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SYSTEMATIC REVIEW

Understanding Traumatic Stress in Emergency Nurses: A Systematic Review

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ABSTRACT

Aims: To understand how emergency nurses experience traumatic stress and clarify the impact of traumatic stress on emergency nurses, patients, and healthcare organisations.

Design: Systematic review without meta-analysis.

Methods: Three hundred and eighty-three articles were screened with pre-specified criteria. Included articles represented primary research conducted with samples of emergency nurses only and described traumatic stress. We extracted (1) impacts on the emergency nurse, (2) impacts on patients and healthcare organisations, and (3) antecedents. Covidence was used for screening and data extraction, and the Joanna Briggs Institute Appraisal Checklists were used for quality assessment.

Data Sources: Cumulative Index of Nursing and Allied Health Literature, PubMed, and PsycINFO were searched 13 July 23 and 16 September 24 for peer-reviewed articles published in English between 2010 and 2024.

Results: Twelve studies conducted in seven countries were included. Traumatic stress has the potential to impact patient safety and satisfaction, care quality, absenteeism, turnover, and organisational commitment. Identified antecedents included specific populations, clinical events, workplace violence, work environment factors, and personal/interpersonal factors.

Conclusion: Unavoidable antecedents could become points for organisational screening and secondary prevention. Modifiable antecedents like workplace violence could be targets for primary prevention.

Implications for the Profession/Patient Care: Organisations have a responsibility to support emergency nurses in preventing and managing occupational traumatic stress. System-level policies, interventions, and resources may mitigate the negative impacts of traumatic stress.

Impact: Existing literature lacks a comprehensive understanding of traumatic stress in emergency nurses. This review clarifies how traumatic stress impacts emergency nurses, patients, and organisations, highlighting organisational/system-level intervention points. Traumatic stress harms emergency nurses, patients, and organisations. Organisations should focus on modifiable antecedents for prevention and screening resources. These findings challenge the idea of traumatic stress as an individual issue, emphasising the role of systems/organisations to provide safe work environments for the benefit of all.

Reporting Method: We adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reporting guidelines.

Patient or Public Contribution: No patient or public contribution.

1 | Introduction

Traumatic stress is often considered an expected (or "normal") reaction to an abnormal event (World Health Organisation 2024). In general, symptoms of traumatic stress will improve over time, but in certain situations, symptoms may progress and manifest as post-traumatic or secondary traumatic stress (STS; Center for Substance Abuse Treatment 2014; World Health Organization 2024). Post-traumatic stress disorder (PTSD) is a diagnosis that can be given after an individual experiences trauma and when symptoms that last for more than 1 month and cause significant distress and/or impede function (American Psychiatric Association 2013, 272). Nearly 40% of individuals diagnosed with PTSD can recover in 1 year with effective treatments, but those in lower- and middle-income countries may experience additional barriers to access care and be less likely to seek treatment (World Health Organization 2024). STS is regarded as the emotional distress that results when someone hears about first-hand trauma experiences of others with symptoms that mimic PTSD or acute stress disorder (ASD) but is not considered a diagnosable condition like PTSD or ASD (American Psychiatric Association 2013; Barleycorn 2019; Arnold 2020). Even though STS is not a formally diagnosable condition, it is more prevalent in nursing research compared to post-traumatic stress, and widely acknowledged in traumatology and adjacent literature as a significant issue (Molnar et al. 2017). In this review, we use the term "traumatic stress" to broadly refer to post-traumatic and STS symptoms.

The recent COVID-19 pandemic, along with worldwide violent conflict and war, has led to an increased global awareness of traumatic experiences and traumatic stress as occupational hazards for all healthcare workers (The International Council of Nurses 2021; World Health Organization 2024). Nurses are frequently exposed to traumatic events while working, which can impact their physical and mental health (Rodney et al. 2022). Compared with other groups of healthcare workers, registered nurses (RNs) provide the most hours of direct patient care and may be disproportionately impacted by this phenomenon compared to other healthcare workers (Butler et al. 2018). Women are also twice as likely as men to report experiencing PTSD at some point in their lives, and the World Health Organisation (WHO) estimates women make up 90% of the midwifery and nursing workforce (World Health Organization 2022). Internationally, annual direct costs per person for PTSD were estimated to be between $512 and $19,435 (adjusted for purchasing power parity for estimates to be comparable between countries), with annual indirect costs over $5000 per person (von der Warth et al. 2020). Among civilians in the United States, PTSD costs $191.4 billion annually in unemployment and direct healthcare costs (Davis et al. 2022). The WHO estimates 3.9% of the global population has experienced PTSD during their life, and the US Department of Veteran Affairs estimates that 6% of the American population will have PTSD at some point during their life (Schnurr 2023).

International estimates of PTSD among nurses have been reported "vastly different" across studies related to measurement variability (Schuster and Dwyer 2020). Emergency nurses routinely experience unpredictable patient volume, staffing challenges, high stress work environments, death, severe/traumatic injuries, suicide, abuse, and direct/indirect violence and hostility (Ratrout and Hamdan-Mansour 2017). Owing in part to these unique job characteristics, emergency nurses may have higher rates of traumatic stress compared to nurses collectively (28.4%) and the general population (5%–6%), (Ratrout and Hamdan-Mansour 2017; Rodney et al. 2022; Schnurr 2023). Symptoms of traumatic stress can have devastating impacts on nurses, the patients they care for, and healthcare organisations. Traumatic stress can negatively impact job performance and concentration (Gates, Gillespie, and Succop 2011), increase medical errors, contribute to poor clinical judgement, and decrease the nurse's capacity to emotionally connect with patients, families and loved ones, at work and at home (Arnold 2020). Emergency nurses have reported an impeded ability to function, feelings of fear and paranoia, strained relationships, sleep disturbances, anxiety, depression, emotional detachment and disengagement, disruptive memories, suicidality, and somatisation (Campillo-Cruz et al. 2020; Jobe, Gillespie, and Schwytzer 2021; van der Wath, et al. 2013; Wolf et al. 2020). These effects influence the way their ability to care for patients. A recent study that looked at PTSD in US nurses found PTSD significantly impacted cognitive and mental processes required to concentrate, prioritise tasks, and remain attentive to detail (Rodney et al. 2022). Intent to leave or leaving the workplace and avoiding certain work-related tasks or patient populations were reported in the same study. These impacts result in decreased levels of productivity (presenteeism) and suboptimal quality of patient care, all of which can increase costs for healthcare organisations (Rodney et al. 2022).

Conceptual discrepancies abound in the existing literature regarding post-traumatic and STS, compassion fatigue, and burnout that warrant clarification. PTSD, initially and formally recognised in military personnel who experienced combat, was introduced to the Diagnostic and Statistical Manual of Mental Disorders (DSM) in 1980 (Horwitz 2018). In 1994, the definition of PTSD was expanded to include both direct and indirect exposure(s) to a single or repeated traumatic event (Arnold 2020). The most recent revision (DSM-5) recognises PTSD as a trauma- and stressor-related disorder instead of an anxiety disorder with updated criteria (Table 1), (American Psychiatric Association 2013). In contrast, STS was introduced as a concept in the 1990s by trauma specialists Stamm and Figley while attempting to understand why caregivers exhibited signs of PTSD in the absence of direct trauma (Figley and Kleber 1995). Since its introduction, STS has been used inconsistently with other terms such as compassion fatigue, vicarious trauma and burnout (Molnar et al. 2017). This conceptual confusion was in part supported when Figley recommended compassion fatigue and STS be used interchangeably, suggesting compassion fatigue as a "preferred" term by nurses because it was less stigmatising (e.g., less "harsh" and more "friendly") than STS (Arnold 2020; Figley and Kleber 1995).

