

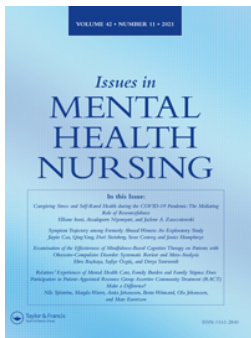
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Extreme Stress Events in a Forensic Hospital Setting: Prevalence, Impact, and Protective Factors in Staff

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ABSTRACT

The current research explored the prevalence of stressful events in a forensic hospital setting, and their impact on staff. A systematic review of the literature on responses following exposure to extreme stress comprised 46 articles. This was followed by a Delphi study of professionals based in a forensic hospital ($n=43$) to explore views on the factors that affect responses to extreme stress. This comprised three rounds to build consensus. Finally, a study of forensic hospital staff was conducted ($n=153$, 47% male) to capture current trauma symptoms. The systematic review indicated three superordinate themes: outcomes adversely impacting staff and patients; personal characteristics moderating the impact of events; and organisational and interpersonal support moderating the impact of events. The Delphi supported these themes and noted the importance of factors external to the workplace and internal factors, such as self-blame. The final study demonstrated how a fifth of the workforce showed at least some trauma symptomology. Those who experienced less burnout reported lower trauma symptoms, while staff who experienced higher levels of secondary trauma at work reported higher levels of trauma symptoms. A higher level of resilience was related to lower levels of trauma symptomology. Findings are discussed in relation to the importance of recognising trauma in staff and implementing strategies to reduce and/or buffer the impact of stress on wellbeing. In doing so, the research presents a new model for consideration and development, the Impact and Amelioration of extreme stress events Model (IA-Model).

Exposure to traumatic events can result in numerous negative impacts, including on psychological and mental health (e.g., Merrick et al., 2017). Staff working in a forensic hospital setting can be exposed to events where the potential for extreme stress is high (Itzhaki et al., 2015). This is not unique to secure hospital settings, with correctional officers also self-reporting being exposed to potentially psychologically traumatic events (Fusco et al., 2021). Such traumatic events include violence, aggression, self-harming behaviours, as well as exposure to distressing information (Coram, 1993; Kindy et al., 2005). Further, Carleton et al. (2020) argue that the challenging work conditions experienced by correctional staff are similar to those experienced by staff in forensic hospital services, and associated with adverse health outcomes, increased work-related stress, and other negative life events. There are limited studies that consider discrete incidents that have occurred to staff. One study found, for example, that in a 1-year period, 99% of staff reported experiencing conflict with patients, with 70% being assaulted in some form (Kelly et al., 2015). When looking at staff exposure to reported sexual safety incidents by patients in mental health services (including forensic services), estimates in the UK have suggested one-third of those affected by

such incidents were staff (Care Quality Commission (CQC), 2018). Consequently, extreme stress events are arguably not uncommon for forensic hospital staff.

The potential effects of exposure to such extreme stress events can include Post-Traumatic Stress Disorder (PTSD) and extreme stress reactions. Importantly, the effects do not have to reach the level of a disorder to be important; it may be that a staff member does not necessarily present with PTSD. In addition, staff may have pre-existing unresolved complex and/or development trauma, often referred to as “hidden traumas” (Van der Kolk, 2005), which may impact their reaction to exposure to trauma in the workplace and add complexity to any resulting PTSD/stress reaction. An important further consideration is the potential for exposure to *vicarious trauma* and where there can be an alteration in schemas and core beliefs, resulting from exposure to the trauma of others (Motta, 2012). The concept of vicarious trauma is rooted in *Constructivist Self Developmental Theory* (McCann & Pearlman, 1990). As such, vicarious trauma considers the impact of indirect exposure to trauma on an individual’s cognitive schemas (McCann & Pearlman, 1990). Part of this may also be *secondary traumatic stress*, which is the transfer and development of negative affective

and dysfunctional cognitive states, which occur due to prolonged and extended contact with traumatised individuals (Motta, 2012). There is debate as to whether these terms differ in concept or are a component of an extreme stress reaction. More recently they tend to be used interchangeably, alongside the term *compassion fatigue* (Creamer & Liddle, 2005), and where mental health workers who are exposed to highly stressful environments are considered susceptible to burnout, as well as secondary traumatic stress (Wagaman et al., 2015).

