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An integrative review of the impact of indirect trauma exposure in health professionals and potential issues of salience for midwives

ABSTRACT: Aims: To explore responses to indirect trauma reported by health professionals and to identify issues of potential salience for midwives. **Background:** Indirect exposure to a traumatic event can lead to the development of distressing and potentially enduring responses. Little is understood about the impact that perinatal trauma exposure could have on midwives. **Design:** An integrative review design was used. **Data Sources:** PsychInfo, Medline, PsychArticles, Web of Knowledge, CINAHL, MIDIRS, and Scopus databases were search for papers published between 1980 and November 2012. **Review Methods**: Studies providing quantitative or qualitative exploration of healthcare professionals' responses to indirectly experienced traumatic events were selected. **Results:** 42 papers fulfilled the inclusion criteria. Four of these studies included professionals engaged in maternity care or exposed to traumatic perinatal events. Findings indicate evidence of intrusion, avoidance and arousal in healthcare professionals, with differing degrees of frequency. Empathy, work-related stress and the extent of professional experience were identified as associated with traumatic stress responses. **Conclusions:** Evidence derived from healthcare professionals suggests that indirect exposure to the traumatic events of recipients of care can sometimes elicit traumatic stress responses. Factors increasing risk for traumatic stress were identified as empathy and organisational stress. These factors hold specific salience within the midwifery profession. Responding to trauma in a midwifery context, as informed by findings from other healthcare professionals, could adversely affect midwives' wellbeing, care provided to women, and contribute to an adverse organisational climate. Large-scale research considering the experiences of midwives is recommended.

Keywords: Midwives, healthcare professionals, traumatic stress, posttraumatic stress, compassion fatigue, secondary traumatic stress, burnout, integrative review

SUMMARY STATEMENT

Why is this review needed?

- Exposure to trauma through providing care to those directly affected could theoretically result in the development of adverse psychological responses.
- There is potential for midwives to experience traumatic perinatal events whilst providing care to women, however there is limited understanding of the potential impact this could have.

What are the three key findings?

- Study findings indicated that indirect exposure to traumatic events could adversely impact on the professional's wellbeing and the quality of care provided.
- Only four studies investigated the impact of indirect trauma exposure in maternity professionals.
- Factors such as empathic engagement with recipients of care, organisational stress and the extent of experience held within the profession were associated with traumatic stress.

How should the findings be used to influence policy/practice/research/education?

- Several factors increasing risk of traumatic stress responses are of specific salience for midwives, such as engaging empathically with women and working within a stressful organisational climate.
- Findings are integrated into a testable hypothetical framework, for understanding traumatic stress in the midwifery context.

MAIN TEXT

INTRODUCTION

The term 'traumatic perinatal event' refers to incidents occurring during the process of labour and birth and within a few hours into the postpartum, where the mother or her baby was considered to be at risk of death or serious injury (Beck 2004). Through providing care midwives could potentially witness such an event whilst attending to a woman in labour or listen to details of a traumatic perinatal event recounted to them by women postnatally, or during antenatal care in a subsequent pregnancy.

Zeidenstein (1995) used the concept of 'midwife grief' to refer to anecdotal reports of midwives' experiencing nightmares and leaving the profession following distressing experiences at work. Responses such as intrusive imagery, flashbacks and avoidant behaviour have been described in small studies of midwives providing care during maternal death (Mander 2001) and after carrying out antenatal assessments for domestic violence (Mollart *et al*. 2009). Despite potential for midwives to experience traumatic events whilst providing care to women (Leinweber & Rowe 2010), there has been little empirical investigation into midwives' experiences or responses to date.

Responding to indirect trauma

Indirect exposure to trauma includes witnessing or listening to an account of the traumatic event from the individual directly affected. Responses to indirect trauma have been considered within several different frameworks (see table 1); including posttraumatic stress disorder (PTSD, APA 2000), secondary traumatic stress (STS)(Figley 1995), compassion fatigue (CF)(Figley 1995, Joinson 1992) and vicarious traumatisation (VT)(McCann & Pearlman 1990).

PTSD is an anxiety disorder that may develop from experiencing, witnessing, or being confronted with a traumatic event (APA 2000). This exposure causes an immediate reaction of "intense fear, helplessness or horror" within the individual (APA 2000, p467). PTSD is characterised by symptoms of intrusion, avoidance and increased arousal (APA 2000), which can be highly distressing for the individual. Diagnosis is based on

symptoms occurring for at least one month with evidence of impairment to daily living. At this point, this is no longer a 'normal' response and an intervention may be indicated.

STS is conceptualised as the 'stress resulting from helping or wanting to help a traumatised or suffering person" (Figley 1995 p.7). It is conceptually similar to PTSD, and is characterised by symptoms of intrusion, avoidance and arousal. Unlike PTSD, STS occurs following only indirect exposure, and intrusive recollections can relate to either the individual who has experienced the event, or the person hearing about it (Figley 1995). Initial reaction to the traumatic account, the required symptom duration, and associated impairment are not specified for STS (Elwood *et al*. 2011). However STS can theoretically reduce the capacity of the individual to provide sensitive care, or adversely impact on the organisational climate through increased absenteeism and staff turnover (Figley 1995).

CF was originally used to refer to the general debilitating effects of providing care (Joinson 1992) and specifically related to those engaged in caring professions. CF has since been adopted as an "appropriate substitute" for the term STS (Figley 1995, p.9) CF is inferred through the measurement of STS symptoms and burnout to identify the 'potential risk' (ranging from low – high) of an individual experiencing "sleep difficulties, intrusive images or avoiding reminders" (Stamm 2010, p 13). CF can theoretically negatively impact on the individual, their relationships with others, and the care that they provide and can lead to depression, burnout and increased substance use (Stamm 2010).

Burnout is a response to psychological strain caused by interpersonal relationships in the workplace (Maslach *et al*. 1996). Burnout is not specific to helping professions or exposure to traumatic events; however it is often associated with the responses to trauma in professionals. It is characterised by symptoms of emotional exhaustion, depersonalisation and a reduction in personal accomplishment within the workplace (Maslach *et al*. 1996). Burnout has been associated with a reduction in efficient, quality work, increased absenteeism and increased staff turnover within a workplace (Maslach, Shaufeli & Leiter 2001, Leiter & Maslach 2009).

