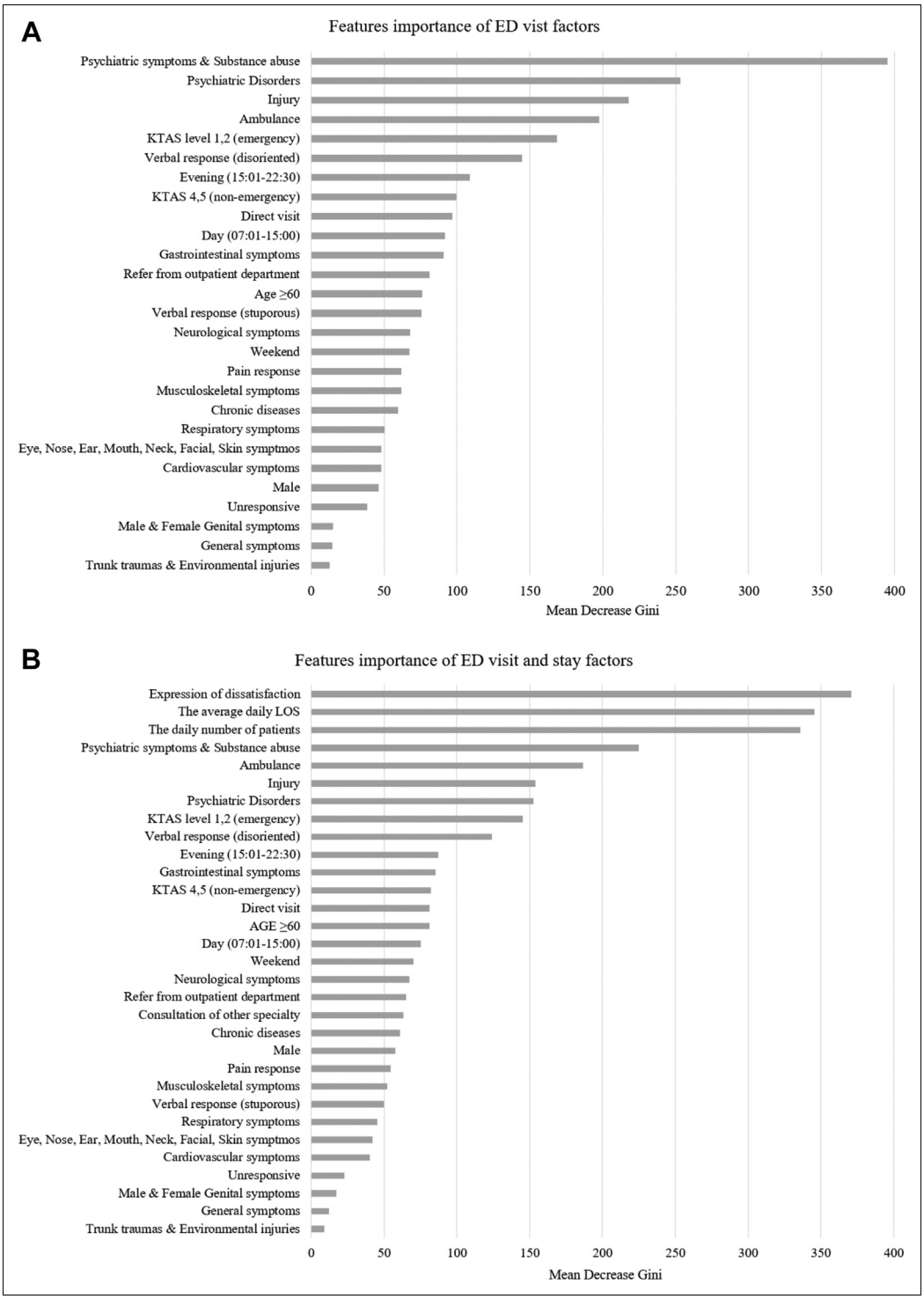

FIGURE 2

Features importance of Random Forest Model. ED, emergency department; KTAS, Korean Triage and Acuity Scale.

throughout the study were performed in accordance with the relevant guidelines and regulations.

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Author Disclosures

Conflicts of interest: none to report.

Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2023.01.010.

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The Lived Experience of Workplace Violence Among Emergency Nurses

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Contribution to Emergency Nursing Practice

- Workplace violence and assaults on emergency nurses are increasing in frequency, resulting in long-term physical, psychological, and professional consequences.
- This study contributes to an improved understanding of the impact of assault on emergency nurses, repercussions, and implications for the victims, their patient interactions, relationships with peers and leaders, and the nursing profession.
- The need for health care system leaders, police, legislators, and legal systems to emotionally support and legally and legislatively advocate for victims of workplace violence is essential. Workplace violence prevention strategies need to be prioritized.

Abstract

Introduction: Workplace violence remains a significant threat to the United States health care workforce. With increasingly aggressive patients, emergency nurses reported that the increased prevalence of workplace violence impacted their professional and personal lives.

Methods: This study employed a qualitative, descriptive phenomenological approach with purposive sampling. Participants were asked to describe their lived experience with workplace violence while working as emergency nurses and how this affected them personally and professionally.

Results: Eleven experienced emergency registered nurses from 3 mid-Atlantic hospitals participated in the study. After reviewing, clustering, and validating significant statements, 4 major themes were identified: walking wounded to wounded healer, unexpected shock, betrayal, and resilient but changed.

Discussion: Our findings were consistent with other studies exploring the effects of workplace violence in emergency departments. We validated that trauma has long-lasting effects. Organizations should ensure that programs and processes are in place to support the nurse or health care worker when workplace violence events occur.

Key words: Workplace aggression; Verbal aggression; Assault; Emergency nurse

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Introduction

Workplace violence (WPV) remains a significant threat to the United States health care workforce. According to the US Bureau of Labor Statistics from 2011 to 2018, WPV increased from 6.4 full-time workers per 10,000 to 10.4 full-time workers per 10,000 full-time workers.[1] WPV is an act of aggression or threat of physical or verbal exposure at work.[2] Violence can be described as physical and psychological.[3] Physical violence is an assault including slapping, punching, spitting, and sexual groping.[4,5] Psychological violence is a verbal aggression, with intent to cause harm, including threats of a lawsuit, bullying, or sexual harassment.[4,5] In a survey conducted in 2021, health care participants were asked about types of violence that had occurred in their work environments.[6] Among the responses, 100% reported verbal aggression, 82% reported physical aggression,

36% had experienced obstruction of care, 35% reported discrimination, and 27% reported weapon threats. Upon review of the literature from 136 articles, Spector et al[5] reported that among a sample of 151,347 nurses, 36.4% were exposed to physical violence, 66.9% were exposed to nonphysical violence, and 32.7% reported being physically injured. Nurses accounted for 12.2% of WPV event exposures, and emergency nurses experienced more exposure to WPV.[1,7]

WPV events precipitated by patients, families, and visitors are a concern.[8] Precipitating factors causing a high rate of WPV among emergency nurses included: crowding, wait times, poor communication, holds/boarding, and patients with a history of violence, mental health disorders, and substance abuse.[4,9-11] Several studies identified that evidenced-based interventions for nurses, including environmental changes and de-escalation education, increased nurses' confidence and skills to decrease WPV events.[12-14] In addition, health care organizations must be responsible to develop policies and processes to prevent WPV events.

Researchers suggested that organizational support resulted in improved trusting relationships between the employee and the employer through a psychological contract.[15,16] The contract is reciprocal, with implied mutual obligations.[17] Violation of the agreement, such as nonsupportive actions from leadership, may result in employee disengagement and mistrust, affecting the nurses' work performance, and potential adverse outcomes.[15] This organizational betrayal "brings with it painful disappointment and discouragement."[18]

Many organizations have published position statements and guidelines promoting a violence-free environment.[19-21] Despite the support from organizations, WPV prevails. Owing to the frequency of WPV events, underreporting and accepting WPV as an intrinsic part of the job prevail.[4,9-11,22] The adverse effects of WPV are immediate and with long-term sequelae. Repeated experiences of WPV may negatively affect one's mental and physical health and work performance in the long term.[11,13,23] In addition, the lingering effects of WPV events are similar to posttraumatic stress disorder.[24] Many nurses are wounded by the experience; however, they continue to care for their patients.

Conti-O'Hare[25] posits that nurses need to recognize their wounds from WPV events.[26] The nurse must process, transform, and transcend to heal; otherwise, the nurse may become the walking wounded. The wounded nurse may experience lasting emotional and physical trauma that may affect nursing care.[24,25] Nurses need to heal to move from walking wounded to wounded healer.[26] After the process of healing, the nurse transcends to a wounded healer with experiences of pain and suffering providing insight and the ability to understand and empathize with others.[25]

Research has identified resiliency as an attribute that enables nurses to adapt and recover from workplace stressors including WPV events. Resiliency is necessary for nurses to continue to provide safe patient care and prevent themselves from negative physical and psychological injury.[27] Cooper et al[27] identified that social support from colleagues and managers promotes resiliency. During a WPV event, nurses rely on their working relationship between coworkers including physicians and security to assist or manage the event.

Despite many nursing organizations and health care facilities providing guidelines and policies regarding WPV, these events persist. It is important to continue to monitor and understand the types of WPV and the effects on nursing staff. This study examined the impact of WPV on emergency nurses' personal and professional lives.

Methods

This qualitative study employed a descriptive phenomenological approach. This approach is useful to elicit and better understand an experience through the voices and reactions of those who have lived the experience, as well as the situations and/or conditions preceding and following the event. This study aimed to acquire an exhaustive description of WPV on emergency nurses (registered nurses) working in 3 geographically diverse mid-Atlantic emergency departments who had experienced verbal aggression or physical assault by a patient and/or visitor in the emergency department. Semistructured, in-depth interviews were conducted after purposive sampling. All emergency nurses were invited for consideration via email. Data analysis was consistent with the procedures suggested by Colaizzi.[28] The research question grounding this study was, "What is the experience of the emergency nurse assaulted by a patient or visitor?" Colaizzi's[28] method provided a logical process and structure to explore this phenomenon and identify and organize themes and better understand the experience of the participants. Sensitive to the fact that this topic could generate negative perceptions and reactions, the researchers made every attempt to suspend judgment or bias through bracketing.

The institutional review board deemed the research exempt. Upon approval by the institutional review board, data collection began. All ED registered nurses employed for at least 1 year who had experienced assault by a patient or visitor within the past 5 years were eligible to participate. An invitation to participate was emailed to all emergency nurses in the 3 emergency departments, asking them to respond if they were eligible and interested in participating in an interview. Among the enrolled respondents, 10 were female, and 1 was male. Participants were deidentified using a

number at the time of enrollment, for confidentiality. Informed consents were obtained. Methods and findings were reported according to Consolidated criteria for reporting qualitative research (COREQ) guidelines.

The research team compiled a semistructured 6-question interview guide, intended to guide the private interviews, which took 60 to 90 minutes. The lead investigator conducted and recorded the interviews, with permission of the participant. A coinvestigator took notes pertaining to body language or physical nuances, which may not have been discerned on recordings.

The leading question was, "Tell me about your experience with either verbal aggression or physical violence from a patient or family member in the ED." Open-ended questions such as, "Tell me, how did this event affect you?" and clarifying questions, such as, "Tell me, in as much detail as possible, what led up to the incident?" and, "Then what happened?" were used to encourage participants to infuse their event with detail. Participants were asked how the experience affected them personally and professionally, how their organization responded to the assault, and what they had done to facilitate recovery.

DATA ANALYSIS

Consistent with Colaizzi's[28] 7 steps, participant narratives were transcribed verbatim and validated by the individual participants. Reading and rereading of the transcripts helped the research team to focus on context and understanding of the emerging experience. The team extracted significant statements. The meaning of each significant statement was identified and then organized into clusters of themes, similar in type, to achieve a synthesis of themes or symbolic representations. Participants again validated the themes. Comparing new interviews to previous interviews allowed the team to identify similarities and differing experiences and achieving saturation. The researchers recognized saturation after 7 interviews; however, in respect for the participants' experience, all were interviewed. After the interview process, the team independently reviewed the transcripts and themes using iterative analysis to achieve consensus of the theme clusters. Member checks were conducted among participants, and all participants acknowledged that the themes and meanings reflected their lived experience of assault.

Results

Eleven nurses chose to share their experience and the professional and personal impact of the assault. Interviews were conducted between December 2019 and February 2020. Five participants represented 1 campus, and 3 were from 2 other campuses. There was a breadth of violence ranging from verbal aggression to physical assaults. For perspective, assaults included name-calling, cursing, spitting, punching, kicking, attempting knife attack, twisting of limbs, throwing a soiled bedpan, body slamming, threatening family members, and threatening a nurse with a gun found to be loaded. In this section, verbatim quotes illustrate the depth of the impact of the assault. The extracted themes included the following: walking wounded to wounded healer, unexpected shock, betrayal, and resilient but changed.

THEMES IDENTIFIED

Walking Wounded to Wounded Healer

The first theme identified was walking wounded to wounded healer. The nurse participants were experienced emergency nurses; they thought they came to "just tell their story," and they expressed surprise when they realized that telling their story elicited emotions. For most, telling their story was intense and painful. Among 10 participants, it took an average of 4 minutes before tears streamed down their face as they reflected on painful memories long ago buried. "He spit in my face and my mouth…I was devastated… I cried for days…I would have rather been punched."

Many of the participants reported that these situations are just part of their job; 1 participant stated, "I accept it and understand it could happen any day I come to work." Another shared, "We all [take it] for granted, that this is part of the job, that this happens, it's normal and it's something we deal with." One participant reported being kicked in the knee, and their peers responded "as if this is normal and something that we just deal with." Perceiving assaults as an everyday event is a significant safety threat. Reporting events becomes low priority as staff numbs to the frequency.

In our nursing culture, we tend not to talk about our "wounds." We "suck it up" and bury the emotions and move on to the next patient. Based on the theory developed by Conti-O'Hare,[25] "walking wounded" can be defined as individuals who have not effectively coped after a traumatic incident.[26] Nurses can become the walking wounded after experiencing WPV, whether verbal or physical in nature. One participant expressed, "It made me angry, it has changed the way I interact with my colleagues and the drug addicted." Another shared, "I always loved being a nurse, but now, I honestly don't like what I do." One participant expressed, "But I love what I do, and I love being an ER nurse so much, I don't want to do anything else, but I think it is a matter of time before something bad happens."

The wounded healer heals all others but is never fully able to heal their own personal wounds.[29] When victims talk about their experience and work on resolving the pain of the trauma, they can become wounded healers, reestablishing therapeutic relationships and having a positive impact on the health care system, their patients, and their profession.

Unexpected Shock

The second theme was that of unexpected shock. Unexpected shock is when someone's behavior is unlikely, and it surprises the caregiver when it happens. Participants reported, "I was stunned," "I didn't see it coming." Another participant explained, "…but he was not aggressive coming in, he showed no signs of aggression up to that point, it was shocking." The act of violence that the participants experienced and shared happened suddenly, without warning. For example, one stated they were shocked "Because you don't expect it… You literally just went into the room, wholeheartedly wanting to help somebody, and suddenly you get kicked into a wall, it blindsides you." Nursing strives for situational awareness in all situations, awareness of the threat of violence from patients and visitors, but most do not think it is likely going to happen to them. Another participant stated, "It's part of the job, it happens every day, and every time it happens, I am shocked."

Betrayal

The third theme was betrayal. Brewer[30] describes betrayal as "a deep violation of trust or confidence or violation of moral standard committed by an institution toward a nurse." Participants reported feeling betrayed by patients they were caring for, providers, leadership, security, workers' compensation, and the judicial system; by providers who failed to help prevent or assist during incidents, and by leadership for not ensuring a safer environment and for not following up with them after an incident. One participant stated, "They say we are a family, but I didn't feel like family."

Participants expressed feeling betrayed by security who often did not arrive in time to help. Many expressed feeling betrayed by the judicial system for making it difficult to file criminal charges. One participant described having to go to the police station after their 12-hour shift and made to wait hours only to meet with attempts by police to dissuade them from pressing charges, because it "probably won't go anywhere." "The reality is, we take care of the police when they are injured, but they don't take care of us." Finally, they conveyed betrayal by worker's compensation: "They made me feel like I was trying to take advantage," "Like I was in the wrong," and "A system that makes the employee feel as if they are dishonest."

