

SYSTEMATIC REVIEW

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Interventions for secondary traumatic stress among mental health professionals serving trauma-affected populations: a systematic review

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Abstract

Background Mental health professionals (MHPs) working with trauma-affected populations face a significant risk of developing Secondary Traumatic Stress (STS), a condition mirroring post-traumatic stress symptoms due to indirect exposure to trauma. Despite the growing awareness of STS, there remains limited systematic evidence on the effectiveness of interventions specifically targeting STS among MHPs.

Objective This systematic review aimed to identify and synthesize empirical studies published between 2013 and 2025 that evaluated interventions designed to reduce STS symptoms in mental health professionals, social workers, and volunteers providing direct psychological support to trauma-exposed individuals.

Methods Following PRISMA 2020 guidelines, a comprehensive literature search was conducted across PubMed, PsycINFO, Web of Science, and Google Scholar. Eligible studies included randomized controlled trials, quasi-experimental designs, and pilot interventions that assessed STS using validated tools such as the Secondary Traumatic Stress Scale (STSS) or the STS subscale of the Professional Quality of Life Scale (ProQOL). Studies were excluded unless STS was explicitly assessed. Three studies met the inclusion criteria. Only psychological or psychosocial interventions (e.g., supervision, emotion-focused training, self-efficacy training, wellness programs with psychological components) were included in the review.

Results Interventions included internet-based self-efficacy training, emotion-focused training, and multimodal wellness programs. All studies reported post-intervention reductions in STS symptoms, with statistically significant improvements in related variables such as self-efficacy, burnout, and compassion satisfaction. Group-based and digital delivery formats were prevalent, with durations ranging from 2 weeks to 9 weeks.

Conclusion The review highlights the promising impact of targeted interventions in reducing STS among trauma-facing professionals. While findings support the effectiveness of various approaches, especially those enhancing emotional regulation and self-compassion, further large-scale, longitudinal trials with rigorous outcome assessments are warranted to inform evidence-based mental health workforce policies and practices.

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Keywords Secondary traumatic stress, mental health professionals, trauma, interventions, burnout, systematic review

The protocol for this systematic review was registered in the International Prospective Register of Systematic Reviews (PROSPERO; registration number: CRD420251072482).

Introduction

Secondary Traumatic Stress (STS) refers to the emotional distress that individuals experience when exposed to the trauma narratives of others, especially in professional care roles. First conceptualized by Charles Figley [1], STS mimics symptoms of Post-Traumatic Stress Disorder (PTSD), such as intrusive thoughts, avoidance behavior, emotional numbing, hyperarousal, irritability, fatigue, and concentration difficulties [2–4]. Importantly, it arises not from direct trauma exposure but through prolonged empathic engagement with individuals who have experienced trauma [5–7]. These symptoms often appear suddenly and can progress to chronic distress if left unaddressed [8, 9]. The concept of secondary traumatic stress also builds on earlier foundational work on vicarious trauma by McCann and Pearlman. Their formulation, grounded in constructivist self-development theory, emphasized cumulative cognitive and emotional changes in professionals exposed to clients' traumatic material, particularly disruptions in core beliefs and worldview. Although vicarious trauma was theoretically distinct from later formulations of STS, it subsumed several secondary trauma-related responses that were subsequently organized and labeled by Figley as PTSD-like symptoms of secondary traumatic stress. Figley's contribution therefore refined and operationalized these responses into a more symptom-focused framework.

Mental health professionals (MHPs), including psychologists, social workers, trauma counselors, and emergency clinicians, are at particularly high risk of STS due to the very nature of their work with trauma-affected populations [1, 10–13]. Their consistent exposure to traumatic narratives particularly in fields like child welfare, war refugee services, domestic violence, or sexual abuse therapy places them at elevated risk [14–18]. Reported prevalence rates of STS vary but remain strikingly high. For example, studies show that up to 70% of child welfare workers experience one or more clinical symptoms of STS [7], with rates ranging from 15% to over 50% among social workers, oncology staff, and humanitarian workers [4, 19–21]. These symptoms are not just emotionally taxing; they lead to reduced clinical efficacy, impaired judgment, emotional detachment, and compromised client care quality [2, 22–24].

Even with growing recognition of the issue, scholarly discussions still blur the boundaries between secondary

traumatic stress and its close relatives. As concern about the mental health of those who care for others expands, clarity between STS, vicarious trauma, and compassion fatigue becomes critical. While the terms regularly appear as synonyms, they diverge in the symptoms they describe the models that explain them, and the implications for practice. Distinguishing these constructs is key for correct measurement and classification, and it is equally vital for tailoring preventive and therapeutic strategies that truly meet the specific challenges posed by each condition.

