

Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Caring for Patients From a School Shooting: A Qualitative Case Series in Emergency Nursing

Author: W. Travis McCall, MSN, RN, AGACNP-BC, FNP-BC, CEN, CCEMT-P, Nashville, TN Section Editor: Steve Weinman, MSc, BSN, RN, CEN, TCRN, NHDP-BC, TR-C, EMT

CE Earn Up to 8.0 Hours. See page 722.

Contribution to Emergency Nursing Practice

- The current literature on secondary traumatic stress indicates that emergency nurses may be affected by experiences with providing care to critically ill or injured patients. The situations that have been described as most distressing are those involving sudden death, children, or adolescents.
- This article contributes to the scientific knowledge of secondary traumatic stress among emergency nurses through the examination of experiences with providing emergency nursing care to patients from a multicasualty, school-associated shooting event.
- Key implications for emergency nursing practice found in this article are that self-care routines, peer-support activities, and subsequent optional formal debriefs may support emergency nurse welfare to promote coping and recovery after multicasualty, school-associated shooting events.

Abstract

Introduction: Emergency nurses are at risk for secondary traumatic stress, compassion fatigue, and burnout as a result of witnessing the trauma and suffering of patients. The traumatic events perceived as being most stressful for emergency nurses involve sudden death, children, and

https://doi.org/10.1016/j.jen.2020.06.005

adolescents. Multicasualty, school-associated shooting events are, therefore, likely to affect emergency nurses, and recent reports indicate an increase in multicasualty, school-associated shootings. This research is necessary to learn of emergency nurses' experiences of caring for patients from a school shooting event in an effort to benefit future preparedness, response, and recovery. This manuscript describes these experiences and provides opportunities for nurses, peers, and leaders to promote mental health and resilience among emergency nurses who may provide care to patients after such events.

Methods: A qualitative case series approach, a theory of secondary traumatic stress, and the compassion fatigue resilience model guided the research. The emergency nurses who provided care to patients who were injured during a 2018 multicasualty, school-associated shooting in the Southeastern United States were invited to participate.

Results: The themes identified by this research with 7 participants were preparation and preparedness, coping and support mechanisms, and reflections and closure.

Discussion: The results identified through this research may be translated to policies and practice to improve emergency nurses' welfare, coping, resilience, and retention. Patient outcomes may also be improved through planning and preparedness.

Key words: School shooting; Mass shooting; Mass casualty; Secondary traumatic stress; Stress; Emotional stress

Introduction

Secondary traumatic stress is the incidence of thought intrusions, heightened arousal, situational avoidance, and/or emotional numbing in those who witness traumatic events or provide care to critically ill or injured patients.¹ It is often associated with the development of compassion fatigue, defined as the impairment in a clinician's ability to care

W. Travis McCall, *Member, Middle Tennessee Chapter*, is a Flight Nurse at Vanderbilt LifeFlight in Nashville, TN, and is currently pursuing a PhD in nursing at the University of Tennessee in Knoxville, TN. **Twitter:** @WTravisMcCall.

For correspondence; write: W. Travis McCall, MSN, RN, AGACNP-BC, FNP-BC, CEN, CCEMT-P, 1211 Medical Center Drive, Skyport Helipad - VUH 13200, Nashville, TN 37232-7430; E-mail: william.t.mccall@vumc.org.

J Emerg Nurs 2020;46:712-721. 0099-1767

Copyright C 2020 Emergency Nurses Association. Published by Elsevier Inc. All rights reserved.

for others effectively.² The presence of secondary traumatic stress among emergency nurses can negatively affect their resilience,³ which may ultimately contribute to burnout and departure from the nursing profession.⁴

Emergency nurses are frequently exposed to traumatic events through the delivery of care to injured patients. The types of events that have been identified as being most distressing to nurses are those involving sudden death, children, or adolescents.⁵⁻⁸ Therefore, providing care to patients who are injured during school-associated shooting events is likely to be particularly stressful for emergency nurses. Although the rates of multicasualty, schoolassociated shootings declined from July 1994 to June 2009, the incidence rates increased between July 2009 and June 2018.⁹ The study defined "multiple-victim" as including more than a single victim and reported that 38 of these events resulted in 121 youth homicides between July 1994 and June 2016.⁹

