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Corresponding author:
Kristen R. Choi; Email: krchoi@ucla.edu.

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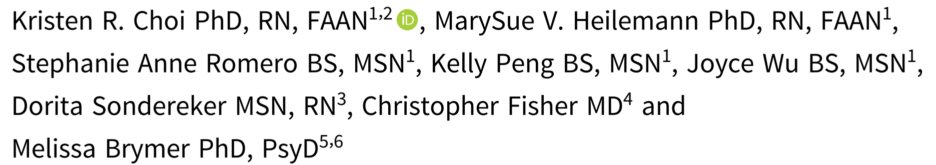
"The Wild West:" Nurse Experiences of Responding to the 2017 Las Vegas Mass Shooting



Kristen R. Choi PhD, RN, FAAN[1,2], MarySue V. Heilemann PhD, RN, FAAN[1], Stephanie Anne Romero BS, MSN[1], Kelly Peng BS, MSN[1], Joyce Wu BS, MSN[1], Dorita Sondereker MSN, RN[3], Christopher Fisher MD[4] and Melissa Brymer PhD, PsyD[5,6]

[1]School of Nursing, University of California Los Angeles (UCLA), Los Angeles, CA, USA; [2]Department of Health Policy and Management, Fielding School of Public Health, UCLA, Los Angeles, CA, USA; [3]HealthTrust Workforce Solutions, Las Vegas, NV, USA; [4]Sunrise Hospital, Las Vegas, NV, USA; [5]National Center for Child Traumatic Stress, UCLA, Los Angeles, CA, USA and [6]Semel Institute for Neuroscience and Human Behavior, David Geffen School of Medicine, UCLA, Los Angeles, CA, USA

Abstract

Objective: The purpose of this study was to explore the experiences of nurses who responded to a public mass shooting in 2017.

Methods: This qualitative study was conducted with a sample of nurses who responded to a mass shooting, recruited purposively from a hospital in Las Vegas, Nevada. Intensive interviews were conducted with a total of 7 nurses, audio-recorded and transcribed for thematic analysis.

Results: Six themes were developed from interview data: (1) "The worst night of my life": Overrun and overwhelmed; (2) Unexpected altruism and benevolence of patients and staff; (3) "The Wild West": Giving victim care by improvising beyond rules; (4) Experiencing a range of reactions in the immediate aftermath and in the long term; (5) Shifts in nursing practice and evolving team dynamics; and (6) Defining realistic approaches to support staff mental health and mass casualty preparation.

Conclusion: Nurses who were involved in responding to the public mass shooting described the event as life-altering. Given the critical role of nurses in responding to mass shootings, it is essential to consider how nurses can be supported in the aftermath of these events and how mass disaster preparation can include attention to the needs of nurses.

Introduction

Public mass shootings in the United States have been the focus of intense media, public, and policy scrutiny as they have become more visible and deadly in recent years.[1] There is no universal definition of a mass shooting, but it is generally considered to be intentional firearm violence resulting in a minimum of 4 casualties.[2] Mass shootings are relatively rare as a proportion of all firearm violence incidents; however, these incidents can have serious adverse public health impact in the form of mortality, injuries, posttraumatic stress disorder, depression, and complicated bereavement.[3,4] Besides the immediate physical and mental health impact of mass shootings on victims, these incidents can reverberate throughout communities and lead to community trauma and grief. Family members, individuals with ties to victims, school personnel, emergency responders, faith communities, and others outside the immediate vicinity of the event may experience trauma or complicated bereavement.[5]

Little is known about the effect of responding to a mass shooting on health care personnel who care for injured shooting victims in the immediate aftermath. There have been some studies and case reports about improving emergency medical system response to promote maximum victim survival that examined health care system resources and strain.[6–8] These reports highlight issues such as poor communication, inappropriate triage, unsecured treatment environments, and the need of health care responders to sometimes defer to law enforcement investigations.[6–8] One recent qualitative study examined the perspectives of emergency room (ER) nurses who responded to a school shooting in 2018.[9] The study found that responding nurses reported traumatic stress symptoms (eg, nightmares, hypervigilance, intrusive reminders), and that nurses saw a need for much more robust trauma nursing training and preparation for mass casualty response. This report is one of very few empirical studies of the effects of responding to a mass shooting on nurses or other health care providers.[8] Studies of other health care providers who responded to terrorist attacks or other kinds of human-caused mass casualty events have parallel findings to what little research exists on nurses, suggesting high risk for traumatic stress

