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# Post-incident psychosocial interventions after a traumatic incident in the workplace: a systematic review of current research evidence and clinical guidance

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## ABSTRACT

**Background:** After a traumatic incident in the workplace organisations want to provide support for their employees to prevent PTSD. However, what is safe and effective to offer has not yet been established, despite many organisations offering some form of intervention after a traumatic event.

**Objective:** To systematically review the evidence for post-incident psychosocial interventions offered within one month of a workplace trauma, and to compare the content, effectiveness and acceptability of these interventions. Given the lack of a yet clearly established evidence-base in this field, we sought to examine both published empirical research as well as guidelines published by expert groups working with staff in high-risk roles.

**Methods:** We conducted systematic searches for empirical research across bibliographic databases and searched online for clinical practice guidelines to April 2023. We were also referred to potentially relevant literature by experts in workplace trauma. Both empirical research and clinical guidelines were appraised for their quality.

**Results:** A total of 80 research studies and 11 clinical practice guidelines were included in the review. Interventions included Critical Incident Stress Debriefing (CISD), Critical Incident Stress Management (CISM), unspecified Debriefing, Trauma Risk Management (TRiM), Psychological First Aid (PFA), EMDR, CBT and group counselling. Most research and guidance were of poor quality. The findings of this review do not demonstrate any harm caused by CISD, CISM, PFA, TRiM, EMDR, group counselling or CBT interventions when delivered in a workplace setting. However, they do not conclusively demonstrate benefits of these interventions nor do they establish superiority of any specific intervention. Generic debriefing was associated with some negative outcomes. Current clinical guidelines were inconsistent with the current research evidence base. Nevertheless, interventions were generally valued by workers.

**Conclusions:** Better quality research and guidance is urgently needed, including more detailed exploration of the specific aspects of delivery of post-incident interventions.

## Intervenciones psicosociales posteriores a un incidente después de un incidente traumático en el lugar de trabajo: una revisión de la evidencia

**Antecedentes:** Después de un incidente traumático en el lugar de trabajo las organizaciones desean proporcionar apoyo a sus empleados para prevenir el TEPT. Sin embargo, aún no se ha establecido lo que es seguro y efectivo para ofrecer, a pesar de que muchas organizaciones ofrecen alguna forma de intervención después de un evento traumático.

**Objetivo:** Revisar sistemáticamente la evidencia de intervenciones psicosociales post incidente ofrecidas dentro del mes de un trauma en el lugar de trabajo y comparar el contenido, efectividad y aceptabilidad de estas intervenciones. Dada la falta de una base de evidencia claramente establecida en este campo, intentamos examinar tanto la investigación empírica publicada como las guías publicadas por grupos de expertos que trabajan con personal en funciones de alto riesgo.

**Métodos:** Realizamos búsquedas sistemáticas para investigación empírica a través de bases de datos bibliográficas y buscamos en línea las guías de práctica clínica hasta abril del 2023. También nos remitieron literatura potencialmente relevante por expertos en trauma en el

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Post-incident interventions; psychosocial interventions; workplace trauma; systematic review; research evidence; clinical guidance

## PALABRAS CLAVE

Intervenciones psicosociales posterior a un incidente; trauma en el lugar de trabajo; revisión sistemática; guías de práctica clínica

## 关键词

事件后社会心理干预; 工作场所创伤; 系统综述; 临床实践指南

## HIGHLIGHTS

- Organisations often seek to provide some form of psychosocial intervention after a traumatic event in the workplace.
- Previous reviews have contraindicated particulated forms of 'debriefing', however, the evidence for post-incident psychosocial interventions in the workplace has not previously been systematically reviewed.
- Research evidence was generally of poor quality with limited evidence of effectiveness and clinical guidelines were inconsistent with the evidence. Nevertheless, research did not demonstrate harm from

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lugar de trabajo. Se evaluó la calidad tanto de la investigación empírica como de las guías clínicas.

**Resultados:** En la revisión se incluyeron un total de 80 estudios de investigación y 11 guías de práctica clínica. Las intervenciones incluyeron Debriefing Emocional o de Incidente Crítico (CISD por sus siglas en inglés), Gestión del Estrés por Incidente Crítico (CISM por sus siglas en inglés), Debriefing inespecífico, Gestión del Riesgo de Trauma (TRiM por sus siglas en inglés), Primeros Auxilios Psicológicos (PFA por sus siglas en inglés), EMDR, TCC y asesoramiento grupal. La mayor parte de las investigaciones y guías fueron de mala calidad. Los hallazgos de esta revisión no demostraron ningún daño causado por CISD, CISM, PFA, TRiM, EMDR, asesoramiento grupal o intervenciones de TCC cuando se realizaron en un entorno laboral. Sin embargo, no demuestran de manera concluyente los beneficios de estas intervenciones ni establecen la superioridad de alguna intervención específica. El debriefing genérico se asoció con algunos resultados negativos. Las guías clínicas actuales fueron consistentes con la investigación actual basada en la evidencia. Sin embargo, las intervenciones fueron en general valoradas por los trabajadores.

**Conclusiones:** Se necesita con urgencia investigación y orientación, incluyendo exploración más detallada de aspectos específicos de la prestación de intervenciones posteriores a incidentes.

## 工作场所创伤事件后的事件后心理干预——证据综述

**背景:** 在工作场所发生创伤性事件后，组织希望为其员工提供支持，以预防创伤后应激障碍 (PTSD)。然而，尽管许多组织在创伤事件后提供某种形式的干预，但安全有效的措施尚未确定。

**目的:** 系统综述工作场所创伤发生后一个月内提供的事后心理社会干预的证据，并比较这些干预措施的内容、有效性和可接受性。鉴于该领域缺乏尚未明确建立的证据基础，我们试图考查已发表的实证研究以及与高风险员工合作的专家组发布的指南。

**方法:** 我们对书目数据库中的实证研究进行了系统搜索，并在线搜索了截至 2023 年 4 月的临床实践指南。工作场所创伤专家还向我们推荐了潜在的相关文献。实证研究和临床指南的质量都得到了评价。

**结果:** 综述共纳入 80 项研究和 11 项临床实践指南。干预措施包括危急事件压力报告 (CISD)、危急事件压力管理 (CISM)、未明确报告、创伤风险管理 (TRiM)、心理急救 (PFA)、EMDR、CBT 和团体咨询。大多数研究和指导质量都很差。本次综述的结果并未表明 CISD、CISM、PFA、TRiM、EMDR、团体咨询或 CBT 干预措施在工作场所进行时会造成任何伤害。然而，他们并没有最终证明这些干预措施的好处，也没有确立任何特定干预措施的优越性。一般汇报与一些负面结果有关。当前的临床指南与当前的研究证据基础不一致。尽管如此，干预措施普遍受到工作者的重视。

**结论:** 迫切需要更高质量的研究和指导，包括对事件后干预措施的具体方面进行更详细的探索。

most established interventions and support was valued by workers.

## 1. Introduction

Exposure to trauma in the line of work is not uncommon in many occupational settings, and may be particularly prevalent in certain ‘high-risk’ roles where workers are often and cumulatively exposed to traumatic incidents. Such high-risk occupational roles include, although are not limited to, health and social care workers, emergency service workers, military and security personnel, civil servants, analysts, journalists, retail workers and construction and transportation workers. In a recent systematic review of 31 studies, Lee et al. (2020) found that PTSD among workers who had experienced work-related trauma was notably higher than population norms (8.4–41.1%) although rates varied greatly among studies due to variation in the definition and method of measurement of PTSD, the type of traumatic event, the period after exposure, and differences in occupation. After a traumatic incident in the workplace, managers understandably want to be able to provide support for their employees with the intention of preventing PTSD, and workers often expect some form of recognition and

support. However, what is safe and effective to offer has not yet been established, despite many organisations offering some form of intervention after a traumatic event.

In the 1980s and 1990s, ‘debriefing’ became a popular intervention in many organisations, with workers who had been exposed to a traumatic event mandated to attend group sessions and encouraged to talk about their experiences. However, in 2005 the U.K.’s National Institute for Clinical health Excellence (NICE) recommended against offering psychologically-focused debriefing for the prevention of PTSD after a Cochrane review of randomised controlled trials (RCTs) published in the early 2000s showed that debriefing could potentially make PTSD symptoms worse (Wessely et al., 2000). Critics, however, have argued that this recommendation was based on methodologically flawed reviews; only including a small number of RCTs with poor intervention fidelity, differences between control groups at baseline and limited follow up, and suggest some aspects of psychologically-focused debriefing may still offer potential benefit (Hawker et al., 2011; Tamrakar et al., 2019).

Of note, the two studies that reported negative findings for debriefing and led to it being contraindicated in NICE guidance were on patient samples after accidents (acute burn victims (Bisson et al., 1997) and victims of road traffic accidents (Hobbs et al., 1996)), and not occupational groups, as debriefing was originally developed for.

In the revised 2018 Guidelines, NICE continued to recommend against psychological debriefing, either in groups or individually as current research showed no benefit, leading the committee to conclude that providing an ineffective intervention could be harmful as people might be denied access to other interventions with established evidence of benefit (NICE, 2018). NICE (2018) instead recommend a period of 'active monitoring' for the first four weeks after exposure to a trauma, but do not currently endorse any specific post-incident psychosocial interventions. The revised 2018 NICE Guidance is, however, based on research published up until 2017 so does not include more recent research in this field, and nor is it focused on workers exposed to trauma in occupational settings.

More recently, published guidance in Australia by Phoenix Australia (Lethbridge & Australia, 2021) on the prevention and treatment of PTSD similarly found no evidence of effect of group psychological debriefing on PTSD, based on the results of five RCTs with adults exposed to miscellaneous trauma. With respect to individual debriefing, the group noted no evidence of effect on PTSD from six RCTs, but potential slight increases in PTSD diagnosis in three RCTs. Notably, the three RCTs with negative findings were on burn victims in the above-reported study by Bisson et al. (1997), road traffic accident victims (Conlon et al., 1999) and victims of violent crime (Rose et al., 1999). The authors of the guidance note that the certainty of the evidence in relation to individual debriefing was very low due to serious risk of bias and very serious imprecision.

As per the UK's NICE guidance, the Phoenix Australia guidance is not specifically focused on trauma experienced in a workplace context. Workplace trauma is likely to differ significantly from trauma that might be experienced by working age adults in other settings. Workers in high-risk roles are at greater risk of exposure to trauma, are more frequently exposed, and more likely to experience prolonged and cumulative traumas. By the nature of their roles, they are also likely to anticipate exposure to trauma, and have knowingly chosen to go into these roles. In most cases, workers will also need to, and be expected to, return to work after exposure to workplace trauma. Trauma at work is also often shared by groups and teams with established systems and connections with others, which means post-incident interventions may be experienced differently from other working age

adults who experience trauma outside of work. It is also important to note that the evidence of negative impacts of psychological debriefing is based on four RCTs which were all conducted prior to 2000, with non-occupational samples, further necessitating an updated and specific review of psychosocial interventions in a workplace setting.

In the last twenty years, other types of post-incident psychosocial interventions have been developed such as 'Trauma Risk Management' (TRiM), and 'Psychological First Aid' (PFA), with limited evaluation in different traumatised groups. Variations of established treatment protocols for PTSD, such as Trauma-Focused Cognitive Behavioural Therapy (TF-CBT) and Eye Movement Desensitisation and Reprocessing (EMDR) therapy have also recently been developed for the prevention of PTSD. However, the evidence base for the use of such interventions in the workplace has not yet been systematically reviewed. Of note, the UK NICE Guidelines (2018) do endorse individual trauma-focused CBT interventions for adults meeting criteria for acute stress disorder (ASD) or clinically important symptoms of PTSD who have been exposed to a traumatic event within the last month. However, the wider discussion of the current evidence base for diagnosed ASD is outside of the scope of this review, which is intended to focus on universal preventative interventions in the workplace.

Which specific components of post-incident psychosocial support should be included has also remained controversial. One proposed explanation for the adverse effects observed in the original RCTs of debriefing was that emotional ventilation too soon after a traumatic event may be harmful, or potentially re-traumatising (Rose et al., 2003). The argument that mandating emotional expression too soon after a traumatic experience may be detrimental to recovery is based on consistent evidence measuring natural recovery after trauma, which shows that whilst experiencing distress in the immediate aftermath of a traumatic event is very common, *most people will recover naturally* (Layne et al., 2007). For most people, post-traumatic stress symptoms will reduce markedly over the first four weeks after trauma exposure through natural coping (Kessler et al., 1995). It has therefore been suggested that mandating early interventions immediately post-trauma exposure could possibly *impede* people's natural recovery processes (Litz et al., 2002). Nevertheless, in a workplace setting it is understandably challenging to suggest to managers and workers that the most appropriate course of action after a traumatic incident might be to not actively intervene.

There is also unclear or insufficient evidence regarding other components of post-incident psychosocial support. For example, whether interventions should be mandated or voluntary, provided in groups or individually, how soon after the trauma they should



be provided and over how many sessions, and who they should be provided by? Addressing this gap in knowledge is critical to developing safe and effective interventions.

It was therefore the aim of this study to systematically review the evidence for all types of brief post-incident psychosocial interventions offered within one month of a traumatic incident in the workplace, and to compare the content, effectiveness and acceptability of these interventions. We have focused on the prevention of PTSD as the primary outcome measure, in line with the aims of most research in this field. A further objective was to examine specific aspects of the delivery of post-incident psychosocial interventions, to explore which components may be associated with greater effectiveness and acceptability.

Given the lack of a yet clearly established evidence-base in this field, we sought to examine both published empirical research as well as guidelines published by expert groups working with high-risk occupational groups.

## 2. Methods

The review protocol was published in advance on PROSPERO, the National Institute for Health Research (NIHR) international prospective register of systematic reviews [CRD42022309626]. We have adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidance throughout this review (Moher et al., 2009).

This work has been led by established international experts in trauma research from University College London and guided throughout by an Expert Reference Group including six internationally recognised Subject Matter Experts in psychological trauma and workplace mental health, and two Lived Experience Experts, who have experienced first-hand the effects of trauma at work and previously received post-incident psychosocial interventions.

### 2.1. Search strategy

Systematic searching for **empirical research** was conducted across four bibliographic databases (MEDLINE, EMBASE, PsychInfo, and PTSDpubs) with initial searches from inception to 15 February 2022. Searches were subsequently re-run to identify any updated literature up until 3 April 2023. Key words related to population, intervention and exposure were included, such as ‘worker’, ‘post-incident intervention’, and ‘trauma’. With guidance from our expert reference group, key terms were further elaborated upon to include alternative terms and adapted for each bibliographic database. Searches were limited to English language (see [Supplementary Materials](#) for full search terms).

**Table 1.** Selection criteria for empirical research.

Study type	Peer-reviewed research articles (qualitative, quantitative, or mixed method research design)
Participants/ Population	Working age adults over the age of 18 who have experienced a traumatic incident in the line of routine work
Focus	Evaluate the effectiveness and/or acceptability of a brief post-incident psycho-social intervention Psycho-social intervention to begin and be completed within one month of a traumatic incident in the workplace (or adhere to a protocol which follows an approach to be delivered within one month, if timeframe not explicitly stated in paper).
Restrictions	Work settings, English language

Following the principles of web-based searching advocated by Briscoe (2015), we searched for **clinical practice guidelines** on meta-search engine platforms Google Advanced Search and Dogpile, initially using the broad search phrase ‘mental health guidelines to prevent post-traumatic stress disorder after critical incidents in the workplace’. Initial searches were conducted on 27 May 2022, and updated on 13 April 2023. Websites of organisations that are involved in the mental well-being of workers were also manually searched, identifying any form of guidance provided to workers or managers in the event of a critical incident in the workplace. Similar to the bibliographic search, searches were limited to English language, however, there were no geographical restrictions on guideline inclusion. All web-based searches were screened to a depth of ten pages.

Members of the Expert Reference Group also directed us to potentially relevant research and clinical practice guidelines. Backward and forwards citation tracking was conducted to further identify relevant academic papers and guidelines that were not already captured through the above strategies.

### 2.2. Selection criteria

Inclusion criteria for empirical research and clinical practice guidelines are shown respectively in [Tables 1](#) and [2](#).

### 2.3. Screening and data extraction

Potentially relevant empirical research papers retrieved from the bibliographic database searches were collated in Rayyan (Ouzzani et al., 2016),

**Table 2.** Selection criteria for clinical practice guidelines.

Literature type	Guidelines
Participants/ Population	Working age adults over the age of 18 who have experienced a traumatic incident in the line of their work
Focus	Recommended psycho-social interventions that begin and are completed within one month of a traumatic incident in the workplace
Restrictions	Work settings, English language

facilitating the removal of duplicates and independent screening by two reviewers (NW and HN).

Initial screening involved reviewing titles and abstracts of studies. Both reviewers independently screened the first 15% of studies followed by a process of comparison to resolve any discrepancies in the application of the review inclusion and exclusion criteria. The remaining literature was then screened by the first reviewer (NW). The full texts of all selected studies were then reviewed independently by both reviewers (NW and HN) with discrepancies resolved through discussion with the principal investigator (JB) until consensus was reached.

Potentially relevant guidelines from web-searches were first screened and subsequently collated onto an excel sheet by the first reviewer (NW). Both reviewers (NW and HN) then independently screened the full text of each potential guideline. Discrepancies were resolved through discussion with the principal investigator (JB) until consensus was reached.