A recent study exploring nurses' suicide rates in the United States identified that the rates among female and male nurse subpopulations were significantly higher than those in the general female and male populations, respectively.¹⁰ Additional research to identify risk factors and effective interventions is needed to improve mental health and combat the prevalence of suicide among nurses. Moreover, nurse burnout and departure from the profession may exacerbate nursing shortages and staffing challenges, which may directly affect emergency departments. Therefore, research is indicated to identify how health care professionals who are tasked with providing medical care to the victims of school shooting events are affected mentally and emotionally. The benefits of this research include improved understanding of how these events may affect emergency nurses and identification of factors that may promote welfare, coping, resilience, and retention. The purpose of this study was to learn how emergency nurses describe their experiences to identify themes and findings that may translate to practices for improving the mental health and wellness of emergency nurses who care for patients from a multicasualty, school-associated shooting incident.

Methods

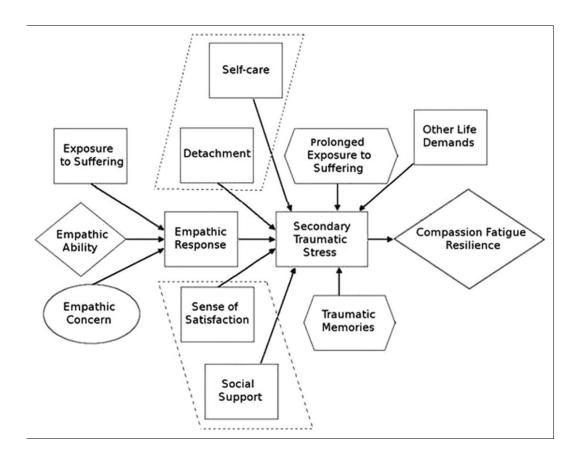
A qualitative case series methodology using the data collection and analysis methods described by Yin,¹¹ which includes steps to plan, design, prepare, collect, analyze, and share, was used to guide this research. The study was performed after approval was received from the Vanderbilt University Institutional Review Board (IRB #190980).

These methods include the use of structured interviews and reliance on theoretical propositions in the analysis.¹¹ The interviews were conducted approximately 18 months after the adult emergency department of a Level 1 trauma center received 5 patients by helicopter emergency medical transport from the scene of a schoolassociated shooting event. The emergency nurses who participated in the trauma resuscitations or assisted with the transition of these patients from the receiving helipad to the emergency department were eligible to participate. Ten registered nurses were identified by review of the ED daily assignment sheet, and their patient care roles were confirmed from patient electronic medical records. These nurses were invited to participate by e-mail distribution of a recruitment flyer. The processes and flow of the receiving emergency department were known to the researcher, who had more than 3 years of experience as a clinician in this department. The researcher did not have any personal experience with providing care to patients from a school-associated shooting event.

A list of avaiilable support services was provided to each participant at the time of their interview. Semistructured interview questions and analysis of the data were informed by a theory of secondary traumatic stress and the compassion fatigue resilience model,¹² as well as the professional quality of life model.¹³ The conceptual variables identified in the compassion fatigue resilience model (Figure) and an examination of how those concepts related to the experiences described by these nurses benefited the development of the interview questions (Supplementary Appendix) and interpretation of the data.

The professional quality of life model defines professional quality of life as incorporating aspects of compassion satisfaction and compassion fatigue. Although compassion satisfaction reflects positivity in helping others, compassion fatigue consists of the concepts of burnout and secondary trauma.¹³ Burnout includes symptoms such as exhaustion and depression, whereas secondary traumatic stress represents negative symptoms that result from trauma experienced through work activities.¹³

The interviews were recorded with an audio recorder and transcribed verbatim by the researcher or a transcriptionist who had signed a confidentiality agreement. Field notes were recorded by the researcher at the end of the interview and reviewed before coding activities. Each transcript was reviewed by the researcher for accuracy. The framework method was used in the analysis of the data. This method uses stages of transcription, familiarization, coding, analytical framework development, analytical framework application, data charting into framework matrix, and data interpretation.¹⁴ Key phrases and meaning units from the transcriptions were identified and coded by the researcher using NVivo 12 software (QSR International).¹⁵ The



FIGURE

Compassion fatigue resilience model.¹² Used with permission from Ludick M, Figley CR. Toward a mechanism for secondary trauma induction and reduction: reimagining a theory of secondary traumatic stress. *Traumatology*. 2017;23(1):112-123. Copyright © 2016 by the American Psychology Association.

categorization of codes generated themes that represented what the participants shared.