Resilient but Changed

The last theme was resilient but changed. Defined by the American Psychiatric Association, resilience is when a person can bounce back and thrive after major challenges or circumstances.[30] Most self-reported to be resilient: "I am resilient, but I have changed—while we may call ourselves resilient, we never return to baseline. Each time you are assaulted, it takes a piece of you." Others described that their interactions with patients and their work relationships changed after the assault.

After experiencing WPV, participants' mindsets changed for how they viewed their work, their patients, and day-to-day tasks. The participants gave statements such as the following: "You have to treat every patient as if they are the one who is going to assault you—at all times," "I don't think I will ever feel that nothing will happen, and everything will be okay; it was an eye opener that bad things can happen, regardless of the resources and backup you have." One participant explained, "You build up a wall when you are in the ER… You try not to… I think I have my guard up a lot more than I ever did."

Discussion

The findings were consistent with other studies exploring the effects of WPV. We learned that trauma is indeed a relentless and persistent predator. No matter how long ago the event occurred, the memories elicited emotions, often surprising the participants. To thrive personally and have a positive impact on patients, organizations, and our profession, victims need to attempt to heal and reestablish therapeutic relationships.

Betrayal was an overwhelming perception among participants. An unnamed author once said, "The saddest thing about betrayal is it never comes from your enemies, it comes from those you trust." Once betrayed, trust is difficult to earn back. Organizations must commit to safety through actively listening to the concerns of the workforce. Trust may be enhanced when organizations acknowledge events, address corrective actions, and communicate effectively, as well as provide staff with de-escalation resources and environmental changes. Studies have identified evidence-based interventions for nurses, including environmental changes

and de-escalation education and increased nurses' confidence and skill to decrease WPV events.[13,14]

All of the participants self-reported to be "resilient," but resilient does not equal whole. It means they are "okay to continue." Wounds heal, but these wounds do not heal in a few days. Nurses may experience anxiety or stress after WPV events, which may endure for years. Studies have shown repeated WPV events can negatively affect one's mental and physical health, as well as long-term work performance.[11,13,23] In all of the instances, the participants had unexpected shock, as none of the instances were expected when the event occurred. Organizations must incorporate situational awareness in their WPV prevention training programs.

An organization's postincident response may influence an employee's developmental recovery. Employees need to feel genuine support from leadership and colleagues as they progress through their recovery. After an assault, leaders need to be emotionally present for the victim and monitor for signs of posttraumatic stress. Leadership should encourage nurses to use employee assistance programs. Do not ask the victim whether they "need" help, make it happen. Health care organizations should implement psychological first aid or a critical incident stress management program after critical incidents for everyone involved, to help them deal with the trauma of the experience. These types of programs aim to reduce the likelihood that the involved personnel may develop posttraumatic stress disorder. Finally, to quantify the breadth and depth of these events, encourage staff to report every event. Streamlined reporting processes and reporting guidelines are necessary. WPV incidents are vastly underreported, and studies have shown that it is related to lack of trust in the reporting, fear of retaliation, and lack of guidelines or policies.[31,32] To encourage staff reporting, staff should see and feel that reporting will result in change. A postincident management plan may support the nurse through healing; it also may affect outcomes important to the organization, such as absenteeism, retention, engagement, patient outcomes, errors, and overall financial performance.

Limitations

This study has several limitations. The purposive sampling occurred within 1 geographically diverse hospital system. A more interprofessional, culturally diverse, and gender-diverse sampling may have elicited different perceptions and responses to the assault. The sensitivity of the topic also may be a limitation, because of inherent biases.

Implications for Emergency Nursing

Attempts to mitigate these events and consequences are essential. Hospitals need to hardwire policies, procedures, and community partnerships to prevent violence against their staff. Establishing seamless occurrence reporting strategies and developing a response plan for when violence does occur may help to foster trust between staff and hospital leaders. Committing to a zero-tolerance policy and ensuring adequate resource allocation for workplace safety are essential measures that all health care facilities should undertake to ensure physical, logistical, and environmental safety.

Assaults occur throughout the health care workplace. The authors encourage nurses and other health care workers to tell their story, speak about the unspeakable, and respond proactively to shed light on this phenomenon and help diminish the frequency and consequences of assault in the workplace.

Conclusion

This study identified that those impacted by WPV had long-term personal and professional consequences. This study is important as it contributes to an improved understanding of the impact of assault on emergency nurses, repercussions, and implications for the victims, their patient interactions, relationships with peers and leaders, and the nursing profession. Victims of violence are at risk for physical, emotional, and psychological trauma.

Author Disclosures

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Nurse, Provider, and Emergency Department Technician: Perceptions and Experiences of Violence and Aggression in the Emergency Department

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Contribution to Emergency Nursing Practice

- What is already known about this topic? Patient/visitor violence and aggression is common in the emergency department resulting in clinicians feeling unsafe.
- What does this paper add to the currently published literature? The Personal Workplace Safety Instrument for Emergency Nurses, originally designed for nurses, is useful with other clinicians. This paper reports the commonality that verbal aggression is to all clinicians and how clinicians spending the most time with patients, such as nurses and ED technicians, experience the most physical violence.
- What is the most important implication for clinical practice? Clinicians in the emergency department reported varying levels of feeling safe, warranting the need for role-specific interventions to prevent patient and visitor violence and aggression.

Abstract

Introduction: Patient/visitor violence and aggression (V&A) in the emergency department occurs daily. Few interventions exist to decrease V&A. Research describing prevalence, severity, and perceived safety among ED clinicians is limited.

Methods: A descriptive survey explored V&A against ED clinicians in one urban emergency department. A sample of nurses, ED technicians, physicians and advanced practice providers participated. Participants completed a demographic survey, Personal Workplace Safety Instrument for Emergency Nurses (PWSI-EN), and ENA V&A frequency checklist. Analysis of Variance (ANOVA)

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for unadjusted and Analysis of Covariance (ANCOVA) for adjusted associations were used to assess differences in the PWSI-EN survey composite score and "feeling safe in the ED" among ED roles. ANCOVA was adjusted for potential confounders: sex, race, years working in emergency department, and shift worked.

Results: Sixty-five (46.4%) of the 140 ED clinicians returned surveys, which were almost evenly distributed between ED clinician roles and sex. Mean age was 37.2 (range: 21-64) years. All (100%) nurses and providers reported being verbally abused. More nurses reported physical violence (n = 21, 87.5%) than providers (n = 7, 36.8%) and ED technicians (n = 11, 55%). Nurses and ED technicians reported experiencing greater prevalence of physical violence than providers ($P < .05$). Nurses (mean 3.29, range 2.95 to 3.63) were more fearful for their personal safety than ED technicians (mean 3.88, range 3.48 to 4.28) ($P < .03$).

Discussion: V&A are common creating a fearful environment. However, little research regarding clinician perceptions exists. Our study aids in identifying areas for clinician-targeted strategies to prevent ED V&A.

Key words: Workplace violence; Trauma center; Interdisciplinary clinicians; Acute care; Emergency department

Introduction

Violent and aggressive acts committed by patients and visitors in emergency departments remain a worldwide problem.[1-3] However, when initiating a career in health care, most health care providers never considered there would be a concern about their well-being every working day.[4] Essentially, health care workers in the emergency department are at increased risk of violence simply by their unique work environment—a place where patients who are intoxicated, have mental health problems, or are known to be violent seek treatment and may require restraints for their own safety and the safety of the health care workers.[5] However, the exposure to violence and aggression varies by position. Wong et al[6] found that self-reported exposure to violent episodes was higher for patient care technicians, security personnel, and nurses than residents and attending physicians. Somani et al[7] evaluated the effectiveness of training in de-escalation and multicomponent interventions to decrease violence and aggression in the emergency department. There is growing consensus that multicomponent interventions including all stakeholders and use of community advisory boards (CABs) are necessary to combat violence and aggression in the emergency department.[7-9]

Resources such as those provided through the Emergency Nurses Association (ENA) and American College of Emergency Physicians, as well as the jointly sponsored Stop ED Violence campaign,[10] are available, but research on application of these resources is limited. Guidance provided in the ENA Workplace Violence (WPV) Toolkit[11] was used in this cross-sectional descriptive study to understand the local context for violence and aggression in the emergency department and understand the perceptions of violence and aggression by different clinicians in the emergency department.

BACKGROUND

WPV is a complex problem, with nurses identified as a high-risk group worldwide.[12] Researchers showed that other members of the health care team are also at risk of experiencing WPV, such as first responders, ED technicians, and other clinicians.[13-16] Patient, family, and environmental risk factors were identified as contributing to the risk of violence and aggression. The patient risk factors include working with people who have a history of violence and drug or alcohol abuse and psychiatric and geriatric patients.[9] The environmental risk factors include long wait times for patients; poorly lit corridors, rooms, and parking lots; a lack of emergency communication devices; and working in neighborhoods with high crime rates.[9] Situational conditions also can lead to increased risk of violence and aggression including the unplanned and immediate nature of an ED visit with unpredictability of patient outcomes. In addition, there may be people wanting to do harm to an ED patient. In addition to factors listed earlier, some individuals in the emergency department become angry with ED clinicians owing to enforcement of hospital policies.[17]

Few studies have identified clinicians' perceptions of violence and aggression in the emergency department. However, the impact of violence and aggression on ED personnel has been documented.[18] Clinicians have decreased job satisfaction, feel scared, lose sleep, and miss work as a result of violence and aggression in the emergency department.[18] This same study also identified that younger, less experienced clinicians were more vulnerable to violence and aggression.[18] A previous study of nurses who had experienced violence and aggression at work found that more than half felt angry ($n = 1902$, 58.4%), others felt anxious ($n = 1277$, 39.2%), and almost 20% ($n = 626$) felt frightened. More than half ($n = 4096$, 57.7%) reported not

feeling protected from WPV, and almost a third ($n = 1931$, 27.2%) considered leaving their position in the emergency department.[19,20] Additionally, nurses believe that "something could happen at any time."[17,21] Violence and aggression experienced in the emergency department leads to experiences of stress, burnout, emotional exhaustion, and decreased work productivity and quality of patient care.[22-24] ED physicians and nurses have reported burnout and feeling fearful on the job, leading to both physicians and nurses leaving their jobs in the emergency department.[25] There is a paucity of research on perceptions and consequences of violence and aggression in the emergency department for ED technicians.

Making this issue more complex to address, emergency care providers have incorporated the experience of violence and aggression into their daily practice. Richardson et al[26] remind us that the ED culture is often one that encourages individualism and "toughness," whether in a positive sense relating to resilience or in a less constructive manner where it can lead to indifference, unhealthy tolerance, and/or emotional burnout. A metasynthesis of international studies explored nurses' perspectives regarding violence in the emergency department and found that nurses accepted violence as "part of the job" and also a significant safety risk.[27] Like nurses, ED physicians reported the same perception of violence as "part of the job," with incidents often underreported.[28] Gates et al[29] found an alarming 65% of participants in an interdisciplinary sample of ED clinicians who were physically assaulted by a patient did not report the incident to supervisors.

PURPOSE

The purpose of this cross-sectional descriptive study was to explore the types and frequency of violence and aggression and perceptions of safety by clinician characteristics. Our study aims were as follows:

1. Describe the types and frequency of violence and aggression experienced by clinicians in the emergency department.
2. Explore differences between clinicians' demographic characteristics and their perceived safety from patient/visitor violence.

Methods

We used a cross-sectional descriptive approach to address study aims. This research study was approved by the University of Pennsylvania Institutional Review Board (University of Pennsylvania IRB # 832320) as exempt research with a waiver of signed consent.

SETTING

As is the case in many emergency departments, clinicians in the Penn Presbyterian Medical Center emergency department began expressing concerns about the increase in frequency and severity of aggression and violence from patients and visitors. The hospital was, for many years, considered the local community hospital compared with its nearby quaternary care academic medical center that is part of the same health system. This emergency department serves an underinsured community and several university campuses and a busy metropolitan area. The department was originally designed to address the surrounding community's needs serving on average 37,000 patients per year. In 2015, the health system renovated and expanded the emergency department from 20 to 41 emergency beds with an addition of a 5-bed fast track and a 5-bed trauma bay. After these renovations and designation as a level I trauma center, the yearly ED volume increased to more than 49,000 patients in 2019, the year this study was conducted. Clinicians noted an increase in frequency and severity of patient/visitor violence and aggression with the increased patient volume and the addition of trauma patients. This is consistent with previous research that identified physical violence was substantially higher in trauma certified emergency departments than nontrauma emergency departments.[19]

CONTEXT

A convenience sample from 140 clinicians working in the Penn Presbyterian Medical Center emergency department at the time of the study with valid email addresses was invited to participate via an online REDCap (Research Electronic Data Capture, Nashville, Tennessee) survey.[30] This included all physicians, advanced practice providers, registered nurses (RNs), and technicians. There were no exclusion criteria. Each participant had 2 weeks in the middle of January 2019 to complete the survey.

To aid in identifying the scope of violence and aggression in the emergency department, study leaders assembled a multidisciplinary team consisting of ED personnel—nurses, technicians, a physician, and security representatives. The team identified resources available through the ENA. In 2001, the ENA developed and made available to ENA members a Violence Prevention Toolkit,[11] which is no longer available.

TABLE
Demographics of sample ($N = 65$)

Variables	N	%
Gender		
Male	31	47.7
Female	33	50.8
Transgender	1	1.5
Position		
ED technician	21	32.2
Male	15	71.4
Female	5	23.8
Transgender	1	4.8
Registered nurses	24	37.0
Male	5	20.8
Female	19	79.2
Providers	20	30.8
Physicians	14	21.5
Advanced practice providers	6	9.2
Male	11	55
Female	9	45
Race		
African American	11	16.9
Asian	4	6.15
Mixed race	4	6.15
White	46	70.8
Ethnicity		
Hispanic	3	4.6
Non-Hispanic	62	95.4

SURVEY INSTRUMENTS

Demographics

A short demographic survey was used to describe the sample of participants that included position, years' experience in the emergency department, and age, sex, race, and ethnicity.

Personal Workplace Safety Instrument

The Personal Workplace Safety Instrument for Emergency Nurses (PWSI-EN) is a 23-item validated survey instrument that measures emergency nurses' perceptions of safety from patient and visitor violence.[31] Respondents use a Likert response scale (with 1 representing "strongly disagree" and 5 representing "strongly agree") for each item with several items being reverse coded. Higher sum scores for subscales and total scores represent greater perceived safety from patient and visitor violence. Construct validity was confirmed using exploratory factor analysis with 62% variance explained and 6 subscales identified: unit and institutional leadership support, belongingness, trust, understanding processes, training, and security personnel. In addition, known groups validity, linear regression modeling, and subscale correlation analysis confirmed construct validity. Measures of internal consistency (Cronbach's alpha) exceeded accepted standards for subscales ($\alpha > 0.68$) and overall instrument ($\alpha = 0.91$). Although the instrument was not validated in other populations, the instrument was used with providers and technicians in this study given that no other validated instrument exists that measures perception of safety from patient and visitor violence. Cronbach's alpha for use in this interdisciplinary sample was $\alpha = 0.87$, demonstrating strong internal consistency across disciplines.

Frequency of Violence and Aggression Checklist

We modified ENA's WPV staff assessment survey.[18] An item on the ENA's WPV staff assessment survey contains a list of 19 actions that constitute WPV, ranging from name calling and verbal abuse to severe physical violent events. The revisions included asking the participants if they thought these 19 actions constituted WPV and whether they ever experienced each specific violent and aggressive act, and we added "if so, how frequently over their last 6 shifts" they worked.

SURVEY DISTRIBUTION

All eligible clinicians received a workplace email that explained the purpose of the study and contained a link to the confidential version of the survey housed in REDCap.[30] REDCap is a secure, web-based software platform designed to support data capture for research studies housed at the University of Pennsylvania.[29] The survey began with a question asking participants to affirm their consent to allow the research team to use their responses to the survey in the analysis. Reminder emails were sent to participants every 3 days or until they completed the survey over a 2-week period.

