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A Scoping Review of Secondary Traumatic Stress in Nurses Working in the Emergency Department or Trauma Care Settings

Hyeri Park[1,2,3] | Heeyeon Kim[1,3,4] | Heejung Kim[1,3,5]

[1]College of Nursing, Yonsei University, Seoul, Republic of Korea | [2]Department of Psychiatry, Armed Forces Guri Hospital, Guri, Republic of Korea | [3]Yonsei Evidence Based Nursing Centre of Korea, A JBI Affiliated Group, Seoul, Republic of Korea | [4]Brain Korea 21 FOUR Project, Yonsei University College of Nursing, Seoul, Republic of Korea | [5]Mo-Im Kim Nursing Research Institute, Yonsei University, Seoul, Republic of Korea

Correspondence: Heejung Kim (hkim80@yuhs.ac)

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ABSTRACT

Aim: To synthesise recent literature related to secondary traumatic stress in nurses, specifically working in emergency and trauma care.

Design: A scoping review.

Methods: The Joanna Briggs Institute methodology and PRISMA for Scoping Reviews were used.

Data Sources: The literature search was conducted in November 2023 using PubMed, EMBASE and CINAHL.

Results: The selected papers were published between 2009 and 2023, with a significant portion adopting Figley's definition of secondary traumatic stress: the consequence of witnessing other people's abnormal distressing events. Eight papers conceptualised secondary traumatic stress as a separate concept from compassion fatigue and four treated secondary traumatic stress as a subcomponent of compassion fatigue. Factors associated with secondary traumatic stress were categorised into personal, occupational and symptomatic factors. Specifically, age, gender, years of experience and work shift were the most frequently mentioned factors.

Conclusion: Many nurses experience secondary traumatic stress when working in emergency departments or traumatic care settings. However, more research is required to establish a consistent conceptualisation, operationalisation and impacts of risk factors. Further research should be conducted that considers job-related and individual factors of secondary traumatic stress. In addition, it is necessary to develop psychological and occupational nursing interventions to help nurses at high risk for secondary traumatic stress.

Implications for the Profession and/or Patient Care: This review emphasises the significance of early detection and treatment for nurses with a high risk of occupational distress by synthesising articles addressing secondary traumatic stress-associated factors.

Impact: An understanding of secondary traumatic stress is critical to protect nurses working in trauma care settings alongside emergency departments. Based on our study findings, evidence-based assessments of high-risk groups should be conducted, considering personal, occupational and symptomatic factors. In addition, secondary traumatic stress could be a multilevel phenomenon requiring both individual and institutional support.

Reporting Method: PRISMA-ScR was used in this scoping review.

Patient or Public Contribution: No patient or public contribution.

1 | Introduction

Nurses working in emergency departments or traumatic care centres report poor mental and occupational health. Previous research has reported that nurses working in emergency departments or trauma care settings experience higher levels of depression or anxiety compared to other nurse groups. For example, depression symptoms have been observed in 54.6% of emergency nurses, compared to 35% of nurses in China (Huang et al. 2024; Maharaj et al. 2018). Additionally, more than 25% of trauma nurses show moderate or severe symptoms of anxiety (Cook et al. 2021). Trauma nurses who are constantly exposed to stress and trauma experience severe symptoms of burnout more often than nurses in other departments, and their anxiety is reported to be higher than among other nurses (Cook et al. 2021; Munnangi et al. 2018). These nurses' mental health problems also correlate with poor occupational health, such as low job performance, work–life dissatisfaction (Lee et al. 2015) and alcohol and substance abuse (Dunn 2005).

Nurses working in emergency departments or traumatic care settings are well known to experience high levels of occupational distress because they experience unpredictable, uncontrolled and severe traumatic situations and events (Mealer and Jones 2013). Previous research has reported post-traumatic stress symptoms and disorders in nurses working in emergency departments or traumatic care settings. Many nurses working in clinical settings often experience traumatic situations, including observations of sudden death, failure of resuscitation or workplace violence (Healy and Tyrrell 2011). Moreover, nurses witness others' traumatic events and relevant consequences, potentially resulting in secondary traumatic stress (von Rueden et al. 2010). In this situation, healthcare providers experience a similar level of traumatic stress while caring for their traumatised patients (Meadors and Lamson 2008). Nurses working in emergency departments or traumatic care settings are exposed to two facets of traumatic stress stimuli—primary and secondary.

