

**The impact of Critical Incident Stress
Debriefing on coping in emergency health care
providers: a rapid review**

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Table of Contents

Table of Contents	2
Acknowledgements	5
Summary	6
Opsomming	8
Permission to submit	10
Declaration by researcher	11
Declaration by language editor	12
Author guidelines	13
Chapter 1: Literature Review	17
Introduction	17
Emergency Health Care Providers	17
Critical Incident Stress	18
Symptoms of CIS	19
Critical Incident Stress Debriefing	20
Development of CISD	20
The nature of CISD	21
The seven steps of CISD	22
Coping and Related Processes	23
Problem Focused Coping versus Emotion Focused Coping	26
Constructive Coping versus Destructive Coping	27

Conclusion	27
References.....	28
Chapter 2: Manuscript for submission.....	34
Abstract.....	35
Introduction.....	36
Method.....	39
Research design	39
Data generation	39
The research process	40
Inclusion and exclusion criteria	40
The search strategy	40
Ethical considerations	42
Results.....	43
The nature of CISD.....	43
Discussion.....	48
Conclusion	51
References.....	54
A Brief Critical Reflection.....	59
Conclusion	60
Addendums	61
Addendum 1: Figure 1	62
Addendum 2: Figure 2	63
Addendum 3: Table 1.....	64

Addendum 4: Figure 3	67
Addendum 5: Critical appraisal of articles.....	68
Addendum 6: Thematic analysis of individual articles.....	69
Addendum 7: Ethical approval for the study	75
Addendum 8: Solemn declaration.....	76

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Lastly, but most importantly, I want to thank God for the abilities and talents he has blessed me with, in protecting and guiding me through all the obstacles I have faced, and enabling me to complete my studies, and live out my dream.

Summary

Emergency health care providers (EHCPs) are medical specialists who are trained to provide victims of sudden or acute illness or injury with emergency care and transportation to a hospital. An inherent aspect of this occupation is being exposed to traumatic scenes and incidents on a very regular basis. Without constructive coping, the possibility for the development of problems such as burnout, anxiety, depression or even PTSD increases drastically.

Critical Incident Stress Management (CISM) was developed by Mitchell, originally with the primary target group being first responders to critical incidents (Mitchell, Sakraida & Kameg, 2003). Critical Incident Stress Debriefing (CISD) forms the fifth step or element of the CISM process and aims to reconstruct the traumatic event, to allow for ventilation, normalising specific reactions to the event and also to limit the development of maladaptive cognitive, behavioural and coping responses. CISD is often presented in isolation as a once off intervention following a critical incident. This entails a group meeting within 72 hours after the incident for an average of 1-3 hours. However, CISD was never intended to be applied in isolation, rather as a step in CISM.

As there is a lack of data available on the impact of CISD as a stand-alone intervention, this study attempts to answer the following question: What scientific evidence exists regarding the impact of CISD used in isolation on coping in EHCPs? The researcher expects to indicate through this research whether it is recommended to use CISD in isolation, as well as how CISD can specifically be applied in a South African context where EHCPs are often exposed to critical incidents without adequate training or infrastructure.

The aim was to explore the impact CISD as stand-alone intervention has on the coping of EHCPs. Impact was evaluated according to three guidelines, namely the nature, relevance and effectiveness of CISD.

A rapid review was conducted, entailing a shorter timeframe and utilising less resources than a traditional systematic review. Six articles were identified which complied with the inclusion criteria. The Joanna Briggs Institute (JBI) approach was used to maintain a clear distinction between quantitative and qualitative data, with individual synthesis done before the final synthesis of both types of research. Thematic analysis was employed to convert both quantitative and qualitative data to themes related to the nature, relevance and effectiveness of CISD as stand-alone intervention.

In essence, it was found that, although CISD as stand-alone intervention for EHCPs has both positive and negative outcomes, it is clear that CISD leaves a void between what is offered and what is subjectively needed by EHCPs. It is therefore difficult to clearly indicate to what extent CISD as stand-alone intervention is effective or not. It has been argued that CISD can be relevant and effective on its own, but not in its current reactive format which does not allow for effectively addressing the needs EHCPs have.

The most important limitation of this study is that only six articles, none within the South African context, adhere to all the search terms and inclusion criteria in the current study. Generalising the findings of this study is therefore not possible and more research is needed before any practical recommendations can be made.

Keywords: *CISD, critical incident stress, coping, Emergency health care providers, rapid review*

Opsomming

Noodgesondheidsorg-praktisyns is mediese spesialiste wat opgelei is om slagoffers van skielike of akute siekte of besering van noodsoorg asook van vervoer na die hospitaal toe te voorsien. 'n Inherente aspek van hierdie beroep is om gereeld blootgestel te word aan traumatiese tonele en insidente. Sonder konstruktiewe aanpassing (coping) verhoog die moontlikheid vir die ontwikkeling van probleme soos uitbranding, angs, depressie of selfs post-traumatiesestresversteuring drasties.

Critical Incident Stress Management (CISM) is deur Mitchell ontwikkel met noodpersoneel as die oorspronklike teikengroep (Mitchell, Sakraida & Kameg, 2003). *Critical Incident Stress Debriefing* (CISD) maak die vyfde stap of element uit van die CISM proses en het ten doel om die traumatiese gebeurtenis te rekonstrueer, om 'n geleentheid te skep vir ventilasie deur die deelnemers om die gebeurtenis en hul reaksies daarop te normaliseer, asook om die ontwikkeling en vestiging van wanaangepaste kognitiewe-gedrags- en hanteringsresponse te beperk. CISD word in praktyk dikwels as 'n enkele intervensie ná 'n kritiese insident aangebied en nie binne die volledige CISM-raamwerk nie. Dit behels 'n groepsbespreking wat binne 72 uur ná die insident plaasvind en gemiddeld 1-3 ure duur. CISD was egter nooit bedoel om in isolasie aangebied te word nie, maar eerder as 'n stap in die CISM model.

Aangesien daar 'n tekort aan data bestaan met betrekking tot die impak van CISD as enkele intervensie, het hierdie studie belanggestel in die vraag: Watter moontlike impak het CISD op die hanteringsvermoë van noodgesondheidsorg-praktisyns wanneer dit in isolasie aangebied word? Die navorser het verwag om deur middel van hierdie navorsing aan te dui of CISD in isolasie aangebied kan word, asook hoedat CISD spesifiek in die Suid-Afrikaanse konteks toegepas kan word waar noodgesondheidsorg-praktisyns dikwels blootgestel word aan traumatiese insidente sonder voldoende opleiding of infrastruktuur.

Die doel van die studie was om die impak van CISD op die aanpassing van noodgesondheidsorg-praktisyns wanneer dit in isolasie aangebied word, te verken. Impak is geëvalueer deur drie riglyne, naamlik die aard, relevansie en effektiwiteit van CISD.

As metodologie is 'n vinnige oorsig (*rapid review*), wat oor 'n korter tydspan strek en minder bronne benut as 'n tradisionele sistematiese oorsig aangewend. Ses artikels wat aan die insluitingskriteria voldoen het, is ingesluit in die huidige studie. Die Joanna Briggs Institute (JBI) se riglyn is gebruik om 'n onderskeid tussen die kwantitatiewe- en kwalitatiewedata te handhaaf, met individuele sintese van beide tipes data. Tematiese analise is toegepas om kwantitatiewe en kwalitatiewe data na temas om te skakel.

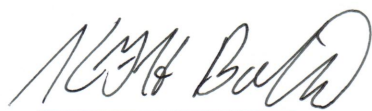
Dit is hoofsaaklik bevind dat, alhoewel CISD as 'n alleenstaande intervensie toegepas word, en dit beide positiewe en negatiewe resultate inhou, dit 'n leemte laat tussen wat aangebied word en wat subjektief benodig word deur die noodgesondheidsorg-praktisyns. Dit is dus 'n moeilike taak om aan te dui tot watter mate CISD as 'n alleenstaande intervensie effektief is, of dan nie. Dit kan beredeneer word dat CISD relevant en effektief kan wees op sy eie, maar nie in die huidige, reaktiewe, formaat nie, wat nie toelaat dat die behoeftes van die noodgesondheidsorg-praktisyns effektief aangespreek word nie.

Die belangrikste beperking van die huidige studie is dat slegs ses artikels, waarvan geen binne die Suid Afrikaanse konteks is nie, aan die kernwoorde en insluitingskriteria voldoen het. Veralgemening van die bevindinge in die studie is dus nie moontlik nie en verdere navorsing word benodig alvorens praktiese aanbevelings gemaak kan word.

Sleutelwoorde: *CISD, kritiese insident stres, aanpassing, noodgesondheidsorg-praktisyns, vinnige oorsig*

Permission to submit

I, the supervisor of this study, hereby declare that the mini-dissertation entitled “The impact of Critical Incident Stress Debriefing on emergency health care providers: a rapid review”, written by Malinka Kusel, does reflect the research regarding the subject matter. I hereby grant permission that she may submit the article for examination purposes and I confirm that the dissertation submitted is in fulfilment of the requirements for the degree Magister of Arts in Clinical Psychology at the Potchefstroom Campus of the North-West University. The article may also be sent to the Journal of Psychology in Africa for publication purposes.



Prof Karel Botha

Declaration by researcher

I hereby declare that this research titled **The impact of Critical Incident Stress Debriefing on coping in emergency health care providers: a rapid review** is entirely my own work and that all sources have been fully referenced and acknowledged.



M Kusel

DECLARATION

I, C Vorster (ID: 710924 0034 084), Language editor and Translator, and member of the South African Translators' Institute (SATI member number 1003172), herewith declare that I did the language editing of the dissertation of ms M Kusel from the North-West University (student number 20543522).

Title of the dissertation: The impact of Critical Incident Stress Debriefing on coping in emergency health care providers: a rapid review

C Vorster

C Vorster

23/9/2016

Date

Author guidelines

Instructions to authors

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All pages must be numbered consecutively, including those containing the references, tables and figures. The typescript of a manuscript should be arranged as follows:

- Title: this should be brief, sufficiently informative for retrieval by automatic searching techniques and should contain important keywords (preferably <13).

- Author(s) and Address(es) of author(s): The corresponding author must be indicated. The author's respective addresses where the work was done must be indicated. An e-mail address, telephone number and fax number for the corresponding author must be provided.
- Abstract: Articles and abstracts must be in English. Submission of abstracts translated to French, Portuguese and/ or Spanish is encouraged. For data-based contributions, the abstract should be structured as follows: Objective – the primary purpose of the paper, Method – data source, participants, design, measures, data analysis, Results – key findings, implications, future directions and Conclusions – in relation to the research questions and theory development. For all other contributions (except editorials, book reviews, and special announcements) the abstract must be a concise statement of the content of the paper. Abstracts must not exceed 150 words. The statement of the abstract should summarise the information presented in the paper but should not include references.
- Text: (1) Per APA guidelines, only one space should follow any punctuation; (2) Do not insert spaces at the beginning or end of paragraphs; (3) Do not use colour in text; and (4) Do not align references using spaces or tabs, use a hanging indent.
- Tables and figures: These should contain only information directly relevant to the content of the paper. Each table and figure must include a full, stand-alone caption, and each must be sequentially mentioned in the text. Collect tables and figures together at the end of the manuscript or supply as separate files. Indicate the correct placement in the text in this form <insert Table 1 here>. Figures must conform to the journals style.
- Pay particular attention to line thickness, font and figure proportions, and taking into account the journal's printed page size – plan around one column (82 mm) or two column width (170 mm). For digital photographs or scanned images the resolution

should be at least 300 dpi for colour or greyscale artwork and a minimum of 600 dpi for black line drawings. These files can be saved (in order of preference) in PSD, PDF or JPEG format. Graphs, charts or maps can be saved in AI, PDF or EPS format. MS Office files (Word, PowerPoint, and Excel) are also acceptable but DO NOT EMBED Excel graphs or PowerPoint slides in a MS Word document.