Conceptual distinction

Although closely related to STS, studies that focused solely on vicarious trauma (VT) or compassion fatigue (CF) had conceptual and diagnostic distinctions. STS is characterized by PTSD-like symptoms including intrusive thoughts, avoidance, hyperarousal, and emotional numbing resulting from indirect exposure to trauma, typically through empathetic engagement with trauma survivors [1, 4]. In contrast, vicarious trauma refers to the cumulative cognitive changes in a professional's belief systems and worldview due to repeated exposure to others' traumatic narratives [25]. VT is grounded in constructivist self-development theory and is conceptualized more as a cognitive shift than an acute symptomatic response. Similarly, compassion fatigue is defined as the cost of caring for others in emotional pain and is considered a broader, umbrella term that encompasses both STS and burnout [8, 26]. While CF includes emotional exhaustion and reduced empathy, it does not always involve PTSD-like symptomatology.

To maintain clarity of concept and preserve diagnostic specificity, this systematic review only examined studies that specifically defined STS and utilized validated symptom-based instruments (e.g., Secondary Traumatic Stress Scale, STS subscale of the Professional Quality of Life Scale) to assess STS outcomes. This build upon the clinic relevance of the findings by considering treatments aimed at the core diagnostic symptomology of STS, in order to prevent conceptual conflation when synthesizing evidence. Because of these conceptual differences we only considered STS in our review.

Measuring secondary traumatic stress

Several standardized instruments have been developed to assess STS symptoms in helping professionals, with the most widely used being the Secondary Traumatic Stress Scale (STSS) and the STS subscale of the Professional Quality of Life Scale (ProQOL-5). The STSS (Bride et al., 2004) is a 17-item self-report scale directly aligned

with DSM-IV Post-Traumatic Stress Disorder (PTSD) diagnostic criteria and demonstrates high internal consistency ($\alpha = 0.93$) and strong construct validity across diverse professional groups [10]. Similarly, the ProQOL-5 STS subscale has shown acceptable reliability ($\alpha \approx 0.80$) and has been validated in multiple international samples as a measure of secondary trauma symptoms in caregiving professions [27]. These instruments are considered the current gold-standard tools for identifying STS because they specifically capture PTSD-like symptoms arising from indirect trauma exposure. To maintain conceptual specificity and avoid conflation with related constructs such as burnout, vicarious trauma, or compassion fatigue, this review only included studies that used such validated, symptom-based STS measures.

The need for intervention

Given the documented psychological toll of STS, there is an urgent need for interventions that support the mental health of care providers while preserving ethical and effective service delivery. Without adequate protective strategies, MHPs face not only burnout and emotional exhaustion but also long-term impairment in both professional and personal domains [1, 9, 23, 28, 29]. Inadequately addressed STS leads to absenteeism, clinical disengagement, ethical boundary violations, and high turnover, especially in trauma-intensive fields like child protection, forensic psychiatry, or refugee aid. Moreover, untreated STS in providers can have a ripple effect on care receivers, who may suffer indirectly through reduced quality of care, missed emotional attunement, or inconsistent therapeutic engagement, ultimately undermining their overall well-being [21, 30–32].

Recognizing these risks, scholars and institutions have proposed a few interventions, all of these are included in the set final set of included studies in this review, from individual-level approaches (e.g., mindfulness-based stress reduction, cognitive-behavioral therapy, self-compassion training) to organizational-level strategies (e.g., supervision, reflective practice groups, trauma-informed workplace cultures) [13, 20, 33–35]. Despite this growing body of work, existing studies vary greatly in quality, context, and population focus. Some concentrate on general healthcare providers or mixed professions, while others lack rigorous evaluation metrics, longitudinal follow-up, or contextual adaptation for diverse care environments [17, 36–39].

As the reviewed literature indicates, while promising interventions exist, there is a lack of consolidated, up-to-date evidence focusing exclusively on STS among trauma-serving mental health professionals. This review addresses that need by using a structured PRISMA-based methodology [40].

Notwithstanding an increased awareness of Secondary Traumatic Stress (STS) as an important work-related risk for mental health professionals working with trauma, the literature on this topic is fragmented, conceptually inconsistent and methodologically constrained. While related, these broader constructs of e.g. burnout, compassion fatigue or vicarious trauma differ from STS in terms of diagnostic specificity and have formed the main focus in many existing studies. Others have sampled heterogeneous professional groups (e.g., teachers, nurses, case managers), making it difficult to isolate findings relevant to those providing direct psychological support to trauma-exposed individuals [23, 32, 41, 42]. Moreover, several past reviews have applied restrictive criteria that excluded most empirical intervention studies, resulting in limited synthesis of practical, clinically actionable treatment strategies [41]. Common limitations across the existing literature include the absence of longitudinal follow-up, lack of randomized controlled designs, underrepresentation of non-Western and culturally diverse populations [17], and minimal integration of objective stress measures [43]. When interventions have been evaluated, they are often tested on small, context-specific samples, limiting their generalizability to diverse trauma care environments [21, 30, 35].