Recent research has increasingly focused on secondary traumatic stress (STS) among nurses, particularly in relation to concepts such as compassion satisfaction and burnout. Figley (1995) defined STS as a normal reaction to an abnormal event occurring when individuals experience or witness highly distressing incidents, such as caring for trauma patients. Unlike PTSD, which results from direct exposure to trauma, STS arises from indirect exposure but presents with similar symptoms. More specifically, Kellogg (2021) defined nurses' STS as 'an intrusive state of psychological tension resulting from witnessing the emotional or physical suffering of another as part of a professional helping relationship' (p. 166). Generally, post-traumatic stress symptoms include re-experiencing, negative cognitions and mood, and arousal (Lewis-Fernandez et al. 2016), which present similarly regardless of the primary vs. secondary trauma (Weitkamp et al. 2014). For example, disaster workers reported stress symptoms after secondary trauma, such as compassion fatigue, surrogate trauma experience, and burnout (Lee et al. 2015). The prevalence of PTSD in disaster workers (including healthcare providers) was found to be about 10.0%, which is lower than that of those who directly experienced the disaster (19.0% to 39.0%) but significantly higher than the prevalence of the general population (1.3% to 3.5%) (Lee et al. 2015). These findings highlight the need for greater awareness of this issue.

Recently, STS has become more critical concerning clinical practice and professionali1sm. As the mental health of healthcare providers in emergency and trauma care settings deteriorated during the COVID-19 pandemic, STS came to be considered more important in today's society than ever (Kellogg 2021). STS is one of the main reasons why many healthcare providers leave their jobs (Figley 1999). Even experienced nurses are not immune to a high level of STS (Barleycorn 2019); therefore, it is important to develop preventive interventions for all nurses, from novice to expert, to foster better mental health and job satisfaction (Mealer and Jones 2013).

Although a systematic review of STS in nurses exists (Beck 2011), there are several limitations. First, this systematic review was focused on general nurses rather than more vulnerable groups, such as those working in emergency departments and traumatic care units. Second, there is still a necessity to enhance the consensus about the conceptualisation, operationalisation and identification of modifiable factors of STS. The concepts of STS and compassion fatigue are often mixed, without clear definitions. Moreover, STS and compassion fatigue are confused with vicarious trauma and burnout (Ormiston et al. 2022). The general purpose of conducting scoping reviews is to identify and map the available evidence (Arksey and O'Malley 2005; Armstrong et al. 2011; Munn et al. 2018). Therefore, it is necessary to identify the proper scope of the current state of literature on the topic. A scoping review is beneficial for examining emerging evidence from very recent studies when it is still unclear; the findings could determine the preliminary stage of further systematic reviews (Arksey and O'Malley 2005; Armstrong et al. 2011; Munn et al. 2018).

2 | Aims

The aims of this study were to identify current research trends related to STS in nurses working in emergency departments or traumatic care settings. Specifically, this review is focused on identifying (1) the theoretical definition of STS, (2) operationalisation and measurements of STS and (3) multidimensional factors associated with STS.

3 | Methods

3.1 | Design

A scoping review was chosen to systematically compile and compare existing research, as studies on STS among nurses working in emergency and trauma care settings remain limited. STS research involves various methodologies and conceptual definitions, making a scoping review well suited for broadly