Key characteristics of the included studies and guidelines were extracted into an Excel database, including authors, publication date and geographical location of the study, study population and sample, details of the intervention, and outcomes measured. Data extraction was discussed and agreed upon with between the first (NW) and second reviewer (HN) and principal investigator (JB).

#### 2.4. Quality appraisal

Quality appraisal of the included studies was conducted independently by two reviewers (NW and HN). Due to the inclusion of different types of studies and guidelines in this review (quantitative, qualitative, mixed-methods, and clinical practice guidelines), three different types of quality appraisal tools were utilised.

**The Effective Public Health Practice Project** (EPHPP; Thomas et al., 2004) tool was used to appraise quantitative research. This tool appraises the study based on eight domains (1. Selection bias, 2. Study design, 3. Confounders, 4. Blinding, 5. Data collection methods, 6. Withdrawals and drop-outs, 7. Intervention integrity, and 8. Analyses). Domains are rated on a three-point scale 'Strong', 'Moderate', or 'Weak'. This rating process was facilitated by the author's manual. A global rating of the study is then derived based on the first six domains. A study will be rated as 'Strong' globally if it has no 'Weak' ratings in any of the first six domains. For a 'Moderate' global rating, the study can only have one 'Weak' rating. Any study that has two or more 'Weak' ratings will be rated globally as 'Weak'.

**The Critical Appraisal Skills Programme** (CASP, 2022) checklist was used to appraise qualitative research. This tool consists of three sections and ten

questions; A) Are the results of the study valid, B) What are the results, and C) Will the results help locally. The original responses to each item (yes, can't tell, and no) were replaced by a three-point scale (2 = Fully met, 1 = Partially met or, 0 = Not met at all; as recommended by Lachal et al., 2017). A global rating was not devised by the authors of this tool, hence we decided to adopt a scoring system that is widely used in other systematic reviews using the CASP (Butler et al., 2016) to facilitate comparison between studies. The sum of the scores of the 10 items would indicate the global ratings of the appraised study. The ratings are 'Strong', 'Moderate', and 'Weak', each with a score of 18–20, 15–17, and 14 or below respectively.

Appraisal of both quantitative and qualitative studies was completed independently by two reviewers (NW and HN). Disparities in scores and ratings were discussed and agreed between the two reviewers.

Among the included studies, six were of mixed methods design, containing elements of both quantitative and qualitative research. These six studies were independently appraised with both appraisal tools (EPHPP and CASP) by the same two reviewers (NW and HN), adhering to the same assessment processes described above.

To appraise clinical practice guidelines, the **Appraisal of Guidelines for Research and Evaluation II framework** (AGREE-II; Brouwers et al., 2010) was used. With the aim of evaluating the methodological rigour and transparency with which a guideline was developed, AGREE-II includes 23 items, assessing 6 different domains. The domains are as follows; 1. Scope and purpose, 2. Stakeholder involvement, 3. Rigour of development, 4. Clarity of presentation, 5. Applicability, and 6. Editorial independence. Each item is scored on a 7-point Likert scale with 1 denoting 'Strongly Disagree' and 7 denoting 'Strong Agree'.

Appraisal of guidelines was conducted by the two reviewers (NW and HN) independently. Domain scores were calculated according to the user's manual, by summing the scores of the individual items in a domain followed by scaling the total as a percentage of the maximum possible score for the domain. The overall assessment of the guideline is made at the end, with reviewers independently responding on a 7-point Likert scale where 1 denotes the 'Lowest possible quality' and 7 denoting the 'Highest possible quality'. No instructions are provided as to how the overall assessment between reviewers should be moderated. Therefore, we decided to adopt an alternative overall assessment method that is commonly used in other reviews within the medical field using the AGREE-II appraisal tool. Domain 3 (Rigour of development) and 2 other domains should have a score of 60% or more to be labelled as a high-quality guideline (Brosseau et al., 2014; Shallwani et al., 2019; Smith et al.,

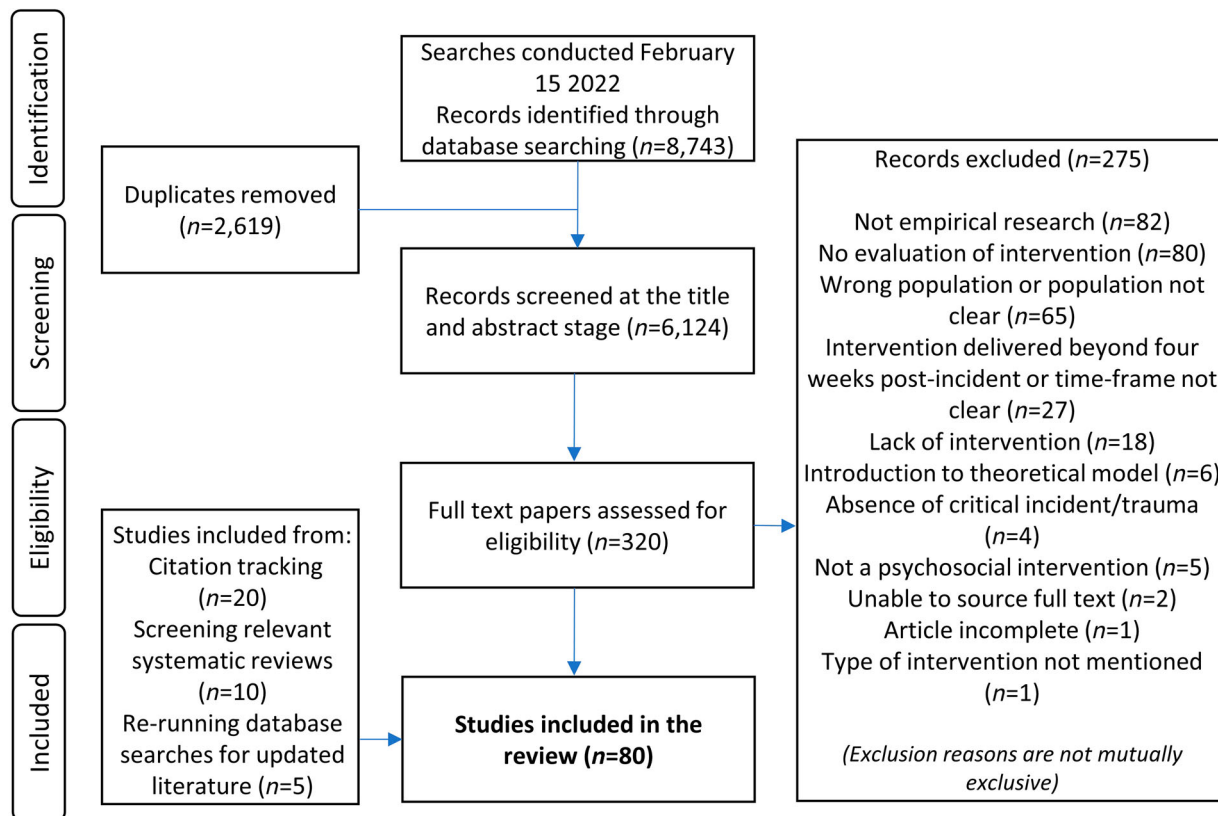


Figure 1. PRISMA diagram of empirical research.

2015). This led to guidelines being rated as either high-quality or low-quality.

### 2.5. Analysis

We initially analysed the results of empirical research according to intervention type to evaluate the effectiveness and acceptability of different types of interventions. Subsequently, we examined specific aspects of delivery within each type of intervention to explore whether there were any differences in effectiveness and acceptability according to specific elements, modes, or formats of delivery, such as number of sessions, who the sessions were delivered by, whether they were individual or group-based, whether they were voluntary or mandatory, and whether they included talking about feelings about the traumatic event or not.

Guidelines were analysed thematically, recording what interventions were recommended across different guidance, and considered in light of the quality of the guideline and consistency with the empirical research.

## 3. Results

Initial bibliographic database searches for **empirical research** conducted on 15 February 2022 yielded a total of 8743 studies, from which 2619 duplicates were removed. The remaining 6124 papers were

screened at the title and abstract level, after which 320 studies were included as potentially relevant.

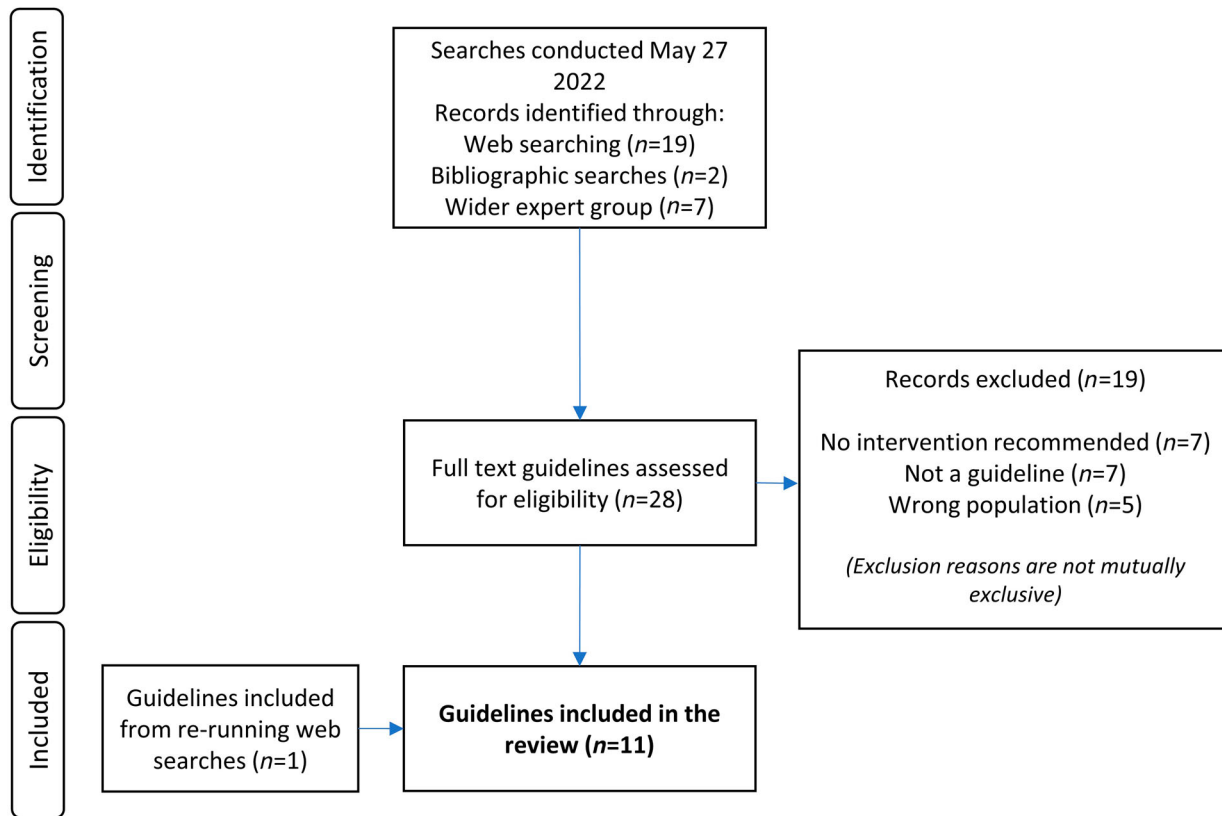
After screening the full text of the 320 studies, 45 met our inclusion criteria. 275 studies were excluded (See Figure 1. PRISMA diagram of empirical research below for more details; Page et al., 2021).

Backwards and forwards citation searching was conducted for all included studies. Reference lists were reviewed from any systematic reviews retrieved from the initial bibliographic database searches or identified by our expert reference group. This led to a further 30 research papers being identified.

Following re-running the searches to 3 April 2023, a further 693 titles and abstracts were screened (292 duplicates removed). 620 titles and abstracts were excluded, leaving 73 full texts to be screened for eligibility. Five further papers met our inclusion criteria. **A total of 80 empirical research studies were included in the final review.**

Initially, 19 potential **guidelines** were identified from web-searches. Seven additional guidelines were recommended by the wider expert group and two guidelines were retrieved from previous bibliographic searches conducted for empirical research. A total of 28 potential guidelines were included in the initial guideline screening.

After full text screening of all 28 guidelines, ten met our inclusion criteria. We then conducted backwards and forward citation searching of these ten guidelines, however, no further guidelines identified from this



**Figure 2.** PRISMA diagram for clinical practice guidelines.

process met our inclusion criteria. Following re-running the web-searches in April 2023, a further 8 potential guidelines were screened, of which one met our inclusion criteria. **A total of 11 guidelines were included in this review** (See [Figure 2](#). PRISMA diagram of clinical practice guidelines for more details; Page et al., 2021).

### 3.1. Characteristics of included studies

Studies included in this review were from 18 different countries across North America (USA, Canada and Mexico  $n = 35$ ), Europe (UK, Germany, Sweden, Norway, Netherlands, Italy, France and Greenland  $n = 29$ ), Oceania (Australia and New Zealand  $n = 10$ ), Asia (China, Israel, South Korea  $n = 4$  and Africa (South Africa and Uganda  $n = 2$ ). Publication dates ranged from 1989 to 2022. A range of study designs were included. Of the 80 studies, 56 were quantitative designs, 18 qualitative designs, and the remaining six were mixed method designs. Of the 56 quantitative studies, only six were randomised control trials. (See [Table 3](#) for the breakdown of different study designs included in the review).

The majority of the populations researched in these studies were frontline emergency workers (firefighters, police officers, disaster rescue workers, emergency services staff) making up 45% of the total population studied. The second largest group were doctors,

nurses, and health care professionals (20%), followed by military personnel (15%). A small body of literature also captured other groups of workers such as bank and retail employees, prison/forensic services staff, researchers, social workers, transportation workers, Foreign and Commonwealth Office employees, and industrial workers (20%).

Eight different psychosocial interventions were identified across the included studies: Critical Incident Stress Debriefing (CISD) ( $n = 40$ ), Critical Incident Stress Management (CISM) ( $n = 12$ ), unspecified Debriefing ( $n = 12$ ), Trauma Risk Management (TRiM) ( $n = 7$ ), Eye Movement Desensitisation and Reprocessing (EMDR) ( $n = 4$ ), Cognitive Behavioural Therapy-based interventions (CBT) ( $n = 3$ ), Psychological

**Table 3.** Specific breakdown of study designs.

Study design	Number
Randomised Control Trial	6
Controlled Clinical Trial	2
Cohort Analytic (2 groups pre + post)	3
Case-Control	2
Cohort (1 group pre + post (before & after))	6
Interrupted Time Series	4
Retrospective Study	9
Observational Study	4
Cross Sectional Survey Study	17
Case Series	1
Longitudinal Repeated Measured Design	1
Qualitative Study	18
Cohort (1 group pre + post (before & after)) + Qual	1
Mixed Method (Survey + Interview)	4
Longitudinal Mixed Methods Monostrand Design	1
Service evaluation	1



First Aid (PFA) ( $n = 5$ ), and Group Counselling ( $n = 1$ ). Some of the included studies compared the efficacy of more than one of the stated interventions, hence the total number of interventions is more than the total number of studies included in this review.

### 3.2. Critical Incident Stress Debriefing (CISD)

CISD was developed by Mitchell in 1983 (Mitchell, 1983) with the intention to mitigate the impact of exposure to trauma amongst emergency service personnel. CISD is usually administered within 24 to 72 hours of a traumatic incident and can be conducted in both individual and group settings. The debrief consists of seven stages: 1) introduction of CISD; 2) facts about the event; 3) thoughts about the event; 4) emotional reactions to the event; 5) discussing symptoms of stress due to the event; 6) psychoeducation about normal reactions to stress and specific coping methods; 7) planning re-entry to work, summarising the discussion and referral to further help if necessary. Following the CISD model, after the initial debrief, a follow-up session would usually be conducted 4 weeks later.

Table 4 depicts the characteristics of the studies evaluating CISD and their main findings. Of the 40 studies that investigated CISD, 16 investigated its effectiveness, 14 explored its acceptability, and 11 studies evaluated both effectiveness and acceptability. Only four of the 40 studies were RCTs. To determine the interventions' efficacy, most studies used scales which measured post-traumatic stress symptoms, the most common being the Impact of Events Scale (IES). Acceptability of the intervention was mostly determined through conducting interviews and surveys. Participants were often asked to rate the intervention and describe how likely they would be to recommend the same intervention to others.

The overall reported efficacy of CISD appeared to be divided, with seven studies reporting positive effects in reducing PTSD symptoms, and 11 studies reporting no effect. No studies reported a detrimental impact of CISD used in the workplace. Of the seven studies which reported positive effects, one was a randomised control trial, one was a between groups study, one was a cohort observational study, two were cross-sectional surveys, and two were mixed methods designs which included surveys. The quality appraisal of randomised controlled trials and between groups study designs tends to be of a higher quality compared to other study designs, making their findings more credible. However, there were still more studies that reported no differences in results compared to positive effects in reducing PTSD, and three out of four RCTs reported no differences.