Stamm conceptualised compassion fatigue as the summed effects of burnout and STS (i.e., burnout + STS = compassion fatigue) in a widely used tool, the ProQOL (Hudnall Stamm 2010), further fuelling conceptual confusion. However, since Figley

TABLE 1 | Comparison of PTSD diagnostic criteria and STS subscales.

	PTSD	STS
Criterion A: Stressor Direct or indirect exposure to trauma, learning that a close friend/family member was exposed to trauma	x	Indirect
Criterion B: Intrusion symptoms Re-experiencing traumatic even through flashbacks, nightmares, unwanted/upsetting memories, emotional distress or physical reactivity after exposure to traumatic reminders	x	x
Criterion C: Avoidance Avoiding trauma-related stimuli such as thoughts, feelings, external reminders	x	x
Criterion D: Negative alterations in cognitions and mood Negative thoughts/feelings that started or intensified after the trauma; negative affect, decreased interest in activities, feelings of isolation, unable to recall key features of the experience, exaggerated blame of self or others for causing the trauma, difficulty experiencing positive affect, disproportionately negative thoughts/assumptions about oneself/the world	x	
Criterion E: Alterations in arousal and reactivity	x	x
Criterion F: Duration of symptoms > 1 month	x	
Criterion G: Functional significance (e.g., social or occupational functional impairment)	X	
Criterion H: Symptoms not related to medication, substance use or other illness	x	

Source: Center for Substance Abuse Treatment (US). Trauma-Informed Care in Behavioural Health Services. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 2014. (Treatment Improvement Protocol [TIP] Series, No. 57.) Exhibit 1.3-4, DSM-5 Diagnostic Criteria for PTSD. Available from: https://www.ncbi.nlm.nih.gov/books/NBK207191/box/part1_ch3.box16/.

conceptualised these phenomena, burnout, STS, and compassion fatigue have evolved into unique terms with distinct characteristics. Burnout, defined in 2019 by the WHO as a multidimensional occupational phenomenon that results from unsuccessfully managed chronic workplace stress (World Health Organization 2019), is linked to stress accumulation related to work environment factors and a lack of personal/organisational support (Henson 2020; Kennedy and Booth 2022; Murthy 2022b). In nursing literature, burnout is understood as having a gradual onset, negatively impacting the physical and psychological health of the affected RN (Wynn 2020) as well as healthcare organisations and patient safety/care (Henson 2020; Sabery et al. 2018; Wynn 2020). It can be improved through coping (Henson 2020; Sabery et al. 2018; Wynn 2020) and is most effectively addressed with multi-level organisational and systemic solutions (Murthy 2022a). Unlike compassion fatigue or traumatic stress, a worker does not need to experience trauma (directly or indirectly) to experience burnout, and this has since developed into its own established construct independent of trauma (Henson 2020).

Compassion fatigue, a concept introduced by Joinson in the early 1990s, was used to describe the costs of caring among nurses, or a unique form of burnout in a study involving emergency nurses (Joinson 1992). Unlike burnout, compassion fatigue has a more sudden onset and requires an individual to have a relationship between them and another person, and experience trauma directly or indirectly (Henson 2020). STS, recognised as an antecedent of compassion fatigue (Henson 2020), may be associated with sleep disturbances, fear, avoiding triggering reminders of the traumatic experience, intrusive images, and/or worldview changes (Arnold 2020; Figley and Kleber 1995). STS can also negatively impact the physical and mental health of the nurses along with patient care. STS symptom clusters are nearly identical to PTSD, yet STS is often more aligned with compassion fatigue in nursing literature, despite being defined as a PTSD-like disorder (Arnold 2020).

2 | The Review

By exploring how emergency nurses experience traumatic stress in the workplace, this study aims to better understand the impact of traumatic stress on emergency nurses, patients, and the organisation. Publications involving traumatic stress among nurses and emergency nurses are becoming more common, but no reviews that include both post-traumatic and STS among emergency nurses specifically were found, supporting a systematic review as an appropriate methodology for this question. A 2019 literature review on STS in emergency nurses discusses similarities of STS with PTSD but did not include post-traumatic stress terms when searching the literature (Barleycorn 2019). Another 2019 study reviewed the literature to clarify the concept of STS in an interdisciplinary context. Arnold (2020) concluded that STS is a PTSD-like disorder more closely aligned with vicarious trauma rather than compassion fatigue. A recent concept analysis of PTSD in intensive care unit (ICU) nurses described PTSD resulting from direct and indirect traumatic exposures but did not include STS in their search terms (Levi et al. 2021).

3 | Aims

This review aims to understand how emergency nurses experience post and STS (broadly referred to as traumatic stress) in the workplace. Implications will suggest systemic and organisational points of intervention to inform policy that are crucial to support this occupational group.

4 | Methods

4.1 | Design

A systematic review without meta-analysis design was used to answer this question. No systematic reviews that include both post-traumatic and STS among emergency nurses specifically were found, supporting a systematic review as an appropriate methodology for this question.

4.2 | Search Methods

We searched the Cumulative Index of Nursing and Allied Health Literature, PubMed, and PsycINFO databases on 13 July 23 and 16 September 24 for peer-reviewed articles published in English between 2010 and 2024. In PubMed, MeSH search terms of "emergency nursing," "stress disorders, post-traumatic" or "compassion fatigue" or "STS" were used as the base of the search. Please see Supporting Information S2 for search strategies for all three databases.

4.3 | Inclusion/Exclusion Criteria

To be included, articles needed to represent primary research conducted with samples of emergency nurses only. Articles also needed to primarily descriptively measure concepts of secondary or post-traumatic stress. Studies were excluded if they reported prevalence from measurement scales for traumatic stress alone (with no quantitative or qualitative descriptions of how these phenomena are experienced), having a primary focus other than traumatic stress (like burnout or work environment) without descriptions of traumatic stress, design (article reviews that were not primary research), sample (included healthcare workers that were not emergency nurses only), and articles published in a language other than English (Supporting Information S1).

4.4 | Search Outcome and Data Extraction

Retrieved search results were imported into Covidence for title and abstract screening, full text review, and data extraction. This process was completed independently by the two authors, and discrepancies were resolved by discussion and consensus. An extraction form was created in Covidence to collect information to capture important elements of the context of the study (i.e., participant characteristics), as well as methodological information (i.e., sample recruitment, data collection strategy; Noyes et al. 2019). We extracted the study ID, title of the study, aim of the study, main concept and measurement tool(s) used, other relevant measures and measurement tool(s) used, data collection strategy, study design, participant characteristics, inclusion/exclusion criteria, participant recruitment method, and total number of participants. Authors also extracted descriptions of the impact of traumatic stress on emergency nurses, patients, and organisations. Impacts on the emergency nurse were categorised into a predetermined framework of the four symptom clusters of PTSD described in the DSM-V: *intrusion*, *avoidance*, *cognition/mood* and *arousal*; along with a fifth category for additional symptoms that may not fit in those categories. We used these symptom clusters as an a priori framework to better understand the phenomenon of interest (traumatic stress), given the overlap between the subscales of STS and PTSD. STS scales do not currently measure *negative impacts on mood and cognition* but do measure *avoidance*, *intrusion*, and *arousal*. This approach is consistent with existing recommendations in literature (Noyes et al. 2019). Finally, antecedents were extracted to bring attention to structural/systemic factors that could be future intervention points. As noted by Foli in the Middle Range Theory of Nurse-Specific Trauma, system and organisational forces contribute to environments that influence the amount of risk for nurse-specific trauma. Nurse-specific trauma is considered avoidable or unavoidable in this framework (Foli 2022).

4.5 | Quality Appraisal

The Joanna Briggs Critical Appraisal Checklists were used to evaluate quality in cross-sectional and qualitative studies (Lockwood, Munn, and Porritt 2015; The Joanna Briggs Institute 2020). Both tools were applied to mixed methods studies. No studies were excluded based on quality appraisal assessments.