ANALYSIS

Descriptive statistics such as counts and percentages for categorical variables and means and SDs for numeric variables were generated to describe responses to the surveys. An analysis of variance for unadjusted associations and analysis of covariance for adjusted associations were used

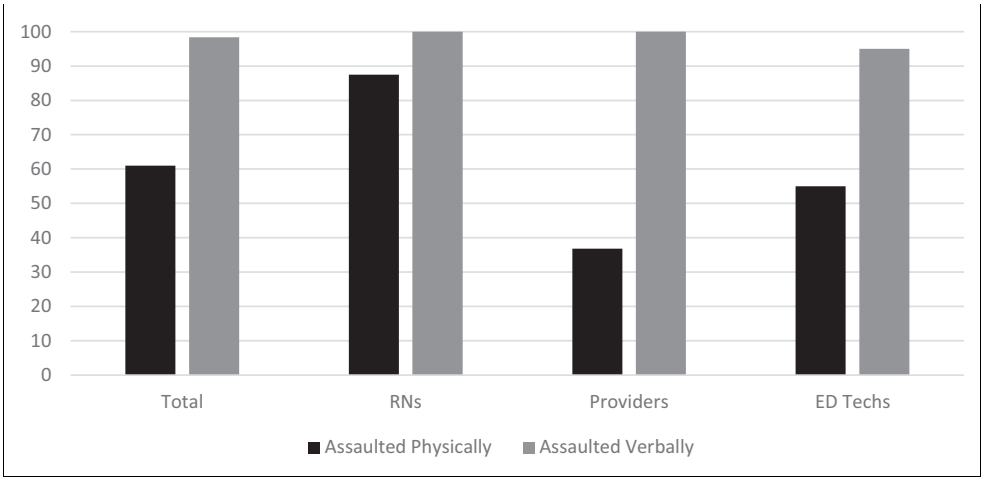

FIGURE 1

Percentage of ED staff who reported ever being physically assaulted or verbally abused in the emergency department. ED, emergency department; RN, registered nurse.

to assess differences in the PWSI-EN survey sum score and the Likert variable, feeling safe in the emergency department, among different roles in the emergency department. Analysis of covariance was run and adjusted for potential confounders: sex, race, years working in the emergency department, and shift worked. Owing to the small sample size and multicollinearity, we assessed the impact of each potential confounder both individually in models and collectively. In addition, differences in violent and aggressive experiences were compared among the clinician types using the chi-square test and logistic regression. All analyses were considered exploratory with the alpha set at 0.05.

Results

Surveys were distributed via email to 140 participants with 65 surveys returned for a 46.4% response rate. Mean age of our sample was 37.2 years (range, 21-64) and almost equally distributed among men (n = 31, 47.7%), women (n = 33, 50.8%), and 1 transgender (0.015%). Responses were received from 24 nurses (37.0%), 21 ED technicians (32.2%), and 20 providers (30.8%) that consisted of 14 physicians (21.6%) and 6 advanced practice providers (9.2%), with most respondents identifying as White (n = 46, 70.8%) and non-Hispanic (n = 62, 95.4%). See Table.

AIM 1: DESCRIBE THE TYPES AND FREQUENCY OF VIOLENCE AND AGGRESSION EXPERIENCED BY CLINICIANS IN THE EMERGENCY DEPARTMENT

Almost all clinicians reported experiencing verbal abuse and physical assaults. More than half of respondents (60%, n = 39) reported being physically assaulted, with 87.5% of RNs (n = 21), 36.8% of providers (n = 7), and 55% of technicians (n = 11) (see Figure 1). The most frequent types of violence experienced included being yelled at (n = 51, 92.7%), threatened (n = 39, 70.9%), sexually harassed (n = 33, 60%), hit or punched (n = 34, 60.7%), spit on (n = 29, 52.7%), and scratched (53.6%). Nurses consistently reported the highest percentage of the various types of violence except for 2 types of violence: being bitten (n = 7, 31.8%) and pushed (n = 8, 36.4%). The technicians experienced these 2 types of violence in higher percentages (n = 7, 43.8%; n = 9, 56.2%, respectively) than nurses. Providers had lower percentages of all types of violence in the emergency department except for being yelled at (n = 15, 88.2%) and sexually harassed (n = 10, 58.5%) than technicians (n = 14, 87.5%; n = 7, 43.8%, respectively) (see Figure 2). We then analyzed the different types of violence and aggression acts by clinician type. There were no statistically significant differences on the following violence and aggression acts by clinician type: called names, hair pulled, sexually harassed, hit by objects, spit on, cursed at, threatened, voided on, or shouted at. However, there were significant differences by clinician type on other

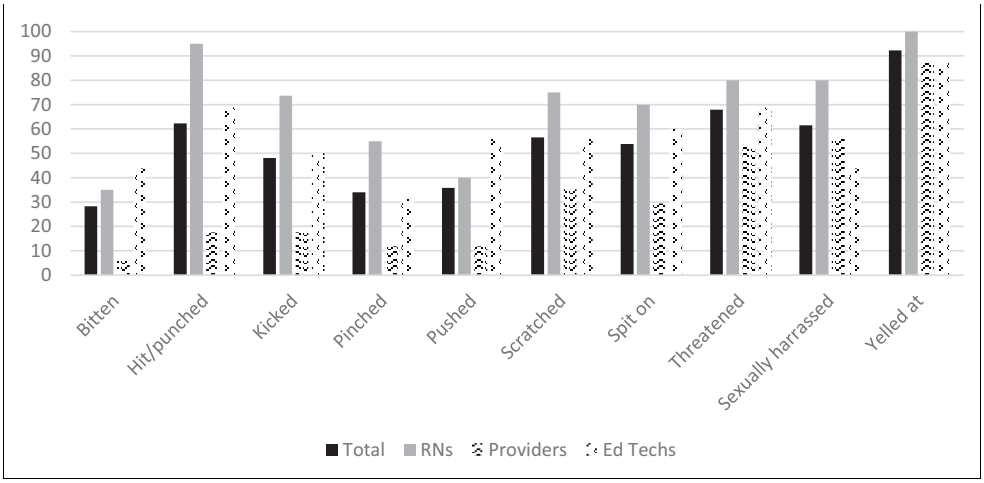

FIGURE 2

Percentage of ED staff who have ever experienced violence in the ED by type of violence. ED, emergency department; RN, registered nurse.

violent and aggressive acts. RNs (z-statistic 2.94; $P < .01$) and technicians (z-statistic 2.00; $P < .05$) significantly more frequently reported being kicked than providers (overall logistic regression $\chi^2 = 10.66$; $P < .005$). In particular, 16 RNs (66.7%), 11 technicians (52.4%), and only 3 providers (15%) reported being kicked. Hitting was another aggressive act that both RNs (z-statistic 3.68; $P < .001$) and technicians (z-statistic 2.61; $P < .01$) reported more frequently than providers. Technicians (z-statistic 2.25; $P < .05$) were more likely to report being bitten and pushed (z-statistic 2.58; $P = .01$) and RNs were more likely to report being scratched (z-statistic 2.15; $P < .05$) and pinched (z-statistic 2.15; $P < .05$) more than providers were. There were no significant differences in RNs' and technicians' experiences of violence and aggression in the emergency department.

AIM 2: EXPLORE DIFFERENCES BETWEEN CLINICIANS' PERCEIVED SAFETY FROM PATIENT/VISITOR AND DEMOGRAPHIC CHARACTERISTICS

Figure 3 provides the percentage of ED staff that feel safe in the emergency department by location. Most clinicians ($n = 54$, 85.7%) reported being fearful for their personal safety in the emergency department with 22 RNs (91.7%) reporting being fearful for their personal safety.

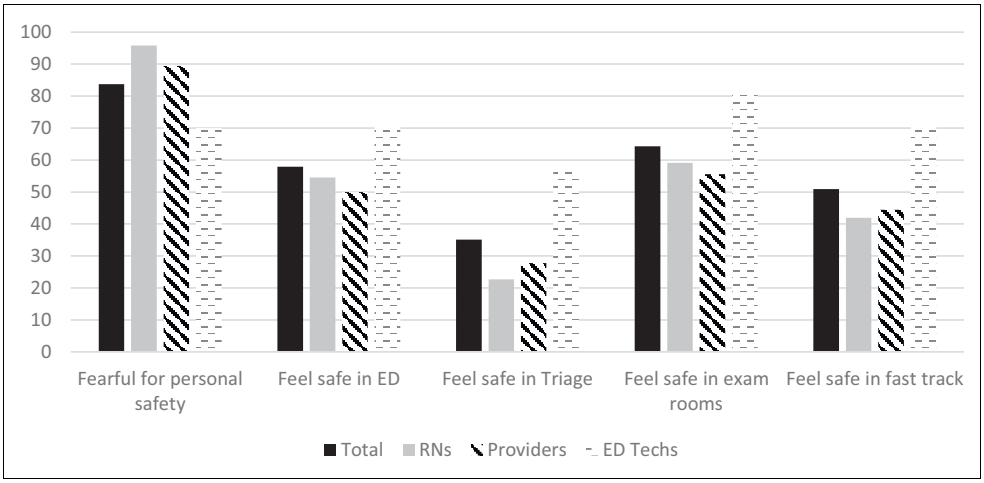

FIGURE 3

Percentage of ED staff that feel safe in the ED by location. ED, emergency department; RN, registered nurse.

More than half of clinicians ($n = 38$, 58%) reported feeling safe in the emergency department when asked about global perceptions of safety. However, this dropped to 21 of all clinicians (32.3%) and 14 of RNs (21.5%) in the triage area. Only half of clinicians ($n = 33$) reported feeling safe in the fast track area as well. The overall unadjusted association between role in the emergency department and feeling safe in the emergency department trended toward statistical significance (F-statistic = 2.80; $P = .07$). In particular, there was a statistically significant difference between nurses (Mean = 3.29; range, 2.95-3.63) and technicians (Mean = 3.88; range, 3.48-4.28) on the variable feeling safe in the emergency department, with nurses feeling less safe than technicians (t-statistic = 2.25; $P < .028$). This difference remained significant even after individually adjusting for race, sex, and shift. However, the difference was no longer significant (t-statistic = 1.39; $P = .170$) after adjusting for years of experience working in the emergency department (≤ 5 vs > 5 years). Furthermore, while controlling for role in the emergency department, the difference between clinicians who worked more than 5 years (Mean = 3.25; 95% confidence interval, 2.93-3.56) and clinicians who worked fewer than 5 years in the emergency department (Mean = 3.74; range, 3.45-4.03) was found to be significant (F-statistic = 5.04; $P < .029$) with those with fewer than 5 years in the emergency department feeling safer. Finally, there was no statistically significant unadjusted association between feeling safe in the emergency department and race (White, African American, or other) (F-statistic = 1.48; $P = .237$), sex (F-statistic = 0.02; $P = .885$), and shift (F-statistic = 2.97; $P = .099$).

Discussion

Based on this survey, clinicians in the emergency department overwhelmingly felt fearful for their personal safety in the emergency department; the nurse respondents drove this result with more than 91% of nurses reporting being fearful in the emergency department. The greatest areas of concern for all clinicians were triage and fast track areas. This is similar to the findings of Ferri et al,[1] who reported aggression most frequently occurred in the area surrounding the triage location. Technicians consistently reported greater feelings of safety than both providers and RNs, which remained true when shift, gender, and years in the emergency department were considered. Our data did not reveal significant differences when we controlled by race and sex. However, we did find differences in shift worked and years in the emergency department, with clinicians who worked fewer than 5 years in the emergency department feeling safer. This is consistent with previous studies where these findings were attributed to less exposure to violence.[3,18] This finding also may support that the longer clinicians stay in the emergency department the less tolerant of violence and aggression they become.[3,18]

Based on our results, it is evident ED clinicians are at high risk of experiencing physical assaults or verbal abuse. Although these are not new findings solely specific to our emergency department, we investigated the experience of the team of clinicians involved in direct patient care. Our study, similar to that conducted by Gillespie et al,[14] found that most physicians experienced verbal abuse, whereas physical harm is worse against RNs and technicians. It is impressive that most clinicians felt fearful for their personal safety. More than half of participants (58%) in our study reported agreeing or strongly agreeing with feeling safe in the general ED environment, but this means that 42% of clinicians did not feel safe in the emergency department. Although recognized by many who work in the emergency department, we found specific ED location influenced perception of safety from violence with only 22% of RNs feeling safe in triage. Our results correlate to findings from Ferri et al[1] who found that triaging patients was the highest risk nursing activity. They found that nurses were 3 times more likely to experience an episode of patient-related violence during triage, which may support why so many nurses in our study felt unsafe in that assignment (78%).[1] The National Institute for Occupational Safety and Health recommends that health care personnel should not work alone, emergency exits and panic alarms that alert security should be easily accessible, and counters should be deeper than normal to make physical attack more difficult,[32] but many triage rooms are designed for easy access to patients and staffed by a solitary triage nurse. Although our emergency department is in an urban location with high poverty and community violence rates, the interdisciplinary research team noted a substantial increase in patient and visitor violence after the transition to a level I trauma center. Previous research reported that working in an urban emergency department was associated with having a significantly higher percentage of respondents reporting verbal abuse than working in a suburban or rural setting.[19] Researchers also found that physical violence was substantially higher in trauma certified emergency departments than nontrauma emergency departments.[19] Our results further support this conclusion. After becoming a level I trauma center, we experienced higher volumes of patients and visitors. In response to the increased volumes, the emergency department

implemented the following: (1) added an additional provider in triage; (2) created Forward Flow, a vertical space where patients are evaluated by advanced practice providers; and (3) made modifications to the Supertrack area to decrease patient length of stay.

It is clear from our results that clinicians in our sample experienced violence and aggression differently. Providers, RNs, and technicians all experienced verbal aggression at similar rates. However, RNs and technicians, who spend more time with and in closer proximity to patients and visitors, experienced significantly more physical violence than providers did. This is similar to findings reported by Wong et al[6] who found that RNs, technicians, and security personnel were more likely to report exposure to violent episodes than attending physicians. In our study, our providers included physicians and advanced practice providers and this relationship of RNs and technicians reporting greater exposure to violent episodes than providers remained true.

The PWSI-EN was originally developed to measure the perceptions of safety from WPV among emergency nurses.[31] This is the first time it has been used with interdisciplinary clinicians in the emergency department. The high internal consistency of this instrument across disciplines demonstrates the strength of the instrument to measure a common experience in the emergency department. This study supports the use of the PWSI across disciplines. Further studies of the PWSI-EN in larger samples of interdisciplinary ED clinicians are warranted. Furthermore, despite WPV being a common theme among emergency departments worldwide, few interventions have been created to address this issue, prompting our desire to develop an intervention. Results from one study in which interventions were implemented and tested to determine whether they decreased frequency and severity of WPV in the emergency department revealed that the interventions were not effective.[14] Somoni et al[7] found that multicomponent interventions including all stakeholders are needed to combat violence and aggression in the emergency department. In combination with the ENA Violence and Prevention Toolkit, we hope to take lessons learned from Gillespie et al[8] and Somani et al[7] to guide the development and testing of a multimodal intervention to decrease violence and aggression in the emergency department and improve perceptions of safety in the emergency department. Gillespie et al[8] established a CAB whereby key stakeholders investigated WPV in their local rural and urban emergency departments leading to a creation of several interventional strategies and suggestions. As there was a team effort put forth by the CAB to work in a collaborative and interdisciplinary way, more successful outcomes were expected.

Limitations

Our study was completed in 1 emergency department; therefore, generalizability of results is limited. Regardless, results are similar to other studies.[1-3,14] Our response rate was less than expected at 46.4% with nurses being underrepresented. Considering that they make up the largest number of ED clinicians, this potentially led to selection bias. Response rates to emailed requests for survey research participation among nurses is often low.[33] The strongly held perception that WPV is "just part of the job"[25] could have influenced low response rates among nurses. Finally, because we explored the relationship among several outcomes and potential predictors, a type I error, or false positive, is possible.[34] Thus, these analyses should be considered exploratory, and the findings interpreted with caution. Nevertheless, our results provide insight into some consistently dangerous ED encounters that will help to inform the development and rigorous testing of future interventions.