Whilst many staff deal effectively with exposure to trauma, some may experience a deterioration in their psychological health. In one study, correctional officers in Canada reported higher rates of mental disorder symptoms when compared to wellness service employees (including included nurses, psychologists, behavioural counsellors, social workers and occupational therapists). These symptoms included PTSD, social anxiety, panic disorder, and depression (Fusco et al., 2021). When working with traumatised clients over an extended period, professionals have noted similar symptomology to their clients, including intrusive thoughts, nightmares, difficulty in managing intense emotions (such as rage, shame, grief, depression and anxiety), feeling helpless and vulnerable (e.g., McElvaney & Tatlow-Golden, 2016).

When considering a theoretical understanding to the potential for trauma reactions, information processing theories appear well suited. Here there is a focus on the event and how this is represented in memory (Brewin & Holmes, 2003). The *Bio-Informational Theory of Emotional Imagery*, originally proposed by Lang (1977), offers an understanding of the components of the trauma response through fear, and how representation is formed. Although fear can, of course, be a healthy and protective response, this framework also notes that the trauma event(s) are stored as interconnected mental representations (Brewin & Holmes, 2003), referred to as the “fear network.” This network holds information related to the trauma stimulus, such as sounds, smells and visual detail of how the individual responded emotionally and physiologically to the trauma event/s, and where meaning is then attached. It further stores environmental detail about the trauma (fear) event, such as location and time of day. Following an extreme stress reaction where the fear network identifies parallels between the current stress reaction and previous trauma to other events, this fear response can be re-triggered (Lai & Wu, 2016). Accordingly, if something in the environment matches one or more elements within the fear network, the element becomes activated and activation spreads to the other areas of the network (Rauch & Foa, 2006), potentially resulting in a trauma response. This could be a healthy response where the individual experiences an appropriate level of fear to the trauma evoking event. However, it may also be problematic, where the fear response is triggered by a trauma that should be resolved for the individual and no longer holds any protective component to it. As such, the function of the fear network can become maladaptive, and where associations made by this network fail to be accurate representations of the world (e.g., interpreting threat where

none exists). Here, threats can be triggered by relatively neutral stimuli, such as unexpected noises.

Where the individual is being triggered by their own unresolved trauma, direct therapeutic intervention may be a key strategy to mitigate and/or reduce the potential for a negative trauma response. When the trauma is vicarious or secondary, education about the concept of trauma and the potential staff reactions following exposure is regarded as key (e.g., McElvaney & Tatlow-Golden, 2016; Motta, 2012; Osofsky, 2011). This can also focus on self-awareness, emotional regulation, and affective response, both before entering the forensic field and during a staff member’s working career (Wagaman et al., 2015). Staff directed approaches are also considered effective, such as self-care techniques (e.g., exercise, breaks from work) and adjusting work structure (e.g., setting limits on work time, diversification of caseloads, limiting the number of challenging cases) (Motta, 2012; Osofsky, 2011). Decompression rituals, such as listening to calming music or changing clothes so work and home life are defined more separately, are important (Neuman & Gamble, 1995). These fit with principles of Trauma Informed Care in services, which advocate an appreciation of trauma and its impacts on others. It comprises four key principles of practice, (1) trauma awareness, including of the prevalence of trauma and how it can be adapted to and coped with, (2) emphasis on safety and trust-worthiness, including needs to feel safe and trust professionals, (3) opportunity for choice, collaboration and connection and (4) strengths-based and skills-building (Trauma-Informed Practice Guide, 2013). The implementation of trauma-informed care-based practices can lead to positive changes in work satisfaction, climate, and procedures, along with improved client satisfaction (Hales et al., 2019).