VT theoretically occurs after repeated exposure to accounts of traumatic events and is postulated primarily to adversely affect cognitive schema, which are beliefs that provide a 'prototype' for understanding the world. Several belief areas are vulnerable, including beliefs about safety (safe when alone, other people are

safe), trust (trusting own judgement, trusting other people), intimacy (uncomfortable spending time alone, disengagement from others), esteem (not deserving of praise, viewing others with disrespect) and control (need to control self, uncomfortable when not in charge)(Pearlman 2003). When schemas are disrupted they become more negative and applied to the world more generally (Pearlman & Saakvitne 1995). Secondary symptoms of VT can include symptoms of intrusion, avoidance and arousal (McCann & Pearlman 1990). Symptom severity and associated impairment is not specified for VT (Elwood *et al*. 2011) however it is considered a relatively enduring response that accumulates over time with exposure to different events.

There is considerable overlap between theoretical responses to traumatic experiences, in terms of their causes, aspects of onset, and nature of symptoms (see table 1). PTSD can occur after direct or indirect trauma exposure, whereas STS, CF and VT occur after indirect exposure. PTSD, CF, and STS can develop immediately whereas VT develops gradually with repeated exposure. PTSD, CF and STS are characterized by emotional or behavioural responses. VT is primarily associated with cognitive change. The term 'traumatic stress' will be used to refer to emotional and behavioural responses (intrusion, avoidance, arousal) and the cognitive changes associated with VT. Through providing care to women, there is potential for midwives to experience traumatic stress as described by each of the frameworks.

Rationale

Midwives' professional practice certainly has potential for indirect traumatic experiences. However there is a paucity of research considering midwives' responses to traumatic perinatal events. There is a need to draw on findings from a wider literature, by considering the impact of indirect trauma exposure in other professional groups. The premise for each theoretical response to trauma is that the individual is indirectly exposed; the content of the event itself is less significant. Other healthcare professionals potentially witness or learn about traumatic events whilst working in a capacity of care. Whilst there will be some diversity between the roles and content of traumatic events between professions, consideration of their responses and associated factors is appropriate on both a clinical and theoretical level. By synthesising findings from other professional groups, issues of potential pertinence for midwives can be identified and used to inform future research. This paper

aims to provide a comprehensive review of evidence from healthcare professionals, including (but not limited to) midwives, who have indirectly experienced trauma through the capacity of their work.

THE REVIEW

Aims

This review aims to consider evidence of traumatic stress responses in healthcare professionals, and to consider any implications for the midwifery profession. Three main questions will be addressed:

1. How do healthcare professionals respond to experiences of indirect trauma?
2. What issues or factors are associated with traumatic stress responses in healthcare professionals?
3. What are the implications of these findings, if any, for the midwifery profession?

Design

An integrative review design was used to synthesise findings from all pertinent literature in order to form a new perspective (Torraco 2005). Integrative reviews are suitable for emerging topics (Torraco 2005) and studies with diverse methodologies (Whittemore & Knafl 2005). A strategy for systematically locating and selecting papers was devised prior to the search and carried through.

Search Methods

A literature search was conducted to identify articles published in English between 1980 and November 2012. PsychInfo, Medline, PsychArticles, Web of Knowledge, CINAHL, MIDIRS and Scopus databases were consulted to include psychology, nursing, medical, midwifery and multidisciplinary areas. Search terms were: vicarious traumatisation, vicarious traumatization, secondary traumatic stress, compassion fatigue, and posttraumatic stress. These were used alongside secondary terms of burnout, indirect exposure, trauma, symptoms, health worker, professional, and workers. Reference lists were examined for relevant papers. The timeframe for the search was theoretically driven by the introduction of PTSD in the DSM III (APA 1980).

Papers published in English, with quantitative or qualitative exploration of responses to traumatic events following indirect exposure were included. The term 'indirect exposure' included witnessing or learning of an event from the recipient of care. Studies with qualified healthcare professionals, engaged in direct care, reporting a professional experience of indirect trauma were included.

Papers were excluded if personnel included in the study were not healthcare providers or if they worked in a voluntary capacity. Papers where professionals were directly affected by an event were excluded, as this does not constitute indirect exposure. Similarly, papers where professionals were personally related to recipients of their care were excluded. Those focusing on the effects of disaster events were excluded, as professionals could experience a degree of direct exposure. Professional groups without the potential to both witness and listen to trauma were excluded (e.g. therapists, counsellors, psychologists).

In order to limit threats to validity due to problem formulation (Cooper 1998), the review adopted a broad focus on responses to traumatic stress by considering each framework of PTS, STS, CF and VT, and the inclusion criteria were stringent to enable inclusion of professional groups most comparable to midwives.

Search Outcome

An initial search, filtering for date and language, identified 816 papers (after removing duplicate items). Six papers were retrieved from reference lists. After applying exclusion criteria, 42 papers remained. This included two conference proceedings papers that provided sufficient information to ensure fulfilment of the inclusion criteria. Four papers related to maternity professionals exposed to perinatal stressors. Figure 1 presents the selection process used. Findings are organised into two sections; the first section reports symptomatic findings identified in quantitative papers and perceived triggers of traumatic stress identified in qualitative papers. A second section explores factors identified in both the qualitative and quantitative literature as associated with traumatic stress.

Quality Appraisal

There is currently "no gold standard" for determining quality in reviews with both quantitative and qualitative research (Whittemore & Knafl 2005, p. 49). All papers were systematically considered in terms of their methodological strengths and weaknesses, and these are clearly articulated and drive conclusions drawn. This minimised any threat to validity within the data collection stage (Cooper 1998). A checklist of items appraising design and methodology was used to aid the systematic appraisal of both quantitative and qualitative designs (see supporting information table 1-2). Appropriate items from an appraisal checklist by Bowling (2009) were adapted for use. Scores were calculated as a percentage of fulfilled items. The range of quality was limited, however specific issues are commented on throughout the paper. No study was excluded for methodological limitations.

Data Abstraction and synthesis

Data reduction and comparison between studies was guided by the traumatic stress frameworks. Threats to validity through interpretation and formulation phase of the integrative review (Cooper 1998) were managed by systematically extracting findings about symptomatic prevalence and by identifying associated factors. The final stage of analysis, where findings are integrated and summated (Whittemore & Knafl 2005), also involved the application of findings and formulation of a framework in the context of the midwifery profession.