4.6 | Synthesis

A narrative synthesis approach without meta-analysis was used to report results of quality appraisal assessments and summarise and interpret how traumatic stress affects emergency nurses, patients and healthcare organisations across and between included studies. Abstracted data were downloaded from Covidence into a Microsoft Excel spreadsheet and analysed according to the DSM-V's PTSD symptom clusters of *intrusion*, *avoidance*, *cognition/mood*, and *arousal* (American Psychiatric Association 2013), as well as the other categories described in the data extraction section. A focus on organisational/system-level forces was used to highlight potential points of intervention to inform policy to prevent and mitigate the effects of traumatic stress among this occupational group.

5 | Results

A total of 383 articles were screened after the removal of 66 duplicates. Sixty-six articles were sought for retrieval and assessed for eligibility. Exclusion reasons for the assessed and excluded 51 studies are listed in aggregate form in Figure 1. A total of 12 studies from Spain, Scotland, Jordan, The Netherlands, South Africa, Canada, and the United States, representing 1291 emergency nurses, were included: 5 quantitative, 5 qualitative, and 2 mixed methods. Study characteristics are listed in Table 2.

5.1 | Quality Appraisals

The Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross-Sectional Studies was used to evaluate quality in five cross-sectional and two mixed methods studies, and the Checklist for Qualitative Research was used to evaluate quality in five qualitative and two mixed methods studies (Lockwood, Munn, and Porritt 2015; The Joanna Briggs Institute 2020). Quality assessment results and rationales can be found in Supporting Information S3.

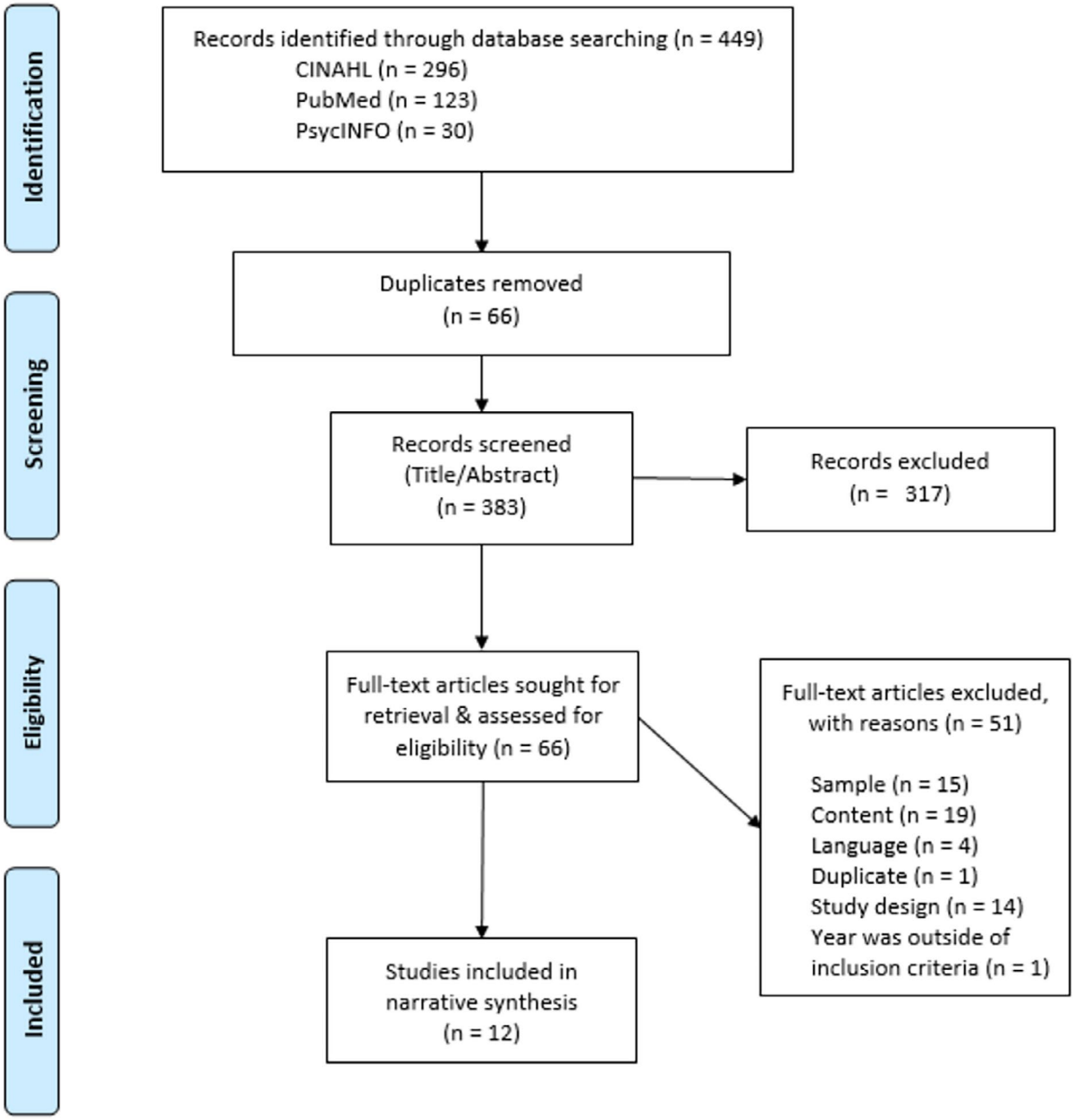

FIGURE 1 | PRISMA flow diagram.

5.1.1 | Quantitative Assessments

Inclusion criteria and setting, time-period, and demographics were described in nearly all seven quantitative reports (Adriaenssens, et al. 2012; Campillo-Cruz et al. 2020; Gates, Gillespie, and Succop 2011; Jobe, Gillespie, and Schwytzer 2021; Morrison and Joy 2016; Ratrout and Hamdan-Mansour 2020; Wolf et al. 2020). Duration of working in an emergency department (i.e., 6 months, 1 year) was used as part of an inclusion criterion in four studies and may have been used as a proxy for exposure to traumatic events (Adriaenssens, et al. 2012; Campillo-Cruz et al. 2020; Jobe, Gillespie, and Schwytzer 2021; Ratrout and Hamdan-Mansour 2020). Describing the study sample allows readers and researchers to determine how comparable results may be to the population of interest to them (The Joanna Briggs Institute 2020). All studies reported participant sex or gender, age, and education. All but one study reported years of nursing experience (Gates, Gillespie, and Succop 2011). Only three studies included organisational factors like emergency department annual census, type of emergency department (trauma centre, free standing ED, etc.), urbanicity, patient population, and institutional characteristics (Gates, Gillespie, and Succop 2011; Jobe, Gillespie, and Schwytzer 2021; Ratrout and Hamdan-Mansour 2020; Wolf et al. 2020).

Inconsistent measurement of trauma (intensity, frequency, duration) was seen across studies. Campillo-Cruz et al. (2020) evaluated the frequency and emotional impact of traumatic experiences and routine stressors among emergency nurses while validating a new tool, the Trauma and Routine Stressors Scale on Emergency Nurses (TRSS-EN). Jobe, Gillespie, and Schwytzer (2021) defined an exposure as providing trauma

TABLE 2 | Table of study characteristics.