In terms of acceptability, generally, CISD was well-liked with 23 studies rating the intervention positively and only five rating it negatively. Most of the positive ratings could be attributed to participants having the opportunity to express their thoughts and emotions, and perhaps more importantly, understanding that the thoughts and emotions they felt after the incident were not unique to themselves but shared across other colleagues:

They were able to establish some form of normalcy by knowing that others have similar reactions to the incident. (Frontline Services [Robinson & Mitchell, 1993])

Negative comments about CISD reported in the studies mainly revolved around the identity and professionalism of debriefers and compulsory attendance of debriefings. Professionalism of debriefers was raised in a few comments, citing the lack of structure of debriefings and some felt that the tone adopted by debriefers was antagonising:

speaking to me like a 5 year old. (Police Officers [Burns & Buchanan, 2020])

Police officers and firefighters in particular were reluctant to express their thoughts and emotions to a debriefer who was not from their line of work. Some also mentioned that the presence of their superiors in the debriefings would prevent them from speaking freely as they feared being judged:

... being debriefed or asked to share their thoughts with an outsider was uncomfortable. (Firefighters [Jahnke et al., 2014])

Further negative comments also mentioned that workers would prefer having the option to decide for themselves if there was a need to attend CISD, rather than making it mandatory, as well as the timing of the delivery of the debriefing sessions:

... it was compulsory, bad timing as it was conducted after the working period where people were tired and hungry. (Disaster Rescue Workers [Nurmi, 1999])

Out of the 40 studies investigating CISD, five studies had made the CISD intervention mandatory, while 22 had made attendance voluntary. The nature of attendance was not cited for the other included studies. As such, it is difficult to reliably compare the effectiveness of mandatory vs voluntary CISD, given this disparity between the number of studies. There were no notable differences between whether CISD was offered in an individual or group format.

Surprisingly, in two out of three studies where participants received CISD a week or more after the incident, participants still reported positive effects in reducing PTSD symptoms. CISD is intended to be administered within 72 hours after the critical incident. The positive effects found in both studies were

**Table 4.** Characteristics of studies evaluating CISD.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Critical Incident Stress Debriefing intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Armstrong et al. (1998), USA	Red cross personnel (95)	Earthquake	Cross sectional survey	Acceptability (Questionnaire concerning experiences of debriefing) (End of 3 weeks duty)	a. Group & individual b. Voluntary c. 1 session d. Not stated e. Social workers, clinical psychologist, psychiatrist f. Critical Incident Stress Debriefing only	Most participants rated the intervention favourably, agreeing that being able to share their thoughts and experiences with others was very important.
Burns & Buchanan (2020), Canada	Police (20)	Incidents that can occur during line of work as a police officer (i.e. confronted with mutilated body)	Qualitative design	Acceptability (Feedback from employees through interviews) (Beyond 4 weeks post intervention)	a. Group b. Voluntary c. Not stated d. Not stated e. Mental health professional f. Critical Incident Stress Debriefing only	CISD received mixed feedback from participants. Most participants found it to be a valuable intervention where normalised reactions were explained and they were signposted to psychological assistance. However, unpleasant experiences were cited due to CISD sessions being conducted at times which hindered their duties and lack of appropriate participants attending the sessions. Participants who were directly involved in the incident but excluded from the CISD sessions felt 'resentful'.
Carlier et al. (1998), Netherlands	Police officers (105)	Plane crash	Retrospective study	Effectiveness (Structured Interview for PTSD) (8 and 18-months post intervention)	a. Group b. Mandatory c. 1 session d. Not stated e. Peers, social workers, psychologist f. Critical Incident Stress Debriefing only	No significant differences in post-traumatic symptomatology were observed between the group that had received the debriefing intervention and the group that did not, 8 months post disaster. However, officers who had been debriefed displayed significantly more disaster-related hyperarousal symptoms, 18 months post disaster.
Carlier et al. (2000), Netherlands	Police officers (243)	A range of critical incidents, from death of colleagues to assistance at a large fire.	Cohort Analytic (2 groups Pre and Post) (Naturalistic)	Effectiveness & acceptability (Spielberger State-Trait Anxiety Inventory, Self-Rating Scale for PTSD, Impact of Events Scale, Peritraumatic Dissociative Experiences Questionnaire, Structured interview for PTSD, Anxiety Disorders Schedule-Revised) (Pre-intervention, 24 hours post-trauma (right after intervention), 1 week post trauma, 6 weeks post trauma).	a. Individual b. Voluntary c. 1 session + 2 follow ups d. < 24 hours e. Police officers trained in Critical Incident Stress Debriefing f. Critical incident Stress Debriefing, Psychoeducation, screening to ascertain if further intervention needed.	Debriefings did not lead to a reduction in stress-related symptomatology when compared to both external and internal control groups (External control group were police officers who had experienced trauma before debriefings were introduced as a procedure and internal control groups were police officers who declined debriefings when offered one).

(Continued)

Table 4. Continued.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Critical Incident Stress Debriefing intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Clark et al. (2019)	Paediatric emergency nurse and nursing assistant (19)	Death of patient	Qualitative	Acceptability (Focus group interviews) (Assessment point not stated)	a. Group b. Not stated c. 1 d. Not stated e. Chaplains/nurse peers f. Critical Incident Stress Debriefing only	Participants who had been debriefed reported higher satisfaction with the intervention (98% were satisfied with the first 2 sessions and 88% with the third session). There was no relationship between satisfaction and psychological symptoms, sick days taken, and rates of returning to work. Receiving positive reinforcement and constructive criticism during the debrief was important for participants. Participants did not want to discuss their emotions during the debrief, to prevent interference with their clinical duties. Participants preferred a charge nurse or assistant nurse manager (who was involved in the critical incident) to be the intervention facilitator. Participants preferred the CISD to be voluntary.
Eid (2003), Norway	Military – navy & army (122)	Shipwreck and avalanche	Cohort observational study	Effectiveness (Coping Style Questionnaire-30, Impact of Events Scale, Post-Traumatic Symptom Scale-10) (3–4 weeks post incident, 4 and 12 months follow up).	a. Not stated b. Not stated c. Not stated d. Not stated e. Not stated f. Psychological debriefing, psychosocial support	Psychological debriefing and psychosocial support led to a reduction in PTSD symptoms when measurements were taken 4 months later compared to the measurements taken at baseline (2–3 weeks post incident). Participants were able to continue to perform their work duties like before. Individual case examination revealed 77% of participants showed a stable low or declining level of PTSD symptoms over time, whereas 23% showed a stable high or increasing trend in PTSD symptoms.
Fichera et al. (2015), Italy	Bank employees (383)	Robbery	Mixed methods	Effectiveness & Acceptability (Impact of Events Scale) (pre-intervention, post-intervention (45 days later); qualitative feedback received post intervention)	a. Group, although individual sessions on request b. Voluntary c. 1 session d. Within 7–15 days e. Occupational Physician f. Structured group support, traumatic stress management, Critical Incident	79% of participants felt that the intervention provided emotional support and mitigated post-traumatic reactions. 3% of participants reported discomfort related to re-experiencing trauma. Scores on the Impact of Events Scale decreased during follow up. However, 14% of participants met the cut off for

Grundlingh et al. (2017), Uganda	Researchers (49)	Vicarious trauma from interviewing children who had experienced violence	Randomised control trial (group debriefing vs group leisure activity)	Effectiveness (Self-Report Questionnaire-20, Vicarious Trauma Scale, Impact of Events Scale-Revised, Professional Quality of Life Scale) (Before interviews, 5 weeks later).	Stress Debriefing, follow up psychological assessment. a. Group b. Voluntary c. 3 sessions d. Scheduled after working day e. Healthcare professional f. Critical Incident Stress Debriefing, psychoeducation.	PTSD at the second follow up 45 days post intervention. No evidence was found to suggest that group debriefings reduced secondary distress compared to group leisure activities. Explanations for this finding could include the lack of symptoms of emotional distress at baseline.
Harris et al. (2002), USA	Firefighters (852)	Traumatic incident not stated explicitly	Retrospective study	Effectiveness (Ways Of Coping Questionnaire, Perceived Social Support Scale, Hospital Anxiety and Depression Scale, World Assumptions Scale, Impact of Events Scale) (Assessment point not stated, however one of the selection criteria was experiencing a critical incident in the past 6 months).	a. Not stated b. Not stated c. Not stated d. Not stated e. Not stated f. Critical Incident Stress Debriefing only	A weak inverse relationship was found between anxiety and depression and Critical Incident Stress Debriefing. Participants who attended CISD were found to have lower anxiety and depression scores. A weak positive relationship was found between world assumptions and Critical Incident Stress Debriefing. Participants who attended CISD scored higher in the world assumptions scale, indicating that they were more protected against stress. No relationship was found between Critical Incident Stress Debriefing and PTSD.
Healy & Tyrrell (2013), UK	Emergency department doctors and nurses (103)	Patient death, major trauma, child death, traumatic assault,	Cross sectional survey	Acceptability (Questionnaire) (More than a month post intervention)	a. Not stated b. Voluntary c. Not stated d. < 24 hours or < 1 week e. Not stated f. Critical Incident Stress Debriefing only	The majority of participants rated debriefings as 'important' or 'very important'. 64 participants had never been offered opportunities to take part in debriefings and 15 did not know if debriefings were available to them. Only 38 out of 103 had taken part in debriefings after a traumatic incident at work. When asked to identify barriers to debriefing, many cited the lack of guidelines or environmental stressors at work.
Hokanson & Wirth (2000), USA	Emergency workers – including firefighters, lifeguards, hazard materials personnel, helicopter pilots, heavy equipment operators, dispatchers (2124)	Traumatic incident not explicitly stated.	Cross sectional survey	Effectiveness & Acceptability (Author developed questionnaire looking at acceptability and perceived symptom reduction) (Post intervention and more than a month post intervention).	a. Not stated b. Mandatory c. Not stated d. < 72 hours e. Not stated f. Defusing, Critical Incident Stress Debriefing, peer support.	Participants who had received the debriefing intervention reported a reduction in symptoms significantly sooner compared to participants who hadn't received the intervention. 79% of the debriefed group would recommend the intervention to others, while 85% of the non-debriefed group would also recommend the debriefing process, providing some indication of the positive reputation the debriefing process has within the department.
Jahnke et al. (2014), USA	Firefighters (sample size not stated)	Deaths and injuries	Qualitative design	Acceptability (Interview) (More than a month post intervention)	a. Group b. Voluntary c. 1 session	Participants who had experienced Critical Incident Stress Debriefing reported varying views. Some mentioned the

(Continued)



Table 4. Continued.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) <b>(Assessment time-points)</b>	Critical Incident Stress Debriefing intervention <i>a. Group or individual</i> <i>b. Mandatory or voluntary</i> <i>c. No. of sessions</i> <i>d. Timeframe between exposure and intervention</i> <i>e. Delivered by</i> <i>f. Components of intervention</i>	Main findings
					d. Not stated e. External facilitators f. Critical Incident Stress Debriefing only	intervention in a positive light, in that it helped to identify colleagues who may need additional intervention. However, many reported negative experiences with the intervention, stating that they felt worse after attending the debriefing. Some participants also mentioned that being debriefed or being asked to share their thoughts with an outsider was uncomfortable. Participants spoke about a lack of focus in firehouses on mental health and reported that many firefighters were reluctant to seek mental health treatment.
Jenkins (1996), USA	Emergency medical technicians, firefighters, paramedics (36)	Mass shooting incident	longitudinal repeated-measures design	Effectiveness (A 17 question semi-structured interview examining the variety of stress participants experienced and their use of coping resources, an incident questionnaire, a social support questionnaire, the Symptom Checklist-90, a psychosomatic distress questionnaire) (1 week and 1 month post incident).	a. Not stated b. Voluntary c. 1 session d. < 24 hours e. Not stated f. Critical Incident Stress Debriefing only	Participants who participated in Critical Incident Stress Debriefing showed the strongest recovery effects compared to those that did not participate in CISD, exhibiting better recovery from depression and anxiety.
Keene et al. (2010), USA	Medical care personnel (676)	Unexpected deaths or deaths of long-term patients	Cross sectional survey	Effectiveness & Acceptability (Evaluation forms and a survey) (Collected after each session)	a. Group b. Voluntary c. 1 session d. Not stated e. Bereavement coordinator f. Critical Incident Stress Debriefing only	The bereavement debriefing sessions were perceived as helpful, informative, and meaningful. Participants appreciated that they were able to hear from others who cared for the same patient. The survey results indicated that the greater the level of participation in the intervention sessions, the greater the score for managing grief. Participants who attended the debriefings also scored higher in their ability to maintain professional integrity compared to those that did not attend debriefings.
Kenardy et al. (1996), Australia	Emergency service personnel, disaster workers (195)	Aftermath of an earthquake	Interrupted time series	Effectiveness & Acceptability (Impact of Events Scale, General Health Questionnaire – 12) (6 months post incident)	a. Not stated b. Voluntary c. 1–5 sessions d. Not stated	The majority of participants rated the debriefing sessions as helpful. 20% rated the intervention as ‘not at all’ helpful. No significant associations were found

					e. Not stated f. Debriefing only	between debriefing status and either the GHQ or IES scores. Debriefing was also found not to have any beneficial effects in reducing stress overall and over time. Overall, the results did not provide any evidence of a rapid rate of recovery for those who were debriefed. However, this study is limited by the lack of control over the manner in which the debriefings were conducted.
Lane (1994), USA	Hospital medical staff (4)	Patient deaths	Qualitative design	Acceptability (Interview) (Assessment point not stated)	a. Group b. Not stated c. 1 session d. Not stated e. Not stated f. Critical Incident Stress Debriefing only	All participants agreed on the importance and relevance of receiving Critical Incident Stress Debriefing following a critical incident. Some participants would attend more than one CISD session to address the same incident.
Leonard & Alison (1999), Australia	Police officers (60)	Shooting incidents	Retrospective study (Control group of police officers who had no debriefing or intervention)	Effectiveness (Questionnaire on details of the shooting incident, A coping scale, State-Trait Anger Expression Inventory) (More than a month post intervention)	a. Individual b. Voluntary c. 1 session d. < 72 hours e. Staff psychologist within police departments f. Critical Incident Stress Debriefing only	Those who received Critical Incident Stress Debriefing scored higher on active coping, positive re-interpretation, and growth post incident. They also reported receiving more help from colleagues compared to the control group. Both groups had elevated anger scores when compared to normative scores, with the control group scoring higher. There was positive association between anger and dissatisfaction with the departmental response, and a positive association between anger and maladaptive coping patterns.
Lin et al. (2020), Taiwan	Military rescuers (71)	Helicopter crash	Cross sectional survey	Effectiveness (Self-developed questionnaire) (Immediately after the intervention)	a. Group b. Not stated c. 1 session d. 1 day following duty e. Psychiatrist, psychologist, social workers f. Critical Incident Stress Debriefing only	The two-hour post-disaster debriefing programme for frontline military rescuers enhanced participants' psychological well-being. This was observed in the self-ratings of participants recorded in the questionnaire. Participants had a mean rating of 4.26 out of 5, indicating a strong positive agreement of the perceived benefits of CISD.
Macnab et al. (1999), Canada	Transport paramedics, medical & nursing staff, Emergency Hospital Staff (132)	Death of colleagues	Retrospective study	Effectiveness (Impact of Events Scale, General Health Questionnaire) (1 day, 6 months and 2 years after intervention)	a. Group b. Voluntary c. 1 session d. < 72 hours e. Chaplains f. Defusing, Critical Incident Stress Debriefing, Psychoeducation,	The number of debriefing sessions attended was not associated with symptom frequency or severity at 6 months follow up. Participants felt that there was a lack of authenticity in the care and attention they were given. The Critical Incident Stress Debriefing was not seen as helpful and some indicated it had a negative impact. At 2 year follow up, two transport paramedics scored more than 30 on the

(Continued)

Table 4. Continued.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) <b>(Assessment time-points)</b>	Critical Incident Stress Debriefing intervention <i>a. Group or individual</i> <i>b. Mandatory or voluntary</i> <i>c. No. of sessions</i> <i>d. Timeframe between exposure and intervention</i> <i>e. Delivered by</i> <i>f. Components of intervention</i>	Main findings
Marchand et al. (2006), Canada	Convenience store employees (75)	Armed robbery	Randomised control trial	Effectiveness (Impact of Events scale, The PTSD module of the Structured Clinical Interview for DSM) (Immediately post incident, 30–40 days and 90–110 days post intervention).	a. Individual b. Not stated c. 2 sessions d. Between 2–22 days e. Experienced psychologist f. Adapted form of Critical Incident Stress Debriefing (CISD-A) that incorporates two sessions of individual debriefing and CBT techniques	IES, and 3 scored over 4 on the GHQ, suggestive of some form of psychological sequelae. Results revealed no differences between the CISD-A and the control group in preventing PTSD or attenuating posttraumatic symptoms 1 and 3 months later.
Matthews (1998), Australia	Psychiatric workers (63)	Assaults from community housing residents	Cross sectional survey	Effectiveness & Acceptability (Impact of the incident, Impact of Events Scale, perceived levels of distress) (1 week post incident)	a. Group b. Voluntary c. 1 session d. Not stated e. Qualified personnel f. Critical Incident Stress Debriefing only	Symptoms of post-traumatic stress were reported by almost all of the psychiatric workers (62/63) after being exposed to a traumatic incident. The lowest levels of stress were reported by individuals who chose not to attend a debriefing session despite it being available to them. In the week after the incident, no significant difference was found in overall stress reduction between those who did and didn't receive the intervention. 57% of those who attended debriefing rated the intervention as subjectively positive in helping to reduce stress levels.
McCall et al. (2022), USA	Registered nurses (7)	'A multi-casualty school-associated shooting event'	Qualitative design	Acceptability (Feedback through interviews) (Approximately 3 years after the event)	a. Not stated b. Not stated c. Not stated d. Day of the event e. An attending f. Debriefing only.	The debrief was not found to be helpful, primarily due to when it was offered. Some nurses indicated that they were not in the right 'headspace' for the intervention, whilst others commented on being 'still on the clock' and delivering patient care, which constrained their participation. Suggestions were made to hold the debrief following the end of the shift.
McWhirter & Linzer (1994), USA	Bank employees (11)	Robbery	Interrupted time series	Acceptability (Feedback from employees) (2 months post incident)	a. Group b. Mandatory & voluntary c. 2 mandatory sessions, 1 voluntary session	The intervention was rated as successful as only 1 employee left the branch. At 8 week follow up, most participants expressed feeling fatigued from thinking