To address these gaps, the present systematic review focuses exclusively on empirical intervention studies published between 2013 and 2025 that target STS among mental health professionals, social workers, and volunteers working with trauma-exposed populations. The year 2013 was selected as a starting point because a prior systematic review [44] conducted a comprehensive search up to September 2012 and found no empirical intervention studies targeting STS. Therefore, the current review builds on that work by identifying studies that have emerged since that point. In order to ensure conceptual clarity and clinical relevance, studies were included only if they: (1) explicitly defined STS in accordance with established PTSD-like symptom criteria resulting from indirect trauma exposure (2) used validated symptom-based instruments to assess STS outcomes such as the Secondary Traumatic Stress Scale (STSS), the STS subscale of the Professional Quality of Life Scale (ProQOL-5) adapted for secondary trauma exposure. Studies focusing solely on burnout, compassion fatigue, or vicarious trauma without a clear STS construct and without symptom-based measurement were excluded.

This review aims to systematically identify and synthesize intervention studies that demonstrate measurable reductions in STS symptoms. Specifically, it addresses two research questions:

1. What types of interventions or treatment programs have been employed to reduce STS among trauma-serving professionals?
2. To what extent have these interventions been effective in mitigating STS symptoms, as measured by validated scales?

Rather than limiting the scope to a single intervention model or narrow professional subgroup, this review adopts a broad but conceptually specific approach, focusing solely on STS-specific interventions for those regularly engaged trauma survivors. By evaluating methodological quality, intervention types, and outcome consistency, the review seeks to offer an evidence-based foundation to inform clinical practice, policy development, and future research on the prevention and treatment of STS.

Methods

This systematic review was reported in accordance with the PRISMA 2020 guidelines to ensure methodological transparency, rigor, and replicability [45]. The protocol was registered with PROSPERO (registration number: CRD420251072482) on 12 June 2025. The initial database search was conducted on 15 May 2025. The review aimed to identify and synthesize empirical studies published between January 2013 and May 2025 that evaluated interventions specifically designed to reduce STS among mental health professionals, social workers, and volunteers working with trauma-exposed populations. To ensure conceptual clarity, only studies that explicitly defined STS in accordance with established frameworks (e.g., PTSD-like symptoms resulting from indirect trauma exposure) and employed validated symptom-based assessment tools such as the Secondary Traumatic Stress Scale (STSS) or the STS subscale of the Professional Quality of Life Scale (ProQOL-5) were included.

The methodological quality of the included studies was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Tools. Given the diversity of study designs, we utilized the JBI Checklist for Randomized Controlled Trials for Halamová et al. (2022) [46], the Checklist for Quasi-Experimental Studies for Cieslak et al. (2016) [47], and the Checklist for Case Series for the Van Kirk (2021) [48] pilot study. Assessments were performed by the primary author and verified by the supervisory team to ensure consistency.

Given the small number of eligible studies and substantial methodological heterogeneity, quantitative synthesis or formal quality-weighted comparison of effect sizes was not feasible. Instead, risk-of-bias assessments were used to inform a structured, quality-informed narrative synthesis, with greater interpretive caution applied to findings from studies rated as lower methodological quality.

Eligibility criteria

Eligible studies had to be empirical in nature, encompassing randomized controlled trials, quasi-experimental studies, longitudinal designs, or mixed-methods research. Only full-text articles published in English were considered. The target population was restricted to professionals or volunteers providing direct psychological or psychosocial care to individuals affected by trauma, including but not limited to refugees, survivors of domestic or sexual violence, and disaster victims. Studies were required to evaluate a distinct intervention, program, or therapeutic strategy aimed at mitigating STS symptoms.

To maintain conceptual and diagnostic specificity, all studies that focused solely on VT or CF were excluded unless they explicitly measured STS symptoms using validated scales. Therefore, studies that did not assess STS as a distinct construct using symptom-based instruments such as the STSS or ProQOL-STS subscale were excluded to preserve the clinical relevance and focus of this review.

For clarity, the term “trauma serving populations” is used broadly in this review to refer to individuals providing direct psychological or psychosocial support to trauma-exposed populations, including psychologists, social workers, and volunteers.

Study selection process

The literature search was conducted across four major electronic databases: PubMed, PsycINFO, Web of Science, and Google Scholar. A Boolean search strategy was employed using combinations of keywords such as: (“secondary traumatic stress” OR “STS”) AND (“intervention” OR “treatment” OR “therapy” OR “program”) AND (“mental health professional” OR “social worker” OR “counselor” OR “volunteer” OR “psychologist”). Filters were applied to restrict results to full-text articles published in English within the specified date range.

Full database-specific search strategies, including field tags, Boolean operators, truncation symbols, applied filters, and exact search dates for each database (PubMed, PsycINFO, Web of Science, and Google Scholar), are provided in Supplementary File 1 to ensure transparency and reproducibility.

The initial database search was conducted on 15 May 2025. A brief update search was conducted on 30 May 2025 prior to final data extraction to identify any newly published or early-online studies meeting the inclusion criteria. The update search retrieved an additional 162 records; however, none met the inclusion criteria after screening. The searches retrieved 17,800 records from Google Scholar, 55 from PubMed, 1,028 from PsycINFO, and 21 from Web of Science (filtered to Behavioural and Social Sciences), resulting in 18,904 records overall. After removing 2,804 duplicates, 16,100 unique records remained.