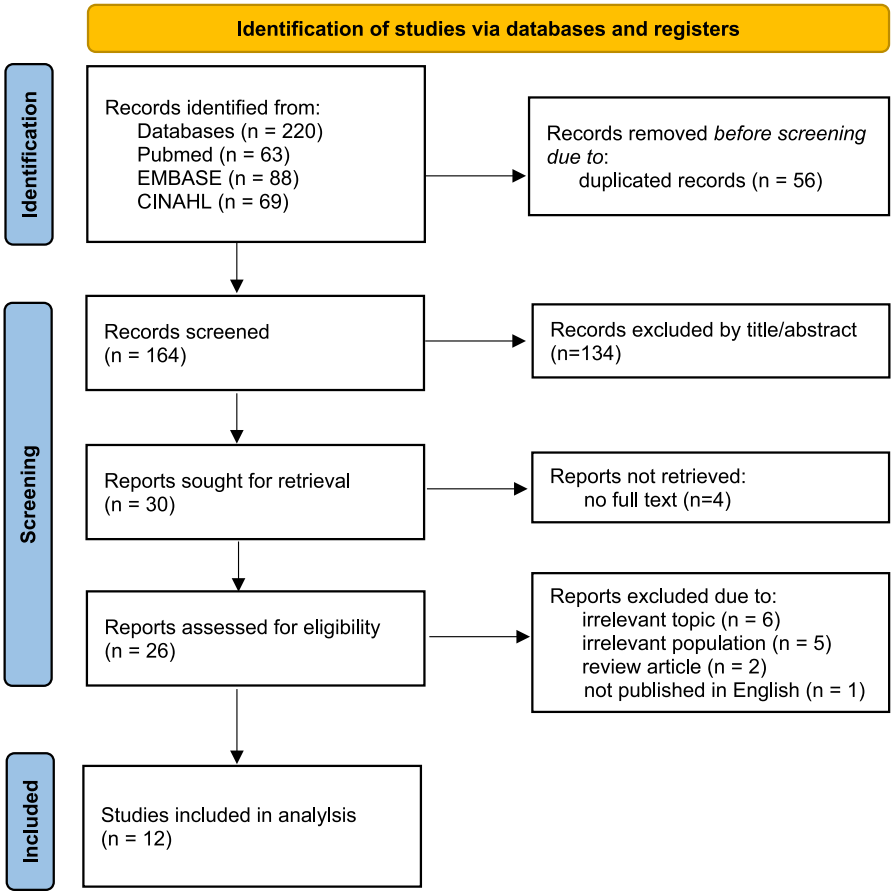

FIGURE 1 | Flow chart of study selection process.

exploring the concept (Arksey and O'Malley 2005; Armstrong et al. 2011; Munn et al. 2018). The Joanna Briggs Institute methodology (Peters et al. 2020) and Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Review (PRISMA-ScR) (Tricco et al. 2018) flowchart were used in this scoping review.

3.2 | PCC Questions

According to the PCC framework (Peters et al. 2020), the population was set as nurses working in emergency departments or trauma care settings, the concept was set as STS, and the context was set as a hospital setting. The three research questions are as follows: (1) How is STS defined? (2) How was STS operationalised and measured in previous studies? (3) What factors are associated with STS?

3.3 | Search Strategy and Article Selection

The literature was searched using the PubMED, EMBASE and CINAHL databases in November 2023. Search terms and keywords were determined in consultation with the affiliated university librarian. Boolean operators were established by a combination of the following keywords: 'nurse*', 'nursing', 'nurses', 'secondary traumatic stress', 'secondary trauma', 'vicarious trauma', 'indirect trauma', 'compassion fatigue', 'emergency room', 'emergency department', 'emergency nursing', 'trauma centres', and 'trauma nurse*'.

Inclusion criteria were as follows: (1) published in English, (2) relevant to STS and including associated factors and (3) including nurses from emergency departments or trauma centres. In addition, exclusion criteria were as follows: (1) focusing on community settings or on hospital departments other than emergency rooms or trauma centres, (2) mentioning only primary trauma of nurses with no STS, (3) consisting of reviews and (4) grey literature. After checking 220 studies via online databases in the first stage, 56 duplicate studies were excluded. Figure 1 shows the details.