First author, year, country	Title	Aim	Study design	Sample size	Participant characteristics	Sample recruitment	Main concept and measurement tool*	Other relevant measures	Data collection strategy
Lavoie, 2011, Canada	Post-traumatic stress disorder (PTSD) symptoms among emergency nurses: their perspective and a 'tailor-made' solution	To identify support activities for emergency room nurses who have been exposed to traumatic events, in order to prevent PTSD	Qualitative	12	Emergency nurses invited from two emergency departments (EDs) in a single university medical centre (UMC); half of the sample was chosen from each site Work, shift, gender, and ratio of part-time to full-time workers were also considered	Voluntary, following informational sessions by the principal investigator, from a pool of 140 nurses in the UMC, a purposive sample of 12 ED nurses were asked to participate	PTSD, No measurement tool—open-ended qualitative interviews analysed using a codification chart based on PTSD symptoms and traumatic events identified in previous literature	N/A	Semi-structured interviews and focus group, socio-demographic questionnaire
Gates, 2011, United States	Violence Against Nurses and its Impact on Stress and Productivity	To examine how violence from patients and visitors is related to emergency department nurses' work productivity and symptoms of post-traumatic stress disorder	Cross sectional	230	Emergency nurses that belong to the Emergency Nurses Association (ENA); 14% male, 86% female, 91% non-Hispanic White, 9% Black, AAPI, American Indian/ Native Alaskan	Mailed surveys to a random sample of 3000 nurses	PTSD, Impact of Events-Revised	Healthcare Productivity Survey-Cognitive demands, workload demands, support and communication demands, competent and safe care demands	Mail survey—264 were returned and completed. (8.8% response rate)

(Continues)

TABLE 2 | (Continued)

First author, year, country	Title	Aim	Study design	Sample size	Participant characteristics	Sample recruitment	Main concept and measurement tool*	Other relevant measures	Data collection strategy
Adriaenssens, 2012, Belgium	The impact of traumatic events on emergency room nurses: Findings from a questionnaire survey	To examine to what extent Emergency Nurses report sub-clinical and clinical levels of post-traumatic stress, anxiety and depression, somatic complaints, sleep problems and fatigue; frequency of exposure to traumatic events in EN's who report PTSD symptoms	Cross sectional	248	Emergency nurses working in 15 different Belgian general hospitals	Mailed surveys	PTSD (post-traumatic stress reaction), Impact of Events Scale—Revised	Frequency of exposure (how many times respondents were confronted with a work-related traumatic event in the past 6 months); which work-related event had the highest impact; Psychological distress and somatic complaints Brief Symptoms Inventory (BSI); Fatigue Checklist Individual Strength (CIS-20R); Sleep problems via three questions re: the DSM IV-criteria for sleep disorders	Anonymous voluntary paper questionnaires (80.5% response rate)
Vander-Wath, 2013, South Africa	Emergency nurses' experiences of caring for survivors of intimate partner violence	To report a study of emergency nurses' experiences of caring for survivors of intimate partner violence	Qualitative; descriptive phenomenological method	11	Emergency nurses who worked full time in at least one of two urban EDs, 25–50 years of age, nine African, one Caucasian, one "Coloured"	Purposive sampling	Secondary traumatic stress	An initial broad open-ended question was asked to facilitate the expression of lived experiences without leading the discussion; compassion fatigue incorporated into discussion	Un-structured interviews

(Continues)

TABLE 2 | (Continued)

First author, year, country	Title	Aim	Study design	Sample size	Participant characteristics	Sample recruitment	Main concept and measurement tool*	Other relevant measures	Data collection strategy
Morrison and Joy 2016, Scotland	Secondary traumatic stress (STS) in the emergency department	To investigate the prevalence of STS among emergency nurses in the West of Scotland and explore their experiences of this	Mixed methods, thematic analysis of qualitative data	80	Emergency nurses (convenience sample) from all hospitals in a pre-specified region, stratified and randomised subset of 10 participants for a focus group	Mail	Secondary traumatic stress, Secondary Traumatic Stress Scale	N/A	Survey/ questionnaire and focus groups
Campillo-Cruz, 2020, Spain	The Development and Exploratory Psychometric Properties of the Traumatic and Routine Stressors Scale on Emergency Nurses (TRSS-EN)	To build a psychometric instrument to assess the severity and frequency of exposure to severe and traumatic events usually faced by emergency nurses, and to routine stressors which are usual in an everyday work scenario which may eventually increase the risk of developing traumatic symptomatology. Test TRSS-EN and validate it as a reliable tool in healthcare emergency nursing setting for screening the frequency and impact of exposure to everyday work-related traumatic stressors, either event-related or routine	Cross sectional for construct validity, longitudinal with a sub sample (test–retest reliability)	147	Emergency nurses from three hospitals, 128 women, 19 men. Mean age 40.4 (SD 8.3) years. A subset of 40 participants were randomly selected to assess test–retest reliability	Random sampling, voluntary	PTSD, PSD-5, Post-traumatic Diagnostic Scale for DSM-5	TRSS-EN: Traumatic and routine stressors on emergency nurses, SA-45: Symptom Assessment-45 Questionnaire	Anonymous surveys; survey response rate 71.7%

(Continues)

TABLE 2 | (Continued)

First author, year, country	Title	Aim	Study design	Sample size	Participant characteristics	Sample recruitment	Main concept and measurement tool*	Other relevant measures	Data collection strategy
McCall, 2020, United States	Caring for Patients from a School Shooting: A Qualitative Case Series in Emergency Nursing	Contribute to the scientific knowledge of STS among emergency nurses through the examination of experiences with providing emergency nursing care to patients from a multicausality, school-associated shooting event; To examine the psychological effects of providing emergency nursing care to patients who were injured in a multi casualty, school-associated shooting event	Qualitative case series; cross sectional; thematic analysis	7	Emergency nurses who provided care to patients who were injured during 2018 multicausality, school-associated shooting in the South-eastern United States were invited to participate	Voluntary	Secondary traumatic stress; Interview questions informed by a theory of STS and CF resilience model and Pro-QOL model	Interview questions informed by a theory of STS and CF resilience model and Pro-QOL model	Semi-structured interviews occurred in person or online

(Continues)

TABLE 2 | (Continued)

First author, year, country	Title	Aim	Study design	Sample size	Participant characteristics	Sample recruitment	Main concept and measurement tool*	Other relevant measures	Data collection strategy
Ratrout, 2020, Jordan	Secondary traumatic stress among emergency nurses: Prevalence, predictors, and consequences	To identify prevalence, predictors, and consequences of secondary traumatic stress among nurses working in emergency departments	Cross sectional	202	Emergency nurses from eight EDs, mean age 27.9 years, 125 male, 78 female, 70% private hospitals, 30% public hospital, 71.3% had bachelor's or higher degrees, 28.7 had diplomas. 5.4 mean years of experience, 61.9% reported having trauma training experience	Mail; Voluntary, convenience sample. Nurse managers acted as liaisons between researchers and ED nurses	Secondary Traumatic Stress (STSS)	Personal trauma (Live Events Checklist, 5th Version), Empathy (Toronto Empathy Questionnaire], Organisational support (Scale of Perceived Organisational Support), Social support (Multidimensional scale of perceived social support), Coping (Coping Inventory Scale), Job satisfaction (Job satisfaction index)	Mailed self-administered surveys
Wolf, 2020, United States	Traumatic stress in emergency nurses: Does your work environment feel like a war zone?	To investigate the prevalence of traumatic stress in US emergency nurses and describe the impact of traumatic stress on emergency nursing practice and workplace environment	Mixed methods, thematic analysis for qualitative data	125	Emergency nurses from multiple regions in the United States, Canada, and Norway over the age of 18 who spoke English. Among all registrants, 67.2% identified as female, the majority (26.50%) were 35–44 years of age, and had a bachelor's degree (45.2%), and had a mean of 13.2 years of ED experience (SD 11.4)	Convenience and snowball, recruited via email from a professional organisation list of conference attendees	Secondary traumatic stress Secondary Traumatic Stress Scale	N/A	Survey instrument and focus group

(Continues)

TABLE 2 | (Continued)