Miller-Burke et al. (1999), USA	Bank employees (141)	Robbery	Cross sectional survey	Acceptability (Questionnaire on experiences of the robbery) (More than a month post intervention)	d. 3 days post incident e. Psychologist, doctoral interns f. Debriefing, psychoeducation, re-entry orientation, individual counselling a. Not stated b. Voluntary c. Not stated d. Not stated e. External Employee Assistance Service personnel f. Critical Incident Stress Debriefing only	and talking about the event and were ready to move on from the incident.
Nurmi (1999), Finland	Disaster rescue workers – winchmen, helicopter pilots, firefighters, nurses, police officers (133)	Sinking ferry	Mixed methods	Effectiveness & acceptability (Impact of Events Scale – Revised, Penn Inventory, Symptom Checklist-90 Revised, author developed survey exploring attitude towards Critical Incident Stress Debriefing. Interviews were also conducted with some participants) (Immediately post incident).	a. Group b. Mandatory c. 1 session d. 3 days – 1 week following duty e. Debriefing f. Critical Incident Stress Debriefing only	47% of individuals who took part in the intervention felt they had benefitted from it. The most helpful features cited were having the opportunity to talk about the traumatic event and learning that the feelings they had were shared by others. All 3 groups that were debriefed after their duty had lower scores on the IES-R, Penn Inventory, and the SCL-90-R compared to the group that had not received debriefing. The authors conclude that the intervention proved effective in reducing distress and trauma symptoms. The majority of individuals who were debriefed rated it as useful. The small amount of negative comments cited the mandated nature of the intervention, large group sizes and poor timing.
Ørner et al. (2003), UK	Health and social services, emergency services staff - police, ambulance, fire brigade (217)	Traumatic incident not explicitly stated.	Retrospective study	Acceptability (Survey examining endorsement of Critical Incident Stress Debriefing and Psychological Debriefing at work) (Assessment point not stated)	a. Group & Individual b. Not stated c. Not stated d. Not stated e. Not stated f. Critical Incident Stress Debriefing & Psychological debriefing	Participants preferred practice to defer from protocol dictated by Critical Incident Stress Debriefing and Psychological Debriefing. Most participants preferred flexible peer support meetings compared to structured group meetings. Many participants expressed that it was helpful to talk about the event, but with colleagues or someone close to them, rather than a professional. They also mentioned a preference for speaking about the event immediately after, rather than 24 or 72 hours later. Participants mentioned preferring to decide for themselves whether or not they require intervention following a critical incident.
Pack (2012), New Zealand	Social workers (13)	Sudden or unexpected deaths of colleagues or clients, harassment or assault by clients, suicide.	Qualitative design	Acceptability (Interviews examining experiences and acceptability of Critical Incident Stress Debriefing. Opinions on preferred Critical Incident Stress Management models were also obtained) (More than a month post intervention)	a. Group b. Not stated c. Not stated d. < 72 hours e. Social workers within the organisation f. Critical Incident Stress Debriefing only.	The authors concluded that there was overwhelming support for CISD. Many social workers felt that CISD needed to be offered within an integrated CISM policy which can then be adapted to the participants' specific social work context. Many felt debriefing should be optional and not mandatory. Ongoing individual clinical supervision was seen as a very

(Continued)



Table 4. Continued.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Critical Incident Stress Debriefing intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Pischke & Hallman (2008), USA	Military soldiers (396)	Combat related trauma – death, serious injury, near deaths.	Cross sectional survey	Acceptability (5-item questionnaire on the acceptability of the intervention) (Immediately after intervention)	a. Group b. Voluntary c. Not stated d. < 72 hours e. Military mental health care professionals f. Critical Incident Stress Debriefing only.	important part of an integrated CISM policy. 69% of participants reportedly agreed or strongly agreed that debriefing was helpful. Although most participants had no opinion on if it would have been more helpful if the intervention was delivered 2 hours post incident, the authors concluded that there was a need for immediate intervention soon after a critical incident, as well as after a brief 'calming-down' period of 48 - 72 hours. There was mixed response to the necessity of a follow up after attending a session, with 34% either agreeing or strongly agreeing, 36.8% having no opinion and the remaining 28.8% disagreeing. The authors concluded that these findings indicate the importance of the provision of ongoing mental health services after the initial CISM session. The majority of participants disagreed that they had trouble talking to others about the incident, but the smaller proportion who agreed would possibly benefit from the structured setting of a debriefing.
Regehr & Hill (2000), Canada	Firefighters (164)	Death, injury on duty, mass casualties.	Cross sectional survey	Effectiveness & acceptability (Beck Depression Inventory, Impact of Events Scale) (More than a month post intervention)	a. Group b. Not stated c. 1 session d. Not stated e. Not stated f. Critical Incident Stress Debriefing only	There were no significant differences in BDI scores between participants who received the intervention and those who did not. With regards to post traumatic symptoms, the intervention group reported significantly higher scores in the IES intrusion domain. No differences were found in the IES avoidance domain and IES total score. The majority of participants subjectively rated the intervention as beneficial in reducing stress.
Robinson & Mitchell (1993), Australia	Firefighters, ambulance officers, emergency workers, police officers (288)	Death during duty, multiple casualties, child fatality, suicide	Cross sectional survey	Effectiveness & Acceptability (Questionnaire measuring impact of critical incident, broader effects of incident, signs of stress, value of	a. Group b. Voluntary c. 1 session d. Not stated	Participants had significantly lower impact of critical incident scores post intervention when compared to scores pre-intervention. Participants rated

				debriefing) (2 weeks after intervention)	e. Not stated f. Critical Incident Stress Debriefing only	debriefings as considerably valuable to self and others in the group. Most participants also attributed the reduction in stress experience to attending debriefings.
Ruck et al. (2013), UK	Prison staff (220)	Physical assaults, riots, hostage incidents, self-harm, suicides	Cohort analytic 2 groups (pre and post) (Naturalistic)	Effectiveness (Impact of Events Scale Extended, Generalised Anxiety and Depression scale) (Pre-intervention and 1 month post intervention)	a. Group b. Voluntary c. 1 session d. < 72 hours e. Trained facilitators f. Critical Incident Stress Debriefing only	PTSD symptoms measured by the Impact of Events Scale - extended (IES-E) were significantly reduced after one month in participants who attended the debriefing when compared to their own scores measured prior to the intervention. No significant differences in PTSD symptoms were observed in the non-debriefed group. However, the debriefed group had significantly higher PTSD symptom scores compared to the non-debriefed group prior to the intervention.
Sattler et al. (2014), USA	Volunteer and paid firefighters (286)	Range of critical incidents including deaths, treating injuries, injury to self-etc.	Cross sectional survey	Effectiveness & acceptability (Questions concerning CISM experiences, occupational satisfaction and effort, attitudes about expressing emotions and social support, coping styles, resource availability, posttraumatic stress symptoms, posttraumatic growth) (More than a month post intervention)	a. Not stated b. Bot stated c. Not stated d. Not stated e. Not stated f. Critical Incident Stress debriefing only	There was no significant differences between the groups or between pre and post measures on the GAD scales. 64% of participants who had engaged in debriefing subjectively stated their stress had reduced 2 weeks after the intervention. Posttraumatic stress symptoms were negatively associated with debriefing attendance, posttraumatic growth, general social support, internal locus of control, and resource availability.
Smith & De Chesnay (1994), USA	Police officers (10)	Death of colleagues, child deaths.	Qualitative design	Acceptability (semi-structured interview) (More than a month post incident)	a. Group b. Not stated c. 2-4 sessions d. < 48 hours e. CISM trained police officer, consultant psychologist f. Critical Incident Stress Debriefing only	9/10 participants rated CISM as helpful. Immediate debriefing with officers involved in the same traumatic event with a police officer leader was felt to be more effective than counselling or psychotherapy.
Tran & North (2018), USA	Firefighters (181)	Bombing incident	Retrospective study	Acceptability (National institute of mental health Diagnostic Interview Schedule. The survey also examined level of satisfaction with psychological debriefing) (More than a month post intervention)	a. Not stated b. Mandatory c. Not stated d. Not stated e. Not stated f. Critical Incident Stress Debriefing only	65% of participants were very or mostly satisfied with the intervention. 21% of participants who were diagnosed with PTSD were very dissatisfied with the debriefs, compared to only 8% of those without PTSD. The authors attributed these findings to the clinical characteristics of avoidance/numbing where participants might have difficulties with vivid trauma reminders encountered in debriefing sessions. It was found that participants with higher levels of these clinical characteristics would tend to be more dissatisfied with

(Continued)

Table 4. Continued.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) <b>(Assessment time-points)</b>	Critical Incident Stress Debriefing intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Tuckey & Scott (2014), Australia	Volunteer firefighters (122)	Deaths, severe injuries from motor vehicle accidents, failed resuscitation attempts.	Randomised control trial (CISD vs Screening (no treatment) vs Stress management education)	Effectiveness (Impact of Events Scale, Psychosocial distress scale (Kessler-10), Quality of life enjoyment and satisfaction questionnaire, alcohol consumption) (Pre-intervention, 1 month post intervention).	a. Group b. Voluntary c. 1 session d. < 72 hours e. Consultant mental health professionals who were trained in CISD, peer supporters who were experienced operational firefighters f. Compared Critical Incident Stress Debriefing with stress management education with screening (control group)	the debriefs. However, the majority of participants would still recommend debriefing to their colleagues, including those who were dissatisfied with their experiences. No evidence was found to indicate that Critical Incident Stress Debriefing was effective in preventing posttraumatic stress. However, one-month post-intervention, Critical Incident Stress Debriefing was associated with lower levels of alcohol intake compared to the screening (control) group, and higher levels of quality of life compared to the stress management education group, after controlling for pre-intervention scores.
Wesemann et al. (2020), Germany	Emergency responders – police officers, firefighters, armed forces, NGO, medical technicians (60)	Terror attack	Case control study	Effectiveness (Stress Module of Patient Health Questionnaire, WHO Quality of Life Questionnaire brief version, PTSD checklist, Brief Symptom Inventory) (4 months post incident).	a. Group b. Voluntary c. 1 session d. < 72 hours e. Not stated f. Critical Incident Stress Debriefing only	Compared to the control group, the group which received debriefing scored lower on quality of life and showed more depressive symptoms. The authors concluded that this negative effect could be due to the significant gender and occupational differences between groups and that emergency workers with higher stress burdens were more likely to seek out crisis interventions.
Wu et al. (2012), China	Military rescuers (2368)	Natural disaster	Randomised control trial (debriefing vs psychological intervention model vs control group)	Effectiveness (Structured Interview for PTSD, Hospital Anxiety and Depression Scale) (Pre-intervention, 1, 2, and 4 months post intervention).	a. Group b. Voluntary c. 1 session d. Median of 25 days e. Clinical psychologists f. Compared debriefing (Critical Incident Stress Debriefing), with the 512 psychological intervention model (similar to CISD but includes a cohesion training section) with a no intervention control group.	In all groups (psychological intervention model vs debriefing vs control group) there was observed to be a significant decrease in symptoms on the SI-PTSD and HADS over the 4-month period. The intervention group ( $N = 512$ ) showed significantly more reduction compared to the other 2 groups, with positive effects on PTSD symptoms at 2 and 4 months.

sustained even in follow-up measurements which were taken more than a month after the intervention. The two studies that reported the positive findings were a randomised controlled trial and a pre-post study design. Typically, these studies were rated as being of stronger quality by the EPHPP, which adds some credibility to this finding, although overall study numbers were low compared to studies where CISD was offered within one week (as per protocol) limiting generalisability as to whether CISD can be offered outside of one week and still potentially be effective.

### 3.3. Critical Incident Stress Management (CISM)

CISM is an integrated multicomponent programme that caters to three different phases of a crisis: pre-crisis, peri-crisis, and post-crisis (Everly et al., 2000). A comprehensive CISM programme would include seven different components intended to mitigate acute stress after an incident and long-term psychological sequela such as PTSD. The seven components of CISM are 1) Pre-crisis preparation; 2) Demobilisation procedures; 3) Individual acute crisis counselling; 4) Defusing; 5) Critical incident stress debriefing; 6) Family crisis intervention techniques; and 7) Follow-ups/referrals. However, not all ten CISM studies in this review contained all the above-mentioned components of CISM, in some, components were truncated or combined. In essence, each CISM study described an intervention to target all three phases of a crisis, although some of the studies only reported on a specific component of the intervention.

Table 5 depicts the characteristics and findings of the studies evaluating CISM. Out of the 12 studies that investigated CISM, three investigated its efficacy, five explored its acceptability, and four looked into both efficacy and acceptability. There were no RCTs for CISM. Similar to the studies that investigated CISD, PTS symptoms were used to evaluate the efficacy of CISM, in most studies measured by the Impact of Events Scale. Acceptability was deduced through interviews and surveys.

Amongst the research evaluating the effectiveness of CISM on PTS symptoms, two studies reported a positive effect while two studies reported no effect. The two studies that reported a positive effect were of a retrospective survey study design which tends to be of a poorer quality and a cohort analytic design. Cohort analytic designs tend to score higher in quality appraisal, however, this particular study failed to have a control group hence we are not able to comment on the effectiveness of the interventions fairly. The two studies that reported no effect were cohort observational and mixed method studies. Both study designs were also rated poorly by the quality appraisal. Two more studies did not use PTSD symptoms to evaluate the intervention's efficacy, general health well-being,

staff turnover rate, and number of sick leave taken were used instead. No differences were observed in general well-being. There was a reduction in staff turnover rate and number of sick days taken, however, the study that reported these findings was an observational study design which was rated poorly in the quality appraisal. Nevertheless, a case-control study which rated higher in the quality appraisal, found that 'high fidelity CISM environments' could reduce the likelihood of screening positive for alcohol use disorder and generalised anxiety disorder.

With respect to acceptability, generally, CISM was rated positively in eight of the studies, with only one study rating it negatively. Not surprisingly, comments were very similar to those about CISD, likely due to CISD being a part of CISM. Participants appreciated being able to express their own thoughts and took comfort in knowing that their reactions were similar to others who had experienced the incident. Likewise, participants would prefer having the flexibility of deciding if they were to take part in the intervention rather than making it mandatory:

... being forced to go ... being forced to talk ... I was more upset at being forced to attend than I was about the incident ... was counter-productive after critical incidents. (Firefighters [Blaney, 2009])

However, it is worth noting that in the study by Strand et al. (2010) on military police, participants commented that if the debriefings were not mandatory, many would not have participated.

Being asked to share their thoughts and emotions with an outsider was again highlighted as an issue. However, debriefings that are conducted by internal personnel could also present issues:

Having 'non-uniform' or staff carry out debrief is not seen as helpful, yet using internal personnel ... often becomes an operation debrief. (Firefighters [Blaney, 2009])

One study which reported CISM being delivered by a healthcare professional reported positive findings in reducing PTSD symptoms compared to three studies which described CISM being delivered by peers or trained debriefers in which no effects on PTSS symptoms were reported. However, the study with the positive finding was of a cross-sectional survey design which was rated poorly by the quality appraisal. Therefore, such findings need to be interpreted with caution. No notable differences were discernable for whether CISM was delivered in an individual or group format and whether attendance was mandatory or voluntary.