3.4 | Data Extraction, Analysis and Synthesis

The research team completed the data extraction. Two authors mainly extracted the data, and the third member externally validated the results. When a disagreement occurred, the team went through the full text together and reached a consensus. A Microsoft Excel sheet was used for data extraction; the researchers organised the information in a table based on the author and publication year of each study, publication country, study design, study sample and STS measurement tool. The relationship between compassion fatigue and STS-associated factors was analysed separately (Table 1). Scoping reviews typically do not include a formal assessment of the methodological quality of the studies (Peters et al. 2020), so this aspect was not included in this review.

TABLE 1 | General characteristics of included articles.

ID no.	First author/year	Country	Study design	Participants				
				Sample size (responded)	Department	Year to practice in nursing, mean (SD)	STS measurement tool	STS score, mean (SD)
1	Subih et al. (2023)	Jordan	Quantitative and cross-sectional	203	Emergency department	4.3 (3.5)	Professional Quality of Life Scale-5	29.7 (5.1)
2	Lopez et al. (2022)	United States	Quantitative and cross-sectional	50	Emergency department	—	Professional Quality of Life Scale-5	24.5 (5.4)
3	Lee, Lee, and Jang (2021)	South Korea	Quantitative and cross-sectional	219	Trauma centre	2.72 (0.9)	Professional Quality of Life Scale-5	25.79 (5.3)
4	Woo and Kim (2021)	South Korea	Quantitative and cross-sectional	186	Trauma centre	—	STS Scale	49.62 (12.4)
5	Jobe et al. (2021)	United States	Quantitative and cross-sectional	255	Emergency department	—	Impact of Events Scale-Revised	19.1 (16.4)
6	Ratrout and Hamdan-Mansour (2020)	Jordan	Quantitative and cross-sectional	202	Emergency department	5.4 (4.8)	STS Scale	46 (12.5)
7	Borges et al. (2019)	Portugal	Quantitative and cross-sectional	87	Emergency department	13.9 (6.1)	Professional Quality of Life Scale-5	23.9 (5.5)
8	Duffy et al. (2015)	Ireland	Quantitative and cross-sectional	105	Emergency department	19 (8.1)	STS Scale	45.98 (14.1)
9	Hinderer et al. (2014)	United States	Quantitative and cross-sectional	128	Trauma centre	12.0 (10.7)	Penn Inventory	18.5 (10.2)
10	van der Wath et al. (2013)	South Africa	Qualitative and cross-sectional	11	Emergency department	—	Interview	—
11	von Rueden et al. (2010)	United States	Quantitative and cross-sectional	262	Trauma centre	12.0 (10.7)	Penn Inventory	18.5 (10.2)
12	Dominguez-Gomez and Rutledge (2009)	United States	Quantitative and cross-sectional	67	Emergency department	14 (10.4)	STS Scale	37.4 (11.0)

Abbreviation: STS, secondary traumatic stress.

TABLE 2 | Theoretical framework of included studies.

ID no.	First author/year	Theoretical basis	How the theoretical basis was applied
1	Subih et al. (2023)	Conceptual framework developed by researcher	Applied to analyse the impact of demographic, work-related and health-related variables on STS
4	Woo and Kim (2021)	Conceptual framework developed by researcher	Used to identify and analyse factors contributing to STS among nurses in regional trauma centres
5	Jobe et al. (2021)	Revised Transactional Model of Occupational Stress and Coping	Applied to analyse the impact of primary and secondary appraisals on STS among emergency nurses and to assess the effectiveness of coping strategies in mitigating stress
6	Ratrout and Hamdan-Mansour (2020)	Ecological Framework of Trauma Model	Used to analyse how personal and organisational factors influence the development of STS among caring professionals, based on exposure to traumatic material
9	Hinderer et al. (2014)	Theory of Secondary Traumatic Stress	Modified to examine how personal and environmental characteristics, coping strategies and exposure to traumatic events influence the development of STS among trauma nurses
11	von Rueden et al. (2010)	Ecological Framework of Trauma Model	Used to analyse how exposure to traumatic injuries of others, coping strategies and personal and environmental characteristics influence the STS reactions