Implications for Emergency Nursing

More than 85% of our sample reported being fearful for their personal safety in the emergency department. Creating standard practices to address this complex issue through interdisciplinary efforts is necessary, and rigorous evaluation of these collaborative efforts is warranted. The interdisciplinary findings of this research need to be further explored. For example, more research is needed to understand why ED technicians reported feeling safe in the emergency department significantly more than RNs and physicians/advanced practice providers when ED technicians, like nurses, spend the most time in close proximity to patients in the emergency department. In addition, the more we know about the types of physical violence experienced by clinicians, the more creative solutions to minimize the impact are important to validate. For example, technicians reported greater episodes of biting and pushing. Innovation and research are necessary to improve the safety for all clinicians working in the emergency department. Therefore, our next steps are to develop and rigorously test a multimodal intervention to determine whether the intervention improves feelings of clinician safety, prevents harm, and decreases violence and aggression.

Conclusion

Few interventional studies have been shown to address perceptions of safety in the emergency department despite years of research on ED violence and aggression. Therefore, we

took a step back to gain a better understanding of the clinicians' perceptions of safety in the emergency department. Clinicians in all roles felt unsafe in the emergency department but to varying degrees, suggesting the need for clinician-specific interventions. Our study results highlight the need for role-specific strategies for interventions to prevent patient and visitor violence and aggression. Effectiveness of these interventions can be tested with all clinician roles including the use of the PWSI-EN survey instrument. Emergency departments transitioning to level I trauma centers or expanding their built environment to address increasing patient volume should be aware that violence and aggression may increase resulting in a significant change to ED culture.

Author Disclosures

Conflicts of interest: none to report.

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Exposure of Emergency Nurses to Workplace Violence and Their Coping Strategies: A Cross-Sectional Design

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Contribution to Emergency Nursing Practice

- The exposure of nurses working in different regions to violence is a situation that maintains its place on the agenda.
- Our findings reveal that emergency nurses are exposed to violence many times during their working time. Although nurses have developed their own methods, these cannot adequately protect them against workplace violence.
- To prevent workplace violence in the emergency department, security measures should be increased. In addition, training to deal with such violence should be provided.

Abstract

Introduction: Violence against nurses working in the emergency department is a serious problem worldwide.

Methods: This descriptive study used a participant questionnaire and was conducted in-person, using semi-structured interviews with 120 emergency nurses (69 female, 51 male) working in the emergency department between September 1 and November 30, 2017.

Results: Overall, 90% of the study participants were exposed to workplace violence at least once while working in the emergency department, and 94.4% experienced verbal abuse, including insults, shouting, threats, and swearing. Most of such workplace violence came from the patients relatives. Most workplace violence incidents occurred during the 4 PM to midnight time slot and in the triage area. The most important perceived reasons for workplace violence were the long waiting period for treatment and care (79.6%) and not being prioritized for treatment (68.5%). The top 3 coping methods used were reporting to the nurse in charge (78.1%), followed by reaching out to the security personnel (72.8%) and filing lawsuits if exposed to physical violence (65.8%).

Conclusions: Most emergency nurses had experienced workplace violence. Hospital administration should take more effective security measures, hospitals should provide education and training programs for dealing with workplace violence, and programs to support staff members on encountering workplace violence should be implemented.

Key words: Emergency department; Coping with violence; Workplace aggression; Verbal abuse

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Introduction

Interpersonal violence has emerged as an ever-increasing negative behavioral pattern worldwide. It is witnessed in internal family dynamics as well as workplaces. Although workplace violence is more common in business feuds, in the recent years, it is becoming increasingly common in the health services sector, especially emergency services.[1] Reportedly, ED workers are at a higher risk of exposure to workplace violence than health personnel working in other hospital departments.[2-4] The World Health Organization stated that workplace violence is a global epidemic that negatively affects health personnel and the delivery of health services.[5] The Emergency Nurses Association substantiated this by also stating that workplace violence continues to be an important problem that has reached epidemic proportions in the emergency department, especially threatening emergency nurses.[6]

Several reasons make emergency departments susceptible to workplace violence: the fact that patients are usually brought into the emergency department regardless of whether their situation is nonurgent or life-threatening,[7] the ease of access to emergency services, the frequent overcrowdedness that prolongs waiting time, unrealistic patient expectations, medically and legally inappropriate patient requests for interventions, and visits by behavioral health patients exhibiting nervous and aggressive behaviors.[3,8,9] More than half of ED professionals are mostly exposed to verbal abuse from patients or their relatives.[9] Emergency departments are stressful environments for health professionals as well as for patients and their relatives. Patients brought into the emergency department generally require urgent medical attention, which worries them and their relatives. Many patients and their relatives believe that examinations and consultations only delay the treatment process. Consequently, in some cases, they hold health care professionals responsible for the death of the patient. This also makes emergency departments more prone to workplace violence because the patients' relatives turn to workplace violence, blaming the staff of medical negligence.[10-12] Considering such unavoidable exposure to workplace violence and the inability to exit their work area or alter the environment, nurses develop their own unique coping mechanisms. This is more so because, despite the increasing workplace violence in emergency departments, adequate and effective measures have not yet been taken to prevent such workplace violence, the existing measures are insufficient, and all health professionals, especially emergency physicians and nurses, remain under constant threat.[4,7,9]

In Turkey, emergency departments provide emergency medical services 24/7 for traumas such as injuries, burns, and fractures, and a variety of patient populations such as obstetric and pediatric emergencies and conditions including acute heart disease.[1,2] The ED team consists of the prehospital intervention team, emergency nurses, emergency physicians, social workers, family counselors, respiratory therapists, and other workers.[3] There are few studies on workplace violence against Turkish emergency nurses, and none have investigated the coping methods of emergency nurses exposed to workplace violence in Turkey. Determining the situations of exposure of emergency nurses to workplace violence and their use of coping methods may help solve this issue and provide information on how to take much-needed measures in this regard.

Thus, this study determined emergency nurses' exposure to workplace violence by patients and their relatives and the nurses' use of coping behaviors/methods.

Methods

This descriptive study used a cross-sectional study design. The study participants worked in emergency departments between September 1 and November 30, 2017, in 4 state hospitals located in the city's center affiliated to the General Secretariat of Gaziantep Public Hospitals Association. All of these hospitals are level III general (adult and child) trauma centers with more than 15 beds each, more than 100,000 patients visiting each hospital's emergency department annually. Before starting the research, we obtained approval of the Local Ethics Committee and written permission from the General Secretariat of Gaziantep Public Hospitals Association. The emergency nurses were informed about the research, and their written consent was obtained. Despite voluntary participation, it was made clear that they could leave the study at any time.

Nurses who worked in the emergency department of any of the 4 hospitals for at least a year and those who were actively working in any of these hospitals during data collection were included in the study. A total of 149 nurses were working in the emergency departments of the hospitals during the period of the study. Of the 149 nurses, 120 (80.5%) met the sampling criteria and voluntarily participated in the study. Of the 29 nurses who were not included in the study, 14 were excluded because they had not completed a year in an emergency department, 10 nurses did not want to participate in the study, and 5 did not participate because they were on annual leave. The data were collected by the researcher through a questionnaire completed by the emergency nurses.

TABLE 1
Characteristics of the nurses working in the emergency departments ($N = 120$)

Characteristics	N	%
Age group (y)		
20-25	59	49.2
26-47	61	50.8
Marital status		
Married	33	27.5
Single	87	72.5
Educational status		
Health vocational high school	36	30
Associate degree	17	14.2
Bachelor's and above*	67	55.8
Assignment in the emergency department		
I was assigned at my request	66	55.0
I was assigned randomly	54	45.0
Job description in the emergency department		
Service/clinical nurse	116	96.7
Educational nurse	1	0.8
Charge nurse of the emergency department	3	2.5
Working area in the emergency department		
Trauma/resuscitation area	8	6.7
Observation/treatment/care area	109	90.8
Nursing management division of the emergency department	3	2.5
Shift worked in the emergency department		
Day shift and night (8 AM-4 PM and 4 PM-midnight)	97	80.8
Night shift only (4 PM-midnight or midnight-8 AM)	10	8.3
Other (variable shift system)	11	10.8
Attending training on "Violence and Dealing with Violence in the emergency department"		
Yes	56	46.7
No	64	53.3
If yes, where did you get the training?†		
I received in-service training at the hospital where I work	56	100.0

* Three nurses with postgraduate education are combined with the undergraduate group.
† This is the response of 56 nurses who received training.

DATA COLLECTION TOOLS

The data were collected through the Data Collection Form developed for this study, consisting of 2 parts and a total of 44 questions. The questions were prepared using similar studies[11-17] and were designed to collect information about sociodemographic characteristics and workplace violence in the emergency department.

Sociodemographic Characteristics

These included nursesage, gender, education level, marital status, current working status, overall work experience in nursing (years), work experience (years) in an emergency department, job description, place of duty in the emergency department, working style, and any in-service training or course on "violence and coping with violence in the emergency department" (there is no formal in-service training on workplace violence in Turkey; however, such trainings can be organized by hospitals from time to time).[1,13]

Questions About Workplace Violence in the Emergency Department

These included the estimated number of workplace violence encounters in the past year, the most common type of workplace violence experienced, the state of being physically injured when exposed to workplace violence, the state of experiencing psychological or emotional discomfort when exposed to workplace violence, perpetrators of workplace violence, place of workplace violence, the period of time when the incidents occurred, activity/action taken when exposed to workplace violence, reasons for exposure to workplace violence, coping behaviors/methods applied when faced with workplace violence, and frequency of using coping methods.

Emergency nurses also were asked to respond to statements about their behavioral response and what measures they would be willing to take when faced with workplace violence (the response options included "always," "often," "rarely," and "never"). Responses were re-coded to 2 categories: always/often and rarely/never. In this section, one of the options regarding the coping behaviors of nurses was the "white code call," which is a security protocol created by the Ministry of Health for use all over Turkey.[1,8,13,17] This protocol includes hospital staff dialing 113 to call security personnel to the scene during violent incidents and using the phrase "code white" when they do.

TABLE 2
Exposure to workplace violence in the emergency department and distribution of the places and persons exposed to workplace violence ($N = 120$)

Features of exposure to workplace violence in the emergency department	n	%
Have you been subjected to any workplace violence during your time working in the emergency department?		
Yes	108	90.0
No	12	10.0
How many times have you been exposed (approximately) to workplace violence in the last year?*		
1 time	2	1.9
2-5 times	37	34.3
6-10 times	22	20.4
≥11	47	43.5
What is the most common form of workplace violence you are exposed to in the ED?*		
Physical violence	6	5.6
Verbal abuse	102	94.4
What type(s) of workplace violence have you been exposed to?†		
Shouting	106	98.1
Insulting	101	93.5
Walking toward the nurse (to threaten and intimidate)	90	83.3
Swearing	83	76.9
Threatening	83	76.9
Pushing	54	50.0
Throwing items	50	46.3
Punching	33	30.6
Kicking	28	25.9
Restraint by patient/visitor (forced hold)	27	25.0
Slapping	25	23.1
Attack with a knife or gun	8	7.4
Which of the following people perpetrated the workplace violence?†		
Patients	79	73.1
Patients' relatives	102	94.4
Place(s) where you were subjected to workplace violence in ED†		
Emergency corridor (triage area)	91	84.3
Short-term (24 h) observation and treatment section	88	81.5
Long-term (patient requiring treatment longer than 24 h) treatment and care section	85	78.7
Emergency examination room	84	77.8
Trauma/resuscitation room	79	73.9
Emergency intensive care unit	35	32.4
Personnel resting room	28	25.9
What time period did you experience the most workplace violence?*		
8 AM-4 PM	2	1.7
4 PM-midnight	105	87.5
Midnight-8 AM	1	0.8

ED, emergency department.
* Denominator is 108 people who have been subjected to workplace violence.
† Denominator is 108 people who have been subjected to workplace violence; >1 response could be selected.

continued

DATA ANALYSIS

The data were transferred to SPSS for Windows 23.0 (IBM Corp, NY), and statistical analyses were conducted. Frequencies (n), percentages (%), means, and SDs were calculated. Chi-Square test was used for statistical comparisons. A $P < .05$ value was accepted for indicating statistical significance.

Results

A total of 120 emergency nurses (69 female, 51 male) working in the emergency department of 4 hospitals participated in the study. Table 1 shows the distribution of characteristics of the nurses working in the emergency department. The mean age of the nurses was 27.5 years (SD = 6.0), 55.8% of them held a bachelor's degree and above, mean years of nursing experience was 5.2 years (SD = 5.7), and mean work experience in the emergency department was 2.6 years (SD = 2.7). Fifty-nine nurses (49.2%) were between the ages of 20 and 25 years. More

TABLE 3
Emergency nurses' ($N = 108$) perceived causes of workplace violence in the emergency department

Causes	N*	(%)†
Long waiting time/waiting of patients due to high patient volume	86	79.6
Perception of the patient/patient's relatives that the patient's care was not being prioritized	74	68.5
Poor communication due to bad attitudes of patients and their relatives or busy work environment	59	54.6
The patients and/or their relatives think that they are not adequately informed	50	46.3
Patient/patient's relatives thinking that they or their patient do not receive adequate treatment and care	39	36.1
Inability to access the health care team	36	33.3
High treatment costs	20	18.5
Bad/negative communication between health care personnel and patient/relatives	20	18.5
Transferring the patient to another hospital	15	13.9

* Participants could choose >1 option.
† Percentages calculated for 108 participants.

than half of the nurses (57.5%, $n = 69$) were female, and 73% ($n = 87$) were single.

Whereas 55% ($n = 66$) of the nurses stated that they were assigned to work in the emergency department at their own request, the rest (45%) stated that they were randomly assigned by the hospital management. Most of the nurses (96.7%) were service/clinical nurses, and most (90.8%) worked in the fields of observation/care/treatment. Most (80.8%) participants worked the day shift (8 AM-4 PM). Of those who received training, 100% ($n = 56$) received this training within the scope of the hospital's in-service training program (Table 1).

Most nurses (90.0%, $n = 108$) stated that they had been exposed to workplace violence at least once during their time in the emergency department. When these nurses were asked for an estimated number of times they had been exposed to workplace violence in the past year, 34.3% responded with 2 to 5 times and 43.5% with 11 or more times. The nurses were exposed to verbal abuse most frequently (94.4%). They were mostly exposed to shouting (98.1%), insulting (93.5%), walking toward the nurse (to threaten and intimidate) (83.3%), swearing (76.9%), and threatening (76.9%).

Of the 108 nurses who stated that they were exposed to workplace violence in the emergency department, 94.4% stated that the patients' relatives perpetrated this workplace violence, and 73.1% claimed the patients to be the perpetrators. Regarding the places they experienced workplace violence, 84.3% of the nurses experienced workplace violence in the emergency corridor (triage area), 81.5% in the short-term (24-hour) observation and treatment section, and 78.7% in the long-term (patient requiring treatment longer than 24 hours) treatment and care section. Most (87.5%) stated that they were exposed to workplace violence during the evening shift (4 PM-midnight) (Table 2).

It was determined that 17.6% ($n = 19$) of the nurses who were exposed to workplace violence had physical injuries; 9.3% ($n = 10$) received care and treatment for this injury. A total of 86 (79.6%) nurses experienced psychological or emotional injury/discomfort due to workplace violence, and 17 (15.7%) of them stated that they received treatment and care for psychological injury.

Frequently perceived causes of workplace violence in the emergency department were prolonged waiting time or delays in care (79.6%), not prioritizing the patient/relatives (68.5%), inability to communicate well due to bad attitude of patients and their relatives (54.6%), and patient and/or relatives not being informed adequately (46.3%) (Table 3).

Table 4 lists the coping behaviors that nurses used when exposed to workplace violence, ordered by frequency of use. Most often used strategies included reporting the situation to the nurse in charge (78.1%), ensuring that the perpetrators are escorted out by security personnel (72.8%), suing for physical violence (65.8%), physically self-defending (64.0%), and withdrawing from the treatment process (61.4%).