### 3.4. Trauma Risk Management (TRiM)

TRiM is a peer-support model of psychological risk assessment first developed for the Royal Marines



**Table 5.** Characteristics of studies evaluating CISM.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Critical Incident Stress Management intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Blacklock (2012), Australia	Hospital medical staff (43)	Public suicide incident	Retrospective study	Effectiveness & acceptability (Impact of Events scale at 10 days, 6 weeks, and 3 months post incident; telephone interviews).	a. Group b. Not stated c. 1 session d. < 24 hours e. Senior mental health staff, nurse counselling team, pastoral care team. f. Debriefing, individual counselling if needed, peer support.	All 43 participants reported no further intrusive thoughts or avoidant behaviour associated with the incident following being contacted by the research team 3 months post incident. The authors concluded that this indicated that debriefing had a positive effect on participants. A positive response to the intervention was interpreted by the study authors from feedback received from participants via emails, thank you cards, and acknowledgement in senior executive meetings.
Blaney (2009), UK	Firefighters (244)	Traumatic incident not explicitly stated	Qualitative design	Acceptability (Questionnaires, interviews, intervention attendance, indicators of feeling better) (More than a month post incident)	a. Group b. Mandatory c. 1 session d. < 72 hours e. External debriefers or team leaders f. Components of Critical Incident Stress Management not stated.	Social support was ranked highest in terms of helpfulness. In particular, being able to verbally vent their thoughts and emotions to fellow peers was stated as preferential. Participants criticised the mandated attendance of interventions, citing that this was not helpful. In general, participants were supportive of Critical Incident Stress Management and appreciated the opportunity to voice their feelings and emotions after a traumatic event.
Cherry et al. (2021), Canada	Firefighters (745)	Wildfire	Cohort observational study	Effectiveness (Hospital Anxiety and Depression Scale, PTSD Checklist for DSM-5) (Immediately (base-line), 1 and 2 years post intervention).	a. Not stated b. Not stated c. Not stated d. < 48 hours e. Formally trained peer support firefighters f. Resiliency training, peer support, Critical Incident Stress Debriefing	Firefighters from services that reported using the Mitchell model for Critical Incident Stress Management were no less likely to have mental health disorders post-fire than firefighters from services with more informal peer support models.
DeMoulin et al. (2022), USA	Firefighters (134)	Not stated explicitly, but firefighters mentioned to 'routinely' encounter events that are traumatic or stressful.	Qualitative design	Acceptability (Focus group/ interviews exploring perspectives on workplace hazards, firefighter health generally, barriers to treatment and coping strategies) (Assessment point not stated)	a. Group b. Not stated c. Not stated d. Not stated e. Not stated f. Components of Critical Incident Stress Management not stated.	CISM and formal/informal departmental debriefs were found to be helpful and provided a chance to reflect on traumatic calls. Barriers to accessing mental health support included stigma and health professionals' limited knowledge of their culture at work. Drawing parallels between personal life/personal past events and the calls they attended, was identified as a risk factor.
Flannery & Penk (1996), USA	Mental health professionals (327)	Physical assault	Observational study	Effectiveness (Statistics related to staff turnover and sick	a. Group & individual b. Not stated c. 3 sessions	Following implementation of the programme, only 1 employee left the workforce as a result of patient violence, compared to 15 in the

	episodes of assault)			leave) (End of pilot study).		d. Immediate e. Psychiatrist, psychologist, nurses, social workers f. Peer-help, psychoeducation, individual crisis counselling, Critical Incident Stress Debriefing, weekly support group, and victims' family debriefing.	previous year. A reduction in sick leave was also noted. Since the beginning of the programme, it was also noted that there was a reduction in patient assaults. This was thought to be attributable to the programme's non-violent self-defence training and/or patient at-risk conferences.
Larsson et al. (2000), Sweden	Military soldiers (510)	Shooting incidents, being threatened with a weapon, taken hostage, seeing dead or wounded individuals, serious accidents	Cohort (1 group Pre and Post)	Effectiveness & acceptability (Five-Factor Personality Inventory, Sense Of Coherence scale, General Health Questionnaire-28, Occurrence of traumatic events, Types of support received if trauma experienced, Impact of Events Scale) (Assessment point not stated)		a. Peer support – individual, defusing – group, formal debriefing – group b. Voluntary c. 1 session d. Peer support – not stated, defusing – < 1 day, debriefing – 1–3 days. e. Peer soldiers, commanders, external counsellor f. The study compared peer support with defusing with formal debriefing.	Poor mental health post-service was related more to pre-service mental health and sense of coherence, rather than trauma exposure and post-trauma support. Post-service mental health was positively affected by peer support followed up with a defusing session. However, this did not apply to soldiers with the poorest pre-service mental health. A lack of data meant that the worth of formal debriefings could not be ascertained.
Lech et al. (2022), USA	Emergency department doctors and nurses (sample size not stated)	cardiopulmonary arrest or other emotionally challenging cases	Qualitative design	Acceptability (Focus group) (More than a month post incident)		a. Not stated b. Not stated c. Not stated d. Not stated e. Colleagues within the hospital f. Debriefing education, debriefing, peer support network	Debriefings were noted as supporting participants' well-being. Debriefing allowed participants to see the incident from others' points of view and helped them to overcome the culture of blame and isolation that can occur after a death at the hospital. The protocol in place facilitated communication between staff.
O'Rourke & Hyland (2021), Ireland	Firefighters (72)	Traumatic incident not explicitly stated	Mixed methods	Acceptability (Quantitative scales and open-ended questions were used. Questions included asking about their history of participating in Critical Incident Stress Debriefing/Defusing, thoughts on mandated attendance, and thoughts on which components of the intervention are effective) (More than a month post incident).		a. Not stated b. Not stated c. Not stated d. Not stated e. Not stated f. Critical Incident Stress Debriefing and Defusing.	There were varied views on mandated attendance. Some participants stated that for less experienced firefighters the option to debrief would be useful. Being made aware that their experiences were not unique to them and they were not alone was considered important. Debriefing was described by some as facilitating self-awareness, which allowed them to be in a better position mentally.
Price et al. (2022), Canada	Integrated firefighters and paramedics (215)	Traumatic incident not explicitly stated	Case control study	Effectiveness & acceptability (Peer Support Survey, Alcohol Use Disorders Identification Test (AUDIT), Generalised Anxiety Disorder (GAD-7), Panic Disorder Severity Scale, Self-Report (PDSS-SR), Patient Health Questionnaire (PHQ-9), Posttraumatic Stress Disorder Checklist (PCL-5), Social Interaction Phobia Scale (SIPS)) (Assessment time points not stated)		a. Individual and group b. Not stated c. Not stated d. Not stated e. CISM trained peer supporters f. Core CISM processes inclusive of 'assessment and triage; strategic planning; individual crisis intervention; informational group crisis	CISM was seen as helpful, and CISM conducted with high fidelity offers 'some mental health benefits to individuals who screen positive for alcohol use disorder and generalized anxiety disorder'.

(Continued)

Table 5. Continued.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Critical Incident Stress Management intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Priebe & Thomas-Olson (2013), Canada	Healthcare staff (sample size not stated)	Traumatic incident not explicitly stated	Mixed methods	Effectiveness & acceptability (Phone interview assessing staff perceptions of Critical Incident Stress Management, Impact of Events Scale – Revised) (1 month post intervention).	intervention; interactive group crisis intervention; resiliency' a. Not stated b. Voluntary c. 1 session d. < 24 hours & > 24 hours. e. Critical Incident Stress Management programme consultant f. Components of Critical Incident Stress Management not stated.	Although not significant, a trend was observed where participants who received the intervention within 24 hours had consistently lower IES-R scores across all three timepoints compared to those who received the intervention after 24 hours. The qualitative analysis revealed that participants from the early intervention group found the intervention timely, and of benefit. Participants who received the intervention later also cited the intervention as timely, as it allowed them to take time to process the incident naturally and they were able to discuss the incident with colleagues. However, 33% within this group would have preferred the intervention to be implemented sooner.
Richards (2001), UK	Bank employees (524)	Bank robberies	Cohort Analytic (2 groups pre and post, CISD vs CISM) (Naturalistic)	Effectiveness (Impact of Events Scale-15, Post-traumatic Stress Scale, General Health Questionnaire-28) (3 days post incident/pre intervention, 1, 3, 6, and 12 months post incident)	a. Group b. Voluntary c. 1 session & 3 follow ups d. 3 days (mean) e. Trained debriefers f. pre-trauma training, Critical Incident Stress Debriefing, individual follow up counselling.	Post-traumatic stress and general health were equivalent at 3 days and 1-month post-robbery for both the group that received Critical Incident Stress Management and the group that received Critical Incident Stress Debriefing only. Follow up measures taken at 3,6 and 12 months post-robbery showed that the group which had received Critical Incident Stress Management had significantly less post trauma morbidity compared to the group which received Critical Incident Stress Debriefing alone. General health questionnaire scores were not significantly different between groups at any time.
Strand et al. (2010), USA	Military police (sample size not stated)	Shooting incident at camp	Observational study	Acceptability (Measures not stated) (Assessment point not stated)	a. Group & individual b. Mandatory debriefings, voluntary 1:1's. c. At least 1 session d. 2 days e. Not stated f. Peer support, Critical Incident Stress Debriefing, 1:1 support, education.	Participants mentioned hesitancy to share information with an individual not in the same line of work as themselves. Many participants commented that if the debriefings were not mandatory, many would not have participated. Participants stated that the interventions conducted by trained peers were more practical and beneficial.

(Jones et al., 2003). The main goal of TRiM is to facilitate early management of individuals exposed to potentially traumatic incidents and subsequent referral to specialist services. Ideally, assessment should be conducted 72 hours after the critical incident. Using a 10-item checklist, trained peers would conduct the TRiM assessment and determine if the recipient is at risk of psychological harm. If needed, the individual would then be directed to receive appropriate care. After one month, another follow-up session is usually conducted to reassess the individual and potential need of onward referral. During risk assessments TRiM practitioners are instructed to avoid emotional discussion of the incident, focusing on the checklist (Greenberg et al., 2008).

Table 6 depicts the characteristics and findings of the studies evaluating TRiM. Of the seven studies that investigated TRiM, three looked at its effect on stigma and help-seeking behaviour, while only one explored the acceptability of the intervention. Only one of the seven studies was an RCT. The Post Traumatic Stress Disorder Checklist was also used in four of the studies to evaluate changes in post-traumatic symptomology.

Overall, two of the studies reported a positive effect of TRiM in reducing PTSD symptoms and two reported no effect. The two studies that reported positive findings were a controlled clinical trial and a cross-sectional survey. The quality appraisal rated the controlled clinical trial study highly but not the survey study. The one RCT into TRiM found no evidence to suggest that TRiM improves or worsens psychological health, although did report some benefits in organisational functioning.

Only one out of the seven studies formally assessed the acceptability of TRiM. Acceptability was rated positively overall in this study, particularly related to it being peer-delivered and perceived as relevant within the royal navy. Negative ratings of TRiM were attributed to trust issues, inexperienced practitioners, and lack of support from leaders in the process.

... all they are there for is if someone wants a chat after something has happened. Think it's a bit dodgy in a way because all it takes is a loose mouth and someone will know someone else's business. (Royal Navy Personnel [Greenberg et al., 2011])

One other study (Greenberg et al., 2009) did not formally assess the acceptability of TRiM, but did report that TRiM appeared to be well received.

TRiM is routinely delivered by trained peers, although in one study (Hunt et al., 2013) the intervention was provided by a police force clinical psychologist and in another (Greenberg et al., 2009), the intervention was delivered by risk assessors (two of whom were military personnel so not peers, and two

who were peer civil servants) who were flown out to the US after 9/11 to assess UK diplomatic personnel and families. There were no notable differences in these studies compared to when TRiM was delivered by trained peers. No differences were noted when TRiM was delivered in a group setting or individually.

So far TRiM has mostly been evaluated in military and police samples, therefore our understanding of its potential applicability to other work contexts is limited. Further, six out of the seven studies into TRiM have been carried out by the originator of the TRiM protocol, meaning more objective evaluation is warranted.

### 3.5. Psychological First Aid (PFA)

PFA was initially designed for survivors of disasters, however, its usage has now been expanded to some occupational settings such as transportation operators and expedition researchers. Being a peer-led intervention, it can be deployed immediately within hours of the incident (Bardon et al., 2022). Discussion during PFA is directed towards the immediate needs of the individual and not necessarily the incident.

Table 7 depicts the characteristics and findings of the studies exploring PFA. Two of the studies assessed the efficacy of PFA through sickness absence data and rate of returning to work after an incident. Three studies provided data on the acceptability of PFA. There were no RCTs of PFA in a workplace setting.

None of the studies reported the efficacy of PFA with reference to PTSD symptoms, instead the studies used number of days of sick leave taken from work and overall rate of recovery as a measure of the effectiveness of PFA. In one study it was reported that recipients of PFA had an improved rate of recovery, returning to work earlier than their counterparts who did not receive PFA. In a separate study, sickness absence rate was dependent on the severity of the critical incident and who delivered the intervention. In this study, workers who had experienced less severe incidents tended to benefit from PFA delivered by their peers and took lesser days off work, compared to PFA that was delivered by their superiors. However, this study was a cohort observational study, so participants were not randomly assigned to each group. Therefore, differences may be attributable to differences in the groups at baseline, such as those more severely affected being allocated to managers to deliver PFA. In critical incidents that were more severe where fatalities were involved, no relationship was observed between who delivered the intervention and sickness absence rate.

Three studies examined the acceptability of PFA. Generally, PFA was deemed helpful and liked by participants. One study (Civil & Hoskins, 2022) indicated that participants would recommend the intervention



to others, including colleagues, who experience a traumatic event. Another qualitative study (Tessier et al., 2022) described what in particular was acceptable/helpful about the PFA intervention. Components of PFA deemed particularly helpful included the early timing of the intervention, and the peer facilitator:

I thought it was important to talk about it right now. Waiting would have only increased my worries, but the fact that I talked to him there, it reassured me for the next calls to know: ‘OK even if something happens, there is someone who has my back’.

The fact that they are our colleagues, they understand what we work with. That is essential. The bond wouldn’t be the same if it was someone from the outside . . . (Emergency Medical Service worker [Tessier et al., 2022])

There was insufficient data to draw any conclusions about the format of delivery of PFA and associated effects on effectiveness or acceptability.

### **3.6. Eye Movement Desensitisation and Reprocessing (EMDR)**

EMDR involves participants focusing on a traumatic memory while simultaneously engaging in bilateral stimulation such as eye movement or tapping (Shapiro, 2009). EMDR is intended to reduce the vividness and distress of traumatic memories through exposure (desensitisation) as well as the integration of new information into autobiographical memory (reprocessing). EMDR is one of two psychological interventions (alongside trauma-focused CBT) which is recommended in NICE guidance for the treatment of PTSD (NICE, 2018) and would require delivery by an EMDR-trained mental health professional. Variations of EMDR were captured in this review with two studies evaluating a modified EMDR protocol for recent events that targets acute stress disorder rather than PTSD.

Table 8 depicts the characteristics and findings of the studies exploring Eye Movement Desensitisation and Reprocessing. (One study compared the efficacy of EMDR and CBT (Perri et al., 2021), and is reported in the CBT-based interventions section). All four studies investigated the efficacy of EMDR in reducing PTSD symptoms, one of which was an RCT. One of the four studies also explored the acceptability of the intervention. PTSD symptoms were measured using either the Posttraumatic Check List or Impact of Events Scale.

All four of the studies on EMDR reported positive effects in reducing PTSD symptoms. Out of the four studies, one was a randomised control trial, one was a controlled clinical trial, one was a case series study, and one was a cohort study where measurements were taken before and after the intervention. The positive effects reported in the cohort study were sustained

where follow-up measurements were taken four months post intervention. The quality of the randomised control trial study was rated highly in the quality appraisal, boosting the credibility of the positive findings. However, the subsequent three study designs performed poorer, with two rated as ‘moderate’ and one rated as ‘weak’. More higher quality research is required for more conclusive results.

Only one study assessed the acceptability of EMDR, with participants in this study rating the intervention favourably. The authors of this study stated that all participants tolerated the intervention well and endorsed a subjective sense of benefit by the end of their session.

All four studies were delivered individually, on a voluntary basis, and conducted by a healthcare professional. Positive findings were reported regardless of differences in the number of sessions and duration between incident and intervention. The positive findings of EMDR included two randomised controlled trial studies, further strengthening the credibility of their findings.

### **3.7. Cognitive Behavioural Therapy (CBT)-based interventions**

CBT-based interventions adopted principles of the CBT model in exploring how emotions and behaviours are influenced by a person’s perception of an event. Two of the studies also contained elements of exposure therapy where participants were asked to recall the distressing incident, exposing them to the traumatic memory and subsequently using cognitive behavioural techniques to cognitively process the incident (in line with trauma-focused CBT (TF-CBT) protocols). The third study incorporated cognitive behavioural techniques with drawing (CB-ART), whereby participants were invited to express their emotions through their own drawings during the workshop.

Table 9 depicts the characteristics and findings of the studies examining Cognitive Behavioural Therapy-based interventions. The aims of all three studies were to investigate the efficacy of CBT-based interventions in reducing PTSD symptoms. One of the studies was an RCT comparing internet-based CBT with internet-based EMDR. Scales used to measure PTSD symptoms were all different; the PTSD checklist from the Diagnostic and Statistical Manual of Mental Disorders 5, Subjective Units of Distress Scale, and PTSD Checklist-military version. None of the studies explored the acceptability of the intervention.

Two studies reported positive effects of the CBT-based interventions in reducing PTSD symptoms, while the third study reported a reduction in subjective units of distress. The studies with positive findings

**Table 6.** Characteristics of studies evaluating TRiM.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	TRiM intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Frappell-Cooke et al. (2010), UK	Royal marines & Coldstream guards (180)	Deployment	Controlled clinical trial (group of soldiers in the initial stages of using TRiM compared to soldiers that had already incorporated TRiM into their organisational culture)	Effectiveness (General Health Questionnaire-12, PTSD Checklist-Civilian version) (Baseline 4–6 weeks before deployment, 3 months into deployment, 1 week post deployment)	a. Group b. Not stated c. Not stated d. Not stated e. TRiM practitioners f. TRiM with follow up offered after 1 month	Personnel within units with experience of TRiM reported lower levels of psychological distress compared to personnel in the unit who were using TRiM for the first time.
Greenberg et al. (2009), USA	Foreign and Commonwealth Office (FCO) employees ('formally risk assessed' – $n = 28$ )	September 11 2001 attacks in New York.	Cohort study	Effectiveness (Risk Assessment Tool (RAT) (TRiM), Impact of Events Scale (IES)) (First risk assessments conducted 24/09/01–29/09/01. Follow up risk assessments conducted 29 October 2001 to 2 November 2001)	a. Group & individual b. Voluntary c. 1 risk assessment interview + 1 follow up risk assessment d. ~ 2 weeks e. Risk Assessors (x2 were military personnel, x2 were peers) f. 'psychoeducational briefings', a risk assessment interview if indicated, and a follow up risk assessment.	There were parallels between the changes in post-traumatic stress identified by the widely known and used IES, and the RAT. Two employees were referred for more help following the follow up, and both appeared to have stayed in the job. Recipients were appreciative of having received the TRiM intervention.
Greenberg et al. (2010), UK	Military personnel – Navy (1559)	Fire, floods, injuries of a significant nature on a ship	Cluster Randomised control trial (TriM vs Standard care)	Effectiveness & Stigma (General Health Questionnaire-12, PTSD Checklist-Civilian version) (Baseline before deployment, and after deployment)	a. Individual b. Voluntary c. 1 session d. Not stated e. Trained peers f. TriM only	No evidence found to suggest that TriM improves or worsens psychological health.
Greenberg et al. (2011), UK	Military personnel – Navy (330)	Fire, floods, injuries of a significant nature on a ship	Qualitative design	Acceptability (Interviews) (More than a month post incident)	a. Individual b. Voluntary c. 1 session d. Not stated e. Trained peers	TriM was primarily described as relevant and useful in dealing with trauma. Its usefulness was attributed to the peer delivery model. 19% of participants expressed negativity towards TriM, citing confidential issues, inexperienced practitioners, and a lack of support from leaders of the TriM process.
Hunt et al. (2013), UK	Police officers & civilian support staff (717)	Direct physical threat, dealing with human remains, being wounded, deaths, distressed victims, firearms	Service evaluation	Effectiveness (Sickness absence rates) (Data obtained from HR)	a. Individual b. Voluntary c. 1 session d. Not stated e. Police force clinical psychologist	TriM alone did not significantly affect sickness absence rates. However, when sociodemographic factors were accounted for, positive effects were observed for junior officers. The same effect was not observed for more senior officers.