and psychological distress in the aftermath.[10–13] Emerging literature on the coronavirus disease (COVID-19) pandemic, too, suggests high risk for mental health disorders, burnout, and psychological distress among health care workers working under mass disaster conditions.[14] A meta-analysis of the mental health impact of COVID-19 on health care workers found high levels of anxiety (30%), depression (31.1%), sleep problems (44%), acute stress disorder (56.5%), and posttraumatic stress disorder (20.2%).[15,16]

Evidence to date suggests that there may be risk for primary or secondary trauma among nurses responding to mass shootings. The specific physical, mental, and psychosocial well-being of nurses following mass violence exposure and mechanisms of the mass casualty event response affecting well-being have received only limited attention in research and require further exploration to determine how to best support nurses in the aftermath of such events. Understanding the experiences of nurses and their preferences for receiving support may inform the development of interventions. Studies of mass shooting first responders have also not conducted in-depth explorations of clinical care during firearm mass casualty events to inform specific preparation efforts. The purpose of this study was to qualitatively explore the experiences and perspectives of 7 hospital registered nurses (RNs) who responded to a public mass shooting.

Methods

Design and Setting

A qualitative thematic analysis was conducted based on a 6-phase approach that was enhanced through the use of Constructivist Grounded Theory techniques.[17,18] Intensive interviews were done with RNs who were employed at a hospital in Las Vegas that received a large number of victims after a public mass shooting in October 2017.[18,19] This mass shooting occurred at a country music festival on the Las Vegas Strip with over 22 000 attendees, causing 60 deaths and 867 injuries. To date, this incident remains the deadliest mass shooting committed in US history that was committed by a single individual. The study was approved by the Institutional Review Board at UCLA. Data were collected from 2018 to 2021 but study recruitment was paused during 2020 as the target population was ER and intensive care unit (ICU) nurses who were responding to an acute phase of the COVID-19 pandemic.

Sample and Study Procedures

Nurses were the focus of this study because of their unique patient-facing role among members of the health care team and first responder role in hospitals. We purposively sampled RNs who had been working during or within 1 month immediately after the shooting event. Interviews began in October 2018 (1 year following the shooting) to ensure that sufficient time had passed and that risk for acute traumatic stress reactions were minimized.[20] Nurses were recruited to participate in the study via emails from hospital leaders, including health system administrators and unit leaders of the emergency department. We made 3 email attempts to reach participants via hospital leadership. We used snowball sampling to identify additional participants after each interview, including encouraging participants to share the study opportunity with colleagues who might have left the organization or left the nursing profession. RNs were eligible to join the study if they were adults (≥ 18 years of age) and worked directly with shooting victims. Participants were not required to be current hospital employees. Seven RNs responded to recruitment emails and participated in interviews.

All participants gave informed consent to participate in the research. Interviews took place over the phone, were audio-recorded, and transcribed verbatim for analysis. Each transcription was checked against the audio recording, corrections were made, and identifiers were removed. Interviews were conducted by a member of the research team who was also a nurse. There was no prior relationship between the researchers and participants. Interviews lasted from 20 minutes to 110 minutes (mean, 56 minutes), using open-ended questions from an intensive interview guide[18] to elicit reflections and perceptions from the RNs and their practice about the impact of the shooting, how the shooting affected patient care delivery, and recommendations for mass casualty response or recovery for other health care providers (Supplement 1). The questions were developed collaboratively by a nurse and a psychologist on the research team, then reviewed and edited by other team members and site collaborators. All participants received a US $75 gift card as an incentive for their time.