According to the descriptive characteristics of nurses, when the reactions to violence in the workplace are examined in terms of gender, it was observed that there was a statistically significant difference in "I am physically defending myself" ($P = .013$); however, it was not found statistically significant when looking at gender in other behaviors ($P > .05$). According to the education level of the nurses, there was a significant difference in only 1 item, namely, "I refer the perpetrators of violence to the hospital management" ($\chi^2 = 13.794$, $P = .003$); other behaviors did not make a statistically significant difference according to education level ($P > .05$). When the behavioral reactions of nurses to workplace violence were compared according to age, 58.3% of the participants in the 20 to 25 age group and 41.7% of the participants in the 26 to 47 age group marked the item "I direct the perpetrators to hospital management" as "always/mostly." The same item was marked as "rarely/never" by

TABLE 4
Emergency nurses' ($N = 114$) use of coping behaviors when encountering workplace violence

Behaviors	Always + mostly		Rarely + never	
	N	(%)	N	(%)
I report the situation to the nurse in charge	89	78.1	25	21.9
I ensure that perpetrators are escorted out by security personnel	83	72.8	31	27.2
I sue for physical violence	75	65.8	39	34.2
I defend myself physically	73	64.0	41	36.0
I withdraw from the treatment process	70	61.4	44	38.6
I report the situation to the hospital management	62	54.4	52	45.6
I call for "white code" (security response for workplace violence)	60	52.6	54	47.4
I direct the perpetrators to the hospital administration	60	52.6	54	47.4
I make the necessary explanations that I think can prevent violence (patient information, reasons for delay in treatment, treatment plan and other reasons, etc.)	57	50.0	57	50.0
I get support after violence	43	37.7	71	62.3
I sue for verbal abuse	40	35.1	74	64.9
I continue to treat the patient	33	28.9	81	71.1
I don't react at all, I stay away from the environment	33	28.9	81	71.1
I respond the same way to perpetrators (I react according to the type of violence they use)	27	23.7	87	76.3
I only perceive serious events such as injury as violent	26	22.8	88	77.2
I try to lighten the situation or atmosphere by apologizing	23	20.2	91	79.8
I prefer to remain silent after violence	22	19.3	92	80.7
I ignore violence	20	17.5	94	82.5
I perceive violence as part of the job, I do nothing	17	14.9	97	85.1

The questions in the table were asked to all participants ($N = 120$), and the answers of 114 nurses who answered these questions are included.

38.9% of the participants in the 20 to 25 age group and by 61.1% of participants in the 26 to 47 age group ($\chi^2 = 4.300$, $P = .038$, $P < .05$). Other behaviors did not make a statistically significant difference according to age groups ($P > .05$). These statistics are not shown in the table.

Discussion

This study showed that, parallel to other studies,[13-26] most of the emergency nurses were exposed to workplace violence in the emergency department at least once during their working life. In the current study, similar to Ferri et al,[27] most nurses were exposed to workplace violence in the emergency corridor (triage area). Triage areas are usually the most crowded and the first areas where patients and relatives encounter health care workers in the emergency department. In addition, patients visit the emergency department mostly in the evening hours in Turkey.[1] Patients and their relatives are commonly stressed when visiting the emergency department because of the patient's health status. These may be the main reasons why workplace violence is the most common in the triage areas and in the evening shift. Violence is more common because of the fact that triage is the first area that patients visit and everyone wants their patient to be cared for as soon as possible, and because of nervous patient relatives. Additional measures should be taken, and administrative arrangements should be made in such areas where the patient density is usually high.

The most common types of workplace violence included shouting, insulting, swearing, threatening, and

walking in an intimidating manner toward the nurse. Nearly half of the nurses had been exposed to workplace violence approximately 11 or more times in the previous year. Although this number was similar to those reported in some studies,[18-20] it was higher than the results of some other studies.[27,28] It is overwhelming to realize that emergency nurses are exposed to workplace violence at such serious rates and in similar ways worldwide.[29]

In this study, most nurses stated that they prefer reporting (78.1%), calling security guards (72.8%), and exercising their legal rights for physical violence (65.8%) when they encounter workplace violence. These frequencies are higher than the rates reported in existing literature.[15,21] Studies have shown that nurses do not report workplace violence to security guards because they are afraid of the threat of harm by the perpetrators.[12,21] Roy,[22] who investigated the behavioral signs of patient violence in the emergency department, stated that only 10% of victimized nurses took legal action. Mutlu[1] stated that only 14.7% of the emergency nurses became a plaintiff after an incident of workplace violence. In addition, it was stated that 60.3% of the nurses did not initiate any legal action despite being exposed to physical violence, and 50% of them tried coping on their own when faced with both physical violence and verbal abuse.[1] Consistent with the literature, our findings also highlight the need of emergency nurses to be more encouraged and informed about taking legal action against workplace violence.

In the study, it was determined that the nurses (61.1%) who stated that they rarely/never refer the perpetrators to the hospital administrators were between the ages of 26 to 47 ($P < .05$). This shows that as the age of the nurse progresses and experience in the profession increases, nurses prefer to develop solutions to violence by using their own coping methods. According to Coşkun and Tuna Öztürk,[30] as age progresses, progress is achieved in coping with physical violence and verbal abuse.

According to the study conducted in the emergency department of a hospital in Iran, it was stated that the older employees were more sensitive and calm in the face of violence. It showed that after getting used to their profession and ED environment, nurses could manage stress-related attitudes better, and they learned to manage their stress as well.

In our study, although the ratio was almost equal for female and male nurses who stated that they would always/mostly defend themselves physically when faced with physical violence, it was observed that the rate of female nurses who stated that they would rarely resort to this method was considerably lower than the rate of male nurses. Ayranci et al[12] investigated the frequency of exposure to violence in health institutions and health professional groups, and it was determined that while the rate of men being exposed to violence was 48.4%, this rate was higher in women (52.5%), but men responded to violence with violence more than women.[10]

Limitations

The study was conducted with only 120 emergency nurses working in 4 state hospitals in Gaziantep, Turkey, and may not be generalizable to other emergency departments. Furthermore, the data were collected using questionnaires and self-reports of emergency nurses. The definition and types of workplace violence were not explained before the questionnaire was administered to the nurses, and the nurses were asked to evaluate using only their then-current knowledge.

Implications for Emergency Nursing

In light of this study's findings, emergency nurses can take institutional and administrative measures against workplace violence in the emergency department. In addition, these findings can contribute toward formulating legal regulations specific to the field of health, provision of counseling services to nurses who have been exposed to workplace violence, and improving the protection of health care workers against workplace violence. Such measures can prevent workplace violence in the emergency department. Furthermore, this study emphasizes the importance of providing emergency nurses with the necessary training to help them cope with/respond to a violent situation.

Because workplace violence has physical, psychological, and emotional effects, and these adversely affect the functionality of the employees at work as well as the quality and cost of nursing care,[31] individual, institutional, and legal measures should be taken to prevent workplace violence in emergency departments. Every health care worker should be conscious about the prevention of workplace violence in health units and contribute to the development of strategies to prevent workplace violence. Reporting workplace violence during and after the incident, calling security guards to the unit, and seeking legal rights in all types of incidents that fall under the definition of workplace violence can be counted as individual strategies.

Training of emergency nurses on effective coping behaviors and effective communication also will have important effects on reducing workplace violence. It should be noted that every health care worker should be conscious

of the prevention of workplace violence in health units and contribute to the development of strategies to prevent workplace violence. Nurses too can contribute to the reduction of workplace violence through maintaining a calmer demeanor when dealing with patients and their relatives, showing empathy, gaining the ability to manage a complex environment, and controlling their own emotions.

Conclusion

This study was conducted to determine emergency nurses' exposure to workplace violence and their use of coping methods. It was determined that the rate of exposure to workplace violence in emergency nurses is high, which supports the existing literature, which also states that they are more frequently exposed to verbal abuse and try to cope with workplace violence on their own. Taking drastic institutional and administrative measures and training the nurses to equip them to deal with workplace violence and develop coping strategies may be beneficial for the prevention of workplace violence in emergency departments.

Author Disclosures

Conflicts of interest: none to report.

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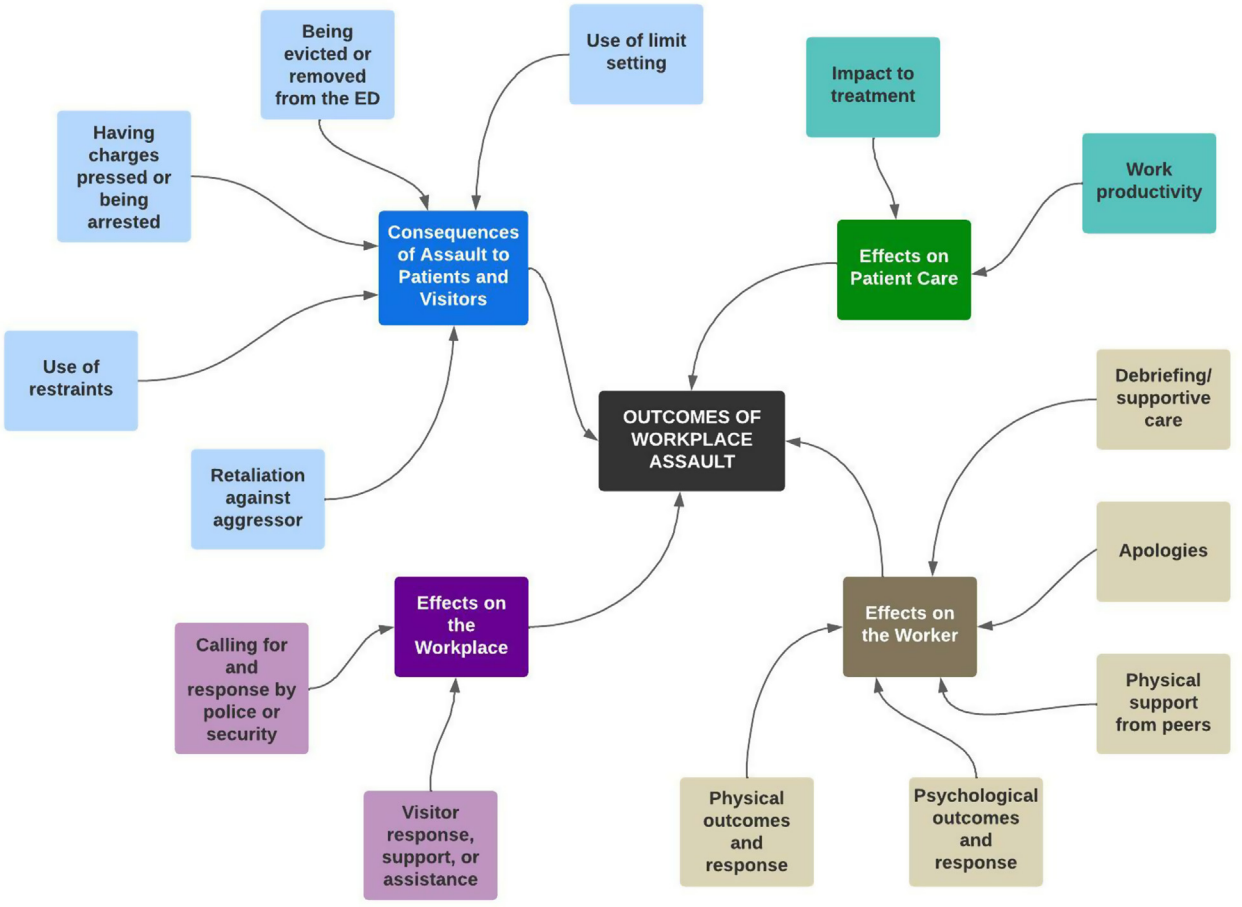
Graphical Abstract

Qualitative Analysis of Workplace Assault Outcomes from the Perspectives of Emergency Nurses

Authors: Gordon L. Gillespie PhD, DNP, RN, CEN, CNE, CPEN, PHCNS-BC, ANEF, FAEN, FAAN, and Peggy Berry PhD, RN, COHN-S, SPHR, COHC, FAAOHN, Cincinnati and Dayton, OH



Qualitative Analysis of Workplace Assault Outcomes from the Perspectives of Emergency Nurses

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Contribution to Emergency Nursing Practice

- Emergency nurses experience a myriad of negative consequences associated with workplace assault.
- In addition to negative effects to emergency nurses, consequences exist for aggressive patients and visitors, the workplace, and patient care.
- Emergency nurses need to seek and also offer emotional support after workplace assault.

Abstract

Introduction: Emergency nurses experience a myriad of negative consequences associated with workplace assault. The purpose of this study was to explore the experiences of emergency nurses using the Ecological Occupational Health Model of Workplace Assault.

Methods: A descriptive qualitative design was used for this study. Data from 167 emergency nurse participants who described an episode of workplace assault were analyzed using a conventional content analysis method.

Results: Fourteen codes emerged from the qualitative data that related to 4 categories for the theme, Outcomes of Workplace Assault. The category "Consequences of Assault to Patients and Visitors" was supported by the following codes: use of limit setting; being evicted or removed from the emergency department; having charges pressed or being arrested; use of restraints; and retaliation against aggressor. "Effects on the Worker" was supported by the following codes: physical outcomes and response; psychological outcomes and response; physical support from peers; apologies; and debriefing/supportive care. "Effects on the Workplace" was supported by the following codes: calling for and response by police or security; and visitor response, support, or assistance. "Effects on Patient Care" was supported by the following codes: impact to treatment and work productivity.

Discussion: Workplace assault in the ED setting is associated with consequences of workplace assault to patients and visitors as well as negative effects to emergency nurses, the workplace, and patient care. Emergency nurses need to seek and also offer emotional support after workplace assault. Providing support could serve as a deterrent to retaliation while minimizing potential adverse impacts to nurses' psychological health and work productivity.

Key words: Workplace aggression; Workplace violence; Emergency service; Emergency nursing; Qualitative research

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Introduction

Workplace assault (WPA) against nurses, particularly in the emergency department, is so prevalent that when orienting new nurses to the specialty, emergency nurses frequently say "When you are assaulted..." as opposed to "If you are assaulted..." Mitra et al[1] reported the prevalence of physical violence in just 1 emergency department at 1853 episodes over a 3-year period,[1] averaging 1 to 2 incidents per day. In other research, prevalence against emergency nurses was documented at 35.8%.[2]

TABLE 1
Demographic characteristics of the study sample ($N = 167$)

Demographic characteristics	Study sample		Nursing workforce*
	N	%	%
Race			
Non-Hispanic White	152	91.0	80.6
Non-Hispanic other race	8	4.8	13.8
Hispanic	7	4.2	5.6
Gender†			
Female	132	85.7	90.5
Male	22	14.3	9.4
Shift worked‡			
Day shift	94	58.0	
Evening shift	17	10.5	
Night shift	51	31.5	
Employer provides violence prevention training§			
Yes	99	61.5	
No	62	38.5	

* Source: The 2020 National Nursing Workforce Survey.
† Missing data from 13 participants.
‡ Missing data from 5 participants.
§ Missing data from 6 participants.

Emergency nurses experience a myriad of negative consequences associated with WPA.[3] Typical consequences are categorized as physical or psychological. Physical consequences include physical injuries, gastrointestinal complaints, migraines, loss of appetite, hyperarousal, insomnia, and nightmares.[4,5] Psychological consequences include anxiety, depression, fear, frustration, burnout, humiliation, powerlessness, and helplessness.[4,6-8] When emergency nurses experience WPA, we believe they want to rely on their coworkers for both physical and emotional support. Although some emergency nurses report receiving this emotional support from their peers, other emergency nurses report a lack of emotional support or being blamed for the WPA happening.[9]

WPA also can impact the emergency department and patient care delivery.[10] For example, emergency nurses indicate decreased concentration, diversion from regular nursing care, and decreased ability to provide safe care.[4,7] Normally, the use of coping strategies buffers the negative impact to care; however, Jeong and Kim reported that the use of emotion-focused coping is associated with a greater intention to leave emergency nursing.[11]

Although research has been conducted on the consequences of WPA, minimal research has been conducted to study the impact of WPA for aggressors and the workplace. The purpose of this study was to describe the experiences of emergency nurses using the Ecological Occupational Health Model of WPA as an organizing framework. Findings from this study will help to guide future research on WPA and design interventions based on the model.