RESULTS

Quantitative findings: How do professionals respond to indirect trauma?

Details of the quantitative studies, including the professions and specialities of participants included in this review are presented in table 2. There was good homogeneity in measurement for each response framework, which aids comparison of findings between studies and professional groups. A predominant measure of PTSD was the Impact of Events scale (IES, IES-R, Horowitz *et al*. 1979, Weiss &Marmer 1997). The IES measures symptoms of intrusion and avoidance, and the IES-R also measures arousal symptoms. Potential clinical relevance of PTS was generally inferred by implementing a cut off of ≥26 on the IES (Alexander & Klein 2001, Ruitenberg *et al.* 2012, Van der Ploeg & Kleber 2003, Van der Ploeg *et al.* 2003) or

≥1.5 (equivalent to ≥33 total score) one the IES-R (Halpern *et al.* 2010). Two studies used the Secondary Traumatic Stress Scale (STSS, Bride *et al*. 2004), also a measure of intrusion, avoidance, and arousal. CF was mainly measured using the Professional Quality of Life Scale (ProQOL, Stamm 2000), which measures burnout, intrusion, avoidance, and arousal symptoms. There was no quantitative measurement of cognitive belief changes associated with VT.

Three quantitative studies investigated the impact of indirect perinatal stressors on maternity professionals. One study of labour and delivery nurses in America (N=464), trained nurses specialised in care around labour and delivery, reported findings indicating that 35% of the total sample experienced moderate to severe STS (Beck *et al*. 2012) and 26% (*N*=120) of the total sample reported symptoms at levels suggestive of clinical diagnosis. Despite a low response rate (15%), the large sample size and national recruitment strengthen generalisability. An earlier study investigated the effectiveness of clinical supervision, provided by a clinical psychologist for the purposes of the study, in ameliorating traumatic stress in UK midwives (Wallbank 2010), who are trained in all aspects of low-risk antenatal, intrapartum and postnatal care. Those receiving clinical supervision reported significantly lower symptoms of intrusion, avoidance, CF and burnout over time. However, participants were recruited from one hospital and only 19% of those contacted took part. A study of hospital nurses in Japan, four percent (*N*=7) of which were midwives, reported that events relating to the care of pregnant women during the perinatal period were perceived to be the most severe, by those with and experience of this kind (Komachi *et al*. 2012).

The proportion of other professionals reporting symptoms of PTSD suggestive of a clinical diagnosis ranged from three to twenty-five percent (Alexander & Klein 2001, Czaja *et al*. 2012, Halpern *et al*. 2010, Jonsson & Segesten 2004, Maia & Ribeiro 2010, Mealer 2007, Mealer *et al*. 2009, Mealer *et al*. 2012, Ruitenburg *et al*. 2012, Van der Ploeg *et al*. 2003, Van Der Ploeg & Kleber 2003, Von Rueden *et al*. 2010). The highest prevalence was identified within a study with intensive care nurses (N= 140), where twenty nine percent reported symptoms of PTSD that exceeded the suggested clinical cut off (Mealer *et al*. 2007). However, a similarly large study of nurses engaged in trauma care (*N*=262) found that just seven percent reported

symptoms above an estimated clinical cut off (Von Rueden *et al*. 2010). This study achieved a response rate of 60%. The nurses worked within one hospital site, which may limit representativeness.

Secondary traumatic stress was specifically measured within one study of emergency nurses (*N*=68), where a third of nurses fulfilled full symptom criteria for STS. Symptom criteria corresponded to experiencing at least one intrusion, three avoidant and two arousal symptoms 'occasionally,' 'often,' or 'very often' (Dominguez-Gomez & Rutledge 2009, pp.200).

Evidence of CF was also identified within the review. Findings from studies of nurses often reported that over a quarter report symptoms suggestive of a high-risk for CF and over half demonstrate a moderate risk for CF (Abendroth & Flannery 2006, Elkonin & van der Vyver 2011, Hooper *et al*. 2010, Yoder 2010). Potter *et al*. (2010) found that over a third of oncology workers (*N*=153) had a high risk of CF. The study was conducted within one site, with a response rate of 34%, limiting generalisability and contributing to a lower quality appraisal score for this study in comparison to other papers investigating CF. Two studies reported findings indicating only low levels of CF symptomatology in nurses engaged in critical and intensive care (Maiden *et al*. 2011, Young *et al*. 2011 respectively). One of these studies recruited from one hospital site (Young *et al*. 2011) where exposure to trauma was assumed through the nature of work undertaken.

Findings from quantitative studies suggest that healthcare professionals could experience symptoms of traumatic stress following indirect exposure to trauma, with some subgroups experiencing symptoms at clinical levels. Three studies investigated perceptions and responses to traumatic perinatal stressors, and reported symptoms of intrusion, avoidance and arousal in response at levels similar to those identified within studies with other professional groups (e.g. Wallbank 2010). Studies involving quantitative methodology provide information related to symptom severity, but it is also important to understand individuals' perceptions of their own responses, gained from qualitative methodology.

Qualitative findings: How do professionals respond to indirect trauma?

Details of qualitative studies, including the professions and specialities of participants included in the review, are provided in table 3. Where studies had a specific conceptual focus, most explored responses of CF (*N*=7). Few specifically investigated PTSD (*N*=2) or STS (*N*=2). No study considered VT.

Two studies investigated responses to traumatic perinatal stressors. Beck *et al.* (2012) analysed over three hundred descriptions of traumatic events experienced by labour and delivery nurses and identified responses of secondary traumatic stress, such as flashbacks. A smaller study of nine intrapartum nurses, trained nurses also specialised in care during labour and delivery, reported secondary traumatic stress responses in relation to traumatic birth events (Goldbort *et al*. 2011), experiencing nightmares or visualisations of the event.

Findings from studies with other health professionals report imagery and intrusive thoughts in response to the traumatic events of recipients of their care. Emergency nurses described symptoms of hyperarousal, avoidant behaviour suggestive of PTSD after witnessing traumatic events whilst providing care (Lavoie *et al*. 2011). Genetic counsellors described similar symptomatology (Udipi *et al.* 2008), and "reliving an aspect of the trauma, avoidance of anything potentially related to the trauma, and physical symptoms of heightened irritability" following traumatic encounters at work (Benoit *et al*. 2007, p302).