Reflexivity

We prioritized attention to researcher reflexivity given that researchers play a role in co-constructing knowledge when engaging in interviews.[18,21] Reflexive memos were written throughout the process of participant recruitment, following each interview, and following analysis of each interview. Memos noted assumptions, biases, and personal reflections on each interview plus emotional responses of the interviewer.[18,21] These reflexivity techniques were chosen to acknowledge bias in the research process, reduce inadvertent interviewer projection, prevent stereotyping, and protect the words of study participants. Additional memos written from a methodological standpoint explored what questions did/did not work during an interview, and adjustments for future interviews to enhance the quality of data collected and ensure that our interview process was responsive to the participants' needs.[18,19]

Data Analysis

For this thematic analysis, we proceeded through 6 phases that led to the refinement of 6 themes.[17] Grounded Theory techniques were used to enhance coding, analysis, and reflexivity of the research team.[17–19] The primary analyst for this study (KC) is a female RN with experience in trauma, violence, and mental health clinical care and research. Additional analysts were 3 females, graduate-level nursing students who received training in trauma and qualitative research methods (SR, KP, JW). First, the transcripts were read for data familiarization. Second, we systematically coded each line of interview text, using process coding with gerunds[22] to focus on the action of the participant[18]; each interview transcript was independently coded by 2 analysts. After initial coding, we reviewed all codes and memos and grouped similar codes into clusters, prioritizing codes that were salient to the research question, most frequently occurring, and most significant.[18] To refine code clusters, we compared codes and data to identify which cluster was fitting, or if a new cluster needed to be formed. The analysts then met to combine small or similar clusters and divide large or complex clusters. Third, through a comparative analysis of codes in clusters, we identified patterns of action or meaning in the data that were candidate themes. Fourth, we compared candidate themes against one another to further combine or divide meaningful units of data and then compared candidate themes

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against codes and memos to finalize major attributes of each theme. Fifth, final themes were selected, refined, and named collaboratively by the analytic team.[17] Sixth, we wrote up the report. Pronouns used in quotations by participants, that made reference to other staff members, were edited to be gender-neutral to protect privacy.

Results

The participants were 5 emergency room nurses and 2 ICU nurses who were primarily female (n = 6). Six themes were developed from analysis of the data from intensive interviews with 7 participants: (1) “The worst night of my life”: Overrun and overwhelmed; (2) Unexpected altruism and benevolence of patients and staff; (3) “The Wild West”: Giving victim care by improvising beyond rules; (4) Experiencing a range of reactions in the immediate aftermath and in the long term; (5) Shifts in nursing practice and evolving team dynamics; and (6) Defining realistic approaches to support staff mental health and mass casualty preparation. Several participant quotes include abbreviations common to trauma nursing. These abbreviations are described in Table 1 to preserve participant words as accurately as possible.

Table 1. Abbreviation key

Abbreviation	Definition and use
CT	Computed tomography (diagnostic imaging procedure)
ER	Emergency room (hospital location)
ET	Endotracheal tube (breathing tube)
ICU	Intensive care unit (hospital location)
IO	Intraosseous (intraosseous vascular access)
IV	Intravenous (intravenous vascular access)
Black tag	Triage tag color category; color tags are used to prioritize order of treatment: • Green (non-life-threatening injuries) • Yellow (stable injuries) • Red (life-threatening injuries, most urgent need for treatment) • Black (deceased or injuries too extensive for survival)

Theme 1: “The Worst Night of My Life”: Overrun and Overwhelmed

Participants described the initial influx of patients as “overwhelming” and characterized the staff as “overrun.” The hospital staff were aware of an active shooting event and alerted of the need to prepare for multiple patients, but they were unaware of the scale of what was to come, according to an emergency room nurse. Participants described “full blown chaos,” “utter shock,” and “panic” like in a “warzone” as patients arrived in “truckloads” in private vehicles, Uber/Lyft vehicles, and ambulances. One RN noted the difference between the patients they treated that night compared to the emergency room’s usual population:

> These patients that were coming in, they weren’t your typical patients who come through the ER. They’re not unwell people . . . These were young, perfectly healthy people who were just coming in with bullet holes everywhere. I mean they were in their chest. They were in their arms. They were in their legs. They were in their abdomen. They were in their necks. They were in their heads. And some of them were brought in with pulse and some of them were brought in dead . . . But these people were just scooping people off or carrying their friend in any available vehicle that would stop and help them. (RN 3)

The same RN described the overwhelm of activating care during the initial influx of patients:

> When they first came in, the first patient I saw was a young . . . woman who had multiple bullet wounds to the abdomen area. We IO’d and intubated her within seconds. And I turned around and there were literally thirty more patients next to me that all needed the same thing. (RN 3)

Participants also described “disturbing” amounts of blood. One RN commented, “In in a regular . . . shift, people come in with trauma but . . . I have never seen that level of, that degree of gore” (RN 7). Another RN described “sheets of blood” and “inches of blood” on the floor, saying that there was “so much blood . . . you couldn’t even see the floor” (RN 5). This was described as distressing to see: “The blood on the floor was disturbing . . . It was heart wrenching to see the EVS [Environmental Services, janitorial staff] people just, keep their heads down . . . You know, they’ve never seen anything like this” (RN 4).