Results

Seven nurses agreed to enroll and completed an informed consent. There was no verbal or written response from the 3 eligible participants who did not enroll. The participants' ages ranged from 30 years to 41 years, and 6 were female. Two of the participants shared that they were parents. The researcher was known to 4 of the participants before the interviews. It was anticipated that the interviews would last between 30 minutes and 60 minutes and the median duration was 37.7 minutes. The associate nursing officer for emergency services agreed to pay the 5 participants who remained actively employed by the health care institution for their interview time. Two participants had resigned from their positions and were compensated with a gift card

at the expense of the researcher. A single interview with each participant was performed over a period of nearly 4 weeks. The interviews were conducted in private without the presence of nonparticipants. The interviews were conducted at a location identified by the participant, and 3 were performed by video conference owing to distance or participant availability. Although the participation of 7 eligible nurses limited the ability to ensure saturation, the identified themes and findings were consistent through the interviews.

PREPARATION AND PREPAREDNESS

The emergency nurses often reported being in "nurse mode" and described taking immediate actions to promote readiness of the receiving trauma bays.

Focusing on tasks allows you to kind of push the sadness and the trauma to the side so that you can complete your tasks successfully and give the best chance at living, or keeping their arm, or anything like that.

We had to compartmentalize that [...] these were actually children and just focus on the job we knew we needed to do.

The nurses described placing signage indicating the air ambulance service and unit number as well as age and known injuries for each corresponding patient on the door of each resuscitation room during the planning stage prior to the arrival of the patients. This planning was described as beneficial in that it allowed the emergency nurses to gather the supplies and equipment needed to effectively care for the patients.

If my room is better prepared, I can take care of the patient better.

The participants described the importance of being proficient in providing care to trauma patients. Although these patients were all transported to the receiving trauma center by helicopter, the limitations in air medical resources such as weather restrictions or ambulance availability could necessitate the stabilization of patients from multicasualty school shooting events in community departments where resources are likely to be more limited. These limitations may include bed capacity, number of available providers and staff, supplies and equipment, blood product availability, and access to support services. One participant indicated that nurses in community settings who may face such a mass or multicasualty event should maintain trauma nursing certification to promote proficiency in trauma care.

Nurses that work in those community hospitals... my advice is to become TNCC [Trauma Nursing Core Course] certified.

One nurse expressed concern regarding the frequency of these events, which underscored the need to maintain high levels of readiness.

I don't think it's going to get any better with time. I think it's going to get worse. I don't think that we're going to be able to stop it.

Another participant predicted that community or critical access emergency departments receiving patients from a multicasualty school shooting event may experience even greater emotional challenges because these departments are more likely to have staff who may personally know the victims or their families.

Compounding variables may create unique challenges for teams and individuals who are providing care to these patients. These factors or limitations may include personal matters, interpersonal challenges, multiple simultaneous traumatic events, high patient censuses, and staffing or equipment constraints. For instance, 1 nurse recalled tension with a staff member from another department who was encountered during transition to the emergency department. Comprehensive trauma centers routinely experience high censuses and preparing to accommodate the influx of patients from a mass casualty can be daunting. Underlying personal or departmental issues may also compound the stresses associated with caring for these patients. Recognizing existing factors or limitations, and taking action to control these effects, may mitigate the stresses associated with potential external variables.

Some emergency nurses described an increased presence of hospital personnel coming to the department during the care of the patients.

Everybody who was anybody, administratively... whether they had anything to do with what we were actually doing there, was there.

Two of the emergency nurses reported their disapproval of individuals who were not directly involved in patient care being present for the resuscitation efforts. One of the emergency nurses described the attendance of some individuals as their "just [wanting] to be enmeshed in that story, in that drama."

Another participant reflected on:

...the feeling of having people there who were just there to kind of watch this terrible thing and just kind of live...vicariously through us.

In addition, this emergency nurse further described that when observers are present in a resuscitation that the nurse perceives as difficult, it may result in increased emotional or psychosocial challenges.

When it's really bad or it affects you personally, and there's someone in there looking at you, it's very hard, at least for me, to not feel just angry, or just disgusted by the whole thing.