(Continued)

Table 6. Continued.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	TRiM intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Jones et al. (2017), UK	Military soldiers	Death of colleagues, near misses, overwhelming distress, long lasting or multiple traumas, being wounded or shot at, proximity to explosions	Cohort (1 group pre and post)	Effectiveness & Stigma (Generalised Anxiety Disorder-2 scale, Patient Health questionnaire-2, 4-item Primary Care PTSD Scale, PTSD Checklist- Civilian version, Alcohol Use Disorders Identification Test (AUDIT-QF), 7-item perceived barriers to care scale) (6–12 weeks after deployment and 1–2 years follow up)	f. TriM with follow up offered after 1 month a. Not stated b. Not stated c. Not stated d. Not stated e. Not stated f. TriM only	Those in receipt of TriM were significantly more likely to seek formal mental health care compared to trauma exposed groups that did not receive TriM. However, despite help seeking, the recipients of TriM were more likely to experience persistent mental ill-health and alcohol misuse over the follow up period.
Watson & Andrews (2018), UK	Police officers (859)	Traumatic incident not explicitly stated.	Cross sectional survey	Effectiveness & Stigma (Trauma Exposure Measure, PTSD Checklist-Civilian version, The Stigma and Barriers to Care Questionnaire, Military Stigma Scale) (More than a month post intervention)	a. Individual b. Voluntary c. Not stated d. Not stated e. Trained Peers f. TriM only	Participants in the TriM group reported significantly fewer posttraumatic stress symptoms compared to the non-TriM group. Participants in the TriM group reported significantly lower public stigma and fewer barriers to help-seeking than those in the non-TriM group. With regards to self- stigma, no difference between groups was observed.

**Table 7.** Characteristics of studies evaluating PFA.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Psychological First Aid intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Bardon et al. (2022), Canada	Train drivers (74)	The presence of hazardous materials, critical incident occurrence at the terminal where the driver worked, and critical incidents involving casualties, near misses and fatalities.	Longitudinal mixed methods monostrand design.	Effectiveness (Multiple interviews conducted to ascertain the effect of critical incident management and support protocols (CIMSPs) on post-critical incident recovery trajectories) (1 week, 1 month, 3 months, 6 months post incident).	a. Not stated b. Not stated c. Not stated d. Not stated e. Not stated f. psychoeducation, demobilisation, leave of absence, peer/managers support, Psychological First Aid, Formal screening (participants in this study received varying levels of support).	Better-implemented CIMSPs led to a quicker reduction in negative emotional and cognitive consequences following a critical incident. This effect was observed regardless of the circumstances of the critical incident and individual factors. Return to work protocols, however, were not adequately applied in the majority of cases. Return to work protocols include both assessing whether an individual is ready to go back to work and supporting an individual to come back to work. The authors concluded that implementing further support around returning to work would aid recovery efforts.
Brown et al. (2020), Greenland	Researchers at an Arctic research station (sample size not stated)	Polar bear encounter	Interrupted time series	Acceptability (Measures not stated) (Immediately post intervention).	a. Group b. Not stated c. > 1 session d. Not stated e. Healthcare provider at the station with assistance from a trained provider through use of telemedicine. f. Psychological First Aid and telemedical support were used to follow the recovery of staff.	Group consensus was that these sessions were helpful for the staff based at the research station. Following the intervention, staff were able to resume their work.
Civil & Hoskins (2022), New Zealand	Staff working in an operating theatre (15)	Natural disasters, neonatal deaths, 'major trauma events including in children, and unexpected deaths in theatre'	Survey	Acceptability (Measures not stated) (Programme began 2018, survey conducted 2021)	a. Group b. Voluntary c. 1 session +1 follow up 48 hours later d. Defuse is held 24–28 hours after the event. e. 'Two trained peer responders' (from the critical incident peer response team). f. A defuse, information leaflet, a follow up 48 hours later by the facilitators with the potential for direction to other resources if needed.	All participants described the defuse session as 'neutral' to 'very helpful', would receive the intervention again, and would recommend the intervention to others involved in a traumatic event.

(Continued)

Table 7. Continued.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Psychological First Aid intervention <i>a. Group or individual</i> <i>b. Mandatory or voluntary</i> <i>c. No. of sessions</i> <i>d. Timeframe between exposure and intervention</i> <i>e. Delivered by</i> <i>f. Components of intervention</i>	Main findings
Clarner et al. (2017), Germany	Public transportation workers (259)	Accidents, deaths, near deaths, injury, vehicle collision, suicide, assault, any harm to passengers	Cohort observational study	Effectiveness (Sickness absence following the incident) (Data obtained from HR).	a. Individual b. Voluntary c. 1 session d. < 1 hour e. Trained peers or managers f. Psychological First Aid only.	Peer support from trained colleagues had a positive effect on sickness absence following a potentially traumatic incident. However, this positive effect was dependent on how severe the potentially traumatic event was. Peer support from trained colleagues was found to be most beneficial when it occurred after a less severe potentially traumatic incident. More severe potentially traumatic incidents led to more sickness absence, indicating the importance of providing appropriate care to workers after severe incidents.
Tessier et al. (2022), Canada	Emergency medical service workers (paramedics and emergency medical dispatchers) (13)	Traumatic incident not specified	Qualitative design	Acceptability (Perceptions of PFA gathered through interviews) (4 to 12 months after participant received PFA)	a. Individual b. Voluntary c. 1 session + 1 follow-up 48 hours later d. 'next few hours or days' following the traumatic event e. Trained colleagues f. PFA only	PFA appeared beneficial to receive after a traumatic event at work. Components of PFA that were particularly acceptable included the early offering of the intervention, and the 'closeness with peers'.

were a randomised control trial (RCT), interrupted time series, and cohort design where the group measurements were taken before and after the intervention. The studies were not rated highly in the quality appraisal, with two rated as 'moderate' and one as 'weak'. Moreover, only one study had a follow up one month later, hence the long-term efficacy of these interventions is not known. The RCT with follow up at one month compared two active treatments (EMDR and TF-CBT) and did not include a no treatment control group, therefore it is not possible to conclude whether benefits gained exceeded those which might be expected from natural recovery over the first month after exposure to a traumatic event. None of the three studies reported the acceptability of the interventions. There was insufficient data to conclude if specific delivery mechanisms influenced the efficacy of the interventions.

### 3.8. Group counselling

A group counselling intervention was evaluated in one study which consisted of psychoeducation (providing information for participants about normal reactions to stressors), stabilisation exercises (to create a safe space for participants to express their thoughts and emotions), relaxation techniques, and counselling. The content of the counselling sessions was not stated in the study; therefore, we are unable to determine if participants were encouraged to discuss the incident and express their thoughts and feelings about it or not. This intervention was completed over four sessions within four weeks.

Table 10 depicts the characteristics and findings of the study on group counselling. The aim of the study was to evaluate the efficacy of the group counselling intervention using PTSD symptoms, depressive symptoms, suicidal ideation, and alcohol consumption.

The study reported positive effects in reducing PTSD symptomology, however, the study was a pre and post design, with measures reported pre-intervention and one month post intervention, so reductions in PTSD symptoms could be attributable to natural recovery over time. In the absence of a control group, it is therefore difficult to ascertain if the positive findings reported were because of the intervention. There was no assessment of the acceptability of the intervention.

### 3.9. Unspecified debriefing

Interventions were classified as unspecified debriefing interventions where debriefing was described in the studies but the theoretical model behind its methodology was not specified. A total of 12 studies reported using debriefings and these studies were either an operational debriefing, or discussion of recipients'

emotions, or a combination of both. Operational debriefing focused only on performance and behaviour during the incident, with the goal to reflect on lessons learnt from the incident. Discussions to address the emotional needs of individuals were intended to provide them with an avenue to express any emotional distress that might have arisen as a result of the incident. Hence, both had very distinct, and separate purposes.

Table 11 depicts the characteristics and findings of the studies concerning unspecified Debriefing. Of the 12 studies that investigated unspecified debriefing, nine explored the acceptability of the intervention, one investigated the efficacy of the debriefing and two looked at both efficacy and acceptability of the debriefings. None of the unspecified debriefing studies were RCTs. PTSD symptoms were measured using either the Trauma Screening Questionnaire or Impact of Events Scale. Acceptability of the intervention was explored through interviews and surveys.

Most studies in this category tended to be qualitative, looking at the acceptability of the debriefings, with only two studies reporting quantitative outcome data. The first of these quantitative studies reported a negative effect indicating worsening of PTSD symptoms, while the other study reported no effect. Despite the lack of evidence of effectiveness, debriefings were still subjectively rated positively in eight of the studies, including the study that reported a negative finding. Three studies rated the acceptability of the intervention negatively. Positive comments revolved around participants being able to express their thoughts and knowing that others had similar feelings and thoughts after the incident. Participants once again mentioned the distinctions between themselves and the debriefers not being in the same line of work hence not being able to relate to their feelings and experiences. This distinction tended to be brought up more by police officers and firefighters:

I don't want to share what I feel and think to a person who is a haasman (Civilian), what do they know of what we see and feel. (Police Officer [Elntib & Armstrong, 2014])

A common characteristic found among nurses and doctors in hospital settings within this body of literature was differentiating between the need for debriefing for the purposes of professional development vs emotional processing after attending to a cardiac arrest.

... needing a debrief for emotional support is different to feeling like you need a debrief to improve your clinical skills. (Emergency Nurse [McCall, 2020])

To address their emotional needs, peer support sessions and informal conversations were cited as options as well:



**Table 8.** Characteristics of studies evaluating EMDR.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Eye Movement Desensitisation and Reprocessing intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Jarero & Uribe (2011), Mexico	Forensic personnel (60)	Handling and identifying bodies	Cohort (1 group pre and post)	Effectiveness (Impact of Events Scale, Short PTSD Rating Interview (SPRINT) (Pre intervention, 2 weeks post intervention, follow up at 4 months post intervention)	a. Individual b. Voluntary c. 4 sessions d. Administered during ongoing event e. EMDR clinicians f. EMDR – Protocol for Recent Critical Incidents (EMDR-PRECI). EMDR-PRECI is an 8-phase protocol developed for individuals suffering from recent, ongoing trauma. Ongoing trauma is defined as when the potentially traumatic incident continues for an extended period of time, and subsequently there is no period of safety post-trauma for memory consolidation.	When compared to the waitlist control, participants who received EMDR-PRECI had significantly lower scores on IES and SPRINT. For both the waitlist/delayed and immediate treatment groups, one session of EMDR-PRECI produced significant improvement on measures of post-traumatic stress and symptoms.
Tarquino et al. (2016), France	Retail company employees (60)	Armed robbery, physical assault	Randomised control trial (EMDR-RE VS delayed EMDR-RE VS CISD)	Effectiveness (Subjective Units of Distress scale, PTSD Checklist scale) (Within 48 hours of incident, 48 hours post intervention, follow up 3 months)	a. Individual b. Voluntary c. 1 session d. < 48 hours for EMDR-RE group and CISD group, 96 hours for the delayed EMDR-RE group e. Psychologist f. EMDR Recent Events Protocol, CISD	After 3 months, those who had received EMDR-RE and delayed EMDR-RE reported significantly lower scores on the SUDS and PCL scales compared to those who had taken part in CISD.
Toukolehto et al. (2020), USA	Military personnel (8)	Traumatic deaths during deployment	Case series	Effectiveness & acceptability (Patient Health Questionnaire-9, PTSD Checklist-5, Generalised Anxiety Disorder-7 questionnaire) (Immediately post intervention and 1 month follow up)	a. Individual b. Voluntary c. 1 session d. < 96 hours e. Military psychologist f. Accelerated Resolution Therapy (consists of EMDR mindfulness, gestalt-style interventions)	A reduction was seen in scores on the PHQ and PCL for all 8 cases, demonstrating a positive treatment effect at the end of one session. This effect was also observed at 1 month follow up for cases 1–6 (cases 7 and 8 had no follow up). Participants were able to engage with the intervention well and subjectively mentioned having benefitted from the intervention at the end of their session. All returned to duty post intervention.

**Table 9.** Characteristics of studies evaluating CBT-based interventions.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Cognitive Behavioural Therapy intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Cigrang et al. (2005), USA	Military soldiers (3)	Combat-related traumas (IED, accidents, witnessed deaths or severely injured)	Interrupted time series	Effectiveness (PTSD Checklist – Military version) (Pre-intervention and immediately post-intervention)	a. Individual b. Voluntary c. 4 session d. mean of 12 days e. Military psychologist f. Brief exposure therapy (included exposure therapy and Cognitive Behavioural Therapy).	By the end of the 4th session (within approximately 5 weeks) all participants had reduced PTSD checklist scores compared to their baseline measures. A good level of functioning at work was reportedly regained by all 3 participants.
Perri et al. (2021), Italy	Health professionals (38)	Trauma as a result of COVID-19, quarantine, isolation	Randomised trial (internet-based EMDR VS internet-based TF-CBT)	Effectiveness (PTSD checklist for DSM-V, State Trait Anxiety Inventory, Beck Depression Inventory) (Pre-intervention and immediately post-intervention, follow up at 1 month)	a. Individual b. Voluntary c. 7 sessions d. Not stated e. Experienced psychotherapist f. Internet-based EMDR (Trauma psychoeducation, stabilisation exercises, EMDR) or Internet-based Trauma Focused-CBT (TF-CBT) (trauma psychoeducation, stabilisation exercises, CBT).	Findings suggested that internet-based EMDR and internet-based TF-CBT were equally efficacious, with a reduction in anxiety, depression, and traumatic stress symptoms reported in both treatment arms.
Segal-Engelchin et al. (2020), Israel	Mental health professionals (51)	Sharing war-related experiences and distress with patients	Cohort (1 group pre and post)	Effectiveness (Subjective Units of Distress) (Pre-intervention, immediately post-intervention)	a. Individual (but held in a workshop style format) b. Voluntary c. 1 session d. Ongoing conflict e. Not stated f. CBT-ART, psychoeducation	SUDS scores significantly decreased following the intervention. Reduced distress was associated with particular aspects of the drawings participants created. The authors argued that transforming the 'stressful' image was associated with decreased distress, as were differences in the 'stress drawing' and the 'integrated drawing' which featured participants' personal and social resources.

**Table 10.** Characteristics of studies evaluating group counselling.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Group counselling intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Kang et al. (2017, South Korea)	Industrial workers-textile (21)	Witnessed the death of a co-worker	Cohort (1 group pre and post)	Effectiveness (Impact of Events Scale-Revised, Primary Care PTSD screen, Patient Health Questionnaire – 9, Suicidal Ideation Questionnaire, Cutdown Annoyed Guilty Eyeopener Questionnaire) (Pre-intervention, 1 month post intervention).	a. Group b. Mandatory c. 4 sessions d. Psychologist invited approximately 4 days after the accident e. Psychologist f. Psychoeducation, affection control group therapy, counselling	Participants had significantly lower PTSD symptoms and depression (PHQ-9) scores one-month post intervention compared to their own baseline measurements which were taken prior to participating in the intervention.

... we try to support each other as colleagues as much as we can. We have a duty of care not only to our patients but to each other after traumatic events. (Emergency Nurse [Morrison & Joy, 2016])

Of the two studies which quantitatively evaluated outcomes, both interventions were delivered in a group setting, with one study reporting negative outcomes and the other study reporting no effect. However, acceptability of debriefing in a group format was high, with six out of seven studies reporting positive acceptability. No studies reported on debriefing being delivered in an individual format.

Compared to voluntary debriefings, studies describing mandatory debriefings tended to have more negative effectiveness and acceptability. However, the study that reported negative effectiveness of mandatory debriefing was of a retrospective survey design, scoring poorly in the quality appraisal hence impeding the reliability of its findings. As expected, voluntary debriefings were rated as more acceptable compared to mandatory ones.

In terms of acceptability, the negative outcome was observed in participants who attended debriefings which were led by trained peer debriefers as opposed to those who received the intervention from health-care professionals. However, this was the only study that had trained debriefers delivering the intervention, therefore we are unable to fairly conclude the debriefing's acceptability based on who it was delivered by.