Referencing

Referencing style should follow latest edition of the APA manual of instructions for authors.

References in text: References in running text should be quoted as follows: (Louw&Mkize, 2012), or (Louw, 2011), or Louw (2000, 2004a, 2004b). All surnames should be cited the first time the reference occurs, e.g., Louw, Mkize, and Naidoo (2009) or (Louw, Mkize, &Naidoo, 2010).

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match costs of manuscript development production. Instructions for remitting the publication levy are provided to lead or corresponding authors by the Editorial Assistant of the journal.

Chapter 1: Literature Review

Introduction

In this chapter key concepts in the current research will be defined and discussed in support of the brief literature review presented in the article (next chapter).

Emergency Health Care Providers

Emergency Health Care Providers (EHCPs) are medical specialists who are trained to provide victims of sudden or acute illness or injury with emergency care and transportation to a hospital (Gallagher & McGilloway, 2009). They therefore fulfil a pre-hospital emergency care function. More specifically, this entails the rescue, evaluation, treatment and care of an ill or injured person, or a person in mortal danger, as well as the continuation of treatment and care during the transportation of the patient to, at or between health establishments and the prevention of further injuries or possible complications (South African Government, 2002).

EHCP does not refer to a specific professional qualification but rather refer to all those members of the emergency health care team involved in pre-hospital care. The Health Professions Council of South Africa (HPCSA, 2014) differentiates, for example, between registration as ambulance emergency assistant, emergency medical technician, paramedic and emergency care practitioner. In this research ECHP will be used as an umbrella term for all these professionals because, even though they have different specialised tasks, they are all exposed to the same critical incidents.

Critical Incident Stress

Critical incidents include those situations EHCPs are faced with that may be described as unusual, cause strong emotional or cognitive reactions, overwhelm normal coping responses and have the potential to interfere with normal functioning (Macnab, Sun & Rev, 2003; Mitchell, Sakraida & Kameg, 2003). Critical incidents vary from minor to life threatening incidents, including accident scenes, drowning, medical conditions such as heart attacks as well as mass incidents (Scully, 2011). Certain critical incidents further complicate the impact on EHCPs, for example death or serious injury of a fellow worker in the line of duty, working with a seriously injured or dying person known to the worker or with a seriously injured or dying child, suicide of a fellow worker, excessive media interest; and death to a civilian caused by an accident with an emergency vehicle (Mitchell and Bray, as cited in Sanders, 2002). A critical incident, therefore, demands from the individual to apply effective coping strategies in order to maintain a reasonable sense of goal-directedness and psychological wellbeing.

Critical Incident Stress (CIS) also referred to as secondary traumatic stress may be caused by incidents sufficiently disturbing to overwhelm the individual's usual method of coping (Gallagher & McGiloway, 2009). CIS refers to severe arousal following a trauma, leaving the individual's coping mechanisms overwhelmed and resulting in a feeling of loss of control (Jatczak, n.d.). CIS can occur following a single event, or after exposure to multiple events which cumulatively affect the individual (Gallagher & McGiloway, 2009; Hammond & Brooks, 2001).

Symptoms of CIS

The symptoms of CIS can be divided into four main categories, namely emotional, cognitive, behavioural and physical symptoms. Table 1 shows examples of symptoms experienced within each category:

Table 1: Symptoms of CIS

Emotional	Cognitive	Behavioural	Physical
<ul style="list-style-type: none"> • Anger • Grief • Depression • Feeling overwhelmed • Hopelessness • Helplessness • Guilt • Anhedonia 	<ul style="list-style-type: none"> • Confusion • Disorientation • Nightmares • Difficulty making decisions • Attention problems • Self-blame • Intrusive thoughts • Decreased self-esteem 	<ul style="list-style-type: none"> • Changes in eating and sleeping patterns • Withdrawal • Panic attacks • Restlessness • Easily startled • Substance abuse • Vocational impairment 	<ul style="list-style-type: none"> • Hypertension • Dazed or numbed appearance • Muscle tremors • Vomiting • Diarrhoea

(Adapted from: Halpern, Gurevich, Schwarts & Brazeau, 2009a; Halpern, Gurevich, Schwarts & Brazeau, 2009b; Hammond & Brooks, 2001; Hiley-Young & Gerrity, 1994; Placer County Law Enforcement Chaplaincy: Training Manual, 2007)

These symptoms must be recognised by either the EHCP self, management or the CISD team in order to be controlled, and to prevent the development of destructive coping. Miller (1999) names six criteria which should be used by supervisors in deciding whether staff needs debriefing: (1) various individuals within the group are distressed following a specific call;(2) the signs of stress are severe; (3) severe behavioural changes appear; (4) mistakes are made on calls following the critical incident (5) help or assistance is requested; (6) the event is unusual or extraordinary.

Critical Incident Stress Debriefing

Development of CISD

Critical Incident Stress Debriefing (CISD) forms part of Critical Incident Stress Management (CISM), a comprehensive, multi-component approach to crisis intervention introduced by Mitchell and Everly in 1983 (Mitchell et al., 2003; Woods, 2007). CISM has emerged as an international standard of care (Everly & Mitchell, 2000) and covers the whole crisis continuum, from the pre-crisis stage through the acute crisis phase and finally to the post-crisis phase. It consists of seven core elements or steps, including pre-crisis preparation, large scale demobilization procedures, brief small group discussions or defusing's, and follow-up procedures (Everly & Mitchell, 2000).

CISD forms the fifth step or element of the CISM process and can be described as a highly structured form of group crisis intervention where a discussion takes place regarding the traumatic or critical incident (Everly & Mitchell, 2000). It is performed within 10 days after a crisis, or traumatic incident (Hokanson & Wirth, 2000) and entails longer, small group discussions with the aim to assist individuals to achieve a sense of psychological closure and to simplify the referral process (Everly et al., 2002).

It was developed to help workers in high risk occupations deal with stress, such as first responders, including EHCPs (Bledsoe, 2003; Mitchell et al., 2003). CISD is based on a combination of crisis intervention theory and educational intervention theory (Mitchell et al., 2003; Sacks, Clements & Fay-Hillier, 2001). With a strong focus on catharsis, the roots of Psychoanalysis also come to the forefront with the assumption that allowing the individual to vent emotionally, psychological healing is increased and the risk of developing PTSD is decreased (Scully, 2011). Education forms an important part of CISD to prevent similar reactions in the future and to educate participants regarding critical incidents, reactions and

symptoms to watch out for (Tuckey & Scott, 2014). As a result, CISD is one of the most widely used form of debriefing (Raphael & Wilson, 2000).

The aims of CISD

According to Mitchell (n.d.) it is important to note that CISD is not a substitute for psychotherapy, but rather a supportive, crisis focused discussion of a critical incident. It aims to reconstruct the traumatic event, allow for ventilation by the participants and normalising the event and the specific reactions of the participants (Deville, Gist & Cotton, 2006). It provides an opportunity for a group discussion about the incident, or series of incidents, with the focus on how the individuals have been coping (Robinson & Mitchell, 1993) and aims to limit the development and establishment of maladaptive cognitive or behavioural patterns (Dyregrov, 1998; Hammond & Brooks, 2001) or maladaptive coping responses (Scully, 2011).

CISD aims to mitigate harmful effects of work related trauma and prevention of posttraumatic stress disorder, especially in emergency workers or first responders in such a manner that coping is enhanced (Hokanson & Wirth, 2000). The purpose of CISD is thus not only acute symptom mitigation but also assessment of the need for follow-up treatment, and, if possible, provision of a sense of post-crisis psychological closure (Woods, 2007). It further aims to reduce distress, but also to restore group cohesion and unit performance after a critical incident (Mitchell, n.d.).

The nature of CISD

CISD is a group procedure in which seven clearly defined phases are followed, designed to be applied to groups of people who are similar in nature and who have experienced a common traumatic event (Robinson, 2007). It is conducted by a team of mental health practitioners together with specially trained workplace “peers,” all of whom received training in CISD, which is applied in conjunction with other interventions as part of CISM

(Robinson, 2007). Ideally there are three main figures in presenting the process. Firstly, the team leader, normally a trained mental health professional whose role it is to encourage the group to discuss the event and their reactions to it (Mitchell et al., 2003); and secondly the co-leader, who is a peer or personnel member from the area or group being debriefed (Mitchell et al., 2003). The role of the co-leader is to share leadership, assist in various aspects of the process but also to provide follow ups and referrals if needed. Finally, the doorkeeper's role is to prevent unauthorised or inappropriate individuals to enter the session, but also to follow individuals who leave the debriefing and encourage them to return, or alternatively provide information to the individual should he/she want to follow up later (Mitchell et al., 2003).

CISD is preceded by an assessment of the situation and followed up with appropriate support and further assistance should it be required. Although it is predominantly a group debriefing structure, it does allow for individual debriefings (Devilley et al., 2006). Sessions are held in a private room, usually with only one entrance allowing the participants or doorkeeper to control who enters and who leaves the room (Mitchell et al., 2003). The chairs should be arranged in a circular formation with participants being equally spaced (Mitchell et al., 2003). A debriefing is ideally conducted between 24 and 72 hours after the critical incident, and lasts between 1 and 3 hours (Robinson & Mitchell, 1993).

The seven steps of CISD

CISD consists out of seven steps, namely (Devilley & Cotton, 2003; Mitchell et al., 2003):

1. The *introductory* phase in which rules, processes and goals are explained to participants.
2. In the *fact phase* participants are asked “to describe themselves, their role during the incident, and what happened from their point of view” (Mitchell et al., 2003).

3. During the *thoughts* phase participants are given a chance to describe what their first, automatic, thoughts were following the event. The intention is to act as a transition between the cognitive and emotional processes.
4. During the *reaction* phase participants' emotions are explored; each participant gets an opportunity to identify the most traumatic aspect for them together with the emotional reaction they experienced.
5. In the *symptoms phase* a global assessment of physical and psychological symptoms is done. At this stage high volumes of intense emotions might be present and the participants are asked to describe any affective, behavioural, cognitive or physical reactions they experienced both on the scene and afterwards.
6. The *teaching/information phase* entails educating the participants about the possible, common, or even "likely" stress responses. A cognitive approach is followed in this phase, designed to bring participants further away from the emotional content in the reaction phase.
7. In the *re-entry* phase referral information is provided for possible follow-ups in the future. The phase also creates the opportunity to clarify issues, answering of questions and a summary of the intervention to be given.

Coping and Related Processes

Psychological stress arises in situations where an individual perceives a mismatch between the demands placed on the individual and the resources the individual have available (Morrison & Bennett, 2009). Frydenberg and Lewis (as cited in Frydenberg, 1999) define coping as a set of cognitive and affective actions which arises in response to a particular concern. More specifically, coping refers to the process through which the individual alters either the stressor or the interpretation thereof, aiming to reframe the context in a more favourable way (Morrison & Bennett, 2009). Coping behaviour can, therefore, be described

as the actions implemented by an individual to restore equilibrium in the short term but also to set the stage for possible long term positive adaptation skills (Aldwin, 1994; Frydenberg, 1999).