Some nurses found the attendance by individuals who were not directly participating in the care of the patient to be unhelpful and one described it as "inappropriate."

COPING AND SUPPORT MECHANISMS

Most participating emergency nurses described the importance of maintaining a self-care routine to foster personal well-being and promote emotional recovery after such events. Coping and self-care strategies or routines that were described by the emergency nurses included cooking, exercising, walking, hiking, kayaking, humor, or talking with peers. One participant did admit that her usual mechanism after witnessing such trauma was to "bury it," but she found some benefit to participating in activities in the outdoors when needing to cope with a situation. The participants who offered that their significant other or spouse worked in a health care role identified the benefits of gaining their support after challenging patient situations. However, another shared previous challenges with discussing stressful work situations with a significant other who did not work in health care. None of the nurses discussed negative coping strategies or mentioned avoiding work or certain patient assignments after caring for these patients.

A formal debriefing event, taking place after the patients were transitioned from the emergency department to receiving operating rooms or units, was recalled by most participants. The emergency nurses offered varied perceptions of the formal debrief, and some questioned its effectiveness in promoting coping and recovery of the emergency nurses in attendance. Some participants indicated that the debrief focused on clinical assessment of the resuscitations rather than on the emotional components of being involved in the patients' care.

[They] talked about things that went well, and things that didn't go well.

Some of the nurses discussed being unfamiliar with those who came to the department to lead the debriefing session. Some participants also reported limited perceived efficacy of the session. Reasons for this perceived limited efficacy included a lack of a rapport with the debriefing session lead. One of the nurses admitted that she would not have voiced a perceived need for formal support during the debrief because she didn't "feel comfortable." Another nurse admitted being reluctant to share emotions with a group of people, many of whom she did not know, during the formal debrief after the resuscitations.

It was all these people, most of whom I had never seen before.

One of the emergency nurses valued the availability of an employee assistance program but described that its resources would be most appropriate to provide to nurses after the acute phase of the incident.

I do think there's a benefit to having someone who's...objective and has been trained on how to be...an emotional mediator and [to] reflect things back at you...I

do think that has its place. [But] I think maybe [when] it's in the moment...that it, it really doesn't fit.

Therefore, the presence of employee assistance professionals in the affected emergency department may be most appropriate during the days or weeks that follow the multicasualty event to coordinate any desired individual appointments for counseling or resources.

One nurse shared:

I think if you want to safeguard the staff's emotions you should keep [it] in the family.

The emergency nurses identified that peer-to-peer interactions after the event were beneficial for coping and recovery but indicated some reluctance in making immediate use of formal resources provided by individuals who had not participated in the care of these patients. They reported the perceived benefits of participating in peer-led activities to promote discussion and closure after caring for these patients.

They offered me services, but I feel like I got the most help from my coworkers.

Some of the participating nurses expressed that they would have preferred peer-support sessions and informal conversations to the debriefing that occurred after the ED resuscitations.

I feel like the most effective way to have dealt with that, for me, would have been for us to have a conversation. Like the people involved.

REFLECTIONS AND CLOSURE

Despite the passage of 18 months between the event and the nurses' participation in the research interviews, each participant provided recollections of these patients and their interactions. Most admitted that having such vivid recollections of a patient after such a length of time was not common.

Every time I hear about a school shooting in the news, anything like that, I just remember [my patient] in my bay.

The participating emergency nurses often described reflecting on the patients while they were away from work. One nurse admitted to thinking about the patients for months after the event. Another participant described nightmares that she experienced in the week after the event.

I did have a few nightmares that I was actually at the school and I was trying to save some kids through a gym and going behind the stairs.

Media coverage of the school shooting event was described as providing a context for the incident but heightening thought intrusions.

It was all over the news that day... I was just looking at news reports to see what had been reported.

Social media and the frequent sharing or posting of media information limited the ability to separate from the event after the shift.

You can't escape, you may not be [seeking out] the articles on things, but...you're reading people posting the articles. And then they inevitably [add] their own commentary on it.

The emergency nurses described a lack of closure because hospital policy prevented access to medical records after a patient's departure from the emergency department.

If they're not in the ER, we're not supposed to access them.

I think about them often when I hear of school shootings and wonder how they are. We didn't get really good follow-up on them, actually, which I think might have been helpful.

Two participants also expressed curiosity related to how these patients had recovered from the emotional trauma of the event.