The current research aims to develop a better understanding of the prevalence and nature of staff exposure to trauma, including extreme stress events, in a forensic hospital setting. In identifying this aim it recognises the paucity of consideration of this topic in secure hospital settings. It will expand the area further by considering vulnerability factors that can promote adverse staff reactions and those that negate them. It commences first with a systematic review of the literature before progressing onto a detailed incorporation of staff views.

Systematic review: Exploring extreme stress events in forensic hospitals

Method

The systematic review followed the rigorous standard requirements of PRISMA. A search of bibliographic databases was carried out, including Ebsco, Science Direct, SCOPUS, ProQuest and Web of Science. The following search terms were used in order to conduct the search: “Forensic” AND “Extreme stress” OR “Stress*” OR “Distress” OR “Trauma” OR “React*” OR “Respon*” OR “Burnout” AND “Protective” OR “Vulnerabil*” OR “Resilienc*” OR “Predict*” OR “Post-traumatic growth” AND “Psychiatric

staff” OR “Mental health staff” AND “Adverse event*” OR “Incident*” OR “Trauma* event*” OR “Experience*” OR “Exposure.” Studies and literature reviews were considered eligible if they were in the English language, and included psychiatric staff working in a forensic setting. As such, eligible papers were a combination of quantitative and/or qualitative. All papers included were subject to a quality appraisal (e.g., research question, methodological quality, precision). Studies were only included if they were available. Thematic analysis (Braun & Clarke, 2006) was used to analyse the data extracted from the articles included to identify and interpret themes in the literature. Inter-rater reliability was completed by an independent rater and any disagreements were resolved via discussion.

Results

Two thousand one hundred ninety-five titles and abstracts were exported from the search engines, and 601 duplicates were removed. The final dataset for the systematic review after all screening was 46 papers. The PRISMA diagram is shown in Figure 1, and which noted how the final number was reached.

Of the 46 papers for review, all prevalence estimates were extracted, and then factors associated with negative and positive responses to extreme stress events were identified and thematic analysis applied. All identified superordinate themes were as follows: outcomes adversely impacting staff and patients; personal characteristics moderating the impact of events; and organisational and interpersonal support moderating the impact of events.

Outcomes adversely impacting staff and patients

This comprised two subordinate themes, as follows:

Theme one: Negative affectivity and psychological distress. Exposure to extreme stress events resulted in negative affective and psychological outcomes for staff. Studies exploring mood response found staff to report various feelings including anger, guilt, frustration, fear, helplessness and hyper-vigilance (Freestone et al., 2015; Harris et al., 2015; Kindy et al., 2005), with increased levels of PTSD (Lee et al., 2015). Staff also reported feeling unsafe, feeling vulnerable and not in control after