In this study, the term coping will be used as an overarching term for all the different variations used to describe the process of constantly changing ones cognitive and behavioural efforts in order to manage the demands which are judged as exceeding the available resources (Lazarus & Folkman, 1984).

Coping is thus the use of a variety of strategies, not always in a conscious manner, to deal with actual, threatened or anticipated problems, and also to handle the negative emotions that may emerge from these problems (Aldwin, 1994). It is a process which takes place over time and doesn't necessarily imply a positive outcome (Kleinke, 1991). The environment in which the situation takes place, but also the individual's frame of reference, background and culture influence the appraisal of situations, as well as the chosen coping behaviours (Aldwin, 1994; Frydenberg, 2004). Therefore, coping entails any behaviour, regardless how effective it works, an individual employs to manage the perceived stress caused by the interaction between the individual and the environment (Aldwin, 1994; Lazarus & Folkman, 1984).

Coping and cognitive appraisal

Central to almost all coping theories is the role cognitive appraisal plays. Cognitive appraisal is the process through which an individual determines why, and to what extent, a certain situation is stressful (Lazarus & Folkman, 1984). It consists of primary and secondary appraisal. Primary appraisal refers to the process through which an individual perceives a situation as relevant or threatening, and can take on one of three forms, namely harm/loss, threat or challenge (Mitchell, 2004). Secondary appraisal refers to the process through which the individual evaluates his/her available resources as either sufficient or insufficient to solve or manage the situation (Perez, Godoy-Izquierdo & Godoy, 2013). Furthermore, one also

evaluates the possible benefits and consequences of a certain coping strategy (Mitchell, 2004).

Cognitive appraisal is directly linked to one's coping resources— these are subdivided in personal and social coping resources and contribute to the individual's repertoire of coping behaviours as well as the number of options available for choosing the most appropriate and potentially successful coping strategy (Lazarus & Folkman, 1984). Personal coping resources include a relative stable personality, flexible cognitions as well as a variety of dispositional factors which relate to personal control (Taylor & Stanton, 2007; Lazarus & Folkman, 1984), for example self-efficacy, optimism, hardiness, internal locus of control (Zeidner & Endler, 1996), and coping intention (Frydenberg, 2004). Social coping resources strengthens the coping efforts by providing emotional support to the individual and in this manner increases the individual's feelings of self-esteem and self-confidence, while also provides informational guidance and cues to help assess the threat and to plan the best coping strategy for a specific situation (Zeidner & Endler, 1996).

Based on the outcome of cognitive appraisal and the availability of coping resources, the individual then applies certain coping mechanisms, styles or strategies to manage the situation. Psychological coping mechanisms are commonly termed coping strategies or coping skills (Morris, 2014), concepts that will be viewed as synonyms in this research. There are various definitions regarding what coping strategies entail, but the basic elements seem to be that there is an appraisal of a situation, and that it is a conscious and flexible response to a situational demand (Folkman, 2011). Coping styles are defined as the typical thoughts and behaviours employed by an individual to manage the demands of a situation which is appraised as stressful (LeBlanc, Regehr, Birze, King, Scott, Macdonald & Tavares, 2011).

Problem Focused Coping versus Emotion Focused Coping

Lazarus and Folkman (1984) divided coping strategies into two overarching categories, namely problem and emotion focused coping. In problem focused coping, also known as task-oriented coping, the aim is to alter the problem (Steffen & Smith, 2013), and includes attempts to modify or eliminate the sources of the stress by taking action (LeBlanc et al., 2011). This approach includes a purposeful, task oriented effort aimed at solving the problem, cognitively restructuring the problem or attempting to alter the situation, with the main focus on the task at hand, planning or attempting to resolve the problem (Sanders, 2002).

Emotion focused coping refers to those efforts that regulate the emotional response to the problem (Steffen & Smith, 2013) including behavioural and cognitive responses which are primarily aimed at managing the emotional response and maintaining emotional equilibrium (LeBlanc et al., 2011). Reactions include emotional responses, such as self-blame, irritability and anger, also self-preoccupation and fantasising (Sanders, 2002).

According to Harrington (2013) problem focused versus emotion focused coping should be understood from their intersection on another dimension, namely that of approach versus avoidant coping. An approach coping strategy would entail the individual using active strategies to eliminate the stressor or the effects of the stressor (Harrington, 2013). In comparison, an avoidance coping strategy would entail disengaging from the stressor or the effects of the stressor or actively avoiding confronting the problem (Harrington, 2013), aimed at avoiding emotional tension, for example over-eating or alcohol use (LeBlanc et al., 2011). Approach focused coping is also known as active or engagement coping strategies, while avoidant coping are also known as disengagement strategies (Connor-Smith & Flachsbart, 2007).

Constructive Coping versus Destructive Coping

A further distinction can be made between constructive and destructive coping mechanisms. Constructive coping can be seen as any effort that promotes the individual's health and well-being while experiencing an event or events that challenge his/her resources (Gottlieb, 1997) including exercise, spending time with loved ones or actively attending to the problem. Constructive coping is associated with efficacy; a coping strategy can be seen as effective if it reduces immediate distress, but also contributes to long term positive outcomes such as good psychological health and overall healthy functioning (Snyder, 1999). Effective coping strategies can further lead to sustained well-being and resilience even in the face of trauma, uncertainty or distress (Folkman, 2011).

Coping strategies used to reduce tension, include but are not limited to, self-control, humour, crying, talking it out and working off the energy (Lazarus & Folkman, 1984). However, if these strategies are overly used or used inappropriately they could contribute to an individual losing control and experiencing a state of disequilibrium (Lazarus & Folkman, 1984). This is indicative of destructive coping mechanisms that do more harm than good and should therefore be considered as maladaptive (Prati, Pietrtoni & Cicognani, 2011). Examples of destructive coping include substance abuse, binge eating or withdrawing from social contexts.

Conclusion

This literature review endeavoured to explain the central concepts in the current research to the reader. EHCPs are faced with critical incidents on a daily basis, leading to the possible development of CIS if no intervention is presented. CISD is an intervention developed to mitigate the impact of critical incidents on the coping of EHCPs, with the end goal to create and nurture healthy and effective coping strategies.

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Chapter 2: Manuscript for submission

The Impact of Critical Incident Stress Debriefing on coping in emergency health care providers: a rapid review

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The impact of Critical Incident Stress Debriefing on coping in emergency health care providers: a rapid review

Abstract

Critical Incident Stress Debriefing (CISD) was originally developed as one step in Critical Incident Stress Management (CISM), however, in practice it is regularly presented as a stand-alone intervention. The aim of this study was to explore the best available evidence, with a rapid review, regarding the impact, more specifically the nature, relevance and effectiveness of CISD on Emergency Health Care Providers (EHCP) when applied in isolation. Six articles were identified by using the Joanna Briggs Institute (JBI) guidelines for data synthesis. Thematic analysis was used to identify and synthesize themes from both quantitative and qualitative studies. In essence, it was found that CISD as stand-alone intervention for EHCPs has both positive and negative outcomes. A void is however still left between what CISD offers and what is subjectively needed by EHCPs. Further research is needed to fully understand the effectiveness of CISD as stand-alone intervention.

Keywords

CISD, critical incident stress, coping, Emergency Health Care Providers, rapid review

Introduction

Emergency Health Care Providers (EHCPs) are medical specialists who are trained to provide victims of sudden or acute illness or injury with emergency care and transportation to hospital (Gallagher & McGilloway, 2009). In 2014 there were 69596 EHCPs, including ambulance emergency assistants, emergency medical technicians, paramedics and emergency care practitioners registered with the HPCSA (2014), serving a population of approximately 54 million (Statistics South Africa, 2014). It is estimated that 3.5 million individuals seek pre-hospital healthcare for trauma related incidents with an estimated 48 000 trauma related deaths annually (John & Matshoba, 2015). EHCPs in South Africa, like elsewhere in the world, are therefore exposed to critical incidents like traumatic scenes, medical emergencies and death on a continuous basis (Erasmus & Fourie, 2008). In addition they are often at risk for exposure to diseases like HIV/AIDS and TB, have safety concerns when they arrive on scenes and have to deal with being under resourced, understaffed and poorly equipped (Van Hoving, Barnetson & Wallis, 2015; Wallis, Garach & Kropman, 2008).

Exposure to single or multiple incidents sufficiently disturbing to overwhelm the individual's normal or typical coping strategies can lead to critical incident stress (CIS) or secondary traumatic stress (Gallagher & McGilloway, 2009; Hammond & Brooks, 2001). The severity of CIS in EHCPs caused by an incident is influenced by length of exposure, perceptions the individual holds, the cumulative effect of incidents over time, pre-existing coping strategies and available social support (Mitchell, Sakraida & Kameg, 2003; Smith & Roberts, 2003). Specific critical incidents like body handling, infant deaths, child abuse, mass casualties and mutilations put EHCPs at a much higher than average risk to develop severe stress responses (Cicognani, Pietrantonio, Palestini & Prati, 2009; Donnelly & Bennett, 2014; Minnie, et al., 2015; Richards, 2001; Smith & Roberts, 2003).

Increased absenteeism and sick leave, decreased job satisfaction and errors in the execution of their jobs (Woods, 2007) are some of the results of poor coping strategies employed in this highly stressful job. Mitchell, Everly and Mitchell (as cited in Woods, 2007, p.6) state that, “Crying spells, intensifying depression, sleeplessness, sudden mood swings, anger outbursts, frustration with small tasks, a sense of helplessness, feelings of hopelessness, and other signs of emotional distress may develop after emergency service responders engage in rescue operations”. If the effects of the daily trauma are not negated by the effective use of coping strategies these individuals stand the risk of developing conditions such as burn-out, compassion fatigue and even posttraumatic stress disorder (PTSD) (James & Gilliland, 2013).

This indicates how severe the consequences can be if EHCPs don't have adequate coping strategies, but also if no resources are available to help them maintain effective coping strategies or learn new coping strategies when old ones aren't effective anymore. Coping strategies can be described as actions implemented by an individual to restore equilibrium and functioning on the short term and to enhance transformational functioning in the long term (Aldwin, 1994). However, training and education of EHCPs generally seem to be neglected - Minnie, Goodman and Wallis' (2015) finding that EHCPs in a South African sample receive limited training to cope with the emotional and psychological effects of the work they do supports Jateczak's (n.d.) observation that EHCPs in the USA are not properly educated regarding how to prepare for, recognise and deal with CIS.

Critical Incident Stress Management (CISM) is a comprehensive, multi-component approach to crisis intervention introduced by Mitchell and Everly in 1983 (Mitchell, Sakraida & Kameg, 2003; Woods, 2007). As a fire fighter himself, Mitchell was aware that the needs of first responders to critical incidents were not successfully being met by existing interventions (Mitchell et al., 2003). Critical Incident Stress Debriefing (CISD) is a formal intervention representing the fifth step of the CISM process (Sacks, Clements & Fay-Hillier,

2001) and entails small group discussions with the aim to assist individuals to achieve a sense of psychological closure (Everly, Flannery & Eyler, 2000). It thus aims to mitigate the impact of a critical incident, but also to enhance recovery following a critical incident (Mitchell et al., 2003).