The emergency nurses described the development of heightened situational awareness of potential acts of violence against themselves, family members, or friends as a result of being involved in the care of victims of acts of violence. Those nurses who identified themselves as parents described having increased thoughts of such situational awareness and acknowledged a concern for potential risks to their own children.

I was pretty emotional because I just thought of [my kids].

This nurse later transitioned her children to home school after the incident.

I don't have to worry about someone coming in and shooting my kids at school.

Another participant who did not identify as being a parent added:

TABLE 1

Identified themes and findings

Theme identified

Preparation and preparedness

- Nurses felt that preparation, planning, and trauma nursing proficiency are essential.
- Nurses stressed the importance of removing nonessential staff and unfamiliar contributors.
- Compounding variables from professional and personal lives may worsen associated stress.

Coping and support mechanisms

- The use of self-care routines fosters underlying nurse welfare.
- Nurses shared varied perceptions and opinions related to the formal debrief.
- Nurses discussed the benefit of peer activities to promote wellness and healing.

Reflections and closure

- Nurses shared vivid recollections of the patients even after 18 months.
- Nurses often described reflecting on the patients while away from work. One participant described nightmares experienced in the following week.
- There was a lack of achieving closure because patient outcomes were often unknown.
- Extensive media coverage and social media provided context for the incident but increased thought intrusions.
- Heightened situational awareness was evident, particularly among those nurses who are parents.

I can't imagine having kids that are at that age and having to work something like that.

The identified themes of preparation and preparedness, coping and support mechanisms, and reflections and closure were identified through an analysis of interviews with the emergency nurses. Within these themes were findings that may be translated to implications for emergency nurses (Table 1).

Discussion

This study was conducted to examine the psychosocial effects of providing emergency nursing care to patients who were injured in a multicasualty, school-associated shooting event. In a discussion of the theory of secondary traumatic stress, Ludick and Figley¹² (p118) identified that

"qualitative data offers targeted information and specific insights that unearth valuable, unique information and opens new lines of research." Because the events perceived as being most distressing to nurses involve sudden death, children, or adolescents, 5-8 qualitative research among emergency nurses who provided care to patients from a multicasualty, school-associated shooting may provide opportunities to learn how to best support nurse welfare and resilience among emergency nurses. The themes identified by this study include preparation and preparedness, coping and support mechanisms, and reflections and closure. These themes parallel the theoretical sectors and variables of empathic response, empathic concern, other life demands, self-care, detachment, social support, traumatic memories, sense of satisfaction, and secondary traumatic stress.¹²

This research aligns with the literature that has identified the prevalence of secondary traumatic stress among emergency nurses.¹⁶⁻²⁰ The symptoms identified among the nurses who participated in this study included the presence of vivid recollections 18 months after providing care to the patients from the multiple-victim, school-associated shooting. Some participating emergency nurses also discussed the presence of thought intrusions when not in the clinical or work setting. Although none of the participants reported avoidance of patient care situations in their clinical roles, some reported having increased situational awareness of the potential for violent acts that could directly affect them, family members, or friends.

Qualitative research studies among emergency nurses also provided themes consistent with those identified through this study. The importance of supportive relationships, which was described by participants in a study conducted by Alzghoul,⁶ was also identified in this study. The findings also agree with results suggesting the importance of having protective mechanisms for coping with working with trauma patients and that experience and proficiency are essential for trauma nursing.⁶ The importance of having strategies to mitigate stress, such as talking with peers, was identified by Drury et al.²¹ The participants from the study performed by Drury et al.²¹ also discussed being less likely to use external counseling services than pastoral or peersupport resources.

Positive emotions, as described by Alzghoul,⁶ include the reward of seeing patients improve and may not be experienced by emergency nurses who care for these patients for only a short duration and are unable to learn of their outcomes. Differing opinions related to formal debriefs were also discussed by Morrison and Joy.²⁰ Experiences with "poly-stressor effect"²⁰ mirror the discussion of compounding variables that may affect the nurses' ability to cope with such traumatic events. The themes and findings from this study and review of the available literature yield implications for emergency nurses that may mitigate the negative psychosocial effects of providing care to patients from multiple-victim, school-associated shootings.