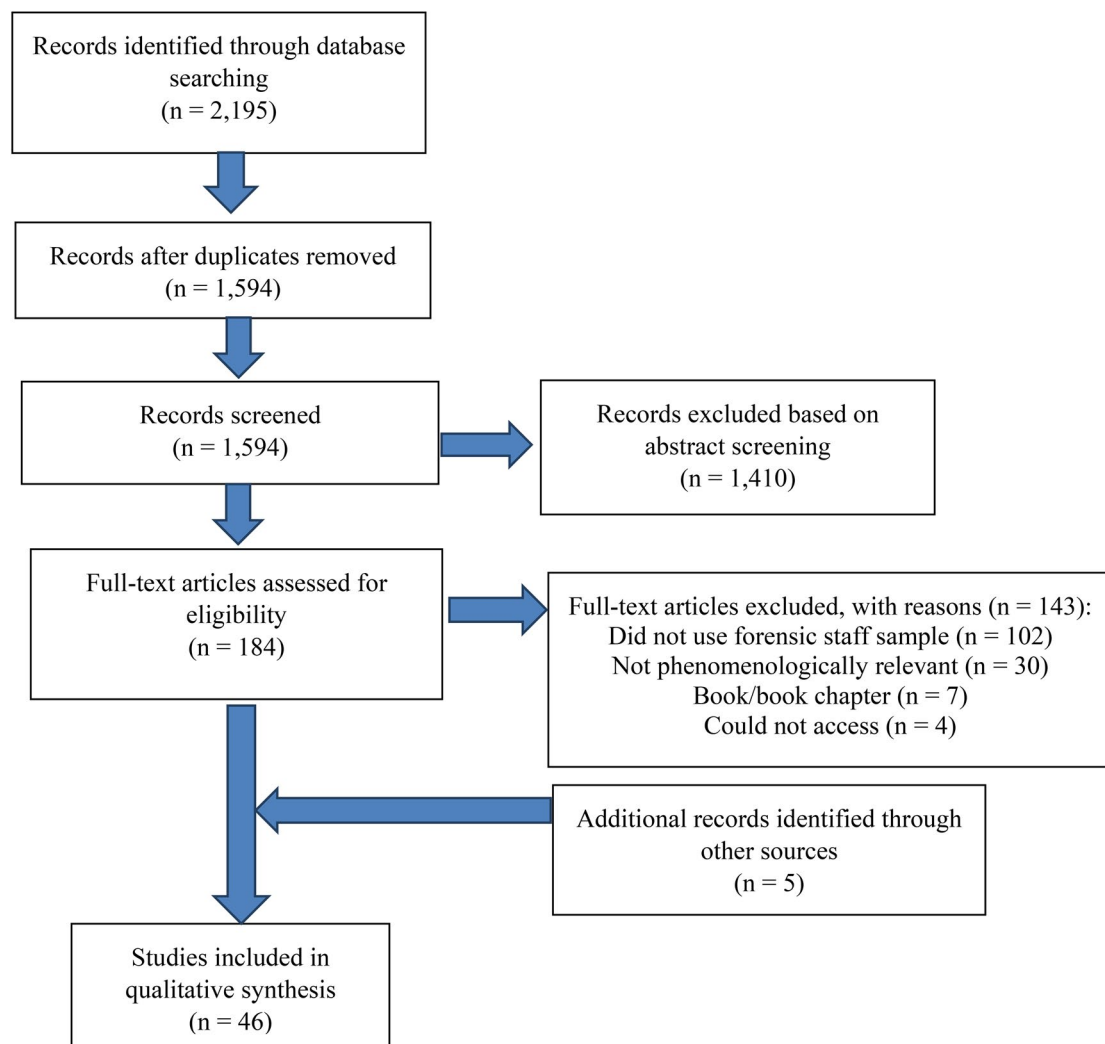


Figure 1. Steps of systematic review.

an adverse event (Jussab & Murphy, 2015). With regard to negative psychological impact, the risk of burnout was highlighted, with increased stress and anxiety reported following a violent incident (Kindy et al., 2005). Difficulties outside of work, such as relationship difficulties, were also found to increase the likelihood of a negative response following exposure to stress at work (Elliott & Daley, 2013).

Theme two: Threat to the therapeutic relationship. Negative responses to challenging behaviours from a patient had implications on the staff member's relationship with them. Exposure to a stressful event from a patient could result in a sense of distrust between the staff member and patient, with implications on the therapeutic relationship (Blankstein, 1988; Kindy et al., 2005). Feelings of detachment or rejection towards patients were linked with high levels of burnout (Holmqvist & Jeanneau, 2006). In other research, staff withdrew from the patient following an assault. Yet, it was identified that staff would also formulate a patient's behaviour following an assault to understand the behaviour, which would help them to process the event and not internalise it, preventing damage to the therapeutic relationship (Jussab & Murphy, 2015).

Personal characteristics moderating the impact of events

This comprised four subordinate themes, as follows:

Theme one: Resilience. Staff appeared to anticipate stress working in the forensic hospital environment and accepted the risk of exposure to distressing incidents; despite exposure, many staff do not respond negatively. It was further noted that staff working on a ward/unit reported lower levels of fear of violence compared to non-ward staff (Brown et al., 2017). Staff were noted to accept risk as part of the role and downplayed incidents of previous violence (Kurtz & Jeffcote, 2011). Furthermore, enhanced autonomy in the staff's role was linked to more positive wellbeing (Breen & Sweeney, 2013; Long et al., 2008; Wood et al., 2011). Further characteristics noted to have a buffering effect were high self-esteem and the use of effective coping strategies following an incident (Reininghaus et al., 2007), including social support and problem solving (Brown et al., 2017).