Given the large volume of results retrieved from Google Scholar and its relevance-based ranking system, a structured screening approach was applied. Titles were screened sequentially in relevance order within the specified date range. Screening was terminated after a predefined saturation criterion was met, defined as 50 consecutive records yielding no potentially eligible studies based on title and abstract screening. This stopping rule was applied to ensure a balance between search sensitivity and feasibility while maintaining transparency and reproducibility.

Although Google Scholar and PubMed index a wide range of materials, including preprints and grey literature (e.g., theses, reports, conference abstracts), only peer-reviewed empirical journal articles were eligible for inclusion in this review. Non-peer-reviewed outputs were screened but excluded at the title/abstract or full-text stage if they did not meet eligibility criteria, including lack of peer review, absence of empirical data, or failure to assess STS using validated symptom-based measures.

Records that were clearly irrelevant based on their titles (e.g., wrong population, no intervention, or not focused on STS) were excluded at the initial stage. Potentially eligible records were then assessed at the abstract level, followed by full-text review.

All titles and abstracts were initially screened by the first author. The screening log, including excluded studies and reasons for exclusion, was subsequently reviewed by the supervisory team. Ambiguous cases were discussed until consensus was reached. Full-text eligibility decisions were finalized through team discussion and agreement. While independent dual screening was not performed at the title/abstract stage, supervisory verification and consensus procedures were used to enhance decision consistency.

Following this process, 42 articles were identified for full-text review, of which 3 met all inclusion criteria and were retained for final synthesis, as illustrated in Fig. 1. Screening and selection were managed using Microsoft Excel.

Data extraction

A structured data extraction protocol was used to ensure consistency across all included studies. Data were extracted by the first author using a standardized extraction template in Microsoft Excel, and the extracted dataset was subsequently reviewed and verified by all three supervisors for accuracy and completeness. Extracted variables included the author(s), year of publication, research design, sample size and participant characteristics, intervention type and duration, delivery format (e.g., in-person, group-based, online), outcome measures used to assess STS, and the primary findings regarding intervention effectiveness. Any discrepancies identified

during the supervisors' review were discussed collectively and resolved by consensus. Where available, additional contextual information such as participant retention rates, follow-up periods, and implementation considerations were also recorded to inform the interpretation and synthesis of results.

Results

Characteristics of included studies

Three studies met all the inclusion criteria and were included in the final synthesis. These studies were published between 2013 and 2025 and spanned diverse global settings, including the United States, Slovakia, and Poland. Study designs included one randomized controlled trial [46], one experimental study [47], and one pre-post pilot intervention study [48]. Sample sizes ranged from 57 to 253 participants, with all studies targeting professionals working with trauma-exposed populations such as psychologists, social workers, counselors, and mental health practitioners. A detailed summary of the 3 included studies, their designs, and interventions, is presented in Table 1.

Intervention modalities and characteristics

The interventions included in the three primary studies varied in theoretical orientation, delivery format, and targeted outcomes but shared a common focus on reducing STS through evidence-informed practices. Across the included studies, participant recruitment methods varied and were not always reported in detail. Where specified, participants were typically recruited through voluntary enrollment within professional settings or training programs, suggesting a degree of self-selection.

Internet-based self-efficacy training

R. Cieslak et al. evaluated a four-session internet-based self-efficacy intervention grounded in Social Cognitive Theory, designed to enhance trauma-related self-efficacy among health and human service professionals indirectly exposed to trauma through their clients. The intervention included weekly online modules combining psychoeducation, interactive self-efficacy exercises (e.g., mastery experiences, modeling, supportive self-talk, stress regulation), personal web diary tasks, and automated feedback reminders. Participants in the active control group received read-only educational content about coping resources and the consequences of work-related stress, delivered on the same schedule but without interactive exercises. Outcomes were measured at baseline, 1-month, and 2-month follow-ups using the Secondary Traumatic Stress Scale (STSS), a self-efficacy scale, and a posttraumatic growth measure. The intervention group showed significantly lower STS and higher self-efficacy at 1-month, and indirect effects at 2-month follow-up,