Expanded research to include professionals from various health care disciplines and specialties is indicated to examine further the effects of caring for these patients and to identify those clinicians who are most at risk for secondary traumatic stress. The research efforts may also be broadened to include other clinical specialties in the emergency department such as emergency medicine physicians, trauma surgeons, paramedics, respiratory therapists, or social workers. Future research may expand beyond the emergency department and could include clinicians from the responding prehospital agencies, air medical transport services, operating rooms, trauma and surgical intensive care units, step-down units, mental health services, and rehabilitation facilities. Gathering data from community emergency departments that have received patients from multicasualty school shooting events is likely to further the understanding of how clinicians and departments without the vast resources of a trauma center are affected by these events and what unique challenges were experienced. Continued research efforts are also indicated to evaluate the effectiveness of interventions aimed at alleviating the symptoms associated with secondary traumatic stress, compassion fatigue, and burnout.

Implications for Emergency Nurses

The implications for emergency nurses are applicable to the preplanning, response, and recovery phases associated with providing care to these patients. Emergency nurses, nurse leaders, and nurse educators should encourage positive coping skills and self-care routines to mitigate the incidence of secondary traumatic stress and related symptoms. These skills and routines may support effective recovery after the provision of care to patients from multicasualty school shooting events. Peer-focused sessions, which encourage open discussion and reflections, are likely to promote coping and recovery after caring for patients from these events. This aligns with research that identified debriefing with peers as being more effective, and recommending the facilitation of debriefings by a nurse.²²

Actively promoting the use of employee assistance professionals may be essential to helping affected clinicians cope after such an event; however, these services should complement, rather than supplant, peer-to-peer support that occurs immediately after patient care. Nurse managers

TABLE 2

Internet links for secondary traumatic stress and mental health resources for health care professionals

URL

https://www.nimh.nih.gov/health/topics/coping-with-traumatic-events/index.shtml

https://safespace.org/secondary-traumatic-stress/ https://www.samhsa.gov

https://www.traumagroup.org

https://www.headspace.com/health-covid-19

https://www.calm.com/blog/health

and hospital administration may consider providing paid administrative leave for clinicians immediately after patient resuscitations and subsequent dispositions to facilitate participation in peer conversations to promote coping and recovery. In addition to the implementation of peersupport mechanisms immediately after the event, comprehensive employee assistance services, which may include counseling or formal support services, may be appropriate to support clinicians involved in the care of these patients. Available resources that may mitigate secondary traumatic stress and promote mental health among health care professionals are provided in Table 2.

The restriction of nonessential staff in resuscitation rooms is likely a best practice to promote patient privacy and confidentiality while alleviating some of the emotions described by these emergency nurses. Likewise, as the participating emergency nurses indicated that not learning how the patients had recovered prevented their gaining closure after the event, notification of patient outcomes in compliance with state and federal laws and regulations is likely to benefit the clinicians involved in the care of these patients. Although patient confidentiality is critical, individually sharing patient outcomes with the nurses, providers, and staff who were involved in the emergency care of these patients would likely prove beneficial and may be facilitated by gaining consent from parents or guardians. For those departments from which patients are transferred to other facilities for definitive care, the receiving facilities should perform outreach to the referring clinicians and their departments to inform them of patient outcomes to promote closure after the event.

Because research has identified barriers to obtaining trauma education among rural clinicians,²³ education and outreach by trauma centers to community facilities can

improve clinical preparedness for mass and multiple casualty events while promoting wellness and self-care resources to lessen secondary traumatic stress. Such education and outreach efforts may include trauma nursing curricula, assistance with event simulations, provision of training with patient care scenarios, and facilitation of patient transfers through the creation of autoacceptance agreements. Assistance with mass casualty drills that include mock patients who may be pediatric is also likely to support preparedness for such events.

Limitations

The study participants were emergency nurses who received these patients at a Level 1 comprehensive trauma center with vast resources, capacity, and personnel. The emergency nurses who participated in this study have access to employee assistance professionals, full-time social workers in their department, and clinical resources that include surgeons, surgical capacity, supplies, equipment, and blood products. Emergency departments and facilities with more limited resources are likely to experience greater challenges with accommodating the volume of patients from a multicasualty, school-associated shooting event.

The participating nurses were from a single medical center and provided care to patients from 1 school shooting event. There may be some limitations in the transferability of these results to community ED settings with fewer specialty resources. In addition, the participating emergency nurses from the Level 1 comprehensive trauma center would be expected to have more experience caring for patients injured by gun violence. This experience is likely to afford clinical and emotional benefits that supported these nurses' abilities to cope during and after their roles in the care of the victims from this event.