4 | Results

4.1 | General Characteristics of Studies

The selected 12 studies were published from 2009 to 2023, and half (50%) were published in the past 5 years (Table 1). Five studies were published in the United States (38.5%), two in South Korea and Jordan (23.1%) and one each in Portugal, South Africa and Ireland (7.7%). Eleven studies (91.7%) were quantitative in nature, and there was one qualitative study. The number of study participants ranged from 11 to 262, depending on the study design. There were eight studies (66.7%) on emergency nurses and four (33.3%) on trauma nurses. Among the 11 quantitative studies, four (33.3%) used the ProQOL-5 (the Professional Quality of Life Scale) to measure STS, and another four (33.3%) used the STSS (the Secondary Traumatic Stress Scale). Others used the Penn Inventory and IES-R (Impact of Events Scale—Revised).

4.2 | Theoretical Framework and STS Definition

Few studies were based on theoretical frameworks such as the Revised Transactional Model of Occupational Stress and Coping (Goh et al. 2010) and the Ecological Framework of Trauma Model (Dutton and Rubinstein 2013; Table 2). In addition, two studies involved a conceptual framework based on a literature review. Most of the selected studies used Figley's (1995) definition of STS as a normal reaction to an abnormal event occurring when individuals experience or witness highly distressing incidents, such as caring for trauma patients. In eight studies (Dominguez-Gomez and Rutledge 2009; Duffy et al. 2015; Hinderer et al. 2014; Jobe et al. 2021; Lee, Lee, and Jang 2021; Ratrout and Hamdan-Mansour 2020; van der Wath et al. 2013; von Rueden et al. 2010), STS was considered a separate concept from compassion fatigue, and in four studies (Borges et al. 2019; Lopez et al. 2022; Subih et al. 2023; Woo and Kim 2021), STS was considered a component of compassion fatigue.

4.3 | Multidimensional Factors Associated With STS

STS-associated factors were classified into personal, occupational and symptomatic factors (Table 3). Factors were classified by referring to the method of previously published research (Joseph et al. 2022), and symptomatic factors were added in consideration of the subject of STS; many studies have been conducted on related symptoms.

Personal factors included demographic characteristics such as age, gender and marital status; social characteristics such as social support from family, friends and coworkers; health-related

TABLE 3 | Factors associated with STS.

ID no.	Author/year	Personal factors	Occupational factors	Symptomatic factors
1	Subih et al. (2023)	– Age, gender, education level and marital status – Smoking and BMI – *Comorbidities (–)*	– Years of experience in ED and shift length – Type of hospital	
2	Lopez et al. (2022)	– Age, marital status, and Number of children living in the home	– Full-time employee status and Years of experience – Hospital location – *Work shift (mid > day)* (+)	*Burnout* (+) Compassion satisfaction
3	Lee, Lee, and Jang (2021)	– Age – Trauma experience	– Total clinical years	*Burnout* (+) Compassion satisfaction
4	Woo and Kim (2021)	– Age, gender, marriage status, religion and education level – *Exposure to traumatic events* (+) – *Type D personality* (+) – *Problem-focused coping method* (+) and *Dysfunctional coping method* (+) – *Social support from family and friends* (–)	– Total period of working as a nurse, period of working at a regional trauma centre and working place – *Desired place of work* (–), *satisfaction with working* (–) and *desire for job rotation* (+) – *Social support from coworkers* (–) and *from supervisors and boss* (–)	
5	Jobe et al. (2021)	– Cognitive demands (avoidance), Handle/manage workload (intrusion, avoidance) – *Cognitive demands (intrusion, hyperarousal)* (–), *Handle/manage workload (hyperarousal)* (–) – Safety and communication with patients and visitors (intrusion, avoidance, hyperarousal) and Safety and competency(hyperarousal) – *Safety and competency (intrusion and avoidance) (+)*		
6	Ratrout and Hamdan-Mansour (2020)	– Perceived social support – History of trauma and exposure to trauma – *Empathy* (+) & *Coping* (–)	– Job satisfaction and desire to move out – Organisational support and quality of care – *Job-related absenteeism* (+), *sick leave days* (+)	
7	Borges et al. (2019)	– *Age* (+) & *Sex (female)* (+) – *Having leisure activities* (–)	– *Job experience* (–)	Compassion satisfaction Burnout