Theme 2: Unexpected Altruism and Benevolence of Patients and Staff

The rapid influx of shooting victims was accompanied by a rapid influx of staff from all areas of the hospital to help respond to the shooting, which was a source of motivation to ER staff. An RN described the arrival of additional staff to help as “rejuvenating” and “all hands on deck” as physicians and nurses from other settings came to the ER to help. An RN recalled:

> We had a nurse that was at the concert. [The nurse] was there, and [they] still came into work! Like, called a charge nurse that was on [their] way and said, ‘Come get me.’ [They] came to work in cowboy boots from the concert. (RN 1)

Participants spoke of the support from non-clinician staff as well, such as an RN who said:

> You think of the doctors, the surgeons, the nurses, the first responders. But there’s a lot of little pieces that made it work . . . The transporters were amazing helping people out of the cars and helping us assess the wounds and getting them to where they needed to go. These nurses that were coming down from observation units and mother and child units to help, they’d probably never seen something like that . . . everybody was a trauma nurse that night. (RN 3)

All participants commented on the patients themselves and how unusual these individuals were compared to their typical emergency room population. They characterized the shooting victims as “the most amazing patients that have ever walked through our ER” and “the most selfless people I’ve ever met in my life.” RNs shared stories of patients giving up beds or chairs, helping one another, letting others go to surgery ahead of them, providing emotional support, and even voluntarily leaving the ER with injuries that could wait to be treated until the following day. One RN recalled:

> There was a gentleman who had three bullet wounds in his abdomen who was in a bed. And a girl came in with like, a bullet wound to her side. And in regards to trauma, you know, triage and trauma, he is the more critical patient. He got off his bed and gave his bed to the girl and sat there and held the girl’s hand and talked to her . . . he was turning pale the whole time he was checking on her . . . When we came to get him—because he was one of the first ones that was going to surgery—he refused. He goes, “No, no, no. Take her. Take her first . . . ” He was very adamant that she be taken care of first. (RN 3)

This participant continued, “And it wasn’t just him. It was all of the patients. It was all of them. They were, ‘No, no. I’m fine. Take him first. Take her first. No, I’m okay . . . ’ They were selfless” (RN 3).

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Another RN added how unexpected this display of selfless action was in the ER:

> I had patients who had, you know, literally been shot in the back that were saying, "No, go take care of them. I'm OK." You know, "Take care of other people first." So much selflessness, which is really kind of what I didn't expect in a situation like that . . . You could really tell that it's a community, it was a community helping a community. (RN 1)

What was described as an "amazing comradery" among the patients was noteworthy to our participants. One RN was particularly impressed with the calm behavior of patients rather than "the panic that I would expect" (RN 4).

Theme 3: "The Wild West": Giving Victim Care by Improvising Beyond Rules

Participants described the provision of clinical patient care during the crisis as having to improvise and work without rules. One likened it to the "Wild West" and explained that "There's just so many rules that we had to break in order to stay functional." Another criticized equipment for its failure to be helpful during the crisis, calling the disaster cart "useless." Staff quickly ran out of supplies, such as chest tubes, IV tubing, ET tubes, IO needles, saline, blood, towels, ventilators, and beds. In this context, RNs had to develop creative strategies to provide care. For example, an RN recalled:

> I had one IV pump in the room and they wanted me to put them on Propofol to help sedate them and keep them calm. So, I literally put the four patients as close as I could. I put the pump in the center of the room and I piggybacked lines and I got four people Propofol from the same pump. (RN 3)

This RN also recalled a pharmacist opening the medication dispenser and distributing "packs and packs and boxes and boxes of medication. I had two boxes of morphine in [my pocket]. And the doctor said, 'If someone's hurting, just give them the morphine.'" Usual protocols for documentation, patient registration, and orders were nearly impossible for nurses, as many patients' identities were unknown. An RN described documenting with a pen by writing on the patients' bodies or sheets:

> When patients received treatment, they would . . . write it in Sharpie down their arm. They would write the dosages, they were literally documenting off a sheet . . . you just kind of hoped that they stayed on that bed. (RN 1)

Another RN remembered using tape for documentation; they recalled how a colleague put "a giant tape on [their] chest and just wrote like CT . . . and it had a checkbox and that means they did it (RN 5)" while yet another recalled seeing documentation on a patient's forehead. Regarding the challenge of obtaining orders, a participant shared:

> No matter how many times the charge nurse yelled at some of us, "You have to get orders!—You get an order!" Who am I going to get an order from? It's just me out here. The doctor would walk by and say, "OK I want a gram of anticef and two of morphine, and oh by the way I have it in my pocket can you give it?" But you don't ever document it, because maybe this person's not even admitted. (RN 1)

For another RN, orders were perceived to be "freestanding." This RN shared how they organized care, saying:

> I got them two more IO guns and IO supplies and they were just putting IOs in everybody they could. And they shoved more IV lines in real quick and were intubating. The doctor gave them intubation kits and said "Just intubate whoever needs intubating. You have a freestanding order to do whatever you feel is following protocol for this hospital." (RN 3)

There were also challenges with family communication that could only be solved by improvising. Participants were aware of the need to use caution in regard to privacy, but also described how hard it was to deny potential family members information about their loved ones. Notifying families in any way possible "didn't seem wrong at that time," according to one RN.

For example, one participant referred to family notification as a "free-for-all" and recalled looking up a patient's family member on Facebook to send them a message. Another RN shared how a policy about notification was outweighed by an ethical sense of doing what was right. They explained by saying:

> You never tell somebody that's not family that somebody has died. But I remember this couple, they knew each other for like, 24, 48 hours and [one of them] died. And [the survivor] wasn't family but we had to tell them—of course, that wasn't even a friend—that [the victim] had passed. You know, that's totally the wrong thing to do, but it *was* the right thing to do. Right? (RN 4)

Another "Wild West" aspect of the care provided in the ER by our participants was related to triage. Participants described making "devastating" decisions about the use of limited resources and the difficulty of implementing triage. An RN felt that there were "a lot of black [tag] triage patients that a lot of resources, not to be completely heartless, were wasted on" (RN 1). This RN worried being judged for having this opinion but recognized that it was impossible to save everyone. Other participants called triage "horrifically hard" and "the most awful thing I've ever done in my life" when "you have to just let them die and accept their dying by themselves." An RN expressed this sentiment about triage in the following context:

> I remember my coworker was doing chest compressions on a young girl. And I went and I pulled [them] off and I said, "We can't do that. We don't have the resources to do that." And it was probably the most awful thing I've ever done in my life. But we literally had to—you know, we [black] tagged them [as deceased]. Even though I know you can't think [that way], to me, I can't help but feel like we gave up. We let them down. That probably is what bothered me the most is that in the perfect situation, we would've done so much for them. (RN 3)

Theme 4: Experiencing a Range of Reactions in the Immediate Aftermath and Long Term

Participants in our sample called the shooting a "life-altering event" and described a wide range of emotions, actions, and thoughts in the immediate aftermath. These included "going through the motions of survival," being "unable to process," feeling "numb" and "sad," experiencing "disbelief," being "upset," or having "shock," "hyperventilating," and "grieving." Some described being unable to cry, sleep, or talk about the events for days or weeks after the night of the shooting. One RN talked about "vacillating between grief and guilt." The RN explained:

> A part of me felt guilty. While I was there at the hospital that night and the next morning and took care of patients and families, I saw a lot of things. And it sounds silly, I hear how it sounds, but a part of me feels like I should have been there. It shouldn't have been any one of those people who were hurt—it should have been me. (RN 7)

RNs who slept through emergency calls for staff the night of the shooting also expressed profound feelings of guilt for not waking up and being present to help. An RN who was present the night of the shooting recalled:

> The people that came in during the day that didn't get the phone call to come in or didn't know about it because they were sleeping when it happened, they were really mad . . . They wanted to be a part of it. (RN 4)

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The feeling of wanting to take action was important for participants in the immediate aftermath of the shooting and the first weeks of victim treatment. One RN described a strong feeling that "I needed to do something" and that the whole staff was motivated to give "110%" to these particular patients (RN 2). Various participants described wanting to go the "extra mile" for the patients and their families in the aftermath of the shooting. They engaged by organizing to purchase food for families, protecting patients from news about the shooting, befriending families, and providing emotionally sensitive care.