Conclusions

Emergency departments are typically the front line of hospital-based medical care. Multicasualty school shooting events often occur without warning and bring unique challenges to the clinicians and departments that are tasked with receiving and caring for these patients. Learning from emergency nurses who care for patients from a multicasualty, school-associated shooting event may promote personal and departmental preparedness and improve coping and recovery among the involved clinicians. The identification of themes and the findings from this study translate to implications for emergency nurses that may improve patient outcomes through planning and preparedness while benefiting the welfare, resilience, and retention of emergency nurses who are likely to be emotionally affected by their roles caring for the victims of multicasualty, school-associated shootings. Further research is indicated to explore the experiences of nurses after caring for patients from other school shooting events to better understand the psychosocial effects and define the most effective support methods.

Acknowledgments

The researcher wishes to thank Traci Denton, MSN, BA, RN, CCRN, CPPS; Jeanne Yeatman, BSN, RN, MBA, EMT; Keith Evans, MSN, RN, ACNP-BC, FNP-BC, ENP-C, CCRN, CFRN, AEMT; Elizabeth Card, MSN, RN, APRN, FNP-BC, CPAN, CCRP, FASPAN; Joel Anderson, PhD, CHTP, FGSA; Kevin High, RN, MPH, MHPE; Laura J. McCall, MS; and the emergency nurses who shared their experiences in hopes of helping others.

Author Disclosures

The study was supported by a Clinical Nurse Scholars Training Grant award from the Vanderbilt University Medical Center Nursing Research Office.

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.2020.05.018.

REFERENCES

- Molnar BE, Sprang G, Killian KD, Gottfried R, Emery V, Bride BE. Advancing science and practice for vicarious traumatization/secondary traumatic stress: a research agenda. *Traumatology*. 2017;23(2):129-142. https://doi.org/10.1037/trm0000122
- Figley CR. Compassion fatigue: toward a new understanding of the costs of caring. In: Stamm BH, ed. Secondary Traumatic Stress Self-Care Issues for Clinicians, Researchers, and Educators. 2nd ed. Sidran Press; 1999:3-28.
- Emergency Nurses Association. ENA topic brief: the well nurse. https://www. ena.org/docs/default-source/resource-library/practice-resources/topicbriefs/the-well-nurse.pdf?sfvrsn&Site=ENA2015. Accessed January 22, 2019.