CF was interpreted in a variety of ways by different professional groups. Oncology nurses (*N*=19) in a study by Perry *et al*. (2010) were unsure about what constituted feelings of CF, but described 'knowing something was wrong' and feelings of fatigue as general indicators. Additional descriptions with nurses in various, pediatric and oncology roles identified feelings of tiredness, fatigue, and exhaustion (Austin *et al*. 2009, Maytum *et al*. 2004, Perry *et al*. 2010) and intense emotional responses, feeling overwhelmed and helplessness was associated with CF in a study of genetic counsellors (Benoit *et al*. 2007).

No study primarily investigated the cognitive belief changes associated with VT. However, a study of nurses working with individuals who had experienced abuse identified changes to beliefs about safety from domestic violence in their personal relationship after witnessing the effects on a patient (Goldblatt *et al*. 2009).

Several contextual factors were identified as triggering or contributing to a symptomatic response. Identifying with the victim and encountering unpredictable, often negative events were reported as difficult by ambulance drivers (Jonsson & Segesten 2003). Difficulty witnessing patients' upset was reported by emergency

nurses and genetic counsellors (Beavan & Stephens 1999, Udipi *et al*. 2008). Engaging empathically with patients was also reported as a potential trigger of traumatic stress (Beavan & Stephens 1999). Believing the provision of care to be 'futile' to those unlikely to fully benefit (Yoder *et al*. 2010, p. 194) were also identified as contributing to symptoms of PTSD and CF in intensive care nurses.

Work related stress and other organisational factors were often perceived to influence responses to traumatic events in studies with nurses working in various aspects of practice (Abendroth & Flannery 2006, Austin *et al*. 2009, Maytum *et al*. 2004, Perry *et al*. 2010, Townsend & Campbell 2009, Yoder *et al*. 2010). Working busy shifts with staff shortages (Austin *et al*. 2009), and feeling unable to provide the care desired (Maytum *et al*. 2004) were perceived to influence responses. Yoder *et al*. (2010) found that nearly a third of nurses reported triggers for CF or BO arising from organisational stressors, including "constant prioritizing" and "juggling 100 things at a time" (p. 194).

Findings from qualitative studies reflect many of the symptomatic responses identified in the quantitative literature. The perceived triggers for traumatic stress demonstrate that responses to traumatic events are influenced by contextual factors relating to the individual, their working environment and the event itself.

Factors associated with traumatic stress

Inherent in many of the triggers for traumatic stress identified within the qualitative literature are empathic engagement (relating to patient issues), work–related stress (relating to organisational issues). The following sections will explore these issues in greater detail, combining findings from both the quantitative and qualitative literature. Also discussed is the extent of professional experience held by the individual, identified as associated with traumatic stress in several studies.

Empathic Engagement

Empathy can be defined as the affective and cognitive ability to recognise and experience other people's emotions and mental states (Lawrence 2004). It has been measured quantitatively using self-report measures assessing attitudes or beliefs (e.g. Davis 1980) or, as was the case within studies within this review, inferred

from qualitative research. Qualitative study findings indicated that empathising with another's distress leads to similar feelings emerging in the professional (Goldblatt 2009, Jonsson & Segesten 2004). Some professionals reported reducing their level of empathic engagement with patients or focusing instead on 'technical care' to protect themselves (Benoit *et al*. 2007, Jonsson & Segesten 2004, Austin *et al*. 2009). Whilst empathy appears likely to influence traumatic stress, the association requires further exploration.

Organisational stress

Feeling overextended, fearing adverse consequences to care and unpleasant team interactions were associated with PTSD symptomatology in nurses (Czaja *et al*. 2012). Issues with low staffing and feelings of moral distress were also associated with greater symptoms of CF in another study with nurses (Maiden *et al*. 2012). Some study findings indicated that a high percentage of those with symptoms of PTSD, CF and VT were simultaneously experiencing symptoms of burnout (Abendroth & Flannery 2006, Czaja *et al*. 2012, Mealer *et al*. 2009). Mealer *et al*. (2009) found that 98% of nurses reporting symptoms of PTSD also reported symptoms of burnout (total *N*=332). Symptoms of burnout positively correlated with symptoms of traumatic stress (Burtson & Stichler 2010, Van der Ploeg *et al*. 2003, Yoder 2010). Although the direction of this effect is unclear, findings demonstrate that professionals experiencing traumatic stress responses often simultaneously report a high degree of work-related stress.

Extent of professional experience

Less experience was associated with more frequent symptoms of STS in labour and delivery nurses (Beck *et al*. 2012). However greater experience has also been associated with more frequent symptoms of PTSD (Jonsson & Segesten 2004, Czaja *et al*. 2012). Findings from other studies indicated no association between experience in the profession and responses to traumatic events (Maia & Ribiero 2010, Kerasiotis & Motta 2004). If professional experience influences vulnerability for traumatic stress responses, it appears likely to be a product of many different factors, such as support, work-stress, and the nature of the work, rather than a direct association.

DISCUSSION

This review identified symptoms of traumatic stress in several healthcare professional groups at various degrees of severity. The percentage of professionals reporting clinically relevant symptoms of intrusion, avoidance and hyperarousal ranged between three (Maia & Ribeiro 2010) and twenty five percent (Mealer *et al*. 2007). Factors such as empathy and work-related stress were frequently associated with traumatic stress responses across the health professional groups. Experience within a profession was also identified as associated, albeit on a less consistent basis.

Despite the diversity of professional roles, there did not appear to be a consistent pattern for professional groups exposed to subjectively more 'severe' emergency situations to experience greater levels of traumatic stress. Whilst Mealer *et al*. (2007) found that intensive care nurses (*N*= 230) reported significantly greater scores of PTS in comparison to general nurses (*N*= 121), findings from several other studies identified no difference in symptomatology between similar professional groups exposed to emergency and non emergency care (Hooper *et al.* 2010, Kerasiotis & Motta 2004, Young *et al.* 2011).

Four studies investigated the impact of indirect perinatal trauma, with UK midwives (Wallbank 2010), midwives in Japan (Komachi *et al.* 2012), labour and delivery nurses (Beck & Gable 2012) and intrapartum nurses in the USA (Goldbort *et al.* 2011). Prevalence and severity of responses were similar to other professional groups (e.g Wallbank 2010). The applicability of factors associated with traumatic stress identified within the review will be considered for their pertinence to midwives in the following sections.