(Continues)

TABLE 3 | (Continued)

ID no.	Author/year	Personal factors	Occupational factors	Symptomatic factors
8	Duffy et al. (2015)	– *Stress relieving strategies (changing of career considered, seeking help from a counsellor for work-related stress and finding alcohol helpful in alleviating work-related stress)* (+)	– *Nursing group (Staff nurse > Advanced nurse practitioner > Paediatric nurse > Certified nurse midwife)* (+)	
9	Hinderer et al. (2014)			*Burnout* (+) *Compassion fatigue* (+) *Compassion satisfaction* (–)
10	van der Wath et al. (2013)		– Observing the physical injuries and emotional pain caused by intimate partner violence	
11	von Rueden et al. (2010)	– Age, ethnicity, gender, education level and Marital status – Stress relief strategies (exercise, religion, meditation, travel, professional counselling and alcohol) – *Social support from family and friends* (–), *Stress relief strategies(hobbies)* (–) and *Stress relief strategies* (+)	– Spending time in direct patient care – Length of usual shift and years in current position – Social support from coworkers – *Total years in nursing* (–), *total years in trauma nursing* (–)	
12	Dominguez-Gomez and Rutledge (2009)	– Ethnicity and education level – Use of counselling and stress management strategies – *Sex (female)* (+)	– Work shift	

Note: (+), positive correlation with STS score; (–), negative correlation with STS score. Italic emphasises statistically significant factor.
Abbreviation: STS, secondary traumatic stress.

characteristics such as comorbidities and behavioural characteristics such as stress relieving strategies, use of counselling and stress management strategies. Among personal factors, age and gender were most frequently cited, with significant correlations noted in several studies. For example, Borges et al. (2019) found that younger nurses and female nurses presented significantly higher STS scores.

Occupational factors included organisational characteristics such as type of hospital, hospital location, and nursing group; professional characteristics such as work shift, shift length, and duration of nursing practice; and psychosocial characteristics such as organisational support, satisfaction with working and desire for job rotation. Years of experience and work shift were the most frequently mentioned factors.

Additionally, symptomatic factors were included in four studies as factors associated with STS. Burnout, compassion fatigue and compassion satisfaction were included as factors correlated with STS. More details are shown in Table 3, including types of factors and their significance.

5 | Discussion

This scoping review was conducted to identify trends in research on the factors associated with STS among nurses working in emergency departments or trauma care settings and to provide suggestions for future research. Among the selected concept analysis studies of STS (Arnold 2020; Kellogg 2021), more than half have framed STS as a separate concept from compassion fatigue. However, some studies still used STS as a subcomponent of compassion fatigue. Factors related to STS include age and female sex, which have a positive correlation with STS, whereas years of experience and work shift have a negative correlation with STS. Additionally, burnout, compassion fatigue and compassion satisfaction were included as symptomatic factors.

Six of the 12 selected papers were published in the last 5 years, even though there was no restriction based on the publication. This indicates a recent societal interest in nurses' mental health, emphasising medical quality and patient satisfaction (Xu et al. 2023). The American Nurses Association's position statement on 'Nurses' Professional Responsibility to Promote Ethical Practice Environments' emphasises the importance of fostering ethical work environments, underscoring the need to protect nurses from ethical dilemmas and stress (ANA Postion Statement 2023).

There have been several concept analyses of STS; however, they have not been standardised. Although recent research trends advocate for viewing compassion fatigue and STS as separate concepts (Kellogg 2021; Arnold 2020), some researchers are still confused, using STS as a subcomponent of compassion fatigue (Cao et al. 2021; Holmes et al. 2021). Rodgers's evolutionary concept analysis emphasises that concepts are not fixed but are dynamically influenced by the passage of time, social phenomena and context (Rodgers 2000), highlighting the pressing need for clear conceptualisation to advance understanding and research in this area.