Even though the intent with CISD was not for it to be used in isolation from CISM (Mitchell et al., 2003), it is clear from the literature (Jacobs, Horne-Moyer & Jones, 2004; Mitchell et al. 2003) that it is indeed often used as a stand-alone intervention. What is not clear is the extent to which CISD as an independent component of CISM is effective in improving coping in EHCPs. Even though some studies indicate that CISD as an intervention on its own is effective in mitigating the impact of a critical incident (Mitchell et al., 2003) other studies found that CISD did not improve PTSD symptoms, nor did it improve the natural recovery from other trauma related disorders, and that it even might interfere with the natural processing of a traumatic event and bypass other support structures (Van Emmerik, Kamphuis, Huisbosch & Emmelkamp, 2002).

No systematic reviews could be found which synthesize the findings in order to provide a more specific answer to the question. Further, minimal research has been conducted in the South African context focusing on interventions which could enhance the mental health of EHCPs. With limited resources available to EHCPs in South Africa, CISD in isolation could be a strong recommendation if found to be effective. The question this study wants to answer may thus be formulated as follow: What scientific evidence exists regarding the impact of CISD used in isolation on coping in EHCPs? In addressing this question, the researcher hopes to indicate whether it is recommended to use CISD in isolation, and based on the answer, what needs to be done, specifically in a South African context, regarding the coping strategies of EHCPs.

The aim of this study is to explore the best available evidence of the impact of CISD used in isolation on coping in EHCPs. Impact will be evaluated according to three guidelines, namely the nature, relevance and effectiveness of CISD. *Nature* refers to when, where and by whom CISD is typically used as stand-alone intervention; *relevance* refers to the alignment between the needs of EHCPs and the content and the aims of CISD as stand-alone intervention; and *effectiveness* refers to the extent to which the needs of EHCPs are met by CISD as stand-alone intervention.

Method

Research design

A rapid review, done in a shorter time frame and utilising less resources than a traditional systematic review (Khangura, Konnyu, Cushman, Grimshaw & Moher, 2012), was done. Although less comprehensive, a rapid review does still adhere to the core principles of a systematic review (Schünemann & Moja, 2015), namely to locate, assess and synthesize data already compiled relating to a specific research question, with the aim to provide informative and evidence based answers (Boland, Gemma Cherry & Dickson, 2014). In accordance with Grant and Booth (2009), this study had a narrow, focused question, extracted only key variables, was restricted to studies published in English, and primarily, but not exclusively, used only one reviewer.

Data generation

In this study the Joanna Briggs Institute (JBI) segregated methodology (The Joanna Briggs Institute, 2014b) was used to guide the research process. This approach entails that a clear distinction is maintained between quantitative and qualitative data, with individual synthesis done before the final synthesis of both types of research (The Joanna Briggs Institute, 2014b). The JBI mixed method uses the Bayesian approach to convert quantitative and qualitative data to similar data (The Joanna Briggs Institute, 2014b). In this study, data

was converted to qualitative themes.

The research process

To ensure that the research adheres to the requirements set for a systematic review, the steps/stages set out by the JBI methods of synthesis were followed throughout the research process (see figure 1):

<insert figure 1 here>

Inclusion and exclusion criteria

The following criteria were used to include studies for this review:

- i. studies published in peer reviewed journals ;
- ii. studies published in English;
- iii. full-text articles;
- iv. studies published in any year;
- v. studies in which CISD have been applied in isolation, thus not as part of the broader CISM approach or any other approach;
- vi. studies following either quantitative, qualitative or mixed method designs;
- vii. study participants must be EHCPs; and
- viii. study participants must be adults (18 years and over).

The following criteria were used to exclude studies from this review:

- i. studies on first responders other than EHCPs (fire fighters, police or traffic police);and
- ii. review studies and studies published in conference proceedings.

The search strategy

Keywords were identified by utilising psychology journals and textbooks regarding the topic as well as through the National Library of Medicine - Medical Subject Headings

(MESH) (<https://www.nlm.nih.gov/mesh/MBrowser.html>). The following keywords were used in combination with inclusion criteria and Boolean operators:

“Critical Incident Stress Debriefing” OR “CISD”

AND

“Emergency Medical Technician” OR “EMT” OR “Emergency Medical Service*” OR “EMS” (EHCP is a South African term, while paramedic or EMT are accepted internationally) OR “emergency health care provider*” OR Paramedic* OR “Prehospital Emergency Care”*

AND

Coping OR “coping mechanism” OR “coping strategies” OR “copingbehaviour” OR “coping style” OR “coping skills” OR adjustment OR adaptation OR adaptive

The following databases were used for the search: PubMed, Scopus, Medline, ProQuest, PsychINFO and One Search. The titles and abstracts identified were assessed where after the full text of the studies included were retrieved and assessed to determine their relevance to the current study and their scientific quality.

The critical appraisal of selected studies was conducted by two independent researchers for methodological validity (Sean, Kim & Fai, 2009). Findings were then compared and all differences were discussed. The critical appraisal was conducted by utilising the JBI QARI form (The Joanna Briggs Institute, 2014b) for the critical appraisal of qualitative studies and the JBI MASTARI form (The Joanna Briggs Institute, 2014b) for quantitative studies.

The realisation of the search process is indicated in the Prisma flow diagram (*Figure 2*).

<insert figure 2 here>

In the data extraction phase the methods, interventions and outcomes of the individual

research articles included in the study were summarised. A data extraction table was created and is presented in *Table 1*.

<insert table 1 here>

After the included articles were identified by following the JBI structure, thematic analysis was utilised to identify occurring themes in the individual articles. Utilising thematic analysis enabled the researcher to identify themes in articles included in order to synthesise the themes. Thematic analysis entails searching for themes which emerge in the data as being important in describing a specific phenomenon (Fereday & Muir-Cochrane, 2006). Braun and Clarke, 2006, p.6) define thematic analysis as, “a method for identifying, analysing and reporting patterns (themes) within data,” and states that, “it minimally organizes and describes your data set in (rich) detail”. This combined the extraction and synthesis steps, as the themes from the various articles were firstly identified, where after they were synthesised to illustrate the common themes from all the selected articles. Thematic synthesis enables a researcher to generate a hypothesis which can then be tested against quantitative findings (Thomas & Harden, 2008).

Ethical considerations

The study was approved by the North-West University’s Health Research Ethics Committee (HREC) with approval number NWU-00023-16-A1. As a rapid review is a form of secondary research, it remains the researcher’s responsibility to ensure that fair, bias free and accurate information is synthesized and reported (Health Professions Council, 2008). To prevent plagiarism from occurring in the current research, quotation marks were used when other research is quoted directly, together with a citation, giving credit to the researcher whose work it was originally (Wager & Wiffen, 2011). Should the researcher have discovered

plagiarism in any of the original articles it would have been excluded on grounds of unethical practices (Washington State University, 2016). As per the requirements of a systematic review, the research process was as transparent as possible, enabling researchers to replicate or verify the findings. In the process of developing inclusion and exclusion of criteria a pre-established protocol was used to minimize bias in this process.

Results

Results will be presented according to the three guidelines used to evaluate impact, namely the nature, relevance and effectiveness of CISD. Figure 3 presents a visual summary of each guideline with its related themes and sub themes.

<insert figure 3 here>

The nature of CISD

The nature of CISD is an important aspect in exploring its impact on the EHCPs, especially when compared to the second theme, namely the needs of the EHCPs. Three themes emerged in this regard - firstly, CISD seems to be more voluntarily than mandatory in nature, secondly, it has a reparatory and formal nature, and finally, it is more often presented by someone from outside the EHCP peer group.

Data extracted from the six studies wasn't conclusive regarding which form of voluntarily or mandatory participation is better; it rather appears to be dependent on individual preference. Taillac et al. (2015) found that although CISD is not seen as the most effective intervention, EHCPs appreciated the opportunity and reported higher levels of satisfaction, especially if the participation was voluntarily. In the research conducted by Jenkins (1996) participation in debriefing was optional, with 50% of the participants opting to participate in a CISD session.

It was further evident that CISD is most often presented in a *reparative and formal way*. CISD is ideally presented 24-72 hours post the CI, which is understandable when one takes into account that CISD is partly based on a pathological model of which the aim is to repair damage caused by a specific critical incident (Taillac et al., 2015). By its nature it is therefore presented in a reactive or reparative, and not a pro-active manner. Although CISD makes the EHCPs aware of the type of stress which could possibly overwhelm them, it doesn't take a pro-active stance to help anticipate and manage critical incidents throughout their careers (Macnab et al., 2003; Taillac et al., 2015). Taillac et al. (2015) therefore describes CISD as necessary but rarely sufficient on its own, while Halpern et al. (2009a) suggest that the formal nature of the intervention doesn't allow for honest emotional expression, but more importantly, could cause sensitization to trauma or even re-victimization.

Finally, CISD is not *presented by a fellow EHCP or peer*, but most often by outsiders, who even though they might be professionally trained, are not approached and experienced with the same level of trustworthiness as peers and/or supervisors would be. EHCPs therefore prefer to speak to people of their choosing, in a casual manner, at their own pace and in an unstructured environment (Halpern et al., 2009a; Halpern et al., 2009b). Talking to a peer, especially to a partner, is preferred as trust is implicit and also having the shared experience creates an increased subjective experience of empathy by the EHCP (Halpern et al., 2009a; Halpern et al., 2009b; Jenkins, 1996; Macnab, Sun & Rev, 2003).

Relevance of CISD

Needs of EHCPs

One need which appears to be central to EHCPs is *education regarding CIS and stigma* (Halpern et al., 2009a; Halpern et al., 2009b; Taillac et al., 2015; Woods, 2007). EHCPs

clearly express a need to be educated regarding CIS, identifying symptoms in self and others, where to find help when it is needed, but also regarding general stress due to organisational difficulties, lack of managerial support, lack of acknowledgement and feelings of worthlessness as well as stress management techniques (Halpern et al., 2009a; Halpern et al., 2009b; Macnab et al., 2003; Taillac et al., 2015). Furthermore, both internal and external *stigmatisation* exists (Halpern et al., 2009a; Halpern et al., 2009b; Woods, 2007), and a need exists for education to address the stigma and enable individuals to receive the help they need.

The needs regarding education extends further than only the EHCPs, as they expressed the need for their families to also receive education regarding stigma, CIS and signs and symptoms to look out for in the individuals (Halpern et al., 2009a; Halpern et al., 2009b; Taillac et al., 2015; Woods 2007). As supervisors fulfil a very important role in the functioning of EHCPs, the need for proper training and education of the supervisors to ensure maximum support was also mentioned (Halpern et al., 2009a).

The education should also be on-going, taking place throughout their careers (Halpern et al., 2009a; Halpern et al., 2009b). Their need for education relates with the need for *pro-active* interventions, as continuous training or education could mean possible prevention or decrease in the prevalence of pathology such as PTSD, anxiety and depression (Halpern et al., 2009a; Halpern et al., 2009b; Taillac et al., 2015; Woods, 2007).

EHCPs are described as an insular, cohesive group, preferring the company of peers where they feel understood (Halpern et al., 2009b). This leads to the peers becoming a very strong source of support in their daily functioning. Supervisor support was specifically mentioned as needed immediately after a critical incident, acknowledging an incident as critical, expressing concern about the EHCPs wellbeing and valuing the EHCPs work. Furthermore, EHCPs stated that a *time out* (Halpern et al., 2009a) even for a short period of

time, which they could spend away from the base with a peer, talking about the CI was very helpful in dealing with difficult calls.