Findings from other healthcare professionals indicate that empathic engagement could predispose a traumatic stress response. Identifying with patients and experiencing difficulty witnessing their distress were reported as associated with traumatic stress (Goldbort 2011, Jonson & Segesten 2003). Empathic engagement plays a pivotal role in maternity care, especially in the UK (Midwifery 2020 2010). Some midwives feel that building relationships with women helps them to deliver better care (Hunter 2006). Empathic relationships with women could be an issue of salience for midwives in relation to potential traumatic stress responses.

Work-related stress and burnout were also attributed to traumatic stress responses. Feeling overextended within a role (Czaja *et al*. 2012) and working within a busy environment (Goldbort *et al*. 2011) were associated with traumatic stress in nurses. Work stress is of specific pertinence to the midwifery profession. A study of UK midwives (*N*=72) found that the most popular single source of stress was feeling overworked (Birch 2001). Findings from another study also reported that 78% of labour ward midwives (total *N*=43) felt having insufficient time to complete work duties as contributing to a "high degree" of stress (Mackin & Sinclair 1998 p. 998). Another source of work-related stress identified within the review was unpleasant team interactions (e.g. Czaja *et al*. 2012). This is also potentially salient for the midwifery profession, as conflict with work colleagues has previously been identified as a source of stress for midwives (Birch 2001) and bullying within midwifery has been reported (Kirkham 2007).

Burnout was consistently associated with traumatic stress symptomatology within health professionals. Burnout is not a new concept within the midwifery profession and has been identified in midwives, maternity workers, and nurse midwives internationally, including England and Wales (Sandall 1997), Croatia (Knezevic *et al*. 2011) and the Netherlands (Bakker *et al*. 1996). Therefore the sources of work-related stress identified as associated with traumatic stress in health professionals may also hold significance for midwives.

Need for future research

Despite the salience of factors identified in other healthcare professional groups, there are aspects unique to midwifery that limit extrapolation. Midwives provide care in what is anticipated and often experienced as a positive event, (Mander 2001). Extreme adverse events (e.g. maternal death) in developed countries are fortunately rare and whilst other adverse perinatal events occur more frequently, they are still relatively uncommon. However findings from several studies in this review indicated frequent exposure to traumatic events, sometimes on a weekly basis (e.g. Burtson & Stichler 2010).

If midwives respond to perinatal trauma in ways similar to those found in other healthcare professionals, then there are potential implications for the midwife, women in receipt of midwifery care, and the overall organisation. Symptomatic responses were identified as potentially enduring (e.g. Alexander & Klein 2001),

and can affect home life and relationships (e.g. Benoit *et al*. 2007, Udipi *et al*. 2008). Traumatic stress could also affect the empathic care provided by a practitioner. This is particularly important in the context of midwifery, as care provided by the midwife can influence the mother's perception of her childbirth experience (Elmir *et al*. 2010). The association between traumatic and work-related stress holds implications for the efficiency of the maternity services. Burnout has been associated with increased absenteeism and staff turnover (Maslach *et al*. 2001). At a time of staff shortages in midwifery (Malott *et al*. 2009) and increasing birth rates in some countries (Office for National Statistics 2010), preventing attrition from the midwifery workforce is important.

Figure two demonstrates the potential relationships between factors that may predispose or predict traumatic stress responses following an adverse perinatal event incorporating organisational variables (staff shortages, busy shifts) and personal vulnerabilities (experience, empathy). This could intensify burnout, or cause the midwife to withdraw from empathic engagement, thus affecting experiences of care for women. These hypothesized relationships require testing in large-scale empirical research.

Limitations of Review

Findings from quantitative studies typically indicated low response rates with potential for selection bias during recruitment (Burtson & Stichler 2010, Halpern *et al*. 2010, Potter *et al*. 2010). Small sample sizes (Dominguez-Gomez & Rutledge 2009, Hooper *et al*. 2010, Porter 2007, Wallbank 2010, Yoder 2010, Young *et al*. 2011) also limit the generalisability of findings. A limitation in the review was to include only studies published in English. There may be applicable literature published in other languages that were not accessed due to the unavailability of translation. There was no measurement of cognitive belief change associated with VT. Finally, some study designs assumed exposure to trauma through professional role (Dominguez-Gomez & Rutledge 2009, Mealer *et al*. 2009, Young *et al*. 2011) when perception of an event as traumatic is personal and should be considered on an individual basis.

CONCLUSIONS

This is the first review to examine evidence from other healthcare professionals for pertinence to midwives' professional experiences. The review identifies research findings reporting symptoms of traumatic stress in healthcare professionals following indirect exposure to traumatic events. Several factors were often identified alongside traumatic stress responses, which also hold particular salience for the midwifery profession. It is likely that midwives are exposed to potentially traumatic events encountered in their professional practice. Experiencing and responding to trauma in a midwifery context could adversely affect midwives' wellbeing, the care provided to women, and contribute to an adverse organisational climate. At a time where resources are increasingly limited and birth rates rising, it is important to consider the welfare of the midwife and to support retention in the profession. Further research specifically exploring the experiences of midwives is recommended.

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Figure 1) PRISMA flow diagram showing the screening and selection of articles for synthesis