The ProQOL-5 is one of the most frequently used measurements of secondary traumatization (Stamm 2010). According to the ProQOL-5 framework, compassion fatigue is composed of job burnout and STS (Stamm 2010). If the ProQOL-5 is used as a measurement tool, STS is naturally set as a subcomponent of the compassion fatigue, even though there is no such intention. Even if the researcher does not intend it, using the measurement tool itself can lead to a failure in accurately conceptualising STS. As the concept evolves, there are limitations to using the measurement tools as they currently exist. Further research is needed to develop specific measurements for certain groups, such as nurses and professionals who experience trauma. The inconsistent results across studies make it challenging to draw a comprehensive and unified conclusion, indicating that STS is a complex and multidimensional phenomenon. Therefore, the same factors may operate differently in various environments and conditions.

In certain studies, age and gender showed significant positive correlations with STS (Borges et al. 2019), whereas these correlations were not observed in other studies (Ratrout and Hamdan-Mansour 2020). Age was mentioned as a relevant factor for STS in six studies (Borges et al. 2019; Lee, Lee, and Jang 2021; Lopez et al. 2022; Subih et al. 2023; von Rueden et al. 2010; Woo and Kim 2021), which constitutes half of the selected studies. However, only one of the documents indicated a statistically significant correlation (Borges et al. 2019). Five studies mentioned gender, and two of these showed a statistically significant correlation with STS (Borges et al. 2019; Dominguez-Gomez and Rutledge 2009), whereas three documents did not show a significant correlation (Subih et al. 2023; von Rueden et al. 2010; Woo and Kim 2021). This suggests that STS is a complex, multidimensional phenomenon, and the same factors may operate differently in various environments and conditions. In addition, personal factors such as gender are usually difficult to change. Therefore, the personal associated factors can be used to screen for vulnerability to STS.

The study results also highlight the significant role of occupational factors associated with STS. For instance, occupational factors such as work shift and total years in nursing showed significant correlations with STS (Lopez et al. 2022; von Rueden et al. 2010). Specifically, work shifts exhibited a positive correlation with STS (Lopez et al. 2022), suggesting that night shifts or irregular working hours may increase the risk of STS. Additionally, factors such as total years in nursing showed a negative correlation with STS (von Rueden et al. 2010), indicating that more experienced nurses may have better stress management skills, such as adaptability to manage daily challenges in unpredictable circumstances, thus experiencing less STS (Yu et al. 2024). The occupational factors provide important foundational data for improving hospital operations and working environments. Hospitals can consider these factors to adjust work schedules and explore ways to enhance job satisfaction.

Burnout and compassion fatigue showed positive correlations with STS (Hinderer et al. 2014; Lee, Lee, and Jang 2021; Lopez et al. 2022), suggesting that the symptoms may exacerbate the effects of STS. However, compassion satisfaction showed a negative correlation with STS (Hinderer et al. 2014), indicating that a high level of job satisfaction may serve as a protective

factor against STS. Compassion satisfaction was mentioned as an associated factor for STS in four studies (Borges et al. 2019; Hinderer et al. 2014; Lee, Lee, and Jang 2021; Lopez et al. 2022), but only one document showed a statistically significant correlation (Hinderer et al. 2014). This suggests that current evidence is limited regarding the correlation between compassion satisfaction and STS, and further research is needed to clarify its impact. The findings provide important implications for the development of intervention programmes aimed at maintaining and improving nurses' mental health.

5.1 | Recommendation for Research

Considering the evolving nature of the STS concept, there is a critical need for advanced concept analysis research. Researchers often face difficulty in fully capturing the complexity and diversity of STS. Therefore, in-depth concept analysis research is necessary to define and understand STS more accurately. Such research will uncover various aspects of STS and provide a solid foundation for developing more effective interventions and support strategies.