Regarding *voluntary versus mandatory* participation there isn't a clear differentiation regarding the preference of the EHCPs (Jenkins, 1996; Taillac et al., 2015). Some of the participants in the study of Halpern et al. (2009a) stated participation should be voluntarily, while others stated they felt that in some cases participation should be mandatory. Macnab et al. (2003) only found a very small amount of calls for CISD by the EHCPs; more calls were received by third parties asking for help. It is therefore interesting to note that both Jenkins (1996) and Taillac et al. (2015) found that those who participated in debriefings on a voluntary manner showed better results.

Finally, some *gender differences* were noted: According to Wood (2007) more female EHCPs report symptoms of PTSD and distress, and as they appear to be more in tune with their emotional side, they ask and accept help more often than men. Wood also found that male participants experienced debriefing as threatening and being outside their normal emotional and expressive experiences.

Barriers experienced by EHCPs

Stigma seems to be a strong barrier entrenched in the identity of those in this profession. The macho image of "big boys don't cry" is described as the "most insidious and far reaching barrier" by Halpern et al. (2009a, p.147) when it comes to talking about feelings, especially those emotions which make EHCPs feel vulnerable. The fear of appearing weak or inadequate therefore acts as a very strong barrier to asking for or participating in debriefing sessions (Woods, 2007; Taillac et al., 2015) while the subsequent fear of stigma further contributes to fears about a lack of confidentiality in debriefing sessions (Halpern et al., 2009a; Halpern et al., 2009b).

Difficulty in recognising symptoms in self and others following a critical incident is a

second barrier to asking for help (Halpern et al., 2009b; Macnab et al., 2003; Woods, 2007). Ignorance regarding which behaviours or emotions are problematic (Woods, 2007) contributes to low levels of help seeking behaviour. Added to this the *difficulty of acknowledging distress and expressing emotions* by the EHCPs make this an even more difficult task (Halpern et al., 2009a; Woods, 2007).

It is finally clear that *difficulty accessing resources* but also *ignorance about available resources* (Macnab et al., 2003) both complicate the process of getting help when it is needed. This aspect also contributes to practitioners preferring to turn to peers and supervisors when they have a need to talk about a specific incident.

The Effectiveness of CISD

Jenkins (1996) found that CISD attendance contributed to a decrease in symptoms of *anxiety and depression*, and their recovery from these symptoms were also the strongest. With regard to PTSD, Woods (2007), however, found that participants who received CISD experienced worse symptoms of *PTSD* compared to those who did not attend CISD. A possible explanation for this, according to Woods, could be due to CISD being a one-time intervention and that trauma symptoms are exposed, but never resolved, worsening the symptoms, leaving participants with unresolved, raw emotions and no closure. Macnab et al. (2003) and Woods (2007) found both male and female participants reported they felt worse after the debriefing than before, leading them to questioning themselves and creating fear that they missed something on the scene.

With reference to the *effectiveness of CISD specifically regarding coping* Jenkins (1996) found that participants who experienced shock as first response felt that CISD was helpful in restoring appropriate defences, preventing the development of rigid defences. Further Jenkins (1996) found that the participants who experienced CISD as very helpful learned new coping skills, which would lead to individuals coping differently with similar

situations in the future. Woods (2007) identified differences between males and females in the coping strategies used, and found women are more at ease with expressing and identifying emotions, resulting in CISD being more effective for them.

In comparison, *without CISD intervention*, EHCPs tend to use coping such as avoidance, distraction and black humour (Halpern et al., 2009b; Jenkins, 1996; Woods, 2007). Without CISD, EHCPs seem to be more task oriented, focusing on the task at hand and avoiding emotions and thoughts that might distract them. For example, a participant in the study by Halpern et al. (2009b, p.180) made the following remark: “Yeah you don’t want to think...as soon as you start thinking, that’s when it starts bothering you...”. Black humour has the additional function that it provides bonding between the EHCPs, but with the drawback of being isolated from non-EHCPs (Halpern et al., 2009b; Jenkins, 1996).

Furthermore, critical incidents often undermine the self-esteem of EHCPs, leading to the development of self-blame, blaming others or acts of reparation resulting in seeking reassurance as a coping strategy (Halpern et al., 2009b). As a result, Halpern continues, coping by performing compensatory acts helps to counteract feelings of helplessness evoked on certain scenes. Emotions such as anger, frustration or indignation thus protect the EHCP against emotions causing feelings of vulnerability or weakness.

Discussion

Although a vast amount of studies have been conducted on various topics regarding CISD, only six articles (Halpern et al., 2009a; Halpern et al., 2009b; Jenkins, 1996; Macnab et al., 2003; Taillac et al., 2015; Woods, 2007;) were identified which complied with the criteria for inclusion in this study. In these six articles the picture of EHCPs as an insular and cohesive group, portraying a macho image emerged. Yet the picture of a group of first responders yearning for someone to be available to talk to, someone who will be able to help them normalise the intense emotions they feel after a critical incident, was equally visible.

Although it should be stated right from the outset that no conclusive deductions can be made from these six articles regarding the impact of CISD, some key issues emerged. Firstly, CISD seems to potentially have some positive impact, as it appears to: (a) contribute to a decrease in general anxiety and depression symptoms in EHCPs; and (b) impact on ruminative cognitions and the restoration of appropriate defences. Secondly, however, CISD also appear to fail as effective stand-alone intervention, because: (i) it appears as if CISD might not adequately address PTSD and even increase PTSD symptoms; (ii) while CISD opens up wounds, it seems not to provide emotional closure; and (iii) it fails to address some important needs EHCPs have.

It is evident from the research that CISD can have a positive impact on the coping strategies of EHCPs but it depends on the individuals, their needs and gender. For example, individuals who experience shock as a first response (Jenkins, 1996) felt CISD taught them new coping strategies, leading to different actions and reactions in similar situations later on. Furthermore, it seems as if females found more worth in CISD (Woods, 2007), because they were more able and willing than men to identify and express emotions, expressing anger and were more experienced and comfortable with interpersonal intimacy. This lead to debriefing sessions being less intrusive and intimidating for women, as men were socialised to be more inhibited, assertive and independent. In support of these contextual factors, Raphael, Meldrum and McFarlane (1995) state that the effectiveness of CISD in its current format may be influenced by aspects such as the subjects' levels of arousal, defensive style, coping strategies, cognitive impairments associated with trauma, dissociative reactions and other pathogenic influences not being taken into consideration.

There are, however, also factors that possibly contribute to the ineffectiveness of CISD as a stand-alone intervention. Macnab et al. (2003) and Woods (2007) found participants reported they felt worse after the debriefing than before, causing them to questioning

themselves and creating fear that they missed something on the scene. Research by Scully (2011) and Van Emmerik et al. (2002) found that CISD has no efficacy in reducing PTSD symptoms. Hammond and Brooks (2001) however, state that it is important to not blindly stare at the impact CISD has on PTSD, as single session CISD decreased alcohol misuse and mitigated the symptoms of psychological distress. Thus, judging the effectiveness of CISD might differ vastly depending on the aspect being researched.

Related to this is the general belief by EHCPs that they have coping strategies which might work for them, but aren't compatible with what CISD requires them to learn or to develop. The current research, but also additional sources (compare Avraham, Goldblatt & Yafe, 2014; Minnie et al., 2015; Rowe & Regehr, 2010), indicate that avoidance of emotions, including distraction and black humour, whether effective or not, appears to be perceived as effective by EHCPs themselves and might just as well have some potential benefits. The problem, it seems, is that CISD does not really provide any real alternatives to avoidance strategies. According to Van Emmerik et al. (2002) the reason for the limitation of CISD is that it interferes with the alternation of intrusion and avoidance aspects in the natural processing of a critical incident by forcing participants to talk about their cognitive and affective experiences on the scene.

The observation that CISD is most often presented in a reactive or reparative way is confirmed by other researchers (Mitchell et al., 2003; Pender & Prichard, 2009; Smith & Roberts, 2003; Tuckey & Scott, 2014). In contrast, Pender and Prichard (2009) stated explicitly that CISD was not intended to be reparative, but rather psycho-educational in nature. The need of EHCPs in this study also clearly points towards longer term, continuous education regarding a number of issues related to their work. Minnie et al. (2015) also found that 76% of the participants in their study felt they didn't receive sufficient training to deal with the emotional aspects of critical incidents. This is supported by Gallagher and

McGilloway (2009) who specifically indicated that effective interventions should start during their training of ECHPs and last throughout their careers. The question remains, however, whether the presentation of CISD as a stand-alone is not the core issue here, and if proactivity would only be possible through following the complete CISM process. Research conducted by Pender and Prichard (2009) support this, stating that CISD is most effective when presented as an element of CISM. CISM, as explained by Hammond and Brooks (2001), is a more holistic approach including some of the needs mentioned by the ECHPs, such as pre-incident education and peer support programmes.

Finally, the most important limitation of CISD might be the barriers ECHPs experience, especially those related to stigma. In the current study, but supported by the findings of Minnie et al. (2015) and Gallagher and McGilloway (2009), the fear that confidentiality won't be maintained, mistrust, peer pressure and perceptions relating to a macho image strongly act as barrier to seek help. Thus, no recommendations regarding CISD would be complete before considering and addressing the role stigma plays.

Conclusion

The aim of the current study was to explore existing evidence regarding the impact (nature, relevance and effectiveness) of CISD on coping in ECHPs. The study was deemed relevant and important because CISD as stand-alone intervention, if found to be effective, could be a valuable short-term solution to the daily challenges faced by South African ECHPs. A rapid review was done, based on the guidelines of The Joanna Briggs Institute (JBI) segregated methodology for qualitative and quantitative studies.

In essence, it was found that CISD as stand-alone intervention for ECHPs has both positive and negative outcomes. Positive outcomes were related to a decrease in anxiety and depression symptoms as well as a decrease in ruminative cognitions and the restoration of appropriate defences. Negative outcomes were related to not adequately addressing PTSD,

not providing emotional closure, and not addressing the specific needs of EHCPs regarding voluntary participation and peer presenters. This leaves a void between what is offered and what is subjectively needed.

In conclusion, it is difficult to be convinced from the studies included in this review that CISD, the most widely used form of debriefing (Raphael & Wilson, 2000) is effectively addressing the needs or improving the coping abilities of EHCPs. Can CISD as stand-alone intervention, in the way it is often presented be declared as effective or even relevant? Based on the findings and the discussion, the researcher will not be able to answer this question with a clear 'yes' or 'no'. Yes, perhaps CISD can be relevant and effective on its own, but no, not in the way it is most often presented, more specifically, in a reactive way not effectively addressing the needs EHCPs have, and not taking the larger context, for example, the role stigma plays, into consideration.

Limitation and recommendations

Only six articles adhered to all the search terms and inclusion criteria, and even though this review should be seen as explorative, it should be regarded as an important limitation. Generalising the findings of this study is therefore not possible. Also, no studies done in South Africa were included - as such it is difficult to form a clear picture regarding CISD within the South African context and to make appropriate recommendations in this regard. Much more research is therefore needed before any practical recommendations can really be made. Future research should perhaps include larger random samples and more robust measuring instruments, specifically in order to provide more objective indications of the effectiveness of CISD. For now, CISD should ideally not be presented as a stand-alone intervention, but rather as it was intended, namely a step in the CISM process. If time and financial constraints exist, there may be an argument to present it as a stand-alone intervention, but then consideration should be given to the inclusion of proactive skills

training, as well as ways in which to become more aware of, and adequately address the specific needs of EHCPs.

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A Brief Critical Reflection

I have been involved in debriefings with first responders for a few years, and research regarding this topic has become a passion of mine. The South African context has several aspects making it unique in service delivery, specifically for first responders, and thus also influencing the interventions or debriefings which are necessary. In my experience there is a big need for support and interventions within the first responder's community, yet there are various barriers in asking for help or receiving adequate help.