Theme two: Maladaptive coping responses. Behavioural responses were typically concerned with ways of coping with stress following an extreme stress event. Negative coping was detected in the literature, for example, avoidance of the patient or even the ward following an assault (Wykes & Whittington, 1991). Some staff were noted to "shut down" or emotionally disconnect so

patients did not detect fear, or to protect themselves from burnout (Kindy et al., 2005). Some staff adopted more confrontational approaches, forcing themselves to "face their fears" and approach the patient or reintegrate onto the ward; this was found to prolong feelings of anxiety (Wykes & Whittington, 1991). Staff were frequently reported to adopt negative behaviours including increased alcohol or other substance use (Coffey & Coleman, 2001; Heaton & Whitaker, 2006).

Theme three: Negative staff approach increases risk. Staff who held negative attitudes were more likely to exhibit negative affectivity following a stressful event. This was found to increase the likelihood of stress, burnout and feeling deskilled; all impacting on the staff-patient relationship and delivery of care (Freestone et al., 2015; Stewart & Terry, 2014). It was noted that qualified staff were more likely to hold positive attitudes regarding patients (Heaton & Whitaker, 2012). Staff who had previously experienced violence and aggression from patients were more likely to exhibit higher levels of emotional involvement, characterised by critical or negative views (Moore et al., 2002). Over-involvement with patients was also reported to be associated with burnout in staff (Langdon et al., 2007).

Theme four: Sex influencing risk. Men were reported at a higher risk of being assaulted than women staff (Augestad & Vatten, 1994; Gadon et al., 2006; Kelly et al., 2015). Women appeared less likely to experience negative responses following exposure (Dennis & Leach, 2007; Flutters et al., 2010), which has varied proposed explanations. One study suggested that women may be able to manage conflict more effectively. This study also proposed that women were less likely to be targets of violence or aggression (Augestad & Vatten, 1994), with another proposing that women adopted a more detached approach to patients (Flutters et al., 2010).

Organisational and interpersonal support moderating the impact of events

This comprised three subordinate themes, as follows:

Theme one: Need for education and training. One study suggested that being younger with no formal education negatively impacted on a staff member's ability to cope with a stressful event (Kelly et al., 2015), with younger age and lack of experience related to higher levels of burnout (Johnson et al., 2016). A repeatedly noted argument in the literature was that provision of training was beneficial in providing staff with skills to manage stress, anticipate risk (Augestad & Vatten, 1994; Gadon et al., 2006), and

reduce burnout (Brown et al., 2017). Other interventions included the provision of consultation and supervision for ward staff (Whitton et al., 2013).

Theme two: Lack of organisational support. Organisational components served as an important factor that led staff to feeling frustrated, unsupported, and unsafe. Staff reported frustrations due to a lack of adequate strategies in the form of guidelines and policies to manage risk (Totman et al., 2011). Frustrations were also noted to arise from “unkept” promises relating to improvements in safety for staff (Kindy et al., 2005). In addition, staffing levels also gave rise to frustration, with a lower staff-to-patient ratio, less therapeutic time with patients, and the increased use of unfamiliar staff, such as agency staff (Totman et al., 2011). Staff who felt their workloads to be high were more likely to experience psychological distress and high burnout (Coffey & Coleman, 2001). In particular, staff felt the organisation did not always prepare them to emotionally manage distressing information and how to work with patients (Harris et al., 2015).

Theme three: The necessity of feeling supported and being heard. It was evident that feeling supported in the workplace could buffer against negative responses to stressful situations (Breen & Sweeney, 2013). A lack of support from colleagues and management was frequently noted to have multiple influences. For instance, feeling unable to talk to colleagues precipitated high emotional exhaustion and psychological distress (Johnson et al., 2016). Feeling isolated from the staff team was found to be linked to negative wellbeing (Kurtz & Turner, 2007) and low levels of personal support linked to depersonalisation in another (Breen & Sweeney, 2013). Having a positive staff team including trust, support, and strong leadership available following an event was noted as important in reducing long lasting anxiety and distress, as well as increasing morale (Totman et al., 2011).