Given the evolving nature of STS (Georgia State University 2023), it is essential to move beyond existing frameworks to ensure comprehensive assessment. The ProQOL-5, frequently used for measuring secondary traumatization (Lopez et al. 2022; Subih et al. 2023), inherently includes STS as a subcomponent of compassion fatigue (Stamm 2010), potentially leading to conceptual limitations. This indicates a pressing need for developing and validating new measurement tools that are specifically tailored to various professional groups experiencing trauma, such as nurses. By doing so, researchers can achieve more precise and contextually relevant assessments, ultimately enhancing our understanding and intervention strategies for STS (Hamberger et al. 2019). Current tools, though useful, do not capture the full scope of STS as it pertains to various occupational contexts, thus highlighting the importance of innovation in measurement approaches.

Recent studies on STS among nurses have primarily focused on the context of the COVID-19 pandemic (Erkin et al. 2020; Lee, Lee, and Jang 2021; Lee, Shin, and Hong 2021). Although these studies provide valuable insights into the impact of the pandemic on nurses' mental health, there is a need for more comprehensive and large-scale observations beyond the COVID-19 context. Researchers should aim to systematise observations and gather extensive data to better understand STS among nurses. This will help to establish clearer and more generalisable findings, ensuring that the specific needs and challenges of the nursing profession regarding STS are accurately addressed and managed.

5.2 | Clinical Practice

It is important to provide regular monitoring of STS for nurses exposed to trauma in their clinical practice. Many factors associated with STS are at institutional or occupational levels; therefore, routine health examinations of vulnerable nurses need to include STS evaluation, as suggested by Alshmmari et al. (2024). This is similar to the approach taken in Saudi Arabia, where emergency department nurses were assessed using validated scales and had follow-up interviews (Alshmmari et al. 2024) to identify risk groups.

After detecting vulnerable groups, individual and institutional interventions should be provided. For example, the Mindfulness-Based Stress Reduction program helps nurses manage stress and reduce post-traumatic stress symptoms through mindfulness techniques (Berring et al. 2024). This program assists nurses in coping with occupational stress and emotional challenges. Additionally, the Trauma-Informed Care program is designed to recognise and address the trauma experienced by healthcare providers (Berring et al. 2024). In addition, institutions provide helpful resources for nurses and implement interventions to support individuals—for example, changing work conditions such as workplace chaos and time pressure (Linzer et al. 2015). The Collaborative Care Model program, which promotes a culture of caring and a sustainable working environment, has also improved the health of healthcare professionals (McElligott et al. 2010).

This study offers an opportunity for evaluating and discussing STS in high-risk groups, such as nurses working in emergency departments or trauma care settings. Future research should be focused on integrating STS assessment and intervention strategies into routine healthcare settings to enhance their feasibility and effectiveness.

5.3 | Limitations

As COVID-19 spread worldwide, the excessive stress on healthcare workers due to infectious disease response became evident (Jo et al. 2023), leading to numerous studies addressing changes in the mental health of healthcare workers due to COVID-19 (Niu et al. 2022). To capture comprehensive research trends on this topic, this study included research published between 2009 and 2023 without limiting publication years. Consequently, it is challenging to completely exclude the influence of COVID-19 when comparing the results of studies conducted before and after the pandemic. Although concept analyses of STS have been conducted (Kellogg 2021; Arnold 2020), researchers may interpret and use the concept differently, leading to variations in terminology that could result in relevant studies being overlooked. Because STS is still an emerging research topic, only 12 studies were included in this review. Future research that includes more literature may yield more consistent results, significantly contributing to the clear conceptualisation of nurses' STS and the development of interventions.

6 | Conclusion

This scoping review highlights that STS is prevalent in nurses working in emergency and trauma care settings and involves various factors, such as coping skills and nursing experience. Findings in this review underscore the need for targeted interventions to support nurses, including psychological support and training on coping strategies. Researchers should aim to standardise STS definitions and measurements and to explore the issue in diverse healthcare settings to develop comprehensive

solutions. Addressing STS is crucial for improving nurses' mental health and job satisfaction ultimately enhancing patient care quality.

Author Contributions

The authors made substantial contributions to conception and design or acquisition of data or analysis and interpretation of data; involved in drafting the manuscript or revising it critically for important intellectual content; given final approval of the version to be published; agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The authors have nothing to report.

Peer Review

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