Taken into consideration the various factors making emergency medical care a high risk profession, minimal research has been conducted in South Africa to attempt to identify and address these critical issues. In the current research only one study was found which was conducted in South Africa, but could not be included as it did not match the criteria set out beforehand. This indicates there is still a lack of research done in our context regarding this topic.

As a practitioner who has been part of various debriefing sessions, I have myself been part of one-time sessions which were organised after a critical incident. No follow-up sessions are held, and EHCPs are expected to receive all the help they need in that limited time. In the current research the needs of the EHCPs as expressed in the articles which were included, are indicative of a need bigger than a one-time intervention. The need for continued education and pro-active interventions can be translated to continuous interventions rather than a one-time intervention. CISD was not developed to be a stand-alone intervention. It was created as a step in a bigger process, yet it is taken out of context and presented with the participants have no pre-existing knowledge regarding the concepts used in the debriefing. Furthermore, it was created as a formal intervention, with specific phases, goals and guidelines regarding the team who should lead the debriefing. Research indicates that the

debriefings are even less effective if these aspects aren't followed as they should be, and still these phases are rearranged, altered or left out completely.

Having been involved in debriefings in the past it could be seen as possibly creating bias with regard to this study. I was trained in CISD as the primary debriefing method to use. In theory it appeared to be sound, yet aspects of the intervention started bothering me as I went on. My passion is assisting EHCPs to develop healthy and lasting coping strategies, to enable them to do their jobs to the best of their abilities. This guided me throughout my research process, in my goal to produce unbiased, transparent and trustworthy results, with the aim of improving debriefings and interventions to EHCPs.

Although the rapid review methodology initially appeared very daunting, it enabled me to systematically work through existing research. This approach, together with the JBI method, gave clear and concise guidelines and rules guiding the whole process. In following this process existing research is combed very carefully in an attempt to gather all existing research on the specific topic. This highlighted the need for research on this specific topic in South Africa, as only one article was found regarding research which was conducted in the South African context.

Conclusion

The current research aimed to identify all relevant research on the specific research question. As no articles were included in which the research was done in the South African context, the conclusions could not be generalised to the South African context. This highlights the need for research regarding this topic in the South African context. The current research identified this gap in research. The contribution the current research has made in the mental health treatment of EHCPs was to identify the possible shortfalls of the current format of debriefings, whilst also indicating the needs of the EHCPs.

Addendums

Addendum 1: Figure 1

Addendum 2: Figure 2

Addendum 3: Table 1

Addendum 4: Figure 3

Addendum 5: Critical appraisal

Addendum 6: Thematic analysis of individual articles

Addendum 7: Ethical approval for the study

Addendum 8: Solemn declaration

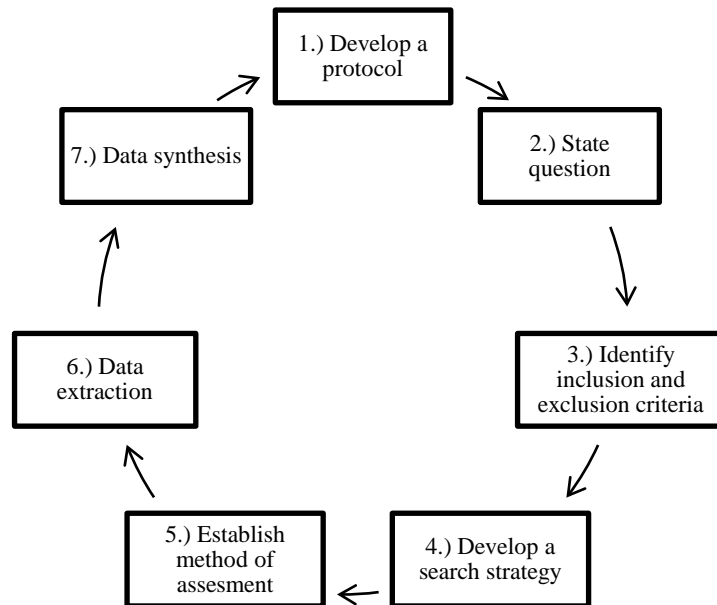
Addendum 1: Figure 1

Figure 1: The research process (Queen's Joanna Briggs Collaboration, 2015)

Addendum 2: Figure2

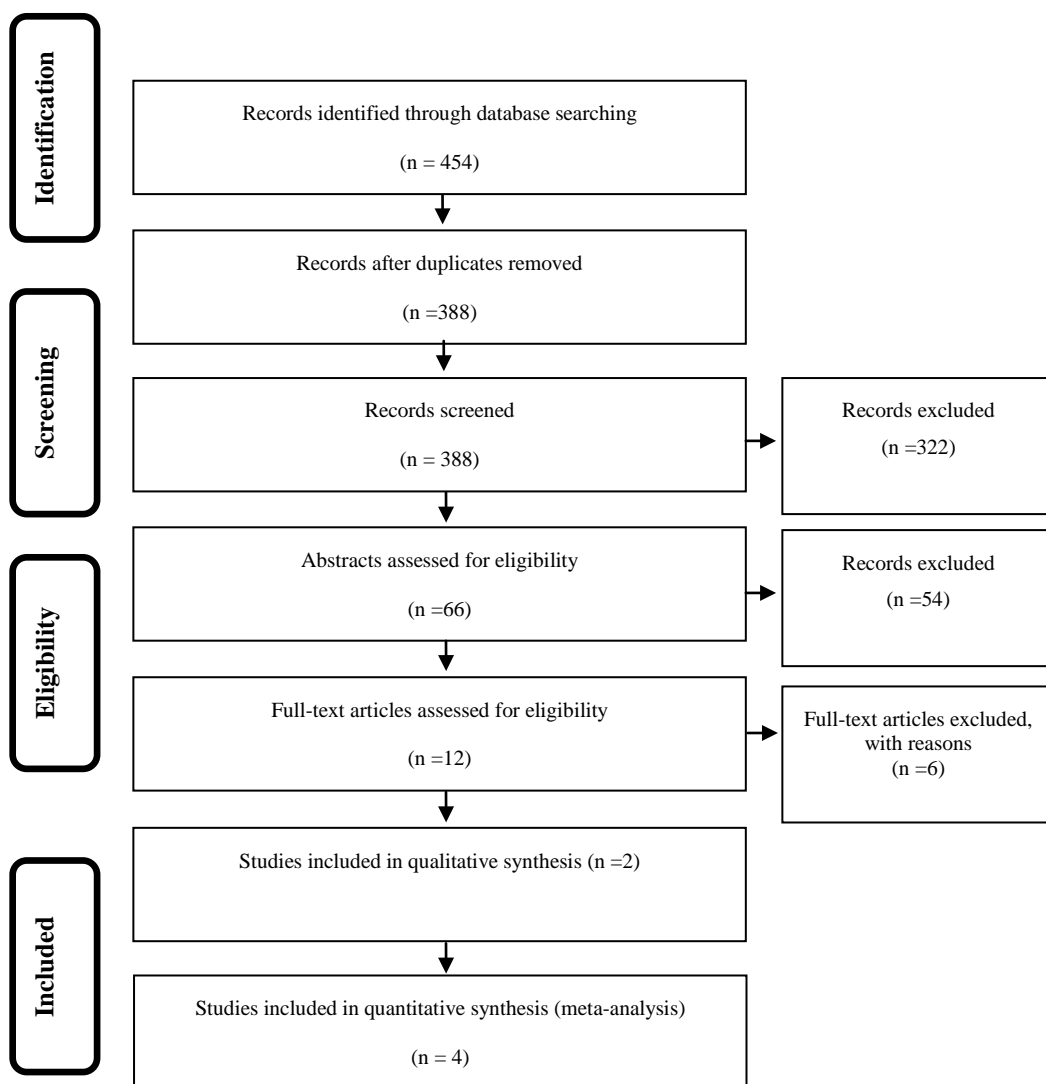


Figure 2: Prisma flow diagram

Addendum 3: Table 1

Table 1: Data extraction table

#	Title of article	Authors & Publication date	Methodology	Participants	Data analysis	Ethics	Main Findings
Qualitative studies included							
3	Interventions for critical incident stress in emergency medical services: A qualitative study	Halpern, J. Gurevich, M., Swartz, B. & Brazeau, P. 2009a	Qualitative exploratory methodology, utilizing focus groups and individual interviews.	60 participants (supervisors – who are qualified EHCPs and EHCPs)	Transcribing; ethnographic content analysis; member validation	Informed consent gotten from each participant and approval obtained from Research Ethics Board.	<ol style="list-style-type: none"> 1. The crucial role of the workplace, and supervisor support in the first 24 hours post incident 2. Lack of supervisor support was found to be a predictor of increased levels of stress and burnout. 3. The support from peers in this time was highlighted as an important protective factor. 4. EHCPs have a need for a time out, spend with peers, immediately after an incident. 5. Barriers to receiving help were identified in this study.
52	What makes an incident critical for ambulance workers? Emotional outcomes and implications for intervention	Halpern, J., Gurevich, M., Swartz, B. & Brazeau, P. 2009b	Qualitative exploratory method – semi-structured individual interviews and focus groups.	60 participants – 31 participated in 8 focus groups, with 29 participating in individual interviews.	Developed thematic coding trees, consensus between three researchers led to themes. Ethnographic content analysis used to examine transcribed content. Textual data from individual interviews were enumerated and qualitative data from group and individual interviews were analysed.	<p>Informed consent obtained from each participant and approval obtained from Research Ethics Board.</p> <p>Interviews were done in private, away from the workplace.</p>	<ol style="list-style-type: none"> 1. Participants suffered significantly following CI and stated they would be grateful for interventions. 2. CI were identified, feelings evoked included inability to help, compassion and vulnerable feelings threatening their professional identity. 3. In response to CI EHCPs exhibited self-doubt, blame, compensatory actions, seeking support and reassurance, avoidance, distraction and black humour. 4. Sadness, anger, irritability, social and relational difficulties, somatic symptoms, job dissatisfaction, substance use and post-traumatic growth were also found. 5. The value of supervisor support and time outs immediately following the CI and barriers to accessing resources needs further research.
Quantitative studies included							
8	Social support and Debriefing Efficacy Among Emergency Medical Workers After a Mass	Jenkins, S.R. 1996	<p>Quasi-experimental design</p> <ol style="list-style-type: none"> 1. Longitudinal study 2. One week post event measures: 	36 participants (EHCPs) – 34 men and 2 women	Descriptive analysis and Predictive analysis utilizing correlations between variables were used to analyse data obtained	Limitations of study named and discussed. No specific mention is made to ethical	<ol style="list-style-type: none"> 1. Symptoms may be related to, and relieved, by subjectively perceived social support and objective social behaviour. 2. Emphatic understanding is the most widely used form of social support. 3. CISD is useful in reducing depression and anxiety symptoms in the month following the incident.