The results of the systematic review were used to generate items for the ensuing Delphi study. This study sought to explore the views of experts with lived-experience of working in forensic hospital settings, namely staff, to gain consensus.

Study: Developing expert consensus on the factors affecting trauma responses to extreme stress in forensic hospital staff

A Delphi is a systematic approach to gather data from respondents, with an aim of gaining consensus on the topic under review (de Meyrick, 2003). It includes provision of group feedback to participants concerning previous responses (“rounds”), to work towards a consensus (Dalkey & Helmer, 1963), with most Delphi surveys comprising three rounds.

A consensus cut-off of 80% was applied to ensure robust agreement (Green et al., 1999; Vosmer et al., 2009). Importantly, the Delphi was considered a thorough and dynamic process of enquiry where consensus was sought by incorporating participant opinion and providing feedback between rounds. This ultimately led to differences in the number of questions posed within each round.

Method

Participants

Mental health professionals working within forensic hospital services in a single NHS mental health trust were recruited using a purposive sampling approach. Forty-three professionals participated in the first round. This included 13 nursing assistants, nine charge nurses, seven staff nurses, five psychologists, three ward managers, one consultant forensic psychiatrist, one nursing associate, one CBT therapist, one occupational therapist, one duty manager and one technical instructor. Thirty-two of the original panel members participated in the second round, and 20 in the final round.

Procedure

Ethical approval was obtained from the University of Central Lancashire. Ethics Committee and Trust approval to access participants was also obtained from the relevant NHS Trust. The Delphi comprised three rounds. Staff were recruited using a variety of methods, including one of the research team attending departmental meetings and reflective practice sessions, and attendance at ward level. Staff were also recruited via email, poster advertisements, and through the online staff bulletin to ensure that all staff were made aware of the research and had opportunity to consider taking part. All participants were provided with relevant information to allow for informed consent. Debrief sheets provided to participants on completion of the survey. Participants were able to complete an online or paper version of the survey. This decision was based on feedback from ward-based staff indicating limited computer access. For each Delphi round, panellists were provided with a definition of extreme stress, informed by the DSM-V diagnostic criteria. Participation was voluntary. Although identifying information was obtained to circulate latter rounds, responses were pooled to guarantee anonymity. Panellists were not obligated to complete all three rounds and were able to cease their involvement at any point.

Delphi

Thirty-nine items were generated for the Delphi from the systematic review, based on the themes captured there. These were presented in round one of the Delphi. In this round, panel members were asked to consider the extent to which they agreed on the relevance of items to the presence or absence of a trauma response in staff, utilising a 5-point Likert scale (0 = “strongly agree” and 5 = “strongly disagree”). To ascertain consensus, the average percentage for

agreement was calculated. Agreement reflected the collective responses of “agree” and “strongly agree.” Items with consensus of $\geq 80\%$ were considered relevant to staff responses to extreme stress and retained for the subsequent round. The panel was also asked to suggest additional factors throughout, which they felt were missing, based on their knowledge and experience. Three rounds were presented. Importantly, the first round (39 items) and second round (36 items) sought agreement regarding the *relevance* of factors to staff responses to extreme stress. The third round aimed to understand the *direction* of those factors (i.e., whether the relevant factors increased or decreased the likelihood of trauma responses). Thus, the scale was altered this final round to: -2 = definitely makes a trauma response less likely, -1 = probably makes a trauma response less likely, 0 = makes little difference either way, $+1$ = probably makes a trauma response more likely, $+2$ = definitely makes a trauma response more likely. In addition, some items were split into two separate items for round three in order to explore whether both the presence and the absence of a factor were important. Items considered bi-directional were also separated into distinct items, contributing to a set of 43 items for the final third round.