First author, year, country	Title	Aim	Study design	Sample size	Participant characteristics	Sample recruitment	Main concept and measurement tool*	Other relevant measures	Data collection strategy
Jobe, 2021, United States	A National Survey of Secondary Traumatic Stress and Work Productivity of Emergency Nurses Following Trauma Patient Care	To examine the relationship of secondary traumatic stress to work productivity of emergency nurses who provide trauma patient care in the emergency department	Cross sectional	225	Emergency nurses who were ENA members and had a valid US mailing address and provided trauma patient care in the preceding 30 days. 86.2% identified as female, 13.8% identified as male, 90.9% identified as White, 3.9% identified as Hispanic, 5.2% identified as other or multiracial	Mail; Systematic random sample, ED nurses were randomly sampled from a professional association member list	Secondary traumatic stress Impact of Events Scale-Revised (IES-R)	Healthcare Productivity Survey (HPS); developed to determine self-perceived changes in work productivity following stressful, emergency care situations such as patient care; burnout, compassion fatigue.	Mailed surveys; participants completed IES-R and HPS

(Continues)

TABLE 2 | (Continued)

First author, year, country	Title	Aim	Study design	Sample size	Participant characteristics	Sample recruitment	Main concept and measurement tool*	Other relevant measures	Data collection strategy
Benz, 2023, Canada	They all stay with me' An interpretive phenomenological analysis on nurses' experiences resuscitating children in community hospital emergency departments	To understand the lived experiences of nurses resuscitating children in community hospital emergency departments.	Qualitative, interpretive phenomenological analysis	4	All participants were female identifying, three-fourth identified as Caucasian; BSN-MSN, one-fourth participants had children, mean age: 27 years old, < 10 years of clinical experience	3-pronged approach: (1) posting a recruitment poster and accompanying social media message on Facebook, (2) email communication with staff nurses working in community hospital EDs who could share info about the study with potential participants, (3) snowballing by encouraging participants to consider others who may be interested in sharing their experiences	Post-traumatic stress	N/A	Interviews using COREQ checklist, 1:1 virtual interviews

(Continues)

TABLE 2 | (Continued)

First author, year, country	Title	Aim	Study design	Sample size	Participant characteristics	Sample recruitment	Main concept and measurement tool*	Other relevant measures	Data collection strategy
Gillespie, 2024, United States	Stress and coping in emergency nurses following trauma patient care: A qualitative grounded theory approach	To explore the stress and coping behaviours experienced by emergency nurses who provide trauma care	Qualitative, grounded theory approach	48	Emergency nurses who provided trauma care and worked in one of three different urban hospital EDs. All participants identified as female; 95.8% identified as White, 4.2% as Black or multiracial; 66.7% worked day shift, 12.5% worked evening shift, and 20.8% worked evening shift. For level of nursing education, 14.6% had a diploma, 37.5% an associate degree, 19% had a BSN, and 8.3% had an MSN. Mean age was 38 years (range 24–62). Mean years of RN experience was 10 (range 1–42) and mean years of ED experience was 7 (range 1–28)	Convenience: Word of mouth and flyers were distributed to recruit emergency nurses from three participating urban EDs	Traumatic stress	Clinical event and resilience tool	Focus groups at three participating hospitals in the Midwestern US Data collected between December 2009 and March 2010. Focus group discussion questions aligned with the Cognitive Activation Theory of Stress (CATS) conceptual framework. 60-min focus group sessions were recorded and transcribed verbatim

Abbreviations: BSN, Bachelor of Science in Nursing; CF, compassion fatigue; ED, emergency department; HPS, Healthcare Productivity Scale; IES-R, Impact of Events Scale-Revised; MSN, Master of Science in Nursing; N/A, not applicable; ProQOL, professional quality of life; PSD-5, Post-traumatic Diagnostic Scale for DSM-5; PTSD, Post-traumatic stress disorder; PTSR, post-traumatic stress reactions; re, regarding; RN, registered nurse; SA-45, Symptom Assessment-45 Questionnaire; SD, standard deviation; STS, secondary traumatic stress; STSS, secondary traumatic stress scale; TRSS-EN, traumatic and routine stressors on emergency nurses.
*Some studies do not include measures.

patient care in the preceding 30 days, and Adriaenssens, de Gucht, and Maes (2012) asked respondents how many times they were confronted with a work-related traumatic event in the past 6 months and which events were most impactful. Gates, Gillespie, and Succop (2011) used the Impact of Events Scale-Revised (IES-R), which asks for the date the event occurred, and then asks respondents to indicate on the survey how distressing their symptoms have been for the past 7 days. Morrison and Joy (2016), Ratrout and Hamdan-Mansour (2020), and Wolf et al. (2020) used the STS Scale (STSS), which also asks how often the symptom was experienced in the previous 7 days. The STSS quantifies how often symptoms are experienced but does not measure trauma exposure or proxies (Wolf et al. 2020; Morrison and Joy 2016; Ratrout and Hamdan-Mansour 2020). The fourth domain of the JBI Critical Appraisal Checklist for Analytical Cross-Sectional Studies asks about the objective/standard criteria used to measure a particular condition. In this case, traumatic stress was not measured for inclusion/exclusion, but it is inferred the characteristics of being an RN working in an emergency department were used to match by key characteristics (exposure proxies) across studies.

A priori identification of confounders was not seen in any study. Two studies presented descriptive statistics to determine prevalence (Morrison and Joy 2016; Wolf et al. 2020) and two studies used correlation to explore associations (Campillo-Cruz et al. 2020; Jobe, Gillespie, and Schwytzer 2021). Only one study utilised hierarchical regression (Adriaenssens, et al. 2012).

Some studies also used validated scales to quantify how emergency nurses experience traumatic stress. These tools included The Spanish version of the Symptom Assessment-45 Questionnaire to measure psychological distress and somatic complaints, the Dutch version of the Brief Symptom Inventory to measure anxiety, depression and somatisation, and the Healthcare Productivity Scale to measure cognitive demands (Adriaenssens, et al. 2012; Campillo-Cruz et al. 2020; Jobe, Gillespie, and Schwytzer 2021).

All studies used previously validated and reliable tools to measure outcomes. Tools included the Post-traumatic Diagnostic Scale for DSM-5 (PDS-5), the IES-R and the STSS (Adriaenssens, et al. 2012; Campillo-Cruz et al. 2020; Gates, Gillespie, and Succop 2011; Jobe, Gillespie, and Schwytzer 2021; Morrison and Joy 2016; Ratrout and Hamdan-Mansour 2020; Wolf et al. 2020). The new tool that was being validated (TRSS-EN) was administered with the PDS-5 (Campillo-Cruz et al. 2020).

5.1.2 | Qualitative Assessments

Qualitative aims included to learn how emergency nurses describe their experiences with caring for victims of a school shooting, understand the lived experiences of nurses resuscitating children in community hospital EDs, identify and describe traumatic experiences and PTSD symptoms, to investigate how emergency nurses experience caring for survivors of intimate partner violence, to explore emergency nurse's experiences of STS, and explore how emergency nurses manage STS in the workplace, describe the impact of traumatic stress on nursing practice and workplace environment, and to explore the stress and coping behaviours of emergency nurses who provide trauma care (Bentz et al. 2022; Gillespie et al. 2024; Lavoie, Talbot, and Mathieu 2011; McCall 2020; Morrison and Joy 2016; van der Wath, et al. 2013; Wolf et al. 2020). The two mixed methods studies (Adriaenssens, et al. 2012; Wolf et al. 2020) and one qualitative study (Gillespie et al. 2024) did not include philosophical perspectives for their quantitative aims. Methodology included interviews (semi-structured) and focus groups. None of the seven studies evaluated included explicit statements that located the researchers culturally or theoretically, and only two studies mentioned the influence of the researcher on the research or vice versa (Bentz et al. 2022; van der Wath, et al. 2013). Congruity was noted in all other areas. Ethical approval was obtained and reported in all seven studies.