Taking care of one's own feelings involved a different kind of action. For example, although all our participants were aware of emergency mental health and trauma resources available to them as hospital staff and perceived these resources positively, none used these resources themselves. They instead described talking to family, friends, or coworkers for emotional support. However, being able to talk to others about their feelings was challenging, in some cases. One RN described what it felt like to grapple with the idea of sharing feelings:

> My [spouse], they wanted to support me. They wanted to be there for me. But it's hard for family to understand that . . . It's hard to explain the thoughts, the feelings, the emotions that are surrounding it when you're not in the field . . . . I said, "There's no way for me to help you understand" . . . I wanted to get away from it and to just let it be numb for a while. But I couldn't. (RN 3)

This RN emphasized initial reluctance to speak with anyone who was not present the night of the shooting. The RN explained how only others who had also experienced the ER during the acute crisis understood, saying, "You could go right in and they understood, and understood the feelings, the emotions, the scenes, the sounds, the smells, everything" (RN 3).

Participants continued to experience reminders and emotional effects of their involvement in responding to the mass shooting, even years after the event. A year after the shooting, one RN cautioned that staff tended to "underestimate their long-term effects" and how the shooting took a "deep toll on people's lives." This participant said that staff were reminded emotionally of the shooting "every single day when they're coming to work" (RN 4). Another referred to memories and triggers, saying candidly:

> I don't like thinking about that night, I don't like thinking about the smell of blood that lingered in my nose for weeks. Those memories that were triggered you know just driving down the street and seeing an empty window, and the casino and hotel. (RN 7)

Another RN summed it up by saying "[I] just wanted to bury it and move on with life" (RN 3).

Although participants still reacted emotionally to reminders of the shooting, several noted healing and growth in the time since the shooting occurred and when interviews took place a year or more later. One RN said, "I feel like I have healed personally where I would be able to talk about it more. It's still sad but it doesn't cause me to like shut down any more" (RN 2). Another RN reflected, "My experiences and my sights, my firsthand visuals and things that I saw and the things I was involved in, I felt like those were to a degree very sacred." Another RN said at the time of the interview:

> You go through things, you come out a little stronger. You come out as more of a solidified humanity . . . Everybody is there for everybody involved when it comes down to it. Now that we've made it through the dark area and we're healed for the most part, now all you can do is move on and not let it stop you from experiencing life . . . (RN 1)

Theme 5: Shifts in Nursing Practice and Evolving Team Dynamics

Our participants felt strongly that their presence for this mass shooting response "changed" them, personally and professionally. One RN shared how, in the practice, the RN now had "more understanding to my patients' and their families' concerns." Another self-reflected being a "little bit softer" and "more in tune to maybe what my patient needs emotionally."

Participants also described ongoing hypervigilance as a way of life since the disaster. This was exemplified by an RN who said, "We're always thinking, we're going into work if any news of any kind or anything goes on, then we're thinking, 'Oh man, is there going to be another mass shooting?'" (RN 1).

In terms of the health care team, most participants in our sample also described a new sense of "warmth," "comradery," and "closeness" with team members who were present the night of the shooting. One RN said, "The staff is so, for lack of a better term, badass (RN 1)" while another likened the actions of their coworkers to that of a family pulling together. That RN felt "most proud of our response as a family" (RN 7). Another expanded personal interpretation to a broader of health care teamwork, saying that "the reason that we were successful . . . is because courage is our life" (RN 4).

At the same time, participants admitted some negative fallout. One participant reported that nurse turnover after the shooting was "very, very high" and that at least 1 nurse died by suicide after the shooting, implying that the nurse's death was related to how that RN was affected by responding to the shooting. Other nurses noted tension between night shift nurses who responded to the shooting first and day shift nurses who received the majority of community gifts, donations, and food, though they were not necessarily present the night of the shooting. Participants described "animosity between the night and day shift" that "drove kind of a stake between some people." A nurse explained, "I know that some of my coworkers are very frustrated that the daytime, all this wonderful stuff was happening and then at night, we were just kind of forgotten even though the nighttime was the ones that took it on for an hour before we really got help" (RN 3). Although these sentiments about negative staff effects surfaced during interviews, participants much more strongly emphasized positive effects.