	Shooting Incident		<p>a. Interview, incident questionnaire, social support</p> <p>3. Repeated measures</p> <p>a. Psychological distress, psychosomatic distress</p>		during study.	dilemmas.	<p>4. Restoration of appropriate coping strategies rather than rigid coping styles were evident in those attending CISD as new coping strategies were learned.</p> <p>5. Participation was voluntary; it was found those stressed by triage decisions and those experiencing notable symptoms in the first week, were more willing to participate.</p>
51	Randomized, Controlled Trial of Three Levels of Critical Incident Stress Intervention	Macnab, A., Sun, C., & Rev, J.L. 2006	Randomised controlled trial	18 participants (EHCPs) gave consent for participation.	<p>Caller to helpline would be randomised into one of the three groups.</p> <p>Questionnaires sent to participants were scored and correlations between the scores and severity of the incident were determined.</p>	Only participants who gave consent were used in the research.	<p>1. The need for CISD might be lower than is assumed in general.</p> <p>2. Potential causes for the low call rate:</p> <ol style="list-style-type: none"> CIS incidence lower than believed. In past little calls were received for help. Reluctance to phone individual identified as study coordinator. EHCPs inability to recognise CIS in self and others. The nature of study was voluntary and self-referring.
53	Post-Traumatic Stress Symptoms and Critical Incident Stress Debriefing (CISD) in Emergency Medical Services (EMS) Personnel	Woods, G.L. 2007	Quantitative research design – Questionnaires	219 EHCPs – 168 men and 51 women.	Comparison between the independent variables (gender, training, treatment) and the dependent variable (PTSD Symptom). PTSD symptoms will be measured using the LASC – after which an ANOVA will be used to assess the collected data.	Permission from IRB obtained to do study. Permission obtained to attend meeting with EHCPs. Information was provided, process and confidentiality was explained before participation in research was confirmed.	<p>1. Gender</p> <ul style="list-style-type: none"> Women have higher PTSD levels, report more PTSD symptoms and have higher levels of stress. <p>2. Debriefing</p> <ul style="list-style-type: none"> Higher, and worse, PTSD symptoms were reported post CISD interventions; the distress levels were also higher. <p>3. The level of training was found to be statistically insignificant</p>
54	At-Risk EMS Employees: A	Taillac, P., Hammond, R.,	Survey done using	668 EHCPs completed the	T-Tests and ratio analysis	The study was approved by the	<p>1. At risk profile of EHCP was compiled using the data collected. Including:</p>

	Model of Assessment and Intervention	&Miller, K. 2015	snowball sampling.	survey.	were done.	Institutional review board. No other mention of ethical dilemmas or practices made.	<ul style="list-style-type: none"> • Higher levels of burnout • Less social support due to mismanagement of stress • Personal, social, familial imbalance • Stress related developing maladaptive coping strategies • Developing vulnerabilities making subsequent trauma more harmful than past ones • ↑physical, psychological, anxiety and stress related mistakes <p>2. 18% of the at risk group and 11% of the not at risk group reported that CISD was not helpful at all; but the gesture of CISD was appreciated especially if it was voluntary.</p>
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Addendum 4: Figure 3

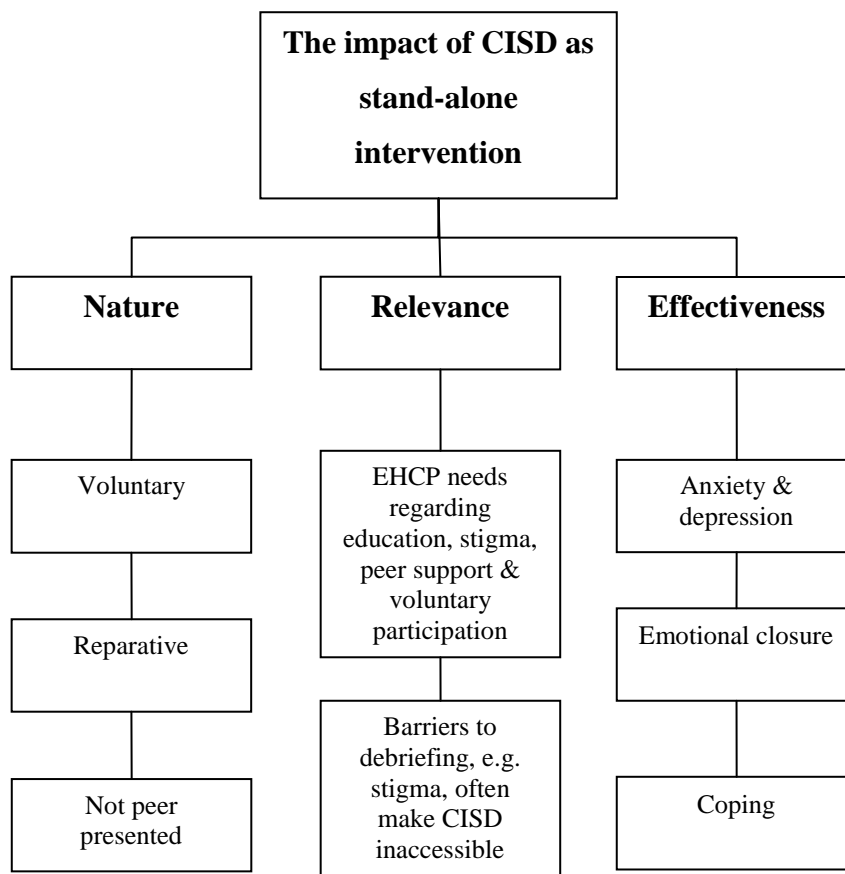
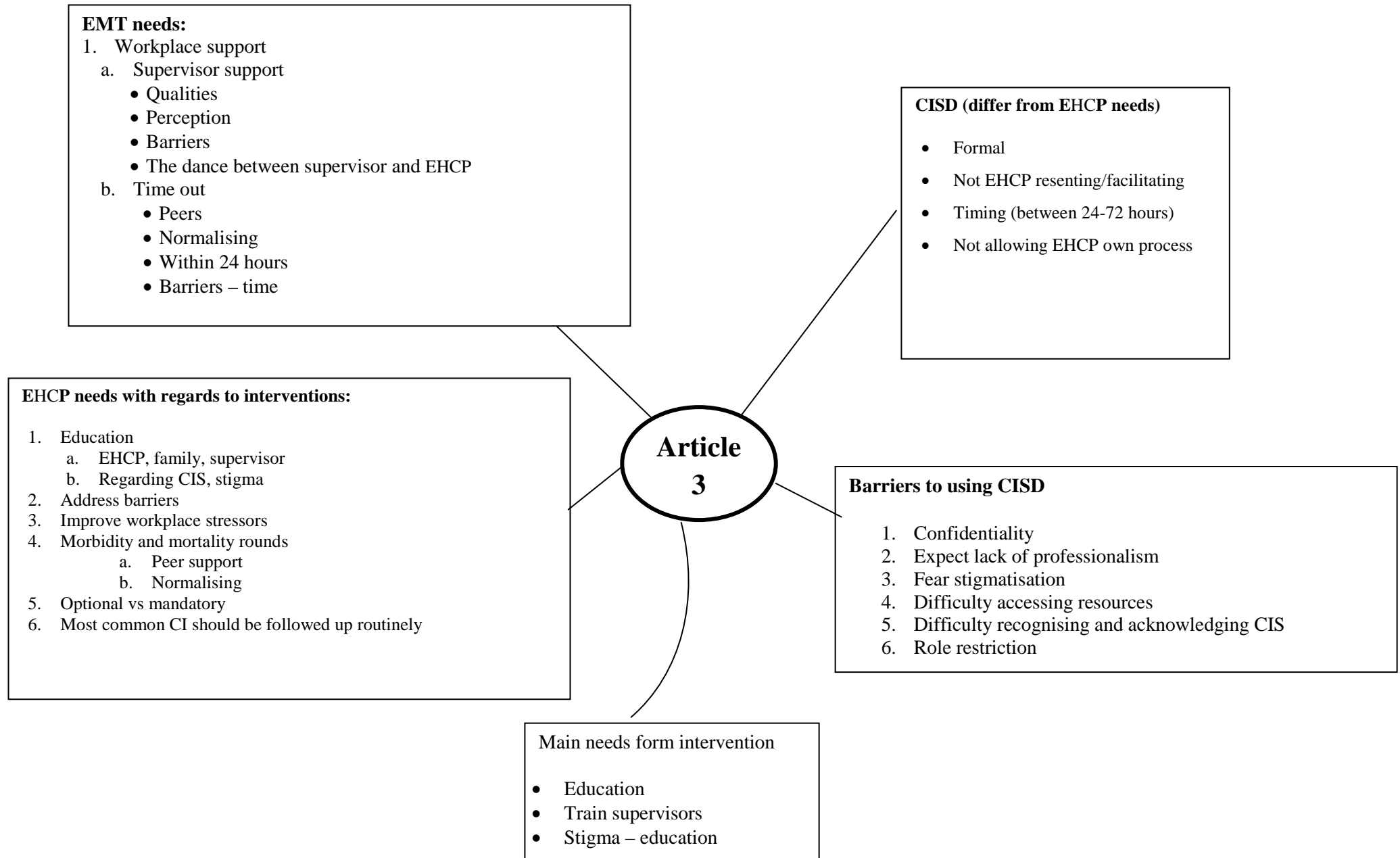


Figure 3: A visual representation of the themes

Addendum 5: Critical appraisal of articles

Qualitative studies (JBI QARI)											
#	Authors & publication date	Congruity between philosophical perspective and research methodology	Congruity between research methodology and research question/objectives	Congruity between research methodology and methods used to collect data	Congruity between methodology and representation and analysis of data	Congruity between research methodology and interpretation of results	Statement locating researcher culturally or theoretically	Influence of the researcher on the research or vice versa, addressed	Participants adequately represented	Research ethical according to current criteria	Do the conclusions drawn flow from the analysis or interpretation
3	Halpern, J., Gurevich, M., Swartz, B. & Brazeau, P. 2009a	✓	✓	✓	✓	✓	×	×	✓	✓	✓
52	Halpern, J., Gurevich, M., Swartz, B. & Brazeau, P. 2009b	✓	✓	✓	✓	✓	×	×	✓	✓	✓
Quantitative studies (JBI MASTARI)											
#	Authors & publication date	Is the sample representative of patients in population as whole?	Are patients at similar point in course of condition?	Has bias been minimised in relation to selection of cases and control?	Are confounding factors identified and strategies to deal with them stated?	Are outcomes assessed using objective criteria?	Was follow up carried out over sufficient time period?	Were outcomes of people who withdrew described and included in analysis?	Were outcomes of people who withdrew described and included in analysis?	Were outcomes measured in reliable way?	Was appropriate statistical analysis used?
8	Jenkins, S.R. 1996	×	✓	✓	✓	✓	✓	✓	×	✓	✓
51	Macnab, A., Sun, C., & Rev, J.L. 2006	×	✓	✓	✓	✓	×	✓	✓	✓	✓
53	Woods, G.L. 2007	✓	✓	✓	✓	✓	×	×	×	✓	✓
54	Taillac, P., Hammond, R., & Miller, K. 2015	✓	✓	✓	✓	✓	×	×	×	✓	✓

Addendum 6: Thematic analysis of individual articles



Article 8

50% attended one session

Perceived empathy and support = very important

Time spend with people = correlated with CISD

Empathy, CISD, hours spend alone ≠ CISD

Acute increase in distress = lower empathy from others

Strongest recovery from anxiety and depression = those who received CISD

EHCP who rated social support less available = more likely to say CISD helped coping

Those who attended CISD

70

- Triage decisions were stressor not emotions as stressor
- Lower thoughts and feelings of helplessness
- Social support especially debriefing helped them through experience
- More likely to mention OCD symptoms
- 50% spontaneously mentioned CISD as helping them cope
- Mention shock, disbelief and derealisation as their first reaction
- Cope differently than they did with other stressors
- Used joking/humour more as coping mechanism