CONCEPTUAL FRAMEWORK

Levin et al[12] developed the Ecological Occupational Health Model of Workplace Assault after studying workplace assaults by residents against staff in long-term care facilities. This multidimensional framework considers multiple factors contributing to WPA (eg, worker, aggressor, environment).[7] This framework was later used by Gillespie et al[13,14] to study WPA in emergency nurses. The key constructs of this framework are personal worker factors, workplace factors, community and environmental factors, assault situation, and outcomes of WPA. Outcomes of WPA are defined as (1) consequences of assault to patients and visitors, (2) effects on the workers, (3) effects on the workplace, and (4) effects on patient care. The present study focused on the "Outcomes of WPA" construct from the theoretical components to describe the experiences of WPA in emergency nurses.

Methods

A descriptive qualitative design was used for this research study.[15] This study was part of a larger research project aiming to understand changes in work productivity after experiencing WPA. Before data collection, the study was approved by the Institutional Review Board. Potential participants provided informed consent. The Consolidated Criteria for Reporting Qualitative Research was followed for the reporting of this study's findings.

We solicited participants through a systematic, randomized sample based on zip code of members in the Emergency Nurses Association. A postal invitation was mailed to potential participants with a paper copy of the study packet and letter of information for research. Inclusion criteria were providing stretcher-side care to emergency patients and experiencing an episode of assault or threat of assault within the previous 30 days. Of the 246 emergency nurses who participated in the larger study, 167 (67.9%) emergency

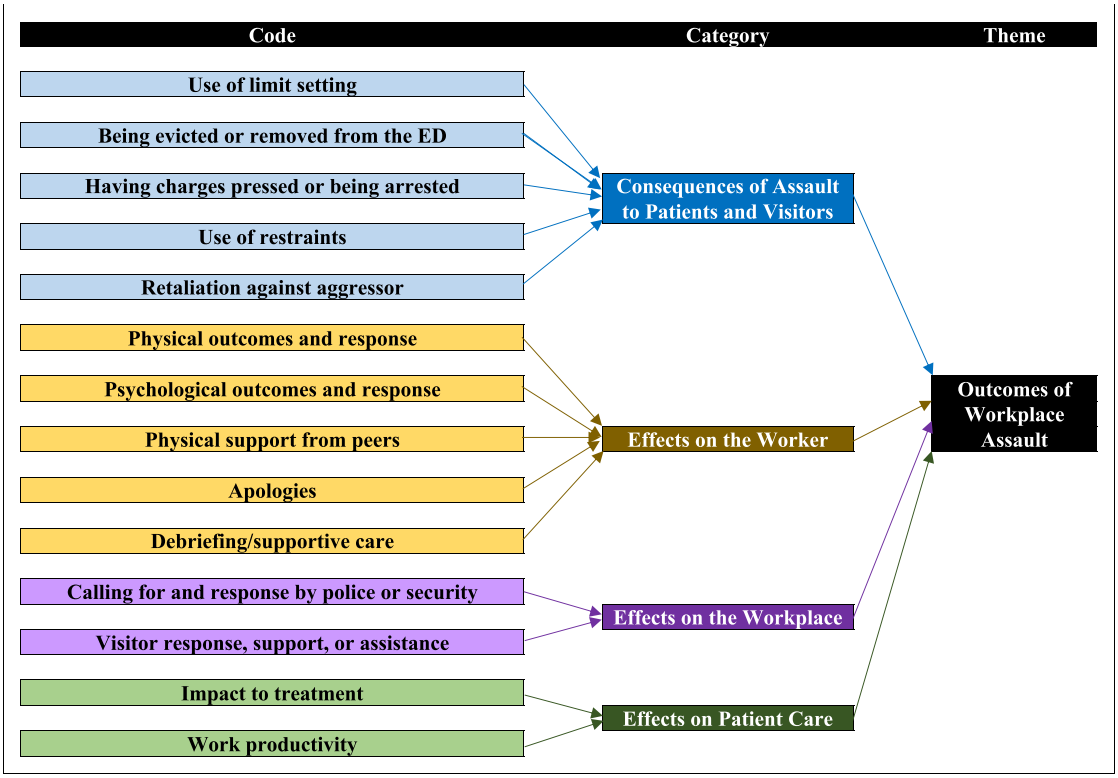

FIGURE 1

Relationship of codes, categories, and themes based on qualitative analysis.

nurses met the inclusion criteria for the current study and completed the study procedures.

The study's data collection tool was 1 open-ended question and a series of demographic questions. Responses were mailed back to the research team. The open-ended item requested participants to describe the worst episode of assault or threat of assault within the previous 30 days and document the actions taken and consequences following the episode. Qualitative responses to the open-ended item were transcribed verbatim into Microsoft Word (Redmond, WA) and imported into NVivo 9 (Burlington, MA) for qualitative data analysis using a conventional content analysis method.[16,17] Demographic questions queried participants' age, race, gender, shift worked, and whether their employer provided violence prevention training. Responses to demographic items were entered into an IBM SPSS Statistics 23 (Armonk, NY) database and analyzed using descriptive statistics.

We used conventional content analysis to identify patterns of meaning across the responses to the open-ended question. This inductive approach followed the procedures for thematic analysis recommended by Braun and Clarke.[16] The procedural steps for conventional content analysis began with both investigators (1 male, 1 female) reading the qualitative responses several times. At the time of data analysis, the first author was doctorally prepared (Doctor of Philosophy) with expertise in emergency nursing and occupational health science. The second author was master's prepared with a focus in occupational health nursing, doctoral student (Doctor of Philosophy program), and graduate research assistant.

The investigators then independently highlighted meaning units from the data.[16,17] The 2 investigators met face-to-face and discussed each meaning unit coming to agreement on what items were important and relevant to the experience of being assaulted or threatened while providing emergency care. The meaning units were clustered to generate codes and a coding schema. Next, the investigators independently coded each line of text based on the coding schema. The investigators again convened face-to-face and discussed the coded data going line-by-line. When a discrepancy occurred in coding, the investigators discussed their rationale for why the exemplar was/was not coded. The discussion continued until consensus was achieved for the data. The final data set coded within NVivo 9 was evaluated by both investigators to confirm that the

TABLE 2
Frequency and percentage of participants responding to each category

Participants providing a response by category	N	%
Consequences of assault to patients and visitors		
Use of limit setting	19	11.4
Being evicted or removed from the emergency department	9	5.4
Having charges pressed or being arrested	25	15.0
Use of restraints	18	10.8
Retaliation against aggressor	6	3.6
Effects on the worker		
Physical outcomes and response	27	16.2
Psychological outcomes and response	98	58.7
Physical support from peers	43	25.7
Apologies	5	3.0
Debriefing/supportive care	2	1.2
Effects on the workplace		
Calling for and response by police and security	87	52.1
Visitor response, support, or assistance	6	3.6
Effects on patient care		
Impact to treatment	22	13.2
Work productivity	39	23.4

data were correctly coded within the database and that the coded data adequately represented the codes to which they were assigned. The independent analysis and discussion between investigators (ie, investigator triangulation), achievement of data saturation, and cross analysis using a large sample size (ie, data triangulation) were performed to increase the trustworthiness of the study findings.[18]

Results

The study sample consisted of 167 emergency nurses (see Table 1). Predominantly, the sample was non-Hispanic White ($n = 152$, 91%), was female ($n = 132$, 86%), and worked day shift ($n = 94$, 58%). Race and gender of the study sample was approximate to that of the United States nursing workforce.[19] The mean age of participants was 43 years (range 25-65 years). In addition, the majority ($n = 99$, 62%) of participants received violence prevention training from their current employer.

Fourteen codes emerged from the qualitative data analysis. After the completion of analysis, the codes were organized in relation to 4 categories for outcomes of WPA: (1) Consequences of Assault to Patients and Visitors, (2) Effects on the Worker, (3) Effects on the Workplace, and (4) Effects on Patient Care. The relationship of the 14 codes to the respective categories and study theme of Outcomes of WPA is displayed in Figure 1. The number of participants providing a response categorized to the 14 codes is noted in Table 2.

CONSEQUENCES OF ASSAULT TO PATIENTS AND VISITORS

Five codes related to the category Consequences of Assault to Patients and Visitors. These codes were (a) use of limit setting, (b) being evicted or removed from the emergency department, (c) having charges pressed or being arrested, (d) use of restraints, and (e) retaliation against aggressor. The consequences were experienced by those patients and visitors who enacted WPA.

Use of Limit Setting

Limit setting was performed by 19 nurses (11.4%) in an effort to instruct aggressors to stop their physical aggression (eg, "I reacted by telling him loudly and forcefully not to abuse or assault me at work by throwing things at me") or articulate the limit to the degree of aggression they were willing to tolerate. Participant 228 said, "I also told him that any further threats or disruptions would result in his removal from the ED."

Being Evicted or Removed from the Emergency Department

As aggression escalated and limit setting was not effective, 9 participants (5.4%) reported patients were instructed to leave or were escorted out of the emergency department. After 1 visitor argued with staff in the lobby and threatened to wait outside in the parking lot and shoot staff as they exited the building, "…he was escorted out of the building to his car and told to leave immediately..." (Participant 249). In a different situation, a patient attempted to assault the nurse, and the attending physician requested the patient to be "...physically removed from the ED" (participant 60).

Having Charges Pressed or Being Arrested

A legal consequence of physical assaults was aggressors being arrested by the police or the nurse pressing charges against the aggressor ($n = 25$, 15%). For example, participant 52

wrote, "I had him arrested, I went to court. Judge ordered him extended jail time and to pay a fine." However, this was not true in all cases. Participant 146 believed that it was not worth the effort by writing, "No charges were pressed—it would have taken so much time." Even when charges were pressed, the outcome was not always in the favor of the nurse: "Event was witnessed by police and had to be reported. Several months later a call from district attorney convinced me to drop charges as he had no priors. In hindsight, I wished I'd continued with the charges as I truly feel it was a deliberate act and needed to be punished to some degree" (participant 218).

Use of Restraints

Eighteen participants (10.8%) discussed the need to restrain patients to prevent assault. These restraints included physical force, mechanical restraint, and involuntary medication administration. They described the use of physical force with a patient in order to protect a coworker. For example, participant 10 wrote: "When the patient attempted to take another swing at my coworker, I came up behind the patient and took hold of both of his upper arms and linked them with mine making it impossible for him to swing towards my coworker."

The types of mechanical restraints described to restrain aggressive patients were a taser gun ($n = 7$), handcuffs ($n = 3$), and 4-point restraints ($n = 50$). Taser guns were used by security, not the emergency nurse. Involuntary medication administration ($n = 13$) was described as the use of an antipsychotic medication such as haloperidol given intramuscularly. Some patients received multiple types of restraints. For example, participant 116 reported that one patient "...was physically restrained and chemical restraint was used with intubation; ED physician and further monitoring, level of care on a respirator."

Retaliation Against Aggressor

A few nurses ($n = 6$, 3.6%) had thoughts of retaliating against an aggressor immediately after being assaulted. Although most chose to not take retaliatory action, a few responded with lower level aggression such as "made an ugly face or two" and "yelling at her." However, in 1 case, the aggressiveness combined with lack of cooperation for 1 patient led participant 264 to go "over (to) the prone patient after being tired of him sitting doing nothing in the ED and placed the bed (head of bed) at a 70 degree angle quickly."

EFFECTS ON THE WORKER

Five codes related to the category Effects on the Worker. These codes were (a) physical outcomes and response, (b) psychological outcomes and response, (c) physical support from peers, (d) apologies, and (e) debriefing/supportive care.

Physical Outcomes and Response

Physical outcomes ranged from minor to severe injuries ($n = 27$, 16.2%). Minor to moderate injuries suffered by nurses were pain and soreness, laceration, and epistaxis. Severe injuries included "nurse blacked-out for a few seconds," head injury, extremity fractures, jaw dislocation, ruptured ear drum, and permanent loss of vision. The most severe injury reported was by participant 165 involving a police officer who had been hit in the head and initially seemed fine:

"Less than 10 minutes later, the officer told me he had a severe headache and didn't feel right. He then collapsed in my arms and lost consciousness shortly afterwards. He died from this injury a few days later, never regaining consciousness."

In addition, participants reported several responses to WPA including feeling a rush of adrenaline, becoming pale, physically shaking, and feeling exhausted.

Psychological Outcomes and Response

Participants identified a myriad of psychological outcomes and responses that they experienced ($n = 98$, 58.7%), including being annoyed, angry, fearful, anxious, helpless, unsafe, and embarrassed. Of particular note is that the concern extended beyond the emergency department. Participant 148 wrote, "I live very close to the area I work in and many times have been recognized outside of work," relaying the risk of being victimized outside of the workplace based on a prior interaction with an ED patient or visitor. Some participants also expressed the intrusiveness of the events to their personal lives. Participant 11 penned that "...'what if' began to creep into my every thought." During a reflection of the experience, some felt guilty and blamed themselves for the aggression (ie, "I was angry and upset that I let it happen" and "Did I do something to incite it?"). However, participant 40 expressed that she did not take the aggression personally by writing, "Many years of experience help me to put this situation into perspective: (1) actions not aimed at me as an individual and (2) there was an influence of drugs upon patient." Participant 75 said

about an older adult patient, "I felt very sorry for him and hope it does not happen to me when I get older!"

Physical Support from Peers

The participants consistently reported that when physical assaults occurred, they immediately received physical support from their coworkers or they themselves intervened to protect a coworker ($n = 43$, 25.7%). Participant 141 wrote, "Within moments, other members of the ED staff were at my side." Participant 187 reported, "We called a Code Green [violent patient response] to assist with a show of force." When the firearm of a police officer was taken by a prison patient, participant 191 "...reacted by kicking the patient in the groin long enough for the police to get the gun away from him. I fell onto the patient with my knee in his groin!"

Apologies

Aggressor apologies were infrequently reported by the participants ($n = 5$, 3%). Four participants said that the patients later apologized to them for their behaviors. For example, participant 160 received an apology after the patient became sober: "Later, after he sobered my nurse colleagues told him of the negative comments he made to me, at which he called me in his room and apologized." Another patient provided the explanation coupled with the apology that he was in pain at the time of the assault (participant 232). A fifth participant reported that the patient apologized but did so intermittently with ongoing threats of further assault: "He would look me in the eye and tell me he wanted to kill me and at the same time he'd apologize and say he couldn't help it" (participant 239).

Debriefing/Supportive Care

Although only 2 participants (1.2%) reported receiving debriefing/supportive care after WPA, 1 participant discussed the profound impact that supportive care can have. Participant 160 wrote, "What stays with me about the event is my nursing partner thinking of me and my feelings enough to tell the patient that he needed to apologize to me. That exemplifies staff caring for each other." In the second situation, participant 10 showed that a debriefing can reduce the risk for future physical aggression: "After the situation, my coworkers and I sat down and discussed the case and talked it through. It did make me a bit more aware of my surroundings."

EFFECTS ON THE WORKPLACE

Two codes related to the category Effects on the Workplace. These codes were (a) calling for and response by police or security and (b) visitor response, support, or assistance.

Calling for and Response by Police or Security

In a large portion of the events, either the participants ($n = 87$, 52.1%) called for security and police to assist in the management of aggressive patients and visitors or security and police witnessed the event and instinctively responded. Participant 27 wrote that her department's "...urgent call resulted in three officers from our local police to come and help with further restraint." Several participants identified that "security responded immediately" or that the "police (were) at (the) bedside." Actions taken by security and police officers were monitoring patients under arrest, guarding prisoners being medically treated, assisting with physical and mechanical restraints, and being present during the care of behavioral health patients. In some cases, police responded to take a police report or to arrest someone committing a physical assault. Unfortunately, security services were not always effective. Participant 43 said, "We had no security." Participant 119 wrote, "At this point I turned and looked at the security guard, made eye contact with him (he was 10 feet away). The guard remained seated by the metal detector (through which the patient did not pass) and watched the patient continue to push me into the doors."