5.2 | Data Extraction

5.2.1 | Intrusion

Intrusive symptoms can include recurrent, involuntary, distressing memories or dreams of an event, dissociative reactions like flashbacks, intense psychological OR physiological distress when exposed to reminders of an event (American Psychiatric Association 2013). All 12 included studies endorsed intrusive symptoms (Adriaenssens, et al. 2012; Bentz et al. 2022; Campillo-Cruz et al. 2020; Gates, Gillespie, and Succop 2011; Gillespie et al. 2024; Jobe, Gillespie, and Schwytzer 2021; Lavoie, Talbot, and Mathieu 2011; McCall 2020; Morrison and Joy 2016; Ratrout and Hamdan-Mansour 2020; van der Wath, et al. 2013; Wolf et al. 2020). These symptoms included re-experiencing traumatic events through nightmares, dreams, flashbacks, perseveration, preoccupation, repeated/involuntary/unintended thoughts, and "vivid recollections." One particular nurse recalled waking up for weeks and walking into every room in her home thinking she smelled smoke after caring for victims of a house fire (Gillespie et al. 2024). These symptoms were sometimes triggered by similar patients or similar events reported in the news (McCall 2020). Participants reported disruptive and recurrent memories could unexpectedly surface in addition to being triggered by similar experiences. These symptoms were often accompanied by strong emotional experiences (Gates, Gillespie, and Succop 2011; van der Wath, et al. 2013) and "heart pounding" when a participant thought of work (Morrison and Joy 2016). In a sample of 202 emergency nurses, this domain (intrusion) was the symptom most often reported (Ratrout and Hamdan-Mansour 2020). Emergency nurses reported intrusive symptoms interfered with their functionality at home and disturbed their sleep (Gillespie et al. 2024; Wolf et al. 2020), and preoccupation with the traumatic experience (Adriaenssens, et al. 2012). Emergency nurses who provided trauma care described "visions of certain patients years after caring for them," and that they were so vivid it was difficult for them to decipher reality vs. memories (Gillespie et al. 2024). When sharing experiences caring for survivors of intimate partner violence, one emergency nurse noted when they get similar patients, "I always remember her." Another noted "The moment you are alone it comes back" regarding

memories of injuries they had seen affecting their patients (van der Wath, et al. 2013). This dimension was also found to be negatively correlated with cognitive demands (Jobe, Gillespie, and Schwytzer 2021), which is particularly interesting given that STS does not currently have subscale in measurement for cognitive impacts.

5.2.2 | Avoidance

Avoidance can include efforts to avoid reminders, thoughts, or feelings of an event, including people, places, conversations, etc. that can result in distressing memories (American Psychiatric Association 2013). All 12 studies also endorsed avoidant symptoms, even if they were not explicitly identified as avoidance symptoms. For example, in McCall's (2020) study, one emergency nurse decided to homeschool her children after caring for victims of a school shooting, so she did not "have to worry about someone coming in and shooting my kid at school," but this was not identified as a symptom of traumatic stress in the article. Emotional detachment, losing touch "with the reality of being a human being," dulling of general responsiveness and dissociation as a coping mechanism to continue functioning were described as part of an avoidant coping culture built into a fast-paced work environment (Lavoie, Talbot, and Mathieu 2011; Morrison and Joy 2016; van der Wath, et al. 2013). Emergency nurses who provided trauma care described being task focused and choosing to continue to work after a trauma to delay having to think about the event or manage personal emotions. Some described wanting to do better by helping someone else (Gillespie et al. 2024). Feeling "heartless" and like a disempowered bystander were reported by emergency nurses who cared for intimate partner violence survivors (van der Wath, et al. 2013). Experiencing gaps in memory about certain patients (Morrison and Joy 2016), alterations in typical activity patterns (Morrison and Joy 2016; Ratrout and Hamdan-Mansour 2020), and avoidance/suppression of emotions that come up in association with reminders (Bentz et al. 2022; Gates, Gillespie, and Succop 2011) were also reported. In Gates, Gillespie, and Succop's (2011) study, the avoidance subscale had the second highest mean score following the intrusion subscale. Participants reported avoiding letting themselves get upset when they were reminded of events and trying not to think about events. In Wolf et al.'s (2020) study, emergency nurses reported emergency department treatment spaces or certain populations as triggers of anxiety, so much so that some nurses would trade assignments or request to be assigned to different rooms or different patients. Ratrout and Hamdan-Mansour's (2020) findings confirmed emergency nurses wanting to avoid working with certain patients as a form of avoidance as well. Excessive sleeping and early return to work following a traumatic event were also reported as a type of avoidance (Bentz et al. 2022; Wolf et al. 2020). One participant alluded to wanting time/space away from work to process trauma, but having to be at work the next day, unable to talk because "If I talk right now, I won't be able to do my shift, and I have to do my shift" (Bentz et al. 2022). A participant in this same study left the department owing to safety concerns and inadequate resources, and another reported attempting to dissociate their paediatric patients from their humanity to cope with providing care: "It can't affect you as if you're losing someone else around you, you know?" (Bentz et al. 2022).

5.2.3 | Negative Impacts on Mood/Cognition

This domain includes memory issues surrounding traumatic events, persistent/exaggerated negative beliefs or expectations about self or others, cognitive distortions regarding the cause of the event, persistent negative emotional state, decreased interest/participation in usual activities, feeling detached from others or constantly unable to experience positive emotions (American Psychiatric Association 2013). Ten of the 12 included studies endorsed symptoms that impacted their mood or cognition (Adriaenssens, et al. 2012; Bentz et al. 2022; Campillo-Cruz et al. 2020; Gates, Gillespie, and Succop 2011; Gillespie et al. 2024; Jobe, Gillespie, and Schwytzer 2021; Morrison and Joy 2016; Ratrout and Hamdan-Mansour 2020; van der Wath, et al. 2013; Wolf et al. 2020). Hostility, mood changes, depressive symptoms, disengagement from work/family, dulling of general responsiveness and distressing emotions of sadness, fear, shock, sympathy, and anger were reported (Campillo-Cruz et al. 2020; Lavoie, Talbot, and Mathieu 2011; van der Wath, et al. 2013; Wolf et al. 2020). Participants in a study by Bentz et al. (2022) reported worldview changes in coming to see the world as cruel and dangerous, and another participant reported cycling between feeling "utterly numb" and having persistent negative beliefs about the hospital/health system being "bad" following a paediatric resuscitation. Gillespie et al. (2024) described this in a theme called "empathy vs. emotional detachment," described as nurses feeling jaded, judgmental, and impatient from the lasting impact of trauma care; and this lack of empathy bleeding over into their personal lives. It was noted that with increasing experience, nurses became more detached (Gillespie et al. 2024). Ratrout and Hamdan-Mansour (2020) reported participants felt discouraged about the future as the most frequently reported symptom in this domain, and cognitive distortions that result in avoidant behaviour. Jobe, Gillespie, and Schwytzer (2021) did not classify symptoms as "cognitive," but cognitive impacts were reported as being correlated with avoidant, intrusive, and hyperarousal domains (as reflected in the IES-R).