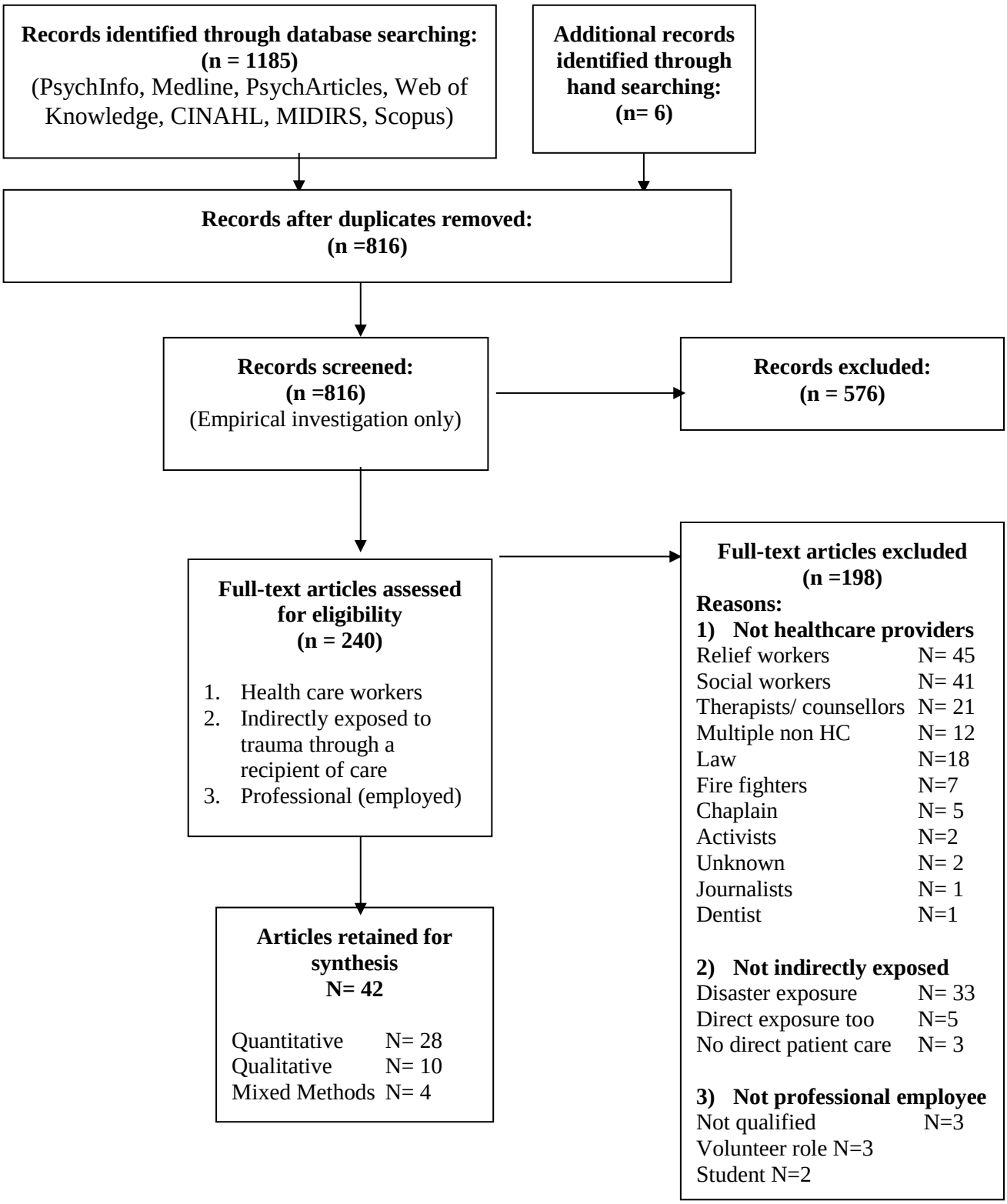

Figure 2. A hypothetical framework of individual and organisational factors contributing to traumatic stress in midwives, and implications for mothers and organisations

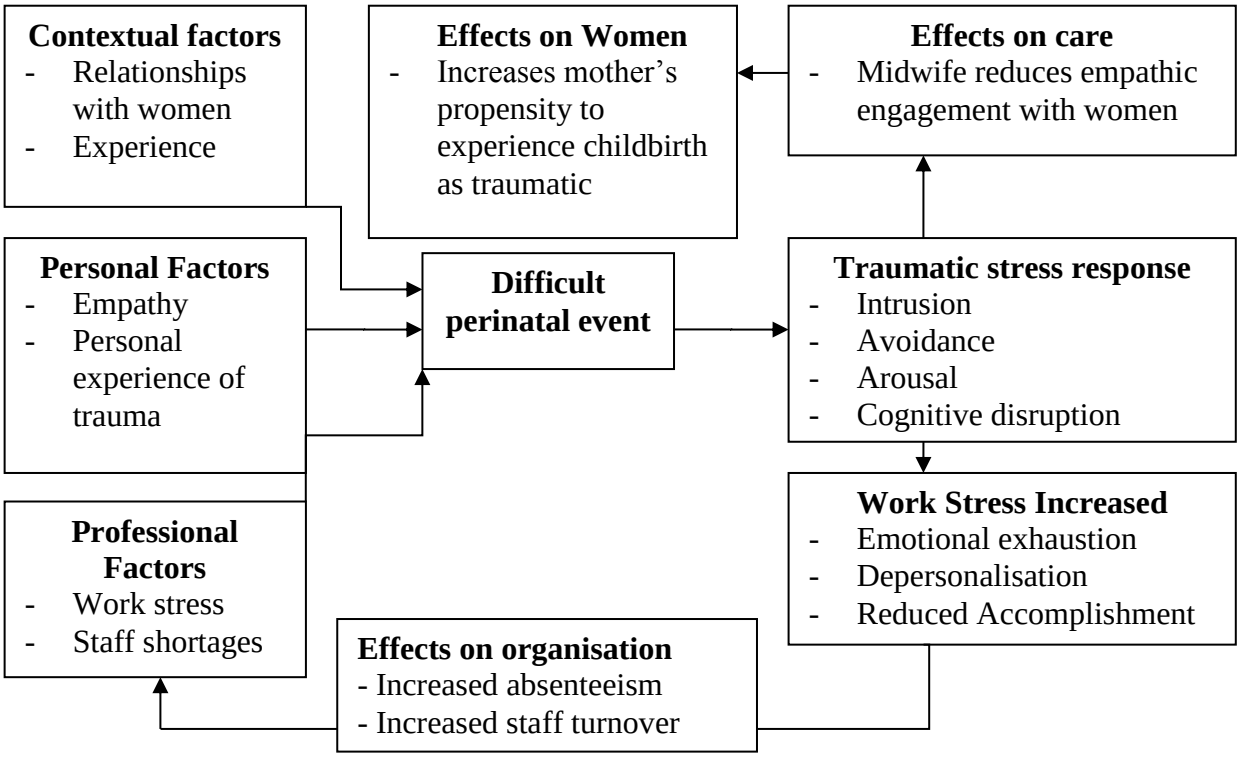

Table 1. A framework for considering the differences between hypothesised traumatic stress responses.