Visitor Response, Support, or Assistance

Six participants (3.6%) described interactions with visitors during the attempt to manage aggressive patients. In one account, the patient's father blocked the patient from leaving the triage room (participant 42). In a second account, the visitor for a different patient "...subdued him (aggressor), as I could not" (participant 48). Neither account depicted whether the visitor was injured. In other accounts, the visitors assumed a passive role with the aggressive patient. For example, participant 45 wrote: "After I was hit, the patient's family member said, 'I told them not to take the restraints off.' She just let me walk into the room, did not say anything and I placed myself in harm's reach to do my assessment."

EFFECTS ON PATIENT CARE

Two codes related to the category Effects on Patient Care. These codes were (a) impact to treatment and (b) work productivity.

Impact to Treatment

Several nurses ($n = 22$, 13.2%) stated attempts to de-escalate aggressive patients and visitors. Participant 251 described his ability to successfully de-escalate a patient: "We were able to establish a rapport and I could find areas to give him a little more control." Participant 212 described an unsuccessful de-escalation attempt: "Myself and another RN tried to calm him down. This escalated the patient. He became more combative and assaultive." When de-escalation was not effective, some of these patients received expedited care. Participant 154 wrote that "...eventually the charge nurse took her (the aggressor) in ahead of many other sick patients." As some patients became more upset with wait times or treatment plans, they either left without treatment or left against medical advice: "She did not want to wait and consequently asked the registrar to call her a cab whereupon she left the building" (participant 249).

Work Productivity

The work productivity for nurses to administer patient care also was affected ($n = 39$, 23.4%). For example, participant 56 explained that in one event, the "...patient needed 10 people to (gain) control." This resulted in an increased focus on one patient, with other patients not receiving nursing care for an extended time period. WPA also could lead to nurses' inability to focus on their work as well as they normally would: "This man scared me. He knew what he was doing and was an angry person. This made me have trouble with work that day" (participant 59).

Discussion

The purpose of this study was to explore the experiences of emergency nurses using the Ecological Occupational Health Model of WPA. The 14 codes generated from the data aligned with the 4 categories from this construct (or theme): Consequences of Assault to Patients and Visitors, Effects on the Worker, Effects on the Workplace, and Effects on Patient Care.

CONSEQUENCES OF ASSAULT TO PATIENTS AND VISITORS

Although some emergency nurses may perceive that aggressors commit WPA with no repercussions, our findings show that aggressors experience limit setting, removal from the emergency department, arrest, and use of restraints. Similarly, Wright-Brown et al[5] conveyed that some aggressors were arrested after WPA. In other research, the use of restraints was common. Mitra et al[1] analyzed 1853 security responses. Of the responses, physical force was used in 1668 (90%) of the responses, involuntary medication administration in 923 (49.8%) responses, and mechanical restraint in 650 (35.1%) responses. It was not known in the current study whether de-escalation and other efforts were consistently and correctly attempted before use of restraints. When restraints are used, there is an increased risk of injury to both the patient and caregivers applying or administering the restraints.[20] A strategy that may need to be considered in ED settings is the creation of a seclusion room free of objects that could harm the patient and emergency nurses, coupled with padded walls, to further reduce potential patient self-harm without the use of restraints.

Six participants described thoughts and actions of retaliation against an aggressor. Although few participants admitted to committing retaliation, the number may actually be profoundly higher. Regardless of the rationale for considering retaliation, emergency nurses need to be mindful of the code of ethics for nursing practice as applied to emergency nursing practice.[21] In provision 1, the authors discuss the need for nurses to practice with compassion and respect for their patients' dignity, worth, and unique attributes. This provision translates to the need for emergency nurses to never use or condone retaliation. It is important for emergency nurses to recognize their signs of personal stress and seek assistance from their colleagues if considering retaliation.

EFFECTS ON THE WORKER

WPA can have a profound negative effect on emergency nurses. The WPA in this study led to acute physical and psychological injuries. These patterns of injuries are not unique and have been previously reported in the literature.[3-7]

In our study, a greater number of participants described a psychological reaction than a physical reaction. Although physical support was described by 43 participants, only 2 participants reported receiving emotional support or a debriefing. This finding reflects the infrequent use of emotional support and debriefings to victims of WPA. Providing emotional support could foster resilience in victimized emergency nurses.[22]

Teaching problem-focused coping strategies to emergency nurses can lead to a routine use of proactive coping strategies and potentially WPA prevention.[11] In addition, staff can be trained to respond to provide debriefing and/or defusing sessions to victims of WPA.[10,23]

EFFECTS ON THE WORKPLACE

Emergency nurses need to work collaboratively with security personnel for the prevention and management of WPA.[20,23,24] In our study, the majority of participants (52.1%), but not all, reported effective support by security personnel. A limitation reported to reduce the effectiveness of security personnel is legal issues,[24] which vary by institution and may limit their role, preventing them from physically interacting with aggressive patients or visitors. Establishing a clear policy and role for security personnel for the prevention and management of WPA is warranted. Security personnel are often called to attend only/standby in anticipation of escalating WPA; however, this presence could be perceived as a threat to an agitated person.[25] Although having a security presence is essential for staff safety, nurses practicing in a trauma-informed manner might request that security personnel be immediately available but also out of sight of the agitated person until called.

EFFECTS ON PATIENT CARE

Novel to this study, multiple participants wrote about the effects on patient care. For example, when WPA occurs, emergency nurses gather together to manage a single violent patient leaving other patients in the emergency department temporarily without nursing care. This overall impact to patient flow and wait times can exacerbate the conditions linked to further WPA.[10] Moreover, the conditions of other patients could deteriorate with resuscitative care delayed while the violent patient is being managed. Our findings reflect the importance to focus on WPA prevention strategies.

Limitations

This study was potentially limited by selection and recall bias. Because participants self-selected to participate in our study, emergency nurses who did not participate might have provided responses different from those reported in this research. This limitation was minimized by having a large sample size ($n = 167$) from across all geographical regions of the United States. Recall bias may have occurred, because several participants provided minimal details in their WPA narrative. For example, 17 of the participants wrote fewer than 50 words in their WPA narrative. This limitation was minimized by over half ($n = 85$, 50.9%) of the participants writing at least 100 words. One participant wrote 709 words for the WPA narrative. Recall bias also was minimized by using an abridged recall period of 30 days. Because of the study design and the anonymity of data collection, probing for further details on the WPA events or confirmation of study findings was not possible.

Implications for Emergency Nursing

Approximately 67.9% of the recruited sample reported an experience of WPA during the previous 30 days. This statistic along with our study findings relays the importance of effective WPA prevention and management programs. Without effective prevention, emergency nurses will be at risk for the negative consequences and effects of WPA observed in this study. Over half ($n = 98$, 58.7%) of the study participants reported negative psychological outcomes and response, but only 2 participants noted the receipt of emotional support after experiencing WPA. Emotional support could buffer thoughts of retaliation as well as protect work productivity that would be negatively impacted (eg, inability to focus on work, fear). Emergency nurses can be trained to use mental health first aid as a strategy to provide emotional support to staff impacted by WPA. In mental health first aid, participants learn about trauma and anxiety disorders.[26] They also practice skills for providing this emotional support. In emergency nursing practice, nurses can use these skills to foster the recovery and resilience of emergency nurses who have experienced WPA, enabling them to return to work feeling supported. Nurses also can be screened for symptoms of burnout, which can worsen the consequences of WPA in the practice of emergency nursing. In addition, emergency nurses can participate in training sessions focused on nursing ethics. In this training, they can learn to identify situations that are challenging and plan for patient-centered responses that could reduce the impact of WPA such as the use of limit setting with aggressors rather than entertaining thoughts of retaliation against aggressors.

Conclusion

WPA in the ED setting is associated with consequences to patients and visitors as well as negative effects to emergency nurses, the workplace, and patient care.

Emergency nurses need to seek and also offer emotional support after an incident of WPA. Providing support could serve as a deterrent to thoughts of retaliation while minimizing potential adverse impacts to nurses' psychological health and work productivity. Future WPA interventions might leverage aggressors' visitors to assist in the prevention and management of WPA. Further research is needed to explore the long-term outcomes of WPA to emergency nurses, particularly psychological health outcomes (eg, stress, burnout).

Data, Code, and Research Materials Availability

ETHICAL STATEMENT

- Originality and plagiarism: all work presented in this manuscript is original and written by the authors. All content derived from other sources has been adequately cited and referenced.
- Multiple, redundant, or concurrent publication: the findings presented in this manuscript have not been published elsewhere.
- Reporting standards: the report of our original research is an accurate account of the work performed as well as an objective discussion of its significance.
- Hazards and human or animal subjects: the reported study was conducted after approval from the Institutional Review Board of the first author. Participants were notified in writing of this approval as well as their rights to participate or refuse to participate in the research. To further protect the study participants, the data were collected anonymously.

Author Disclosures

Conflicts of interest: none to report.

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Effects of Emergency Nurses' Experiences of Violence, Resilience, and Nursing Work Environment on Turnover Intention: A Cross-Sectional Survey

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Contribution to Emergency Nursing Practice

- What is already known about this topic? Emergency nurses are vulnerable to violence, because they face patients and caregivers in emergencies.
- What does this paper add to the currently published literature? Experiencing repeated exposure to violence leads to physiological and psychological responses such as tension, headache, sleep disturbance, and isolation; additionally, it increases turnover intention.
- What is the most important implication for clinical practice? It is important that nurses provide optimal care in a safe environment. This will enhance their professionalism so that they can provide high-quality care to patients.

Abstract

Introduction: Emergency nurses are vulnerable to violence, because they closely face patients or caregivers in emergency situations, where tension and conflicts are heightened. This is known to increase their turnover intentions. This study aimed to analyze the effects of emergency nurses' experiences of violence, resilience, and nursing work environment on turnover intentions.

Methods: This descriptive study analyzed a questionnaire administered to emergency nurses from March 2020 to April 2020. Its participants included 100 emergency nurses from 4 emergency medical centers. The collected data were analyzed using the SPSS/WIN 25.0 program (IBM SPSS Statistics) by frequency, percentage, mean, SD, *t* test, analysis of variance, and multiple regression

Results: The main factors affecting the turnover intentions of emergency nurses were resilience ($\beta = -0.32$, $P = .003$), frequency of violence by patients ($\beta = 0.27$, $P = .003$), and nursing managers' leadership and support for nurses ($\beta = -0.25$, $P = .021$). The explanatory power of these 3 variables was 29.3%.

Discussion: To reduce emergency nurses' turnover intentions, it may be necessary to conduct resilience programs for them. In addition, safety measures to prevent violence at the organizational level and improve nursing managers' abilities, leadership, and support for nurses can reduce nurses' intention to leave.

Key words: Emergency nurse; Resilience; Violence; Turnover; Leadership

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Introduction

Given that patients who visit emergency units could be mentally and physically unstable owing to a sudden illness or accident, emergency unit medical workers often encounter more threatening situations than those in other departments.[1,2] Nurses, in particular, are vulnerable to violence, because they are confronted by patients or caregivers during the early emergency period, when tensions and conflicts are escalated.[3] Although medical institutions are places for patient treatment, they also can be places of violence for nurses.

Although legal standards prevent interference with emergency medical services, cases of violence in emergency units are steadily increasing. Patients and caregivers are the main perpetrators of violence in medical institutions, and medical institution workers have experienced 69.2% and 13% of verbal abuse and assault, respectively.[4]

Experiencing repeated exposure to violence leads to physiological and psychological responses, such as tension, headaches, sleep disturbances, and isolation.[3] Physical violence causes greater trauma than verbal abuse, and, in general, experiences of violence increase turnover intentions[5] and affect nurses' continuity of employment.[6] Experiences of violence also lead to negative attitudes toward the nursing profession[7] and decrease the quality of care provided to patients. As a result, the shortage of nurses is further accelerated, intensifying deterioration in the quality of patient care.

Resilience refers to an individual's ability to cope with difficult situations.[8] The possibility of scientific development has been debated for a long time owing to the ambiguity of its composition, but it has recently begun to attract attention again as its effect as a parameter has been reported.[5]

The nursing work environment is a comprehensive construct that includes physical, social, psychological, and hospital organizational policies to provide high-quality nursing services. A good nursing work environment reduces emergency nurses' turnover intentions. Therefore, nurses' resilience, work environment, and turnover intentions have been addressed in relation to their experiences of violence.[9] Although studies have been conducted on emergency nurses' experiences of violence and resilience,[5] as well as their nursing work environment and turnover intentions,[10] most of these studies included only some of the variables, and no studies that included all the variables were found.

Therefore, this study aimed to examine the extent to which emergency units provide basic data for lowering turnover intentions and applying coping strategies against violence, by identifying the extent to which emergency nurses' experiences of violence, resilience, and nursing work environment affected their turnover intentions.

Methods

STUDY DESIGN

This descriptive study analyzed the effects of experiences of violence, resilience, and nursing work environment on the turnover intentions of emergency nurses who experienced violence using a self-report questionnaire. The Strengthening the Reporting of Observational Studies in Epidemiology guidelines were used for the reporting of this research.

STUDY PARTICIPANTS

The participants included nurses working in 3 shifts in the emergency units of 4 regional emergency medical centers who had experienced workplace violence, understood this study's purpose, and consented to data collection. However, it excluded nursing managers who did not work night shifts, as violence mostly occurs during the night.

The minimum sample size was determined using the G*power 3.1.9.4 program.[11] Based on multiple regression analysis, referring to the study by Chen et al,[12] the required number of participants was 100, when calculated with an effect size of 0.2, a significance level of 0.05, a power of 0.85, and 10 predictors. Considering the dropout rate, data were collected from 108 people, but for the final analysis, only 100 people's data were included, because questionnaires with incomplete answers were excluded.

MEASURED VARIABLES AND RESEARCH TOOLS

Experiences of Violence

Violence is defined as a threat to oneself, another person, group, or community, or the actual intentional use of physical force or power that results, or is likely to result, in injury, death, psychological damage, development, or deprivation.[13] This study employed the tool used by Yeon et al[14] to investigate violence in the medical field. The tool measures the frequency and degree of violent experiences by dividing patients and caregivers and consists of a total of 20 items. In this study, the Cronbach's α reliability coefficients were 0.91 for the entire tool, 0.83 for the frequency of experiences of violence, and 0.91 for the degree of violence risks.

Resilience

Resilience is a dynamic process involving positive adaptation within the context of severe adversity.[8] For resilience in this study, a 30-item tool developed for clinical nurses by Park and Park[15] was used. Each item is on a 4-point Likert scale, and the mean score for each item ranges from 1 to 4, and the summative score ranges from a minimum of 30 to a maximum of 120. In the study of Park and Park,[15] the reliability coefficient Cronbach's alpha was 0.950, and in this study, it was 0.949.

Nursing Work Environment

The nursing work environment is a comprehensive construct that includes not only the physical environment but also organizational policies and management to provide nursing care. This study used the Korean version of the Practice Environment Scale of the Nursing Work Index, consisting of 29 items and 5 subareas for measuring: "staffing and resource adequacy," "nurse-physician relations," "nursing manager's ability, leadership, and support of nurses," "nursing foundations for quality of care," and "nurses' participation in hospital affairs." Each item was rated on a 4-point Likert scale, and the mean score for each item ranges from 1 to 4, and the higher the score, the better the nursing work environment. The Cronbach's alpha reliability coefficient was 0.93 in a study,[16] whereas it was 0.94 in this study.

Turnover Intentions

The construct of turnover intentions includes both the thoughts and actions of voluntarily leaving the current organization or planning to move on.[17] To measure the intention to change jobs, the tool developed by Michaels and Spector[18] was used. In this study, 3 questions were asked, each item was rated on a 5-point Likert scale, and the mean score for each item ranges from 1 to 5. The Cronbach's alpha reliability coefficient was 0.93 in a study,[16] whereas it was 0.94 in this study. with a higher score indicating a higher intention to leave. The tool's Cronbach's alpha reliability coefficient was 0.87 in this study.

DATA COLLECTION METHOD

This study was conducted from March to April 2020. After obtaining permission from each hospital's nursing department, the research survey was publicized to emergency nurses, and consent was sought from nurses who wished to participate. The study's purpose and meaning were explained to individual participants, who took approximately 20 minutes to complete the questionnaire. In total, 108 questionnaires (98%) were collected, of which 8 incomplete responses were excluded from the analysis, and finally, 100 questionnaires (91%) were used for data analysis.