Theme 6: Defining Realistic Approaches to Support Staff Mental Health and Mass Casualty Preparation

Our participants shared recommendations for realistic approaches to supporting staff mental health and mass casualty preparation considering their experiences. Although none of the RNs interviewed utilized available therapy, several recognized the importance of professional mental health support. One RN felt that therapy should have been "mandatory" and that that RN "should have been forced to talk to somebody other than my family member" (RN 1). Another said, "I didn't go because I didn't think I needed it. I thought I was fully adjusted . . . I'd seen it all, done it all . . . I also did not go to PTSD follow up, and I probably should have" (RN 4).

Participants recommended offering therapy during work hours when staff were being paid, and continuing to make mental health support available months or years after the event as staff may not have felt a need for it initially, but might recognize a need for help later. One RN felt that peer support would have been helpful. The RN said:

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> I remember feeling very anhedonic . . . And being my stubborn self, I would've never reached out. But if I think about it, if there was someone else similar to me, I wonder if just someone a little more personable, a friend or a coworker who is in the trenches with you, not like a supervisor or a charge nurse or authority figure . . . (RN 3)

The RN described using this process of peer support informally, saying:

> Us as coworkers, we did that for each other . . . We would always try to pick each other up. We would always try to be there for each other. But perhaps if there was much more of like a structural being in place where somebody is doing that . . . (RN 3)

Finally, participants recognized how beneficial it was to have support for basic needs. Many described how meaningful and helpful it was to receive food donations from restaurants in the community and to not have to worry about what they would eat. A nurse recalled:

> Olive Garden would deliver food to the entire staff. The whole unit! Like that went on for weeks. Like we never had to bring our lunch because there was always something, you know, every day was something else. We didn't have to worry about when we were going to eat. (RN 1)

They also received an outpouring of messages, banners, and cards from schools, hospitals, and other community entities that made nurses feel supported and appreciated for their role in the response. One RN appreciated the anonymity of these support messages, commenting:

> I think what I enjoyed about it the most was that it was faceless. It wasn't face-to-face someone telling me, "You did something really good" because that kind of hurts me a little bit. Not like, made me mad, but it felt uncomfortable to hear that you were a hero or "that's amazing what you did." It was kind of squeamish. Letters that I could read in private without someone over my shoulder or eyes prying into my soul that just kind of relayed that we appreciate what you did and that we're thinking of you . . . It perks you up. (RN 3)

In regard to mass casualty planning, most participants were not aware of their hospital's mass casualty policy or, if they were, did not find it applicable to the actual situation. Participants emphasized the importance of practicing a mass casualty response, not simply learning principles through online modules. An RN said, "I think that that's a big deal, is not just to have a plan in place but to act it out and to scenario it out so that people get a feel for it" (RN 3). Other RNs noted the importance of preparing specifically for a mass shooting response, not simply generic disaster planning or planning for natural disasters. One RN stated:

> I didn't need earthquake supplies, I needed trauma supplies . . . We didn't plan for a mass shooting. Other hospitals, they plan for disasters. But they're not prepared for a mass shooting. (RN 6)

Another participant described how the lack of an organized plan led to inefficient use of resources, reflecting on their high level of skill as an ICU RN: "I didn't know what to do. I had no guidance . . . I felt like I could have been better utilized . . . rather than handing out water" (RN 1). Additional recommendations included stockpiling trauma-specific supplies, forming collaborative relationships with other local hospitals to share supplies in the event of a mass shooting, and developing a plan for assigning staff roles to ensure appropriate triage and use of staff skills.