Traumatic stress response	Level of exposure	Onset	Symptomatology
Posttraumatic Stress Disorder (APA 2000)	Experience, witness, or hear about a traumatic event	Can occur immediately after 1 event	Intrusion, avoidance, arousal
Secondary Traumatic Stress (Figley 1995)	Hear about an event from a traumatised individual	Can occur immediately after 1 event	Intrusion, avoidance, arousal
Compassion Fatigue (Stamm 2010)	Hear about an event from a traumatised individual	Can occur immediately after 1 event	Intrusion, avoidance, arousal
Vicarious Traumatisation (McCann & Pearlman 1990)	Hear about multiple events from many different individuals.	Repeated exposure to multiple events	Cognitive disruption. Intrusion, avoidance, arousal.

Table 2 Details of quantitative studies included in the review.

Author and Country	Profession (*N*). speciality	Focus (measure)	Main findings
Abendroth and Flannery (2006) USA	Hospice Nurses (*N*=216). Various	CF (ProQOL- III)	26% (*N*= 57) high-risk CF, 52% (*N*=113) moderate risk CF. Trauma, anxiety, life demands, empathy predicted CF ($p<.001$).
Alexander and Klein (2001) Scotland	Ambulance Personnel (*N*=110). Emergency	PTSD (IES, MBI)	30% (N=27) had high level PTS symptoms, 30% (N= 27) moderate PTS. N=8 experienced symptoms ≥1 month.
Beck and Gable (2012)* USA	Nurses (*N*=464). Labour and Delivery	STS (STSS)	35% (*N*=160) reported moderate-high levels of STS. 26% (*N*=120) met DSM-IV-TR symptom criteria for PTS.
Burtson and Stichler (2010) USA	Nurses (*N*=126). Emergency	CF (ProQOL)	Higher than average CF score. An aspect of 'nurse caring' (relating to knowledge and skill) sig. associated to CF ($r=-.22$)
Chan and Huak (2004) Singapore	Doctors, nurses (*N*=491). Hospital	PTSD (PCL-C)	Nurses had sig. higher PTS scores than Doctors but no difference in clinical PTSD for either group.
Czaja *et al*. (2012) USA	Nurses (*N*=173). Children's hospital	PTSD (PDS, MBI)	21% (*N*=36) met criteria for PTSD. 86% (*N*=31) of those with PTSD had burnout profile.
Dominguez-Gomez *et al.* (2009) USA	Nurses (*N*=67). Emergency	STS (STSS)	33% (*N*= 22) met diagnostic criteria for all PTS symptoms (1 intrusion, 3 avoidance, 2 arousal).
Elkonin and van der Vyver (2011) South Africa	Nurses (*N*=30). Intensive Care	CF (ProQOL R IV)	40% (*N*=12) had high CF. CF and BO significantly correlated ($r=.4$, $p<.05$).

Halpern *et al.* (2010) Canada	Ambulance workers (*N*=228). Emergency	PTSD (IES-R, MBI)	High PTSD in 8% (*N*=19). Duration of response related to symptom frequency.
Halpern *et al.* (2012) Canada	Emergency Medical Tech., Paramedics (*N*=223)	PTSD (IES-R, MBI)	Current state of mind, appraisal and personal experience related to traumatic stress response.
Hooper *et al.* (2010) USA	Nurses (*N*=109). Various hospital	CF (ProQOL R-IV)	28% (*N*=31) high-risk CF, 56% (*N*= 61) moderate- risk CF. No sig. diff between emergency and inpatient nurses in CF score.
Injeyan *et al*. (2011) USA & Canada	Genetic Counsellors (*N*=335). Various	CF (ProQOL-R-IV)	17% (*N*=75) high-risk for CF; 57% (*N*=163) moderate-risk for CF. 27% considered leaving their job due to CF.
Jonsson and Segesten (2004a) Sweden	Ambulance personnel (*N*=362). Emergency	PTSD (IES-15)	20% (*N*=48) "PTSD caseness" (>26). The length of time in the profession was sig. higher for those with PTS 'caseness' ($p<.01$)
Kerasiotis and Motta (2004) USA	Nurses (*N*=124). Trauma centre	PTSD (MPSS-SR)	No difference in PTS severity between ER, ICU and general nurses ($p=.09$). Experience not sig. related to PTS ($r= .04$, $p=.78$).
Komachi *et al.* (2012) Japan	Nurses (*N*=159). Various hospital; 4% midwives.	STS (IES-R)	Events involving abortion, miscarriage and seriously ill neonates perceived (on average) the most severe to encounter.
Maia and Ribeiro (2010) Portugal	Nurses and doctors (*N*=59). Emergency	PTSD (PTSD scale)	Perceived exposure to trauma was high but PTS prevalence was low (3% *N*=2). Experience in the profession unrelated to PTS.
Maiden *et al.* (2011)* USA	Nurses (*N*=205). Critical care	CF (ProQOL)	Low average level of CF (*M*=13.82, *SD*= 6.55).

Mangoulia *et al.* (2010) Greece	Nurses (*N*=335). Intensive care	STS (ProQOL R-IV)	58% high risk CF, 56% high risk BO. CF and BO significantly correlated (*r*= .569).
Mealer *et al*. (2012) USA	Nurses (*N*=744). Intensive Care Units (various)	- (PDS, MBI)	21% (*N*=156 of 740) reported symptoms suggestive of PTSD, of which 70% had symptoms >3 months.
Mealer *et al.* (2009) USA	Nurses (*N*=332). Intensive/ non-intensive care	PTSD (PTSS-10 PDS, MBI)	18% (*N*=61) met PTS diagnosis. 61% (*N*=37) had symptoms > 6 months. 98% (*N*=59) with PTS had symptoms of BO.
Mealer *et al.* (2007) USA	Nurses (*N*=351). Intensive care (ICU) and general.	PTSD (PTSS-10)	24% (N=54 of 230) ICU nurses and 14% (*N*=17 of 121) general nurses 'positive' for PTS. ICU nurses sig. greater PTS (*p*=.03).
Porter (2007) USA	Physicians, nurses, assist. (*N*=25). Health-centre	CF (ProQOL)	Role and time spent working in a week not sig. related to scores of CF or BO.
Potter *et al.* (2010) USA	Oncology workers (*N*=153). Various	CF (ProQOL-R-IV)	Higher than average CF and BO. Experience associated with CF and BO. Symptoms not sig. ass to extent of experience in work.
Ruitenburg *et al*. (2012) Netherlands	Physicians (*N*=423).Hospital.	PTSD (IES (Dutch), MBI)	*N*=56 (15% of *N*=380) overall, or 9% (of *N*= 178) men and 20% (of *N*=201) female respondents exceeded cut off (≥26) for PTSD.
Townsend and Campbell (2009) USA	Nurses (*N*=110). Sexual assault	STS (CFST, MBI)	25% had symptoms on average 'a few times after' each encounter. Several organisational factors predicted STS.
Udipi *et al.* (2008) USA	Genetic counsellors (*N*=222). Various	CF (ProQOL)	25% scored >13 (normed average) on CF symptoms. CF predicted by BO within a multiple regression model (β= 0.43, *p*= .0001).