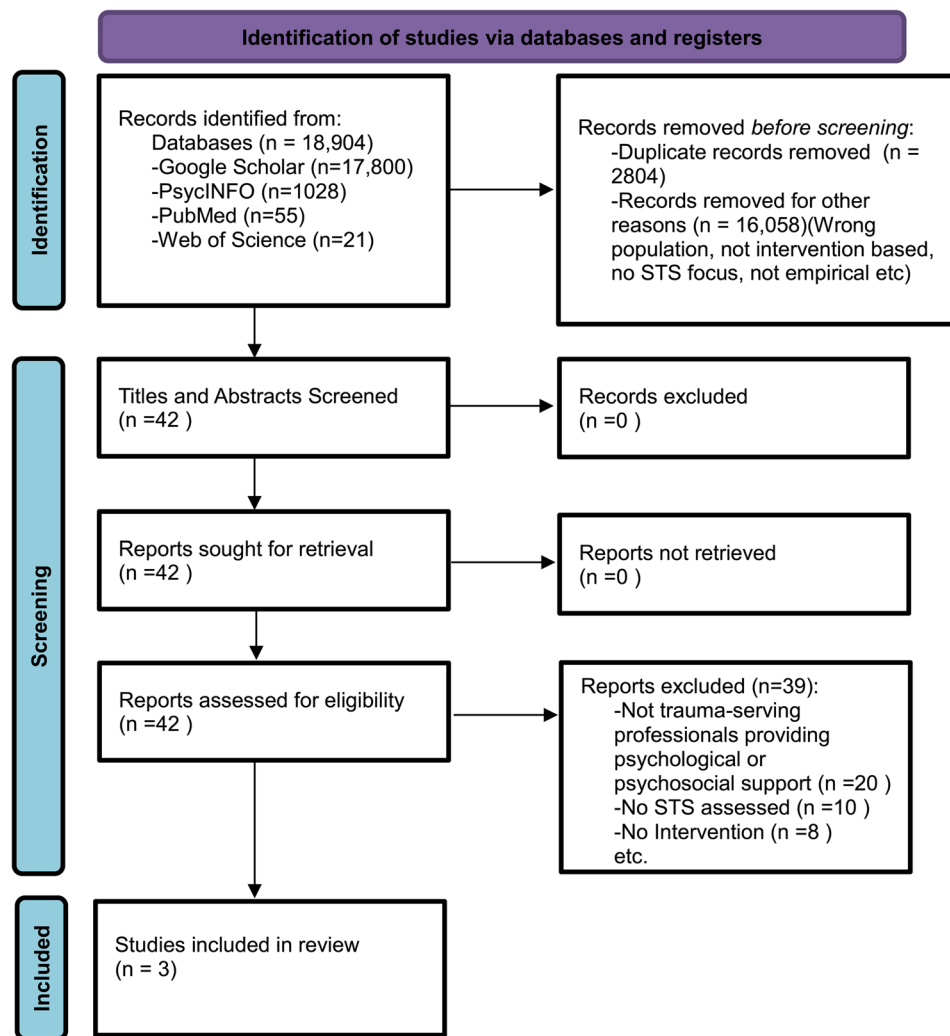


Fig. 1 PRISMA 2020 Flow Diagram for Study Selection. Note. This figure illustrates the systematic screening and selection process of studies based on the PRISMA 2020 guidelines. A total of 42 full-text articles were assessed, and 3 met the inclusion criteria for final synthesis

Table 1 Summary of Included Intervention Studies

	Authors & years	Country	Study Design	Sample	Sample Size	Interventions
Study 1	Cieslak et al. (2016) [47]	Poland & USA	Experimental design with random assignment (active control group)	Health and human service providers	168 Intervention $n=87$ Control $n=81$	Internet-based self-efficacy intervention
Study 2	Halamová et al. (2022) [46]	Slovakia	Randomized Controlled Trial (RCT)	Helping professionals (mental health workers, educators, healthcare professionals, social workers)	253	Emotion-focused Training
Study 3	Van Kirk, M. L. (2021) [48]	United States	Pilot intervention study (pre-post design)	Mental health professionals (psychologists, nurses, counselors, etc.)	Pre-intervention $n=42$ Post-intervention: $n=15$	Multi-model wellness training

where increases in self-efficacy predicted lower STS and higher secondary posttraumatic growth (SPTG) [47].

Emotion-focused compassion training

J. Halamová et al. conducted a randomized controlled trial in Slovakia to test a 14 days online emotion-focused

training intervention designed to improve Secondary traumatic stress, burnout and self-criticism among helping professionals. Results showed that after completing the intervention the experimental group participants reported significantly lower scores for secondary traumatic stress, burnout and self-criticism, and higher

scores for self-compassion as compared to the control group which did not receive any intervention. These findings affirm the therapeutic utility of compassion cultivation in mitigating indirect trauma effects [46].

Multimodal wellness training

M.L. Van Kirk piloted a 9-week employee wellness program to support mental health staff well-being and reduce Secondary Traumatic Stress (STS). The program delivered one 30–45 min module per week during lunch breaks, covering topics such as mindfulness, guided imagery, yoga, Tai Chi, therapeutic journaling, nutrition, sleep hygiene, and music for relaxation, supplemented with weekly email reminders and a “wellness toolkit” of recommended apps. Participants ($N=42$ pre-program, $N=15$ post-program) were assessed using the Professional Quality of Life Scale (ProQOL-5) for STS, burnout, and compassion satisfaction. Although pre–post changes showed increased compassion satisfaction and decreased burnout and STS, these changes were not statistically significant, indicating only preliminary positive effects and highlighting the need for further testing.

Details of interventions along with outcomes are listed in Table 2.

Table 3 indicates that the RCT and experimental study demonstrated robust methodological quality, while the pilot study was limited by significant attrition and a small post-intervention sample size, warranting a ‘Low Quality’ rating and cautious interpretation of its outcomes. Given differences in methodological quality, intervention findings were interpreted relative to study design strength. Greater evidentiary weight was attributed to findings from the randomized and quasi-experimental studies, while conclusions drawn from the pilot pre-post study were interpreted cautiously due to high attrition and absence of a comparison group.