### 3.10. Guidelines

The 11 guidelines included in this review were from six different countries; four from Australia, two from the United Kingdom, two from the United States, and one each from Ireland, Canada, and the Netherlands. The publication date of the guidelines ranged from 1997 to 2023. The target audience of the

guidelines were mainly for employees in general ( $n = 4$ ), Supervisors ( $n = 1$ ) employees in high-risk settings ( $n = 1$ ), police and emergency services ( $n = 2$ ), care workers ( $n = 1$ ), coast guards ( $n = 1$ ), and transport operators ( $n = 1$ ).

The majority of the guidelines recommended debriefing ( $n = 6$ ) and PFA ( $n = 4$ ). However, within the guidelines that recommended debriefing, only two specifically mentioned the CISD model, whilst others did not specify a particular model of debriefing. One guideline included four different recommendations that could be administered within one month of the incident (Demobilisation, TF-CBT, Peer-support, and TRiM). Several guidelines recommended 'demobilisation' and 'defusing', without a description of what these involved, and which have yet to be subject to any empirical research.

Demobilisation approaches may vary, and were not described in the current guidance, but usually comprise a very brief, practical intervention occurring immediately after exposure to the incident, which may be led by a peer or manager and may just involve the handing over of key information. Defusing again was not defined in the included guidance but is usually an informal and shorter version of a debrief conducted immediately on site, again usually led by a manager, supervisor or team leader.

Table 12 shows the key characteristics of the guidelines included in the review.

### 3.11. Quality appraisal

Using the global ratings of both the quality appraisal tools for the empirical research, only six out of 62 quantitative studies and 14 out of 24 qualitative studies received a strong rating. Specific quality appraisal ratings according to each intervention are presented in Tables 13 and 14.

**Table 11.** Characteristics of studies evaluating unspecified debriefing.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Debriefing (unspecified) intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
Addis & Stephens (2008), New Zealand	Police officers (57)	Murder of a police officer, and shooting of the murderer	Retrospective study	Effectiveness & acceptability (Perception of Stress scale, Impact of Events Scale-Revised, General Health Questionnaire-12, Pennebaker Inventory of Limbic Languidness (physical symptoms)) (5 years post incident).	a. Group & individual b. Mandatory c. Not stated d. Not stated e. The individual debriefings were conducted by a psychologist f. Debriefing only	The debriefed group had significantly higher scores on the IES-R compared to the non-debriefed group. However, this result was explained by variation in the participant sample as to how much of an impact they felt the event had had on them (Perceptions of Stress) and the prevalence of other traumatic experiences. Overall, findings showed that short-term debriefing conducted after a critical incident has no long-term preventative effect on posttraumatic stress symptoms or physical health. Nevertheless, all those who had received debriefing rated the intervention as helpful, stating that it enabled them to recognise that their feelings were normal and not unique to them, and it provided them with a space to talk about the incident and how it affected their personal lives.
Clark & McLean (2018), UK	Ward-based nurses (7)	Involvement in or witnessed an adult cardiac arrest	Qualitative design	Acceptability (Feedback from employees) (More than a month post incident)	a. Not stated b. Not stated c. Not stated d. Not stated e. Not stated f. Debriefing only	Ward nurses were seen to have ‘professional’ and ‘personal’ debriefing needs, following a cardiac arrest. Professional needs related to learning and improving practice, whereas personal needs related to reassurance and validation. Uncertainty around the role of debriefing, finding a time for debriefing to be conducted, and a lack of guidance from organisational protocols were considered barriers to engaging in the debriefing intervention.
Conway & Waring (2020), UK	Firefighters (12)	Potential traumatic incidents where either death or serious injury occurred.	Qualitative design	Acceptability (Feedback from employees) (More than a month post incident)	a. Not stated b. Not stated c. 1 session with option for more d. As soon as possible after the incident e. A trained station manager or defusion officer f. Debriefing only	Trust in senior management played an important role in how effective formal measures were perceived to be, and how willing firefighters were to access these resources.
Elntib & Armstrong (2014), South Africa	Police officers (25)	Death of colleagues, mutilated victims, crowd events involving poor	Qualitative design	Acceptability (Semi-structured interview, number of critical incidents experienced, descriptions of incidents and the impacts of it on participants,	a. Not stated b. Mandatory c. At least 1 session d. < 48 hours	Participants were reluctant to seek help from chaplains, as seeking help was thought to be seen as a sign of weakness. They also felt that the chaplains, as civilians, would have limited

(Continued)

Table 11. Continued.

Author (Year), Location	Population (Sample size)	Trauma Exposure	Study design	Outcome(s) assessed (Measures used) (Assessment time-points)	Debriefing (unspecified) intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by f. Components of intervention	Main findings
		operational planning, gang attacks.		and perceptions of the current briefing and debriefing structures) (More than a month post incident).	e. Chaplains f. Briefing and debriefing	understanding as to what they have been through.
Firing et al. (2015), Norway	Emergency services (sample size not stated)	The deaths of 69 youths and helping many more that were injured	Qualitative design	Acceptability (Interview) (More than a month post incident)	a. Group b. Not stated c. Not stated d. < 48 hours e. Not stated f. Holistic debriefing	Debriefing was primarily seen as a positive experience, as it helped participants to come together to create a common meaning of the event and describe it more as an experience. Participants felt that they were able to share their thoughts and emotions and learn from others' experiences. Participants took comfort in knowing that others were going through similar feelings and thoughts.
Hytten & Hasle (1989), Norway	Firefighters (39)	Fire in a hotel leading to 14 deaths	Cross sectional survey	Acceptability (Questionnaire) (3 days post incident)	a. Not stated b. Not stated c. Not stated d. < 72 hours e. Not stated f. Debriefing only	14/39 participants mentioned that debriefing had helped them to 'some degree', and 24/39 mentioned that it had helped to a 'higher degree'. Participants reported enhanced self-confidence and a greater knowledge of other people's responses.
McCall (2020), USA	Emergency nurses (7)	Attending to victims of a school shooting	Qualitative design	Acceptability (Feedback from employees) (18 months post incident)	a. Group b. Not stated c. Not stated d. Took place after the patients were transitioned from the emergency department to receiving operating rooms or units e. Not stated f. Debriefing only	Some nurses reported that they did not find the debriefings effective. Reasons for this included not establishing a rapport with the debriefing lead. Some nurses mentioned they would have preferred peer support sessions and informal conversations instead. Emotions were not always discussed in the debrief.
Morrison & Joy (2016), UK	Emergency nurses (10)	Death of patients	Qualitative design	Acceptability (Focus groups) (More than a month post incident)	a. Group b. Not stated c. Not stated d. Not stated e. Not stated f. Debriefing only	Participants felt that there were benefits to debriefing, however it was noted that the intervention didn't happen after every incident. One participant mentioned that the debriefings were unhelpful as they were used as a space to 'moan about the nurses'. Informal debriefs which involved discussions with peers after the incident were well thought of.
Pulido & Lacina (2010), USA	Staff from child protective services (578)	Child fatality, violence, bereavement, stressors at work, workplace threats, severe physical abuse	Cross sectional survey	Acceptability (An evaluation survey) (Immediately post-intervention)	a. Group b. Voluntary c. 1 session d. Between 24 and 72 hours e. External clinician f. Debriefing only (follow up	Debriefing was rated positively by the majority of staff. Reasons for this included better insights into self-care and having the opportunity to express themselves in a non-judgmental setting. Some felt sessions should be mandatory for staff who had had a child fatality on their caseload.

Spencer et al. (2019), UK	Hospital medical staff (517)	Cardiac arrests	Cross sectional survey	Effectiveness & acceptability (Details of cardiac arrest, debriefing practices experienced, trauma-screening questionnaire) (More than a month post incident).	session could be arranged if necessary) a. Group b. Voluntary c. 1 session d. Immediately e. Resuscitation leaders f. Debriefing only	The majority of participants had a positive experience with debriefing, citing that they felt supported and able to ask/answer questions as a team. Those who had a negative experience cited poor organisation of the debrief. There was no correlation between debriefings and symptoms of psychological trauma after all cardiac arrests. However, a weak negative correlation was observed between debriefings and symptoms of psychological trauma after non-fatal cardiac arrests. A trend was observed wherein those that attended mandated debriefings took lesser time off for psychological reasons, had lower self-reported alcohol consumption, and reported lesser sleeping difficulties compared to participants who attended non-mandated debriefings. Being offered psychological help after an incident was associated with a greater likelihood of reporting positive effects from the experience, and less job stress.
Swaim et al. (2007), USA	Police officers (194)	Being shot at while on duty	Mixed methods	Effectiveness (Survey and telephone interview) (Assessment point not stated)	a. Not stated b. Mandatory or voluntary c. Not stated d. Not stated e. Not stated f. Debriefing only	On a scale of 1–10, the importance of debriefing was rated a mean of 8.2. 62% of respondents would like to have more debriefings than the current frequency. Overall, 89% indicated that they would like a debriefing programme and guidelines for their Emergency Department.
Theophilos et al. (2009), Australia & New Zealand	Paediatric emergency department doctors and nurses (26)	Death of a patient, multi-trauma, sudden infant death syndrome	Cross sectional survey	Acceptability (Survey of debriefing practices and perceived needs) (More than a month post incident)	a. Group b. Not stated c. 1 session d. 50% within 24 hours, 23.1% 1–3 days, and 26.9% within a week e. Doctor or a nurse from the hospital, external facilitator, psychologist from Employee Assistance Programme f. Debriefing only	



Out of the 11 guidelines, only one guideline was rated as high quality. Quality appraisal scores ranged from 27.2% to 76%. On average, guidelines performed the best in the following domains; Domain 1. Scope and Purpose (88.1%), Domain 4. Clarity of Presentation (86.7%), Domain 2. Stakeholder Involvement (45.3%), Domain 5. Applicability (40%), Domain 3. Rigour of Development (18.9%), and Domain 6. Editorial Independence (4.2%). Most of the guidelines provided a clear intent and rationale, with recommendations easily identifiable. Some details of stakeholders' involvement and how recommendations can be implemented were provided. However, very few guidelines contained information on the development process of the guideline and editorial independence. Individual scores for each guideline are included in the [Supplementary Materials](#).

## 4. Discussion

### 4.1. Summary of findings

In this systematic review we found 80 published empirical research papers reporting on brief post-incident psychosocial interventions, offered within one month of exposure to a traumatic incident in the workplace. Most research focused on CISD, CISM or generic Debriefing interventions. A small body of literature focused on TRiM, PFA, EMDR and CBT-based interventions. Overall, the quality of most evidence was weak, with notable limitations in the research conducted to date (see Limitations of included studies below) making it very difficult to ascertain whether these interventions are any more effective than natural recovery after trauma which might be expected over time.

Qualitative research into the acceptability of post-incident psychosocial interventions was underpinned by better quality evidence and was generally more positive, although there were still limitations as described below. Despite the hitherto demonstrated lack of effectiveness on PTS symptoms in most of the research, the acceptability of these interventions suggests that workers do value being offered some kind of support by their employers after a traumatic incident at work, which is consistent with the findings of an earlier scoping review of early post-trauma interventions amongst emergency responders (Richins et al., 2020). This highlights a current dilemma for employers to do something, but also to do no harm.

We found 11 published guidelines from six different countries. Several of the guidelines retrieved were more than five years old, and therefore not informed by more recent developments in the literature. The quality of existing guidelines was also very poor, with only one guideline being rated as high quality. Guidelines were lacking information about the

evidence-base underpinning their recommendations, the processes of developing the guidance, who the experts were endorsing the recommendations, and missed contributions from workers with lived experience of trauma at work. The recommendations made in the guidelines also varied widely, and frequently contradicted the evidence gathered in this systematic review of empirical research published to date. Most of the guidelines recommended debriefing generically or PFA. Several guidelines also recommended 'demobilisation' and 'defusing', which were not defined and which have yet to be empirically researched. Even the advice given in the one guideline which scored highly in the quality appraisal was not supported by the empirical findings of this review. This raises significant concerns about organisations adhering to current guidelines and highlights the urgent need to develop better guidance.

Of the interventions described in the empirical literature, there were generally better results for interventions which adhered to an established and specific protocol, and more negative results for generic debriefing interventions which often conflated operational debriefing with emotional processing. There were potentially promising results for more recently developed interventions following EMDR protocols and CBT-based approaches, consistent with the findings of a recently published systematic review of psychosocial interventions offered to healthcare workers before, during or after disasters (Ottisova et al., 2022). Our findings are also similar to the systematic review published by Bisson et al. (2021) on preventing PTSD in the general adult population which found that the overall quality of research in this field was poor, with limited evidence of effectiveness of early interventions in preventing PTSD, but better evidence for trauma-focused CBT and some emerging evidence for EMDR. Bisson et al. (2021) also found some preliminary evidence for debriefing when delivered to homogenous groups, but note that these findings did not quite reach statistical significance. The quality of the evidence underpinning the studies included in this review is, however, currently quite limited (with only one study out of seven on EMDR and/or CBT being rated as strong in our quality appraisal). Such interventions also require delivery from trained mental health professionals, raising the question of whether such interventions are affordable and proportionate for large organisations to offer as routine preventative measures to all employees who may be affected by a trauma. Such interventions may be best suited as targeted interventions for employees at particularly high risk of mental health distress and/or individuals scoring highly on clinical screening tools.

Research reporting CISM programmes was generally positive, however, there were no RCTs for CISM

**Table 12.** Characteristics of guidelines.

Author/Organisation (Year) Location	Target Users	Target Population	Service User involvement	Process of developing the guideline	Evidence based	Interventions recommended	Characteristics of intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by
Tusla (N.S.), Ireland	Managers of employees	Employees in general	Not stated	The framework which sets out the steps for managers to take following a critical incident was developed through reviewing 'models of best practice', and 'has been adapted from the suggested guidelines of Devilly and Cotton (2003), for organisational practices'. The framework was also described as being 'in line with the UK's National Institute for Health and Clinical Excellence's guidelines', however was not explicitly described.	Not stated	Rest information transition services (RITS), CISD, Defusing, Individual Crisis intervention	a. Both b. Voluntary c. Not stated d. Immediate for RITS, next few days for the rest e. Trained debriefers from local CISM team
Western Australia Country Health Service (2021), Australia	Managers of care workers	Care workers	Not stated	It is not explicitly stated how this guideline was developed. (However, relevant existing research is cited in the document, as are other relevant policies and guidelines (i.e. the 'WA Country Health Service' 'framework to support staff mental health and wellbeing').	Not stated	Psychological first aid	a. Not stated b. Mandatory c. Not stated d. Not stated e. Psychological first aiders
Beyond Blue Ltd (2020), Australia	Police and Emergency Service Organisations	Ambulance services, fire and rescue, police forces, state emergency services	Yes	The revised framework 'incorporates' the findings of a three phase 'Police and Emergency Services Study' (Phase 1: a qualitative project, Phase 2: a national survey, Phase 3: 'a knowledge translation project').	Yes (representatives of service users, qualitative studies, mass survey, knowledge to action project)	Debriefing, Screening during employment, Peer support	a. Not stated b. Not stated c. Not stated d. Not stated e. Trained debriefers
Victorian Governments Departments of Human Services (1997), Australia	Non-governmental organisation managers	Employees in general	Not stated	It is not explicitly stated how this guideline was developed. (However, a 'select bibliography' of relevant existing research and guidance are listed towards the end of the document. It is also stated that 'the resource guide has been developed by the Department of Human Services as a learning tool for non-government organisations').	Not stated	Demobilisation, Defusing, Debriefing, Peer support	a. Both b. Not stated c. Not stated d. Immediate for demobilisation and defusing, within 24 to 72 hours for debriefing, peer support on going e. Trained debriefers
Canadian Union of Public Employees (2014), Canada	Not stated	Employees in general	Not stated	It is not explicitly stated how this guideline was developed.	Not stated	Defusing, Debriefings and follow ups	a. Not stated b. Not stated c. Not stated d. 3 to 8 hours post incident for defusing, within 24 to 72 hours for debriefing e. Trained healthcare professionals
United States Coast Guard (1997), USA	Officers in command	Coast Guards	Not stated	It is not explicitly stated how this guideline was developed.	Not stated		a. Both b. Not stated

(Continued)

Table 12. Continued.