van der Ploeg and Kleber (2003) NL	Ambulance workers (*N*=123). Emergency	PTS (MBI (NL); IES Dutch.)	Over 10% clinical level PTSD. 10% experiencing fatigue placing them at 'high risk for sick leave and work disability.'
van der Ploeg *et al.* (2003) NL	Forensic Doctors (*N*=84). Hospital	PTSD (MBI (NL); IES Dutch.)	14% (*N*=9) 'clinical PTSD,' 44% of these also had BO. PTS sig. related to number of incidents (*r*=.41)
Von Rueden *et al.* (2010) USA	Nurses (*N*=128). Trauma care	STS (Penn Inventory)	7% (*N*=9) in clinical range PTS (≥30). These nurses had less experience in the profession than those without (*p*=.029)
Wallbank (2010) UK	Doctors and midwives (*N*=30). Obs. and gyn.	PTSD (CF IES, ProQOL)	Average total PTS score *M*= 22.25, *SD*= 14.12). Treatment (supervision) group significantly less CF and BO at T2.
Yoder (2010)* USA	Nurses (*N*=71). Intensive Care	CF (ProQOL R-IV)	16% estimated to be 'at risk' of CF. CF significantly associated with BO (*r*=.66).
Young *et al.* (2011) USA	Nurses (*N*=70). Intensive/ intermediate care	CF (ProQOL V)	No-one was high-risk for CF. 76% (*N*=19) IMC & 56% (*N*=24) low-risk. No diff in CF scores for ICU or IMC nurses (*p*= .099).

NOTE: ProQOL: Professional Quality of Life Scale, CFST: Compassion Fatigue Self Test for Practitioners, IES/- R: Impact of event scale/ -Revised, MBI/ NL: Maslach Burnout Inventory/ Dutch Version, PCL-C: PTSD Checklist for Civilians, STSS: Secondary Traumatic Stress Scale, MPSS-SR: Modified PTSD Symptom Scale Self-Report, PDS: Posttraumatic Diagnostic Scale, PTSS-10: Posttraumatic Stress Syndrome 10 Questions Survey. – no specific response focus stated. *Also used quantitative methodology

Table 3) Details of qualitative studies included in the review

Author and Country	Profession	Method , Analysis	Focus	Main Findings
Austin *et al.* (2009) Canada	Nurses (*N*=5), various.	Semi-structured interviews, Interpretive description	CF	CF related to 'emotional distancing' from patients and ignoring adverse emotions in themselves to cope.
Beavan and Stephens (1999) NZ	Nurses (*N*=9), A & E.	Interviews (1 hour), Common themes identified.	-	Personal, contextual, control and organisational themes identified, some distinct for nurses.
Beck and Gable (2012) USA*	Nurses (*N*=322) Labour and Delivery	Written description of traumatic event, Content analysis	STS	Certain event characteristics, nurses' responses and appraisals magnified response. STS described.
Benoit *et al.* (2007) Canada	Genetic counsellors (*N*=12)	Two focus groups (2 hours)., Consensual Qualitative Research	CF	All experienced CF. Triggered by patient suffering; giving bad news. Emotions and empathy important.
Goldblatt (2009) Israel	Nurses (*N*=22), caring for abused women.	Interviews (1 hour), Thematic content analysis.	-	Emotions, attitudes, life balance difficult. Beliefs in safety affected. Avoided emotional engagement.
Goldbort *et al*. (2011), USA	Nurses (*N*=9) Intrapartum care	Semi-structured interviews, Descriptive phenomenology	STS	Busy, unexpected occurrences. Memories lasted several decades. Nightmares, visualisations reported.
Jonsson and Segesten (2004b) Sweden	Ambulance nurses, technicians (*N*=10)	Interviews, Descriptive phenomenology	-	Feeling guilt, identification with patients, 'raising a shield,' occurred after trauma. PTS reported.
Jonsson and Segesten (2003) Sweden	Ambulance nurses, technicians (*N*=52)	Descriptive narratives., Empirical Phenomenological Approach	PTSD	Identification with the victim of an event. Difficulties preparing for unforeseen events.

Lavoie *et al.* (2011) Canada	Emergency nurses (*N*=12)	Interviews, focus group (*N*=9), Data analysis framework	PTSD	Frequency of PTS declined with age (*r*=-.83). Social and peer support important.
Maiden *et al.* (2011)* USA	Nurses (*N*=5), Critical Care	Focus group, open ended questions, central recurring themes.	CF	Fear, horror reported when made medication error.
Maytum *et al.* (2004) USA	Nurses (*N*=20), paediatric	Open ended interviews/ probe questions., Content analysis.	CF	Triggers; unable to provide care. CF and BO linked. Severe symptoms related to role difficulty.
Perry *at al.* (2010) Canada	Nurses (*N*=19), oncology	Narrative., Data analysed thematically.	CF	Unable to ease suffering, identification, considering leaving, not feeling like gave good care related to CF.
Udipi *et al.* (2008)* USA	Genetic Counsellors (*N*=126)	Description of incident. , Interpretive content analysis	CF	Empathic concern, doubting practice, disengaging. Traumatic recollections. Effects home life.
Yoder (2010)* USA	Nurses (*N*=71) ITU	Two questions; narrative response, Content analysis	CF	Triggers: caring for patients, patient condition, futile care, system/organisational issues, personal issues.

Note: –no specific response focus stated. *Also used quantitative methodology