DATA ANALYSIS

SPSS/WIN 25.0 was used to analyze the collected data. Means and SDs were used to represent general and job-related characteristics of emergency unit nurses, whose experiences of violence, resilience, nursing work environment, and turnover intentions were analyzed using *t* tests and analysis of variance, and factors affecting their turnover intentions were analyzed using stepwise multiple regression.

TABLE 1
Frequency and severity of experiences of violence

Perpetrator, (n = 100)	Type of violence	Frequency of violence		Degree of risk of violence	
		Mean	SD	Mean	SD
Patient	Verbal abuse	2.61	1.32	3.37	0.97
	Psychological violence	1.57	1.23	3.06	1.26
	Physical violence	0.51	0.73	2.82	1.68
	Severe physical violence	0.07	0.26	2.49	1.73
	Sexual harassment	0.36	0.59	2.03	1.16
	Total	1.03	0.61	2.75	1.04
Caregiver	Verbal abuse	2.49	1.32	3.35	0.99
	Psychological violence	1.37	1.24	2.93	1.26
	Physical violence	0.23	0.58	2.51	1.69
	Severe physical violence	0.05	0.22	2.43	1.74
	Sexual harassment	0.15	0.43	1.77	1.03
	Total	0.86	0.56	2.60	1.05

TABLE 2
Differences in the experience of violence, resilience, nursing work environment, and turnover intention according to participant demographics

Variables, (*N* = 100)	Categories	Experience of violence												Resilience			Turnover intention		
		Frequency of experience of violence						Degree of risk of violence											
		Patient			Caregiver			Patient			Caregiver								
		M	SD	*t*/*F*(*P*)	M	SD	*t*/*F*(*P*)	M	SD	*t*/*F*(*P*)	M	SD	*t*/*F*(*P*)	M	SD	*t*/*F*(*P*)	M	SD	*t*/*F*(*P*)
Sex	Female	1.04	0.63	0.58 (.560)	0.85	0.57	−0.32 (.751)	2.81	1.04	1.70 (.091)	2.65	1.05	1.34 (.183)	2.71	0.40	−1.22 (.224)	3.16	0.88	2.39 (.019)
	Male	0.93	0.51		0.91	0.53		2.25	0.86		2.20	0.94		2.86	0.40		2.48	0.89	
Age (y)	<30	1.05	0.58	0.66 (.510)	0.82	0.53	−0.97 (.332)	2.77	1.00	0.12 (.904)	2.56	1.02	−0.61 (.542)	2.70	0.39	−0.98 (.329)	3.13	0.88	0.81 (.419)
	≥30	0.96	0.71		0.95	0.64		2.73	1.14		2.70	1.12		2.79	0.42		2.96	0.96	
Marital status	Married	0.94	0.55	−0.65 (.516)	0.90	0.50	0.38 (.702)	2.46	1.06	−1.29 (.200)	2.41	1.04	−0.80 (.424)	2.76	0.47	0.41 (.681)	2.88	0.75	−1.01 (.315)
	Single	1.05	0.63		0.85	0.58		2.81	1.03		2.64	1.05		2.71	0.39		3.12	0.93	
Education level	Associate degree	1.05	0.77	0.04 (.961)	1.03	0.74	0.66 (.519)	2.60	1.00	0.91 (.407)	2.57	0.99	0.39 (.677)	2.67	0.50	1.40 (.250)	3.28	0.78	0.70 (.496)
	Bachelor	1.03	0.60		0.83	0.53		2.80	1.04		2.62	1.06		2.71	0.39		3.07	0.92	
	≥Master	0.95	0.60		0.85	0.66		2.15	1.81		2.15	1.18		3.04	0.21		2.67	0.81	
Experience in the emergency unit (mo)	≤12	0.96	0.57	0.17 (.840)	0.74	0.53	0.94 (.392)	2.76	1.09	0.25 (.778)	2.57	1.12	0.36 (.696)	2.79	0.39	0.34 (.714)	2.52	0.53	4.31 (.016)
	13-36	1.07	0.63		0.82	0.56		2.67	0.94		2.50	0.99		2.72	0.43		3.11	0.96	
	≥37	1.02	0.63		0.94	0.57		2.83	1.12		2.70	1.09		2.69	0.38		3.27	0.88	
Total average		1.03	0.61		0.86	0.56		2.75	1.04		2.60	1.05		2.72	0.40		3.08	0.90	

TABLE 3
Factors affecting turnover intention

Variables	Categories	n (%)	Nursing work environment														
			Staffing and resource adequacy			Collegial nurse-physician relations			Nursing manager's ability, leadership, and support of nurses			Nursing foundations for quality of care			Nurse participation in hospital affairs		
			M	SD	*t*/*F*(*P*)	M	SD	*t*/*F*(*P*)	M	SD	*t*/*F*(*P*)	M	SD	*t*/*F*(*P*)	M	SD	*t*/*F*(*P*)
Sex	Female	89 (89)	1.81	0.56	−1.82 (.071)	2.59	0.61	0.10 (0.922)	2.52	0.57		2.45	0.42		2.15	0.51	−2.05 (.043)
	Male	11 (11)	2.14	0.58		2.57	0.76		2.70	0.48	−1.03 (.307)	2.57	0.44	−0.92 (.357)	2.48	0.57	
Age (y)	<30	73 (73)	1.82	0.55	−0.66 (.507)	2.66	0.62	1.84 (.069)	2.57	0.57		2.47	0.41		2.21	0.53	0.75 (.453)
	≥30	27 (27)	1.90	0.62		2.41	0.59		2.46	0.54	0.83 (.409)	2.44	0.46	0.30 (.761)	2.12	0.50	
Marital status	Married	17 (17)	1.82	0.60	−0.17 (.865)	2.45	0.75	−1.03 (.303)	2.54	0.70		2.45	0.41		2.20	0.61	0.16 (.876)
	Single	83 (83)	1.85	0.56		2.62	0.59		2.54	0.54	0.03 (.974)	2.47	0.42	−0.16 (.876)	2.18	0.51	
Education level	Associate degree	12 (12)	1.87	0.58	0.32 (.729)	2.64	0.67	0.99 (.374)	2.64	0.77		2.41	0.46		2.17	0.57	0.20 (.821)
	Bachelor	84 (84)	1.85	0.57		2.61	0.61		2.53	0.54	0.29 (.751)	2.47	0.42	0.16 (.849)	2.19	0.52	
	≥Master	4 (4)	1.62	0.43		2.17	0.79		2.44	0.47		2.53	0.43		2.03	0.46	
Experience in the emergency unit (mo)	≤12	16 (16)	1.83	0.54	0.10 (.905)	2.62	0.54	1.00 (.369)	2.53	0.44		2.50	0.38		2.27	0.49	1.63 (.201)
	13-36	42 (42)	1.82	0.58		2.68	0.55		2.62	0.62	0.92 (.403)	2.50	0.42	0.41 (.662)	2.26	0.53	
	≥37	42 (42)	1.87	0.57		2.50	0.71		2.46	0.55		2.42	0.43		2.07	0.52	
Total average			1.84	0.57		2.59	0.61		2.54	0.56		2.46	0.42		2.18	0.52	

TABLE 4
Factors affecting turnover intention

Variables	B	SE	β	t	P	Tolerance	VIF
Constant	5.60	0.53		10.50	.000		
Resilience	−0.71	0.23	−0.32	−3.05	.003	0.66	1.58
Frequency of experience of violence from patients	0.39	0.13	0.27	3.06	.003	0.95	1.05
Nursing manager's ability, leadership, and support of nurses	−0.39	0.17	−0.25	−2.36	.021	0.66	1.51

SE = standard error; VIF = variance inflation factor.
$R^2 = 0.3152$, Adj-$R^2 = 0.293$, SE = 0.76, Durbin-Watson = 1.94.

ETHICAL CONSIDERATIONS

This study was approved by the University Bioethics Committee's Institutional Review Board (Approval number:1044396-202001-HR-021-02). To facilitate participants' understanding of the purpose of the study and to consent to data collection, the reasons for conducting this study and its methodology were explained to them, and only those who voluntarily expressed their intention to participate were included. They were informed about the duration of the study and the option of withdrawing at any time during the study.

Results

PARTICIPANTS' EXPERIENCE OF VIOLENCE

The average frequency of nurses' experiences of violence from patients within the previous month was 1.03, and verbal abuse was the most frequent, with an average of 2.61. On average, the frequency of experiences of violence from caregivers was 0.86, and that of verbal abuse in the subarea was 2.49 points (Table 1).

DIFFERENCES IN OTHER VARIABLES ACCORDING TO THE CHARACTERISTICS OF THE PARTICIPANTS

In this study, 89% of the participants were women, whose average age was 27.7 years, with work experience of 42.6 months. Participants' average nursing work environment score was 2.32 points (4-point scale), and their subareas scores were as follows: "Collegial nurse-physician relations" was 2.59 points; "nursing manager's ability, leadership, and support of nurses" was 2.54 points; the "foundation for quality care" was 2.46 points; "nurses' participation in hospital affairs" was 2.18 points; and "staffing and resource adequacy" was 1.84 points. A negative score was observed among women participants in "nurse participation in hospital affairs," which is a detailed area of the nursing work environment ($F = -2.05$, $P = .043$) (Table 2).

The average resilience score of this study's participants was 2.72 points, and their average turnover intention score was 3.08 points. The turnover intention level of women participants was high ($F = 2.39$, $P = .019$), and for those with more than 37 months of emergency unit work experience, it was even higher ($F = 4.31$, $P = .016$).

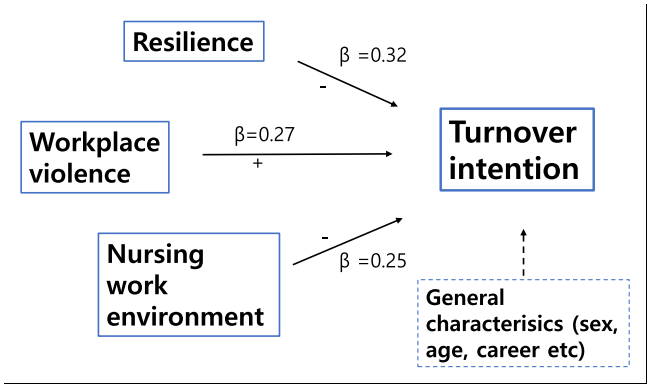
FACTORS INFLUENCING THE PARTICIPANTS' TURNOVER INTENTIONS

The main factors affecting turnover intentions were resilience (B = −0.32, $P = .003$), frequency of violence from patients (B = 0.27, $P = .003$), and, among the detailed areas of the environment, "nursing manager's ability, leadership, and support of nurses" (B = −0.25, $P = .021$). The explanatory power of the 3 variables was 29.3% (Tables 3 and 4, Figure).

Discussion

Participants in this study received more violence from patients than caregivers and frequently experienced verbal abuse. Emergency unit nurses frequently experience verbal abuse from patients and caregivers,[19] with 72% reporting verbal abuse and 17.8% physical violence.[20] Therefore, it can be said that many nurses perform nursing tasks in situations where verbal abuse is frequent.

The average score of the participants of this study on resilience was 2.72 points (68 out of 100), which was the same (2.72 points) as that in the study of Kim et al,[21] which used the same tool, but the average score reported by Kim[22] was 2.92 (72.4 out of 100). Considering the report[22] that



FIGURE

Factors affecting turnover intention.

resilience increases with age and clinical experience, this seems to be due to the low average age (27.7 years) and clinical experience (42.6 months) of the participants of this study.

In this study, the emergency unit nursing work environment had an average score of 2.32 points, similar to the 2.42 points reported in a study[23] that used the same tools as in this study. A nursing work environment score of <2.5 indicates nurses' dissatisfaction.[24] Organizational measures must be implemented to improve the nursing work environment, as individual efforts by nurses alone are insufficient. Among the nursing work environment subareas, "staffing and resource adequacy" had the lowest average score of 1.84 points, similar to the findings of Bae and Yeom's[23] study. This indicates an urgent need for adequate staffing and resources.

There were significant differences in turnover intentions by sex ($F = 2.39$, $P = .019$) and emergency work experience ($F = 4.31$, $P = .016$). Women had higher turnover intentions than men, and those with more than 3 years of experience in an emergency department had higher turnover intention scores. A study[25] also reported that women had higher turnover intentions than men, and those with more than 10 years of clinical experience had higher turnover intentions. Therefore, turnover management should be sought differently for emergency nurses, according to their sex and work experience.

In particular, since the outbreak of COVID-19 in 2019, as the number of patients with COVID-19 has increased explosively, nurses' turnover intention is increasing, requiring careful attention from nursing managers. The lack of proper education on infection control tasks, including how to wear protective gear, and frequent changes in emergency unit guidelines caused confusion and increased workload in the nursing situation. In such urgent emergency unit situations, patients and their families, as well as the medical staff, become extremely sensitive, thus increasing the possibility of emergency unit violence.[26] As confusion, fear, and feelings of isolation can be alleviated through communication with superiors and colleagues, supportive measures such as promoting communication opportunities with colleagues and superiors in the organization can control turnover intentions.

In this study, the main factors influencing the participants' turnover intentions were resilience, "frequency of violence from patients" among the experiences of violence subareas, and "nursing manager's ability, leadership, and support of nurses" among the nursing work environment subareas, in that order. Resilience improves nurses' work commitment and increases their satisfaction with the nursing work environment.[10] As resilience is increased through peer support[27] and resilience training programs,[28] which include identifying strengths, understanding and managing stress, changing negative self-talk, promoting positive relationships, and managing conflicts, health care managers must encourage nurses and provide them with opportunities to build their resilience.

Similarly, the more positive the nurses' perceptions of the nursing manager's leadership, the lower their intentions to leave. It is believed that this is because of the respectfulness and strong sense of solidarity that they feel owing to the nursing manager's leadership and support, which can be applied as an effective construct to help devise a plan for dealing with patients.[8]

This study showed that resilience had the highest effect on turnover intentions; therefore, it is necessary to consider it first when dealing with emergency unit nurses' turnover intentions. The effect of peer support on resilience improvement programs has been reported.[28] Resilient workers have lower burnout rates and better patient outcomes. However, it

should not be overlooked that workplace violence is preventable, and proactive measures are more effective than interventions after it has occurred; therefore, the development of violence prevention and reporting programs is important.[29]

Nurses have long been expected to make sacrifices, volunteer, and accept threats from patients and caregivers. However, working in the nursing profession should not be unsafe, and nurses should be able to provide optimal care in a safe environment. This study's results are expected to be helpful in alleviating the turnover intentions of emergency unit nurses and enhancing their professionalism so that they can provide high-quality nursing care to patients for a long time.

Limitations

There were limitations in the application of this study's results, because its participants were conveniently recruited from the proximal population, and the size of the sample was not large. Hence, a repeat study with a larger sample of emergency unit nurses is needed. In addition, as no previous studies have analyzed the 3 variables together to confirm the effects of experiences of violence, resilience, and perceptions of the nursing work environment on turnover intentions, repeated studies related to this are needed in the future.

Implications for Emergency Nursing

When nurses' resilience is increased, they can successfully cope with crises and improve job satisfaction, thereby preventing negative consequences, such as turnover intentions. To create a work environment where nurses can perform nursing activities while maximizing their capabilities, adequate emergency unit staffing and equipment should be provided by considering the characteristics of emergency units, as caring for emergency patients requires a lot of human resources and appropriate equipment. Provision of sufficient facilities and equipment, expansion of professional human resources, and programs to strengthen nursing managers' competency and leadership should be devised and implemented.

Conclusion

This study was conducted to provide basic data for devising a plan to lower turnover intentions by understanding the extent to which the resilience of emergency unit nurses, who had experienced violence, and their perceptions of the nursing work environment affected turnover intentions. Mediating the hospital's nursing work environment and resilience can help nurses cope with crises successfully and improve their job satisfaction without negative consequences such as turnover intentions.

Author Disclosures

Conflicts of interest. none to report.

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