Discussion

This qualitative study of RNs who were present during a public mass shooting response described personal experiences consistent with traumatic stress in both the immediate aftermath and long term. They recounted the night of the shooting as the "Wild West" as they improvised to provide victim care under challenging circumstances, but also noted that the outpouring of community support and sense of comradery within the health care team helped promote recovery.[23] RNs commented that displays of selflessness from the shooting victims themselves were a powerful motivator, noting that they wanted to go over and above to care for the patients and families. Finally, RNs made recommendations for realistic approaches to supporting staff mental health (eg, requiring a mental health check-in for staff, providing therapy during working hours, offering therapy months or years after the event, utilizing a peer support system). Our findings align with prior studies exploring the experiences of first responders in mass shootings and other disasters, including the traumatic impact and perceived need for more robust mass shooting preparation in health systems.[8,14,24] Our study adds new information about the motivating nature of witnessing patient comrade ry, health care system comradery, and community support to nurses in their professional role.

Strategies to support the mental health of health care providers who are involved in a mass shooting response are an important component of disaster planning. Such mental health support must be planned in advance, not an afterthought or reaction when crises arise, and it should be specific to the unique context of health care.[25] Cultural norms that RNs should not need to address their own emotions or grief related to patient care may prevent nurses from seeking needed mental health support.[26] Nursing culture tends to value fearlessness, emotional detachment, and an "I've got this" mentality of control, even in extremely stressful working conditions or cases of extreme patient suffering.[27] Particularly in the emergency room, nurses perceive an unspoken rule that they must be stoic, suppress emotions, and not display grief.[27] Several RNs in our sample made comments that reflect these unspoken norms—and it is notable that, while all participants praised the availability of therapy, none actually used it. Practical strategies suggested by participants such as peer support, long-term availability of therapy, paid time for therapy, or some form of required mental health check-in for RNs should be considered in preparation for mass disaster response.

Likewise, health care organizations might consider developing mass casualty protocols specific to mass shootings. RNs in our study emphasized the importance of actually practicing for a mass shooting response, not simply receiving education on the topic. Many participants were unaware of a mass disaster policy or, if they were aware, felt that it was unhelpful. While many aspects of the RNs' responses to the shooting were effective and lifesaving, participants named aspects that were frustrating or disorganized. These included managing non-ER staff and assigning roles appropriately, implementing triage, having an emergency stock of supplies available, managing family notification, patient registration, documentation, orders, and calling staff to respond. Participants developed creative, emergency strategies to respond to these challenges (eg, charting on sheets, sharing supplies, using social media to contact families), and while it is likely that not all clinical challenges can be mitigated entirely, some could be addressed in mass disaster planning. While there may be some generalities to planning for multiple types of mass casualty events (eg, pandemics, natural disasters, mass shootings), mass shootings may require specific preparation.[11,28] Examples include developing a system for rapid emergency patient registration with codes, ordering sets for

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mass trauma, and agreements for sharing of supplies in mass disasters amongst local hospitals.

There are strengths and limitations to consider in interpreting our study findings. We recruited a sample of RNs who were directly involved in responding to a public mass shooting, including those who were regular emergency room staff and those who came from other settings to help. We used a systematic approach to data coding and analysis and multiple analysts to strengthen the validity of study themes. Study limitations include the single-site nature of the study, the relatively small sample size, and the need to pause participant recruitment during the COVID-19 pandemic, which might have affected how RNs reflected on the mass shooting event. The final study interview was conducted in 2021 after the acute pandemic period in the United States, and our interview guide did not include detailed questions about the impact of the pandemic as it was developed in 2018. Although the sample size was small, it should be noted that this population was very difficult to recruit, as many RNs left the hospital or the profession following the shooting or did not wish to speak about the event, and at least 1 RN involved in the mass shooting response died by suicide. For these reasons, it was key for our team to use a rigorous and ethically responsible methodological approach to data collection and analysis and to give careful attention to reflexivity of the research team. Because the themes identified in our study cannot possibly capture all the perspectives, experiences, and responses of diverse nurses following a public mass shooting, additional research with more participants related to this topic is needed in the future.

Conclusion

Public mass shootings can have traumatic effects that extend beyond victims and their families, including negative effects on first responders. RNs who were involved in responding to a large, public mass shooting in 2017 described the event as life-altering. They described experiences consistent with traumatic stress in the aftermath but also an unexpected sense of comradery amongst the health care team, patients, and the broader community that motivated excellence in mass casualty nursing care. Given the critical role of RNs in responding to mass shootings and being intimately present with victims in moments of life-threatening injuries or even death, it is essential to consider how RNs can be supported in the aftermath of these events and how mass disaster preparation can include attention to the needs of nurses before a shooting happens.

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