5.2.4 | Arousal

Arousal symptoms can include changes in reactivity associated with the traumatic event, like hypervigilance, exaggerated startle response, concentration issues, sleep disturbances, self-destructive behaviour, or irritability or unprovoked outbursts of anger (with or without aggressive expressions towards people or objects). Symptoms of arousal were endorsed in all 12 included studies and were noted to occur in real time or with a delayed response (Wolf et al. 2020). Hyperactivity, paranoia, feelings of fear, shock, anger, anxiety, or feeling guarded, heightened situational awareness of potential acts of violence against themselves or others, increased caution, and being easily frightened were reported by emergency nurses (Bentz et al. 2022; Campillo-Cruz et al. 2020; Gillespie et al. 2024; Lavoie, Talbot, and Mathieu 2011; McCall 2020; van der Wath, et al. 2013; Wolf et al. 2020). Jobe, Gillespie, and Schwytzer (2021) found that hyperarousal negatively correlated with the cognitive demands

and handle/manage workload domains of the Healthcare Productivity Scale. Difficulty concentrating, feeling easily annoyed, expecting something bad to happen and feeling jumpy were reported by participants in a study by Morrison and Joy (2016) regarding STS in emergency nurses. "Feeling jumpy" was also the most frequently reported symptom in this domain by participants in Ratrout and Hamdan-Mansour's (2020) study. Gates, Gillespie, and Succop (2011) reported that feeling watchful and on guard and feeling irritable and angry were the most frequently reported by emergency nurses on the IES-R. Participants in Gillespie et al.'s study described practicing nursing "looking over [their] shoulder." In this same study, a parent reflected on restricting their children's recreational activities related to an increased sense of alertness, fear, and dwelling on the worst-case scenarios even after their shift ended (Gillespie et al. 2024). Finally, Adriaenssens, de Gucht, and Maes (2012) reported sleep problems as being related to the frequency of exposure to traumatic events in a sample of 248 Flemish emergency nurses.

5.2.5 | Other Impacts

Across domains, other characteristics of how emergency nurses experience traumatic stress repeatedly included physical symptoms of palpitations/tachycardia, chest pressure, crying as a way to process working with trauma patients, "not feeling like myself," fatigue and insomnia (Adriaenssens, et al. 2012; Campillo-Cruz et al. 2020; Gillespie et al. 2024; Lavoie, Talbot, and Mathieu 2011; Morrison and Joy 2016; van der Wath, et al. 2013; Wolf et al. 2020). Psychological symptoms of depression, somatisation, anxiety, psychoticism, obsessive compulsive behaviour, phobic anxiety, suicidality, always thinking worst case scenario and guilt were also identified, reported within or outside the above four domains. Emergency nurses in Gillespie et al. (2024) reported both alcohol consumption and a need to control things outside of work as a response to workplace chaos. Socially, emotional detachment, dulling of responsiveness, lack of empathy, hostility, interpersonal sensitivity, numbing, impeded ability to function, difficulty transitioning from work to home, and strained relationships were reported with cumulative and delayed effects across multiple studies (Adriaenssens, et al. 2012; Campillo-Cruz et al. 2020; Gillespie et al. 2024; Lavoie, Talbot, and Mathieu 2011; Morrison and Joy 2016; Wolf et al. 2020).

5.2.6 | Antecedents

The included studies revealed clinical events and specific populations (caring for survivors of intimate partner violence, especially survivors with severe injuries or children involved, participating in paediatric resuscitations, caring for patients harmed by intentional fires, or injuries related to neglect) as antecedents of traumatic stress (Bentz et al. 2022; Gillespie et al. 2024; van der Wath, et al. 2013). Other antecedents included workplace violence like verbal/physical aggression, violence, and threats; and personal and interpersonal factors (Adriaenssens, et al. 2012; Campillo-Cruz et al. 2020; Lavoie, Talbot, and Mathieu 2011; Morrison and Joy 2016; Wolf et al. 2020). Clinical events included prolonged resuscitation, suicide, sudden death (especially of infants, children, or young people), traffic accidents, trauma, burns, child abuse/neglect, psychiatric patients, and dead bodies. Personal factors acknowledge that potentially traumatic experiences are unique to every individual, and that past lived experience can influence a future situation being experienced by that individual as traumatic or not (Morrison and Joy 2016). Interacting with family (especially grieving family) was also noted as an antecedent (Campillo-Cruz et al. 2020; Gillespie et al. 2024; van der Wath, et al. 2013).

Work environment factors like excessive workload; toxic workplace culture; and non-trauma-informed leadership were also noted as antecedents of traumatic stress, or moderators (i.e., factors that affect how the antecedent impacts the way the emergency nurse experiences traumatic stress (Lavoie, Talbot, and Mathieu 2011; Morrison and Joy 2016; Wolf et al. 2020)). A sense of ineffectiveness (unable to provide quality care or effectively help chronically ill patients) and disempowerment were noted in the included studies (Campillo-Cruz et al. 2020; van der Wath, et al. 2013). Participants described dismissiveness of traumatic experiences by preceptors, colleagues, and leadership as harmful and compounding (Wolf et al. 2020). Cumulative and delayed effects and the confounding factor of excessive workload on trauma in emergency nurses were highlighted by participants in three studies. Being "ok until you're not ok," moving on to the next thing without talking or thinking about the event, and remaining task focused; as well as delayed effects of polystressors, contributed to emergency nurses' experience of traumatic stress (Gillespie et al. 2024; Morrison and Joy 2016; Wolf et al. 2020).

5.2.7 | Patients and Healthcare Organisations

Traumatic stress, as experienced by emergency nurses, has the potential to impact patients and healthcare organisations, as was mentioned in six of the included studies (Gates, Gillespie, and Succop 2011; Jobe, Gillespie, and Schwytzer 2021; Lavoie, Talbot, and Mathieu 2011; Ratrout and Hamdan-Mansour 2020; van der Wath, et al. 2013; Wolf et al. 2020). These impacts include negative cognitive impacts (i.e., difficulty thinking or concentrating), less effective care, emotional disengagement, use of sick leave and absenteeism. Jobe, Gillespie, and Schwytzer (2021), who examined the relationship between STS and work productivity, found no significant overall relationship between STS and Healthcare Productivity Scale, but did note avoidance and intrusion to negatively correlate with cognitive demands, and attrition to the handle/manage workload subscale. Intrusion and avoidance positively correlated with safety/competency as well. Gates, Gillespie, and Succop (2011) noted that difficulty remaining cognitively/emotionally focused at work following a violent event (a form of direct trauma) is likely to impact the nurse's ability to communicate with patients and family members and capacity to offer emotional support. This results in workforce productivity losses to organisations, and risks to patient safety and satisfaction (Gates, Gillespie, and Succop 2011).

Avoidance of certain patients or treatment spaces impeded the ability to show up to work and provide patient care by triggering anxiety and the emergency nurses requesting to switch assignments or patients with co-workers (Lavoie, Talbot, and

Mathieu 2011; Wolf et al. 2020). Attrition, turnover and intent to leave were reported by emergency nurses, all of which have economic implications for healthcare organisations (Wolf et al. 2020). Reduced retention was noted as a consequence of trauma and lack of trauma-informed leadership/preceptorship and their impact on intra-nursing relationships. This was noted to contribute to increasing toxicity in the work environment, organisational or relational violence and less mentoring (Wolf et al. 2020). Needing to detach and the removal of the human element of nursing practice to suppress trauma and trauma reactions prevented nurses from seeing their patients as human and was recognised as a consequence of traumatic stress and coping mechanism to function in the work environment (Gillespie et al. 2024; van der Wath, et al. 2013; Wolf et al. 2020). Failure to rescue, a failure or delay in recognising or responding to a hospitalised patient experiencing complications from a medical intervention or disease process (Hall, Lim, and Gale 2020) was also reported by Wolf et al. (2020), along with an inability to recognise cues of escalating violence, which has serious implications for the workforce and patient care and safety.