A detailed item-level breakdown of the JBI critical appraisal assessments for each included study is provided in Supplementary File 2.

Outcomes of interventions

All three studies reported favorable post-intervention trends in STS reduction, although effect sizes and statistical significance varied. These interventions were associated with reductions in STS symptoms; however, the certainty of evidence remains limited due to small sample sizes, pilot designs, and methodological heterogeneity. The digital intervention [47] demonstrated promising results, with reported Cohen’s d values for both within- and between-group differences, indicating meaningful reductions in STS and improvements in self-efficacy. These interventions not only reduced STS but also enhanced practitioners’ confidence and job-related efficacy. Emotion-focused interventions [46] with effect size

Table 2 Characteristics and Outcomes of STS Interventions

Study	Interventions	Duration & Format	Content of the Intervention	Measure- ment Tools	Targeted variables	Outcomes	Baseline STS Severity and Effect Size
Study 1 [47]	Internet-based self-efficacy training	4 sessions, individual, online	For intervention Group: • Self-efficacy exercises (mastery, modeling, self-talk) • Web diary + feedback tasks For Control Group: • Read-only educational content on stress, coping, and trauma	STSS, Self-Efficacy Scale	STS, self-efficacy, avoidance	STS significantly reduced, increased confidence in managing trauma exposure	• Reported (STSS mean scores): Control $M=2.42$ ($SD=0.66$); Intervention $M=2.26$ ($SD=0.58$) • Reported (Cohen’s d for within- and between-group effects)
Study 2 [46]	Emotion-Focused Training (compassion, self-care)	14-day online training	• Daily self-compassion & emotion exercises • Reflection questions + mindfulness tasks • Focus on reducing STS and burnout.	ProQOL, STSS, Self-Compassion Scale	STS, burnout, self-compassion	Significant STS and burnout reduction, enhanced self-compassion	• Reported (STSS total scores): Intervention $M=47.15$ ($SD=13.80$); Control $M=43.18$ ($SD=12.19$) • Reported (effect sizes for intervention outcomes)
Study 3 [48]	Multimodal wellness training (yoga, mindfulness, imagery)	9 weeks, in-person modules	• Mindfulness, yoga, journaling, guided imagery • Wellness toolkit + weekly emails • Lunch-hour sessions	ProQOL (STS subscale)	STS, burnout, compassion satisfaction	Improved compassion satisfaction, STS slightly reduced (not statistically significant)	• Reported (ProQOL STS): Pre $M=20.5$ ($SD=7.2$) • Not reported

Note. ProQOL Professional Quality of Life Scale, STSS Secondary Traumatic Stress Scale

Table 3 Risk of Bias Assessment (JBI)

Study	Design	JBI Tool	Quality Score	Overall Quality rating	Primary Risk for Bias Concern
Halamová et al. (2022) [46]	Randomized Controlled Trial	JBI Checklist for RCTs	11/13	High Quality	Blinding of participants and those delivering the intervention was not possible due to the nature of the training
Cieslak et al. (2016) [47]	Quasi-Experimental	JBI Checklist for Quasi-Experimental	7/9	Moderate- High Quality	Lack of a true control group (used an active educational control) and limited long-term follow-up beyond 2 months
Van Kirk (2021) [48]	Pilot (Pre-Post)	JBI Checklist for Case Series	6/10	Low Quality	High attrition rate (64% loss to follow-up), small final sample ($n = 15$), and lack of a comparison group.

($d = 0.80$) emerged as particularly effective in fostering resilience through self-compassion, a protective factor frequently identified in trauma literature [49]. Improvements in compassion satisfaction and burnout reduction were observed across most studies, indicating that interventions targeting STS may have spillover benefits for adjacent dimensions of professional well-being. However, intervention heterogeneity, variation in duration and intensity, and lack of long-term follow-up limited cross-study comparability. Additionally, although all studies used validated psychometric instruments, none incorporated physiological or neurobiological markers of stress an area for future enhancement. Collectively, the findings underscore the potential for structured, theory-driven interventions to effectively reduce STS among professionals serving trauma-affected populations. Online and group-based formats were particularly effective in enhancing accessibility and engagement. Nevertheless, the small number of high-quality empirical studies and variability in outcome reporting call for further research using standardized measurement frameworks, rigorous designs, and extended follow-up to evaluate long-term impact and intervention scalability.

Reporting of baseline STS symptom severity and standardized effect sizes varied across studies, limiting direct comparison of intervention magnitude. In several cases, effect sizes were not reported or were calculated using different metrics, precluding structured cross-study comparison.