Author/Organisation (Year) Location	Target Users	Target Population	Service User involvement	Process of developing the guideline	Evidence based	Interventions recommended	Characteristics of intervention a. Group or individual b. Mandatory or voluntary c. No. of sessions d. Timeframe between exposure and intervention e. Delivered by
				(However, relevant existing handbooks/guides and existing research are listed on the webpage and/or in the CISM reference document).		Psychological first aid, CISM, Traumatic incident management programme	c. Not stated d. Not stated e. Trained debriefers from local CISM team
Department of Health, State Government of Victoria (2011), Australia	Not stated	Employees in general	Not stated	It is stated on the webpage that 'this page has been produced in consultation with and approved by': Victoria State Government (Department of Health), Better Health Channel.	Not stated	Demobilisation, Defusing, Debriefing, 1-to-1 support and follow ups	a. Not stated b. Not stated c. Not stated d. Not stated e. Trained debriefers (managers, supervisors)
United Kingdom Psychological Trauma Society (2020), UK	High risk organisation managers	Employees in high risk environments	Not stated	Unable to clarify how these guidelines were developed due to the removal of the text from the UKPTS website during the process of publishing this article.	Not stated	Psychological first aid	a. Not stated b. Not stated c. Not stated d. Not stated e. Trained peers
Burger et al. (2012), Trimbos Instituut, the Netherlands	Officers in command	Uniformed workers	Yes	The guidelines were developed through multiple stages including a literature search, focus groups, a 'usability test' ('key recommendations of the draft guidelines were tested for applicability in practice'), and coming to a 'consensus' (all stakeholders were brought together to agree on the 'key themes').	Yes (literature review, experts opinion and consensus)	Peer support, Referral when needed	a. Not stated b. Not stated c. Not stated d. Not stated e. Trained peers
The Rail Safety and Standards Board (2019), UK	Managers of transport operators	Transport operators	Not stated	This guidance was developed collaboratively with input from many different relevant organisations (i.e. 'East Midlands Trains'). The guidance is also described as drawing from existing guidelines such as the 'National Institute for Health and Care Excellence (NICE) guideline on Post-Traumatic Stress Disorder (2018)'.	Yes (drawn from other guidelines)	Demobilisation, TF-CBT, Peer support, TriM, EMDR (beyond 4 weeks)	a. Not stated b. Not stated c. TF-CBT 8 to 10 sessions d. 4 weeks for all, EMDR beyond 4 weeks e. Not stated
Miller, Southern Regional Children's Advocacy Center (2023), USA	Children's Advocacy Center Supervisors	Staff in a children's advocacy center	Not stated	It is not explicitly stated how this guideline was developed. (However, it is stated that relevant organisations and individuals reviewed and/or provided feedback on the guideline document (i.e. the National Children's Advocacy Centre). Within the document, existing research and existing guides/protocols are also cited and 'adapted' (i.e. Brymer et al., 2006. Psychological first aid: Field operations guide)).	Yes (evidence of reviewing the literature)	Critical Incident First Aid (CIFA) which is Psychological First Aid (PFA) that has been adapted.	a. Both b. Voluntary c. Not stated d. Assistance given 'within days or weeks following an event' e. 'CAC supervisor or leader who has an established relationship with the team'

**Table 13.** Quality appraisal ratings of quantitative research (EPHPP).

Intervention	Strong	Moderate	Weak
Critical Incident Stress Debriefing ( <i>n</i> = 30)	4	4	22
Debriefings ( <i>n</i> = 6)	0	2	4
Critical Incident Stress Management ( <i>n</i> = 9)	0	4	5
Trauma Risk Management ( <i>n</i> = 6)	1	3	2
Psychological First Aid ( <i>n</i> = 4)	0	0	4
Eye Movement Desensitisation and Reprocessing ( <i>n</i> = 3)	1	1	1
Cognitive Behavioural Based ( <i>n</i> = 3)	0	1	2
Group Counselling ( <i>n</i> = 1)	0	0	1
<b>Total (<i>n</i> = 61)</b>	<b>6</b>	<b>15</b>	<b>41</b>

in a workplace setting and only one out of four RCTs on CISD specifically reported positive outcomes on PTS symptoms. CISM is also a time consuming and labour-intensive programme, thereby also raising issues about cost effectiveness and proportionality, which have not yet been examined in this literature.

Research to date suggests that both TRiM and PFA did no harm (as evaluated by the assessment measures included in the studies) and were largely acceptable to recipients. The one RCT conducted on TRiM to date found no positive benefit on PTS symptoms. The results of our review are consistent with a previous review of TRiM research (Whybrow et al., 2015) which failed to find evidence of impact on PTSD symptoms, but did report benefits of TRiM on occupational functioning. No research on PFA has yet explored its impact on the prevention of PTSD in occupational groups, but research to date does also suggest some potential benefits of PFA on occupational functioning. A recent RCT of PFA (Figuerola et al., 2022) with adult survivors of physical trauma failed to establish evidence of effectiveness of PFA in preventing PTSD, although did find the intervention was associated with greater distress relief one-month post-trauma. Results have not yet, however, been replicated in RCTS of PFA in occupational settings.

Based on the current evidence, it was not possible to deduce what specific mechanisms in the delivery of post-incident psychosocial interventions may be most effective. Acceptability was generally higher for voluntary attendance, but as noted, this potentially risks missing those most in need but reluctant to attend. Interventions were generally valued when provided by those who were perceived to be knowledgeable, credible and who understand the specific nature of the employees' work. This included

**Table 14.** Quality appraisal ratings of qualitative research (CASP).

Intervention	Strong	Moderate	Weak
Critical Incident Stress Debriefing ( <i>n</i> = 9)	4	2	3
Debriefings Unspecified ( <i>n</i> = 7)	5	1	1
Critical Incident Stress Management ( <i>n</i> = 5)	3	2	0
Trauma Risk Management ( <i>n</i> = 1)	1	0	0
Psychological First Aid ( <i>n</i> = 2)	1	1	0
<b>Total (<i>n</i> = 24)</b>	<b>14</b>	<b>6</b>	<b>4</b>

provision by trained peers, managers and 'insiders' within an organisation, although this did also raise concerns for some about confidentiality. Whilst interventions led by peers, supervisors and managers have a growing evidence base, there is also evidence that supporting peers can be experienced as burdensome (Billings et al., 2021) and that unsupportive supervisors and managers can actually exacerbate traumatic stress (Greene et al., 2021). Who delivers interventions and what support they in turn are provided with requires careful further consideration. There were also noted benefits reported in the literature of receiving interventions in group settings, which afforded the possibility to share and normalise responses to traumatic events. This is an interesting finding in light of the previous evidence reviewed by NICE (2018) and Phoenix Australia (2021) which reported negative findings from RCTs which notably all involved individual debriefing. Whether group-based interventions are preferable to individual does, however, warrant further evaluation.

The research published to date has failed to consider post-incident psychosocial support in the context of other interventions, such as pre-trauma exposure training or mental health awareness programmes, which may also have a beneficial impact on workers' wellbeing (Wild et al., 2020). Further research is needed to better understand how workers experience post-incident interventions within the context of wider mental health support, for example, does this increase their engagement and how much they get out of post-incident interventions.

The research to date also mostly addresses interventions offered after a specific traumatic incident in the workplace, when we know that many workers in high-risk occupations are frequently exposed to multiple and protracted traumatic events. For example, emergency service workers frequently exposed to violence and death, or healthcare workers on the frontline during the COVID pandemic. We have as yet to consider which form of psychosocial support may be best placed for workers when trauma is ongoing and protracted, and may even be a fundamental part of their routine work. There has also been little consideration so far in research of groups of employees exposed to secondary traumatic stress, such as call handlers, child abuse investigators, diplomats, journalists and members of the legal system and judiciary. Similarly, there has been little research into the prevention of Complex PTSD which has been shown to be high in occupational groups such as the police (Brewin et al., 2020).

Finally, research and guidance to date has largely neglected the experiences and views of workers from minority ethnic groups or in lower paid roles. Such workers make up large numbers of public serving roles where there is a high risk of exposure to occupational trauma and violence but may have less access

to psychosocial support. Such sociodemographic groups are also more likely to have experienced previous trauma and discrimination, which will shape their engagement with and experience of post-incident support. We need to better understand the views and experiences of this workforce to ensure that any interventions offered are acceptable and accessible to all.

Based on the published empirical research and guidelines available, it is difficult to draw firm conclusions about what post-incident psychosocial interventions should be offered in the workplace due to extensive limitations in the literature. Below we draw some tentative conclusions about what should be considered in the clinical application of post-incident psychosocial interventions, as well as priority areas for further research in this field.

#### **4.2. Limitations of included studies**

Studies included in this review were heterogeneous in design and measurement. Most of the quantitative literature evaluating effectiveness was weak in quality. Most studies employed naturalistic designs, using pre- and post-intervention measures within groups, with few studies including control groups. Where studies did include controls, these were often naturalistic (i.e. those who were offered or chose to engage with an intervention, as opposed to randomly assigned groups) resulting in probable differences between groups at baseline and rendering interpretation of findings very challenging. There were only six RCTs out of 80 studies included in this review, and most of those lacked inclusion of a no treatment control group, therefore making it very difficult to interpret whether the intervention was better than natural recovery over time. There was also a lack of longer term follow up data in most studies, further limiting our ability to conclude whether interventions had any sustained benefit or detriment. It is therefore very difficult to ascertain whether many of the post-incident psychosocial interventions after a traumatic event included in this review were superior to natural recovery over time or not.

The qualitative research into acceptability of post-incident psychosocial interventions was generally of better quality, with most of the qualitative studies included in this review rated as moderate or high quality. However, the largely positive findings in the qualitative literature about acceptability need to be interpreted with caution due to inherent bias in consumer reporting; feedback from participants who have been offered something is likely to be inherently positively biased. Consumer satisfaction, whilst important, is also not a reliable indicator of the effectiveness of interventions.

There was also considerable missing information about mechanisms of intervention delivery in the

studies included. Many studies failed to provide information on the content, format, timing and delivery of their interventions, making it very difficult to determine what mechanisms may be associated with greater effectiveness and acceptability.

There were also issues with measurement in the research. The primary outcome in the CISD, CISM EMDR and CBT interventions was to prevent PTSD, however, the TRiM and PFA studies mainly focused on stigma and work attendance, rendering comparison difficult. Even amongst studies with PTS symptoms as a primary outcome, there was considerable variation in measures used and when measures were taken, making meta-analysis impossible.

#### **4.3. Limitations of guidelines**

There were also significant methodological limitations in the 11 guidelines included in this review. All but one guideline was rated as poor in the quality appraisal. Most notably lacking elements of current guidance were references to the evidence-base that the guidelines were based on, information about the processes by which guidelines were developed and the experts who had endorsed them, and the inclusion of lived experience perspectives in the guidance. Most of the guidelines found recommended interventions which are not adequately supported by the empirical research, and also included interventions which were not defined and have yet to be empirically evaluated. Recommendations made by guidelines also failed to account for different sociodemographic and occupational groups, severely limiting the generalisability of their recommendations.

#### **4.4. Strengths and limitations of this systematic review**

In this systematic review, we have conducted an extensive and thorough analysis of both published empirical research and existing guidelines, adhering to the highest standards of quality for the conduct of systematic reviews. We have synthesised findings from quantitative and qualitative research to explore both effectiveness and acceptability of post-incident psychosocial interventions. The main research team was guided throughout by an Expert Reference Group with subject matter expertise and lived experience of trauma at work and post-incident psychosocial interventions, facilitating our interpretation of the data and the conclusions drawn from this review.

There are nevertheless limitations inherent in this review which should be considered when evaluating its utility. Both searches for empirical research and guidelines were limited to English, limiting the potential identification of research and guidance published in other languages, and potentially more generalisable



to countries and cultures where English is not the main academic language. Our team and our expert reference group included international clinicians and academic researchers of both sexes but was limited in terms of ethnic diversity. We also did not include local service level policies which were not retrievable online in our review of guidelines which may have provided further insight into the application of post-incident psychosocial interventions in current practice.

#### 4.5. Recommendations for future research

Given the above-noted limitations in the body of research into post-incident psychosocial interventions so far, more good quality robust research in this field is essential and urgent.

Below we make recommendations for what good practice in future research in this area should include, as well as specific suggestions for more research to further our understanding of post-incident psychosocial interventions and specifically what may work for whom and when.

##### 4.5.1. Good practice for future research in this field

- More **randomised control trials** are required, which compare active interventions in head-to-head comparisons, but also include no active intervention control groups to assess the effectiveness of interventions against natural recovery over time.
- **Longer term follow up** is required to better evaluate the potential benefit or detriment of interventions over time.
- Given the noted discrepancies between findings about effectiveness and acceptability, we need to **consider whether we are currently measuring the most meaningful outcomes** of post-incident psychosocial interventions. Is preventing PTSD the primary purpose and sole benefit of post-incident psychosocial interventions? We need to consider what meaningful measures to include in future research, which should include PTS symptoms and other mental health measures already included in some studies such as anxiety, depression, alcohol use, quality of life and sleep, but also other potentially important aspects, such as perceived supportiveness of the organisation, feeling valued by the organisation, sick leave, return to work and intention to leave the organisation. Agreement on **appropriate validated tools** to use will better enable comparisons between studies and meta-analyses.
- **Better reporting of the specifics of interventions**, including information about the content and format of delivery (i.e. whether individual or group,

mandated or voluntary), the timing of the intervention (including how soon after the traumatic event and over how many sessions) and who the interventions were delivered by (including training of providers and the relationship between the providers and recipients).

- **More co-production of interventions, research and guidance** with people with lived experience of trauma at work.
- Inclusion of previously neglected members of the workforce, particularly those from **ethnic minorities** and **lower paid roles**.
- Research with workers in roles which confer a high risk of **secondary exposure to trauma** who are currently under-researched, such as call handlers, child abuse investigators, diplomats, journalists and members of the legal system and judiciary, as well unique groups such as voluntary workers.
- Consideration of the impact of **cumulative trauma exposure** and **Complex PTSD**.
- Evaluation of the effectiveness and acceptability of post-incident psychosocial interventions within the **context of wider programmes of support**, including pre-trauma exposure interventions such as training and mental health awareness
- In common with much psychotherapy research (Parry et al., 2016), none of the studies included in this review explicitly recorded any adverse incidents. Future studies in this field could helpfully **record potential harms and adverse events**.

##### 4.5.2. Suggestions for further research

Prior to conducting more evaluation research, it is crucial that we better understand the experiences and needs of key stakeholders in order to establish what is working, what is needed and what potential gaps there are in current provision. Vested stakeholders include workers from a variety of high-risk roles with frequent exposure to trauma in the line of their work; managers and senior leaders who are invested in supporting post-incident psychosocial interventions in the workplace but are also aware of the challenges and limitations in doing so; and experts in the development and delivery of post-incident support in workplace settings.

We need to explore stakeholders' experiences and views about effective mechanisms of delivery in more depth, including the content, format, timing and provision of interventions in order to better understand what might work for whom, and when.

We need to investigate whether the delivery of interventions should be universal or targeted and how interventions should be tailored for different areas of the workforce, as well as in situations when trauma is ongoing, protracted, and experienced indirectly as well as directly. We also need to consider how these



interventions fit best within a broader programme of mental health support within organisations.

#### 4.6. Implications for clinical practice

We cannot at this stage say conclusively whether post-incident psychosocial interventions are effective, and which may be more appropriate to offer. We can nevertheless begin to draw out some clinical implications, based on the in-depth analysis provided by this review.

- **Generic debriefing, often conflated with operation debriefing, did not appear to be helpful** and was the one intervention included in this review which reported negative findings in terms of PTS symptoms.
- Acceptability of interventions (other than generic debriefing) was more positive, despite a lack of evidence of effectiveness. This suggests that **staff valued being offered something after a traumatic incident at work**.
- **Voluntary interventions** were generally more acceptable than mandatory attendance, although it is noted that not mandating interventions does risk missing members of the workforce potentially most at need and most reluctant to engage. Voluntary post-incident psychosocial interventions may be well supported by ongoing mandatory health surveillance and impact monitoring of at-risk employees after traumatic incidents.
- Results from qualitative research showed that workers generally **valued being able to talk about their reactions to the traumatic event**, and particularly to **hear from others that such reactions were common and normal responses to trauma**. This suggests that there are benefits from conducting interventions in a **group** setting, at least amongst naturalistic groups or teams who routinely work together and were involved in the same trauma.
- Several occupational groups (most notably those from the emergency services) were sceptical about interventions being offered by people not familiar with their line of work. Whilst peer support was welcomed by many, concerns were also raised about confidentiality. Throughout the literature, the professionalism, experience and expertise of the provider of the intervention were emphasised. This indicates that **interventions need to be delivered by experienced and competent providers**, either **qualified professionals** or **trained peers**, who are **knowledgeable about the recipients' line of work** and can ensure appropriate **confidentiality** around the intervention.
- It is imperative that providers of post-incident support have **access to information about what they can advise** and where to **signpost** workers to for

further mental health assessment. It is essential that **appropriate support offers** for those in need are available.

- More **targeted individual interventions** such as **EMDR** or **CBT**-based interventions may be appropriate and proportionate for staff identified as at high risk or who are scoring highly on measures of distress shortly after a traumatic event. Repeated and systematic follow up of workers post exposure would be imperative to identify those workers most at need.
- Post-incident psychosocial interventions are likely to be most effective when **part of a wider programme of mental health support** and **embedded in the culture of a supportive organisation**. To offer post-incident interventions without additional support or follow up can appear tokenistic and risks identifying issues the organisation does not have the capacity, or commitment, to resolve.
- **Leadership and line management support** of post-incident psychosocial interventions will be imperative, to role model commitment to mental health and wellbeing, ensure buy in from employees, and support staff to take time off to attend.

## 5. Conclusions

The findings of this review do not demonstrate any harm caused by CISD, CISM, PFA, TRiM, EMDR, group counselling or CBT interventions when delivered after a traumatic incident in a workplace setting. However, they do not conclusively demonstrate benefits of these interventions compared to natural recovery over time, nor do they establish superiority of any specific post-incident psychosocial intervention. Generic debriefing (often conflated with operational debriefing) was associated with some negative outcomes. Current clinical guidelines were notably of poor quality and inconsistent with the current research evidence base. Nevertheless, interventions were generally valued by workers. Better quality research and guidance is urgently needed, including more detailed exploration of the specific mechanisms of delivery of post-incident psychosocial interventions in order to establish what works best for whom and when.

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## Data availability statement

Data included in this review is already available in the public domain.

## Disclosure statement

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