6 | Discussion

This review synthesises how emergency nurses experience traumatic stress in the workplace, along with the antecedents and consequences of traumatic stress for the nurse, patient, and healthcare organisation. This review is important in advancing understanding of traumatic stress in this high-risk population, as the authors do not know of any reviews that include both secondary and post-traumatic stress among this population specifically. A recently published literature review on STS in emergency nurses identified symptoms and risk factors of STS that were very similar with the attributes and antecedents found in this study (Barleycorn 2019). For example, risk factors of traumatic stressors, personality traits, little recovery time, organisational impact, and the cumulative impact of traumatic stress on the emergency nurse were findings noted as comparable to clinical events, personal factors, work environment and cumulative and organisational impacts identified in this article. Arnold's (2020) concept analysis clarified STS in an interdisciplinary context by using both STS and PTSD in her search terms. Antecedents of exposure, empathy, bonding, and personal factors were different from the themes of this review but were not contradictory. Another recent concept analysis of PTSD in ICU nurses highlighted direct and indirect trauma experienced in the ICU workplace and lack of support as an antecedent to PTSD (Levi et al. 2021). This review also found the work environment as a potential antecedent or moderator of traumatic stress, compounded by lack of support throughout the included studies. Lack of support was identified as a reason for attrition among emergency nurses and was represented in this review as a consequence to healthcare organisations. Similar to Levi et al. (2021), this study also conceptualised the attributes as the four domains of PTSD.

Arnold (2020) identified an altered worldview, interpersonal difficulties and decreased occupational commitment as interdisciplinary consequences of traumatic stress. Decreased occupational commitment included altered job performance, poor professional judgements that resulted in medical errors, decreased ability to assist patients, decreased ability to connect emotionally with patients/family members, absenteeism, and intent to leave or turnover. Levi et al. (2021) also identified consequences for the healthcare organisation and patient that included medication errors, decreased quality care, sentinel events, poor patient satisfaction, increased organisational costs from hazardous patient care, recruitment and retention costs, and staffing issues from the increased workload on remaining staff. While a few of these consequences were not explicitly stated in the articles included in this study, they could plausibly be inferred. For example, medical errors were not explicitly mentioned, but studies reported cognitive impacts and sleep disturbances, which has been attributed to an increased risk of medical errors in the existing literature (Di Simone et al. 2020). This review did identify a new consequence of traumatic stress not stated in prior reviews or concept analyses, failure to rescue (Wolf et al. 2020). This could potentially be associated with the consequences of sentinel events, decreased quality of care, poor professional judgements and hazardous patient care identified in the previously mentioned concept analyses. A nurse in one study described an inability to think beyond the task at hand (Wolf et al. 2020), which speaks to being a "task monkey," an established phenomenon in nursing culture (Wright, et al. 2021).

Avoidable antecedents like workplace violence and work environment antecedents/moderators like toxic workplace culture, staffing shortages, staff control of scheduling, and non-trauma-informed leadership could be points of intervention for primary prevention programs. Murthy (2022a) recommends a zero-tolerance policy for violence, and workplace violence prevention programs that address physical, verbal, or cyber-based violence, recognising that safe occupational environments are necessary to deliver safe, high-quality patient care. The impacts of non-trauma-informed leadership were clear among the included studies in this review and compounded the experience of secondary or post-traumatic stress in emergency nurses and perpetuates the "super nurse" stereotype and dysfunctional and toxic work environments that harm staff, patients, and the organisation (Wolf et al. 2020). Applying a trauma-informed approach, a care delivery model that acknowledges the impact of trauma on the lives of patients in a way that prevents retraumatisation and promotes healing (Menschner and Maul 2016), is becoming more common with how care is delivered to patients but is not as commonly used by organisations in relating to their staff. Dawson-Rose et al. (2023) suggest trauma-informed approaches at the institutional and structural levels (which could be accomplished with training and/or the integration of trauma-informed principles) to address the impacts of trauma on the nursing profession, inclusive of burnout, vicarious trauma, and STS (Dawson-Rose et al. 2023). The US Surgeon General also highlights the need for mental health services specific to the needs of health workers (Murthy 2022a). The Healer Education Assessment and Referral Program (developed by the University of California San Diego School of Medicine and the American Foundation for Suicide Prevention) is a best practice example of a proactive, evidence-based approach to occupational screening and suicide prevention. This voluntary program allows anonymous screening and referral, which may be a critical preference for the engagement in screening among nurses and other healthcare workers (University of California San Diego 2023).

6.1 | Limitations

This review only attempted to identify peer-reviewed articles published in English from three databases. More articles may have been identified from searching references of included studies, studies in languages other than English, grey literature, or other databases. That said, the same three databases were searched in similar/previous reviews (Levi et al. 2021). This study looked at the concept of traumatic stress across multiple countries, but it is notable that many of those countries are Western nations. These results may be different in developing nations. When extracting information on sample characteristics during quality assessment to better understand the social construction of this knowledge and whose perspectives may be missing (Ford and Airhihenbuwa 2010), it is noteworthy that relatively few studies reported race and ethnicity among study participants. In those studies that did, the majority of samples from Western studies identified as White (Bentz et al. 2022; Gates, Gillespie, and Succop 2011; Gillespie et al. 2024; Jobe, Gillespie, and Schwytzer 2021; van der Wath, et al. 2013). Given that traumatic events, experienced individually and/or collectively, are not experienced equally across racial/ethnic groups, it is critical for future work to report these data and prioritise the voices of those who are disproportionately impacted by trauma, including racial, cultural, and historical trauma within and beyond the United States (Substance Abuse and Mental Health Services Administration 2023). In the United States, this is increasingly important, given our emergency departments serve disproportionate numbers of individuals/communities that may have less resources to access care owing to structural racism and occupational segregation and insurance opportunities (Greenwald et al. 2023). Additionally, all studies that asked about "gender" (man, woman) reported sex (male, female) as a binary variable. Future work should prioritise inclusion of more diverse samples as we work to diversify the healthcare workforce to ensure all can be heard and supported as these concepts and interventions develop.

7 | Conclusion

The identification of how emergency nurses experience the impacts of traumatic stress highlights some of the ways this phenomenon could be detrimental to not only the emergency nurse, but also the patients they care for and healthcare organisations. Identified risk factors shed light on systemic and organisational/system-level forces that could be potential points of intervention to inform policy to prevent, mitigate, and treat traumatic stress among this occupational group. Gillespie et al. (2024) notes that the organisational environment has a key role in decreasing the negative effects of working in trauma care, consistent with Foli's Middle Range Theory of Nurse-Specific Trauma, which specifies system and organisational forces contribute to environments that influence the amount of risk for nurse-specific trauma (Foli 2019). While certain antecedents (like caring for specific populations, individual factors, and some clinical events) are unavoidable at the nursing practice level, this information could be useful in triggering organisational screening procedures as a form of secondary prevention. One recurrent theme in multiple studies was that of trauma from the prolonged resuscitation, death, or abuse of children. Staff providing this type of patient care could be flagged by the organisation to have a clinical mental health professional contact them directly for screening and follow-up services.

Applying The Substance Abuse and Mental Health Services Administration's (SAMHSA) trauma-informed approach to healthcare leadership, nurse managers, educators and preceptors would involve training leaders/mentors to interact and respond to staff (as well as patients) in a trauma-informed way, disrupting the cycle of a dismissive responses that compound suffering (SAMHSA 2023). Creating a trauma-informed organisation in a health system could look like providing appropriate training and tools to health leaders and staff to integrate the six principles of a trauma-informed approach. The six key principles of a trauma-informed approach are: (1) safety; (2) trustworthiness and transparency; (3) peer support; (4) collaboration and mutuality; (5) empowerment, voice, and choice; and (6) cultural, historical, and gender issues (SAMHSA 2023). Ultimately, a trauma-informed approach is essential in creating safer work and care environments for staff and patients alike. In a pandemic-affected workforce, healthcare organisations should consider becoming trauma informed to create safer environments for staff and patients, improve workplace relationships, enhance outcomes, and facilitate healing.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

We confirm that any data utilised in the submitted manuscript has been lawfully acquired in accordance with the Nagoya Protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilisation to the convention on biological diversity.

Peer Review

The peer review history for this article is available at https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/jan.16809.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.