Discussion

This systematic review synthesized evidence from three empirical studies published between January 2013 and May 2025 that evaluated interventions aimed at mitigating STS among trauma serving professionals, including

psychologists, social workers, volunteers and Mental health and psychological support practitioners working with trauma-affected populations. Despite growing recognition of STS as a significant occupational hazard in helping professions [1, 10], this review highlights the limited number of rigorously evaluated interventions, underscoring a critical gap in trauma-informed workforce support systems. A methodological strength of this review is that it was prospectively registered with PROSPERO, ensuring transparency and adherence to predefined procedures. This finding is consistent with the earlier systematic review by which up to 2012 found no empirical intervention studies targeting STS directly [44]. The fact that only three eligible studies have emerged since then underscores how little progress has been made in this field over the past decade, despite the heightened recognition of STS as a clinical and occupational concern.

Efficacy of interventions

All interventions included demonstrated at least modest effectiveness in reducing STS or related constructs such as burnout, distress, or emotional exhaustion. The strongest effects were reported in studies employing structured therapeutic approaches such as the Emotion-Focused Training (EFT) used by [46], which significantly reduced STS symptoms and enhanced self-compassion. This finding aligns with research suggesting that self-compassion serves as a protective factor against STS by fostering emotional resilience and adaptive regulation strategies [49, 50]. Similarly [47], observed significant reductions in STS following an internet-based self-efficacy intervention, consistent with Bandura’s social cognitive theory, which posits that increased belief in one’s capabilities to manage traumatic stressors can reduce emotional burden [51].

ML. Van Kirk performed pilot study on multimodal wellness training, while lacking statistically significant STS reduction, did report improvements in compassion satisfaction and emotional regulation [48]. These secondary benefits may serve as early indicators of longer-term STS mitigation, consistent with theories of affective resilience [52]. The incorporation of mindfulness and expressive writing in this study echoes findings from broader MBSR literature, which suggests that mind body practices can modulate the stress response system and reduce symptoms of burnout and vicarious trauma [53].

Taken together, the findings suggest that interventions directly targeting self-compassion or self-efficacy may represent a promising focus for future STS interventions; however, conclusions regarding the comparative effectiveness of targeted versus broader wellness approaches remain tentative given the limited sample size and non-significant findings of the multimodal wellness study. This aligns with previous work showing that narrowly focused interventions often outperform general stress management programs in producing measurable changes in trauma-related outcomes [44, 52].

Mode of delivery and accessibility

A salient trend across studies was the growing use of digital and remote delivery formats, including internet-based CBT/self-efficacy modules [47]. This approach is particularly advantageous for trauma serving professionals operating in remote, conflict-affected, or resource-limited settings. The effectiveness of digital interventions in this context mirrors broader mental health literature, where meta-analyses have shown comparable efficacy between internet-based and face-to-face modalities for managing common mental health problems [54, 55]. However, technological barriers, digital literacy, and organizational infrastructure remain significant challenges, particularly in low- and middle-income countries. Furthermore, digital interventions often suffer from lower adherence rates [56], which may attenuate their long-term effectiveness unless supported by structured implementation frameworks [57].

Measurement inconsistencies and conceptual distinctions

All included studies employed validated tools, primarily the STSS and the ProQOL-5 STS subscale; however, there was variation in the breadth and depth of outcome measures. Few studies adequately distinguished between STS, VT, and CF. Although overlapping, these constructs differ theoretically and clinically. VT involves schema-level disruptions [20], CF refers to the broader erosion of empathy [1], while STS is conceptualized as PTSD-like symptoms resulting from indirect exposure [10]. Failure to differentiate these constructs can obscure treatment targeting and outcome evaluation [58]. Thus,

Future research would benefit from adopting precise and theoretically informed conceptual frameworks while also examining whether distinct dimensions of secondary trauma responses such as PTSD-like symptoms associated with STS, cognitive and self-constructivist changes characteristic of vicarious trauma, and compassion fatigue-related emotional exhaustion respond differentially to intervention approaches. Such an approach may clarify both shared and distinct mechanisms of change across secondary trauma-related constructs.

Limitations and future directions

This systematic review has several limitations that warrant consideration. First, only three studies met the inclusion criteria despite an initial pool of over 42 potentially relevant articles, reflecting the limited empirical research specifically targeting interventions for STS among trauma workers using validated symptom-based tools. The majority of excluded studies were removed at the full-text stage because they did not meet one or more of the eligibility requirements: 17 sampled the wrong population (e.g., teachers, nurses, students rather than trauma-focused mental health professionals), 8 did not explicitly measure STS using validated symptom-based tools (focusing instead on burnout, compassion fatigue, or vicarious trauma), 7 evaluated general stress-management or wellness interventions without targeting STS, and 1 was a protocol paper with no reported intervention outcomes. This narrow evidence base restricts the generalizability of findings and underscores a broader gap in literature. Second, all included studies relied primarily on self-report measures such as the ProQOL or STSS, which, while validated, are subject to response biases and may not capture physiological or behavioral indicators of stress. Additionally, the lack of long-term follow-up in most studies limits understanding of the sustainability and durability of intervention effects over time. Moreover, methodological heterogeneity ranging from differences in study designs and intervention duration to variability in outcome measures precluded meta-analytic synthesis and makes cross-study comparison challenging. Cultural and contextual diversity was also limited, with only one study focusing on low- and middle-income humanitarian settings, despite the high relevance of STS in such environments.