- Guo YF, Luo YH, Lam L, Cross W, Plummer V, Zhang JP. Burnout and its association with resilience in nurses: a cross-sectional study. J Clin Nurs. 2017;27(1-2):441-449. https://doi.org/10.1111/jocn.13952
- Adriaenssens J, de Gucht V, Maes S. The impact of traumatic events on emergency room nurses: findings from a questionnaire survey. *Int J Nurs Stud.* 2012;49(11):1411-1422. https://doi.org/10.1016/j.ijnurstu.2012.07.003
- Alzghoul MM. The experience of nurses working with trauma patients in critical care and emergency settings: a qualitative study from Scottish nurses' perspective. *Int J Orthop Trauma Nurs.* 2014;18(1):13-22. https://doi.org/10.1016/j.ijotn.2013.04.004
- Healy S, Tyrrell M. Stress in emergency departments: experiences of nurses and doctors. *Emerg Nurse*. 2011;19(4):31-37. https://doi.org/ 10.7748/en2011.07.19.4.31.c8611
- Lavoie S, Talbot LR, Mathieu L, Dallaire C, Dubois MF, Courcy F. An exploration of factors associated with post-traumatic stress in ER nurses. J Nurs Manag. 2016;24(2):174-183. https://doi.org/10.1111/jonm.12294
- Holland KM, Hall JE, Wang J, et al. Characteristics of school-associated youth homicides — United States, 1994-2018. MMWR Morb Mortal Wkby Rep. 2019;68(3):53-60. https://doi.org/10.15585/mmwr.mm6803a1
- Davidson JE, Proudfoot J, Lee K, Zisook S. Nurse suicide in the United States: analysis of the Center for Disease Control 2014 national violent death reporting system dataset. *Arch Psychiatr Nurs*. 2019;33(5):16-21. https://doi.org/10.1016/j.apnu.2019.04.006
- Yin RK. Case Study Research and Applications: Design and Methods. 6th ed. Sage Publications, Inc; 2018.
- Ludick M, Figley CR. Toward a mechanism for secondary trauma induction and reduction: reimagining a theory of secondary traumatic stress. *Traumatology*. 2017;23(1):112-123. https://doi.org/10.1037/ trm0000096
- 13. Stamm BH. The Concise ProQOL Manual. 2nd ed. ProQOL.org; 2010.
- Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Med Res Methodol.* 2013;13:117. https://doi.org/ 10.1186/1471-2288-13-117
- QSR International. NVivo Qualitative Data Analysis Software. Version 12. 2018. https://www.qsrinternational.com/nvivo-qualitative-dataanalysis-software/home. Accessed September 17, 2019.
- Dominguez-Gomez E, Rutledge DN. Prevalence of secondary traumatic stress among emergency nurses. *J Emerg Nurse*. 2009;35(3):199-204. https://doi.org/10.1016/j.jen.2008.05.003
- Duffy E, Avalos G, Dowling M. Secondary traumatic stress among emergency nurses: a cross-sectional study. *Int Emerg Nurs.* 2015;23(2):53-58. https://doi.org/10.1016/j.ienj.2014.05.001
- Flarity K, Gentry JE, Mesnikoff N. The effectiveness of an educational program on preventing and treating compassion fatigue in emergency nurses. *Adv Emerg Nurs J.* 2013;35(3):247-258. https://doi.org/ 10.1097/TME.0b013e31829b726f
- Ratrout HF, Hamdan-Mansour AM. Secondary traumatic stress among emergency nurses: prevalence, predictors, and consequences. *Int J Nurs Pract.* 2020;26(1):e12767. https://doi.org/10.1111/ ijn.12767

- Morrison LE, Joy JP. Secondary traumatic stress in the emergency department. J Adv Nurs. 2016;72(11):2894-2906. https://doi.org/10.1111/jan.13030
- Drury V, Craigie M, Francis K, Aoun S, Hegney DG. Compassion satisfaction, compassion fatigue, anxiety, depression and stress in registered nurses in Australia: phase 2 results. *J Nurs Manag.* 2014;22(4):519-531. https://doi.org/10.1111/jonm.12168
- Clark PR, Polivka B, Zwart M, Sanders R. Pediatric emergency department staff preferences for a critical incident stress debriefing. *J Emerg Nurse*. 2019;45(4):403-410. https://doi.org/10.1016/j.jen.2018.11.009
- Trickett J, Kitson C. Trauma outreach education: assessing the needs of rural health care providers. *Int J Trauma Nurs.* 1999;5(4):128-131. https://doi.org/10.1016/s1075-4210(99)90007-x

Submissions to this column are encouraged and may be submitted to Steve Weinman, MSc, BSN, RN, CEN, TCRN, NHDP-BC, TR-C, EMT

rescsteve@gmail.com

Supplementary Appendix

INTERVIEW QUESTIONS

Do you recall what your thoughts were when you learned that your department was going to be receiving victims from a school shooting?

Do you recall your feelings while you were preparing to receive these patients, providing care to them, or reflecting on your role as part of the involved health care team?

What was it like for you as you cared for these patients? Do you recall if you experienced any increased stress while preparing for the patients' arrivals?

Do you recall reflecting on or thinking about those patients in the days, weeks, or months after the incident?

Were there family members, peers, or managers who you talked with about this incident?

Were any services provided by the medical center to help the emergency department team after this incident?

Did you feel that these services were sufficient and/or helpful?

Did you find yourself seeking more information from the media about the event?

Do you think that these patients affected you any differently than those trauma patients who you routinely care for?

Did you find yourself avoiding situations or patient care assignments where you may encounter similar patients?

Did you experience any disruptions in your normal routines, such as difficulty sleeping or concentrating on other tasks, due to thinking about those patients?

Do you think that you were "jumpy" or more aware of the potential for violent incidents which could affect you, a family member, or a friend?

Were there any activities that you found to be helpful as a coping mechanism after the incident?

If you have left your position at this medical center, do you feel that this event had an effect on your decision to leave?

Is there anything else that you would like to add that would help me understand the challenges that you experienced as a result of caring for these patients?