- Symptoms relieved by subjective perceived support (empathy) & objective social behaviour
- Most frequent predictor of decrease in acute symptoms and recovery:
 - Perception of non-involved others understanding experience correlated with
 - lower psychological distress and
 - less psychosomatic symptoms

Treatment= same team; model; less methodological shortcomings

Tough guy

Feeling misunderstood = ↑stress and symptoms = ↓cognitive defences

CISD

1. Emphatic understanding
2. CISD – reduce depression and anxiety symptoms
 - a. Empathy from co-workers during debriefing
3. Ruminative cognitions reported = breakdown in cognitive defences
 - a. Reacted with shock first = felt helped by CISD
 - b. Restoration of appropriate defences rather than having rigid defences
 - c. CISD taught new coping skills – indicated by them coping differently than in past
4. CISD ↑attractive
 - a. Participants stressed by triage decisions and
 - b. Experienced notably symptoms in 1st week
5. CISD attendance = voluntarily

Very low call/report rate

- Reluctance from union staff to call someone they don't know
- Most calls were made by others – not the staff directly involved in incident

Possible reasons

- CIS lower than expected
- Unable to recognise CIS symptoms – fail to request help
- Voluntarily

Finding + recommendation

- CISD is necessary but too much resources should not be allocated to this
- Intervention should rather be pro-active
 - Stress management training should be given
 - Encouraging routines that optimise, adaptive physical, emotional and behavioural responses
 - Using these as basis managing stressful situations, both extreme or prolonged

Article51

Article 52

Barriers to support

1. Fear of stigma
2. Difficulty acknowledging distress

Overcome barriers:

1. Education
 - a. EHCP, Supervisors
 - b. *Aim:* to recognise and tolerate vulnerable feelings

CI – evoke vulnerable feelings of inability to help and intense compassion
With further emotional, cognitive and behavioural responses

EHCP needs:

1. Peer and supervisor support
2. Fear of stigma
 - a. Vulnerable feelings = overwhelming and uncomfortable
3. On-going education
4. Improve workplace stressors
5. Identify emotions evoked by CI

CIS – crib deaths,

1. Children,
2. Spending time with relatives of patients,
3. burn patients,
4. Mental health patients,
5. Handling dead bodies,
6. Innocent victims,
7. senseless deaths,
8. Spending increased time with patients

Stressors 72

- Organisational/managerial difficulties
- Workplace difficulties
- Lack of acknowledgement
- Feelings of helplessness
- Subjective experience of emotional connectedness with patient or patient's family

Subjective qualities make an incident critical

1. Qualities of incident self
2. Workplace factors

Commonalities CI

Emotions evoked by CI

- Inability or failure to help
- Expect to help others
- Discomfort with inability to help
 - ?competence
 - Seek reassurance from peers, supervisors or public recognition
 - Guilt
 - Blame the organisation
 - Take compensatory actions
 - Intense compassion

EHCP – insular, cohesive group, preferring others company and feel understood

Coping: avoidance; distraction; black humour

Impact on CI –

- 45% had symptoms for 2 weeks
- 28% had symptoms for longer than a month
- *More women reported symptoms*

Article 53

Findings

1. **Gender**
 - Women ↑PTSD levels
 - Women ↑report PTSD symptoms
 - Women ↑level of stress
2. **Debriefing**
 - ↑PTSD symptoms
 - Worse PTSD symptoms
 - ↑levels of distress
3. **Level of training**
 - Statistically insignificant

PTSD

- Women are more susceptible (W=15%; M=5%)
 - Neurobiology
 - Dissociation = biggest predictor PTSD (women ↑dissoc)
 - Blame self
 - Hormones

Debriefing

- One time debriefing reveals trauma symptoms which never get resolved
- Debriefing is ineffective and worsens problems
- People receiving debriefing = ↑exposure to trauma incident and higher PTSD symptoms with difficulty to resolve
- EMS are twice as likely to develop PTSD
- *Does not provide closure OR ↓PTSD*

CISD

- Takes 1-3 hours
- Men don't like touchy feely atmosphere and how did it make you feel" questions
- M+W = felt worse after session
 - Made them second guess self and feel they missed something on the scene
- Extreme situation did not want to talk about it
- Extreme emotions were not resolved
- Sessions must be individualised to the groups and their needs
- Education and normalising resulting in removing stigma especially for men

Proposed intervention

1. Educational programmes and debriefing vulnerable groups
 - a. Begin during studies
 - b. What is PTSD, signs of PTSD in self and others, ways to manage stress, where to turn when symptoms present
2. Debriefing individualised
 - a. Men and women differ thus adjust debriefing and teach counsellors this
3. Women ↑PTSD but also respond ↑ to treatment
 - a. Familiarity and comfort wider range of emotions
 - b. ↑experience and comfort with interpersonal intimacy and expressing anger
 - c. Tendency to use a wider range of coping strategies
4. Men are socialised to be emotionally inhibited, assertive and

CI – worst

Treatment

- Expression of emotions – women are better
- Men = find therapy threatening as it is outside their normal emotional and expressive experiences

Article 54

@ Risk individuals - Profile

- Older
- In EMS longer
- ↑% females
- ↓full time
- ↑divorce rate
- Felt income is not adequate
- ↑physical, psychological, anxiety and stress related mistakes

@ Risk individuals - Profile

- 1:7.1 – physical symptoms after call
- 1:6.4 – burdened by unresolved anxiety
- 1:6 – level of stress exceed ability to handle stress
- 1:5.7 – still suffering psych symptoms
- 1:4.6 – making self-destructive mistakes
- 1:4.3 – suicidal thoughts
- 1:4.1 – sick more than others

@ Risk individuals - Profile

- ↑burnout
- Less social support due to mismanagement of stress
- Personal, social, familial imbalance impact work
- Stress related developing maladaptive coping strategies
- Developing vulnerabilities making subsequent trauma more harmful than past ones

CISD

- Not helpful (@risk-18%; not @ risk-11%)
- Lower cost; lay people; needed by EMS; formal
- Individual debriefing is appreciated as a gesture and some satisfaction is reported
 - Especially if it is voluntary and not mandated
- ↓role in success
- @ risk attended more

CISD – nature

- Reparative
- Short session
- Pathological paradigm with goal to repair damage from trauma
- “one hit wonder” – necessary but rarely sufficient alone

Recommendation

- Consider a comprehensive strategy
- Allow EHCP to become aware of propensity for types of stress that could overwhelm and NOT pro-active to anticipate and manage traumatic events throughout traumatic careers

Family support

- Support for @ risk = ↓
- ↑stress from context
- ↑chance for divorce

Co-worker support

- ↓family life
- ↓feeling better after talking to co-worker after difficult call

Religion & spirituality = slightly ↑

Satisfaction+ Job satisfaction

- ↓enjoyment of training
- ↓Find job rewarding
- ↓Public valuing the work
- ↓Feeling that EMS work gave purpose to live

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2016/07/26

ETHICS APPROVAL CERTIFICATE OF STUDY

Based on approval by **Health Research Ethics Committee (HREC)** on **19/07/2016** after being reviewed at the meeting held on **12/04/2016**, the North-West University Institutional Research Ethics Regulatory Committee (NWU-IRERC) hereby **approves** your study as indicated below. This implies that the NWU-IRERC grants its permission that provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title: The impact of Critical Incident Stress Debriefing on coping in emergency health care providers: a rapid review.

Study Leader/Supervisor: Prof KFH Botha

Student: M Kusel

Ethics number:

N	W	U	-	0	0	2	3	-	1	6	-	A	1
Institution				Study Number					Year	Status			

Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation

Application Type: Single Study

Commencement date: 2016-07-19

Risk:

Minimal

Continuation of the study is dependent on receipt of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation up to a maximum period of three years.

Special conditions of the approval (if applicable):

- Translation of the informed consent document to the languages applicable to the study participants should be submitted to the HREC (if applicable).
- Any research at governmental or private institutions, permission must still be obtained from relevant authorities and provided to the HREC. Ethics approval is required BEFORE approval can be obtained from these authorities.

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, please note the following:

- The study leader (principle investigator) must report in the prescribed format to the NWU-IRERC via HREC:
 - annually (or as otherwise requested) on the monitoring of the study, and upon completion of the study
 - without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.
- Annually a number of studies may be randomly selected for an external audit.
- The approval applies strictly to the proposal as stipulated in the application form. Would any changes to the proposal be deemed necessary during the course of the study, the study leader must apply for approval of these amendments at the HREC, prior to implementation. Would there be deviated from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.
- The date of approval indicates the first date that the study may be started.
- In the interest of ethical responsibility the NWU-IRERC and HREC retains the right to:
 - request access to any information or data at any time during the course or after completion of the study;
 - to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process.
 - withdraw or postpone approval if:
 - any unethical principles or practices of the study are revealed or suspected,
 - it becomes apparent that any relevant information was withheld from the HREC or that information has been false or misrepresented,
 - the required amendments, annual (or otherwise stipulated) report and reporting of adverse events or incidents was not done in a timely manner and accurately,
 - new institutional rules, national legislation or international conventions deem it necessary.
- HREC can be contacted for further information or any report templates via Ethics-HRECAppl@nwu.ac.za or 018 299 1206.

The IRERC would like to remain at your service as scientist and researcher, and wishes you well with your study. Please do not hesitate to contact the IRERC or HREC for any further enquiries or requests for assistance.

Yours sincerely

Prof LA
Du Plessis
Digitally signed by
Prof LA Du Plessis
Date: 2016.08.04
08:46:09 +02'00'

Prof Linda du Plessis

Chair NWU Institutional Research Ethics Regulatory Committee (IRERC)

SOLEMN DECLARATION

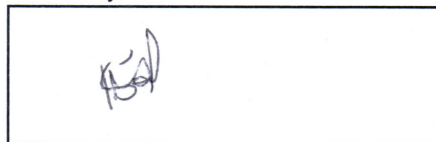
1 Solemn Declaration by student

I,

hereby declare that the thesis/dissertation/article entitled

which I herewith submit to the North-West University, Potchefstroom campus, in compliance/partial compliance with the requirements set for the qualification, is my own work and has been language edited and has not been submitted to any other university.

I understand and accept that the copies submitted for examination are the property of the North-West University.

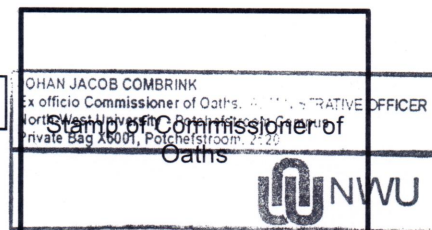


Student Signature

University number

Declaration of Commissioner of Oaths

Declared before me on this day of

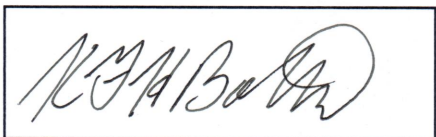



PLEASE NOTE: If a thesis/dissertation/mini-dissertation/article of a student is submitted after the deadline for submission, the period available for examination is limited. No guarantee can therefore be given that (should the examiners' reports be positive) the degree will be conferred at the next applicable graduation ceremony. It may also imply that the student would have to re-register for the following academic year.

2 Solemn Declaration of supervisor/promoter

The undersigned hereby declares that:

- the student is granted permission to submit his/her thesis/dissertation for examination purposes; and
- the student's work was tested by Turnitin, and a satisfactory report has been obtained.



Signature of supervisor/promoter

Date