Interpretation of intervention effectiveness should also consider participant recruitment methods. In several included studies, participation appeared to rely on voluntary or self-selected samples, which may reflect greater baseline awareness of secondary traumatic stress and a higher motivation to engage in intervention efforts. Such self-selection may increase responsiveness to interventions compared with samples recruited through mandatory or randomized assignment at the organizational

level. Consequently, observed intervention effects should be interpreted with caution, and future studies employing randomized or institution-wide recruitment designs are needed to strengthen causal inference.

The exclusion criteria applied in this review were intentionally stringent in order to focus on empirically evaluated intervention programs explicitly targeting STS outcomes among trauma-serving professionals. While this approach strengthened internal consistency and interpretability, it may also have excluded studies that addressed related constructs (e.g., resilience, stress management, or wellbeing) or employed indirect or multi-component interventions with potential relevance for STS. Examination of such studies may provide additional insights into effective intervention components and represents an important direction for future research. A broader synthesis of adjacent intervention literature may therefore be valuable for advancing the field. Where available, effect sizes and post-intervention trends were reported in this review; however, inconsistent reporting of baseline scores and standardized effect sizes across studies limited more detailed quantitative comparison.

A further limitation concerns the reliance on Google Scholar, which contributed a substantial proportion of initially identified records. Although used to maximize search sensitivity in a niche and emerging field, Google Scholar's indexing and ranking algorithms lack full transparency and may introduce selection bias. Despite parallel database searches and strict eligibility criteria, the possibility of incomplete capture or ranking-related bias cannot be fully excluded.

Future research should aim to expand both the quantity and quality of intervention trials targeting STS. Longitudinal studies with larger, more diverse samples are needed to assess not only immediate intervention outcomes but also long-term efficacy and relapse prevention. Comparative effectiveness research could help determine which types of mindfulness-based interventions, organizational, cognitive-behavioral, or peer-supported are most effective for specific subgroups of providers. Moreover, future studies should incorporate multi-modal assessment strategies, including physiological markers (e.g., cortisol levels, heart rate variability), clinician-rated outcomes, and qualitative feedback to triangulate findings and better capture the complexity of STS. Finally, there is a pressing need to develop and evaluate interventions that are culturally sensitive, scalable, and feasible in low-resource settings where trauma exposure among helping professionals is often more acute. Building trauma-informed organizational cultures and embedding STS prevention in professional training curricula are critical steps toward fostering resilience and ensuring sustainable mental health service delivery.

Conclusion

This systematic review highlights a growing but still limited body of evidence on interventions specifically targeting STS among professionals providing psychological or psychosocial support to trauma-exposed populations working with trauma-exposed populations. Despite STS being a well-documented occupational hazard with implications for workforce retention, clinical effectiveness, and ethical care delivery, few empirical studies have rigorously evaluated interventions using validated symptom-based tools. Among the three studies that met inclusion criteria, diverse approaches including supportive supervision, self-efficacy training, emotion-focused techniques, and multimodal wellness interventions showed promising outcomes in reducing STS symptoms and enhancing provider well-being.

The findings underscore the potential of structured, evidence-informed programs to mitigate the psychological toll of secondary trauma, particularly when interventions address emotional regulation, professional self-efficacy, and organizational support. However, the field remains in its early stages, and methodological limitations such as small sample sizes, short follow-up durations, and reliance on self-report measures call for cautious interpretation.

To strengthen the evidence base and inform best practices, future research should prioritize robust, longitudinal, and contextually sensitive studies that evaluate both clinical and organizational interventions for STS. Addressing STS is not only essential for protecting the mental health workforce but also for ensuring high-quality, trauma-informed care for vulnerable populations.

Abbreviations

CF	Compassion Fatigue
EFT	Emotion-Focused Training
MBSR	Mindfulness-Based Stress Reduction
MHPs	Mental Health Professionals
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PROSPERO	International Prospective Register of Systematic Reviews
ProQOL	Professional Quality of Life Scale
PTSD	Post-Traumatic Stress Disorder
RCT	Randomized Controlled Trial
STSS	Secondary Traumatic Stress Scale
STS	Secondary Traumatic Stress
VT	Vicarious Trauma

Supplementary Information

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Supplementary Material 1.

Supplementary Material 2.

Supplementary Material 3.

Supplementary Material 4.

Supplementary Material 5.

Supplementary Material 6.

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Authors' contributions

****Momina Khalid Butt:** ** Conceptualization, Methodology, Investigation, Formal Analysis, Data curation, Writing – Original draft ****Jonas Eimontas:** ** Conceptualization, Investigation, Visualization, Resources, Writing - Review & Editing ****Neringa Grigutytė:** ** Investigation, Visualization, Resources, Supervision, Writing - Review & Editing ****Rizwana Amin:** ** Conceptualization, Methodology, Resources, Supervision, Writing - Review & Editing.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

Not applicable. This study is a systematic review of published literature and did not involve the collection of data from human participants.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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