Results

Delphi round development

In round one, nine of the original 39 items reached a consensus of $\geq 80\%$. Qualitative suggestions were explored for common patterns, using Thematic Analysis, leading to the crafting of 27 additional items. These were included alongside the items that reached consensus, totalling 36 items for consideration in round two. In this second round, 20 items reached a consensus of $\geq 80\%$ and were retained for round three. Again, the panel were given opportunity to suggest additional factors, which they felt were missing. Suggestions were converted into an additional nine items. In addition, a further 14 items were included as some items were split to capture whether both the presence and the absence of a factor were important and distinguishing bi-directional items. This resulted in 43 items for the final third round. Of these, only six reached the level required for consensus. These items were related to an increase in the likelihood of a trauma response in staff. None of the factors proposed to reduce the likelihood of a trauma response following an extreme stress event reached a consensus of $\geq 80\%$.

Thus, overall, six of the original 39 items from the evidence base were retained as factors deemed highly relevant to increasing the likelihood of trauma in staff, with agreement of over 80%. These included: (1) Insufficient staffing; (2) Experiences of stressors outside of work; (3) Lack of training availability; (4) Perceptions of being judged/criticised following exposure to extreme stress; (5) Feeling responsible or to blame for an extreme stress event; and (6) Feeling unable to discuss stress outside of work with colleagues. All of these items reflected risk factors to adverse responses following exposure to extreme stress. Insufficient staffing and experiences of stress outside of work were from

the original item set and derived from the systematic review. The remaining items were identified in qualitative responses provided by the panel. A summary of the items from the Delphi and final consensus is noted in [Table 1](#).

Building on these results and the findings of the review, an examination of the nature and extent of traumatic/stress responding in forensic hospital staff was undertaken. This attended further to the role of internal factors, such as burnout and fatigue, and organisational factors. In doing so, it attempts to confirm the presence of these as factors of interest.

Study: Nature and extent of trauma symptoms and internal and organisational factors in forensic hospital staff

Method

Participants

One hundred and fifty-three staff from a secure forensic hospital took part; 72 (47%) were male, 66 (43%) were female, and 15 (10%) declined to respond. The mean age was 41.6 years (SD 12.9, Median 44). The mean time spent working in a secure setting was 10.8 years (SD 10.3, Median 8), with the mean time spent at the forensic hospital 9.7 years (SD 10.3, Median 4.5).

Measures

The following measures were utilised:

Post-Traumatic Stress Disorder Checklist (PCL-C: National Centre for PTSD, 2012), a 17-item self-report scale to explore trauma symptoms. It can be applied to provide a “presumptive diagnosis” of PTSD. Participants indicate how much they have “been bothered” by a symptom (problem) in the last month (e.g., “trouble remembering important parts of a stressful experience from the past”). Each item is rated from 1 (not at all) to 5 (extremely). Very good internal reliability has been reported (Cronbach’s $\alpha = .94$, Blanchard et al., 1996).

Professional Quality of Life Scale: Compassion Satisfaction and Compassion Fatigue (ProQOL v.5: Stamm, 2009), a self-report scale measuring staff stress and satisfaction at work. Staff rate items such as “I feel connected to others,” “I jump or am startled by unexpected sounds,” on a Likert scale (1 = never, 5 = very often). Good to very good internal reliability has been reported (Cronbach’s $\alpha = 0.88$ [compassion satisfaction subscale], 0.71 [burnout subscale] and 0.74 [secondary traumatic stress subscale], Circenis et al., 2013).

Essen Climate Evaluation Schema (EssenCES; Schalast & Tonkin, 2016), a 15-item self-report scale used to measure ward atmosphere, with three subscales: Therapeutic Hold (i.e., supportive environment), Experienced Safety (i.e., tension/threat of aggression or violence), and Patients’ Cohesion and Mutual Support (i.e., patient support). Items are rated on a 5-point Likert scale (ranging from strongly agree to

Table 1. Delphi rounds and final consensus.

Item	Round one (n = 43)	Round two (n = 32)
Experiencing stressors outside the workplace, such as a relationship break-up or bereavement will increase the likelihood that a staff member will have a traumatic response to an extreme stress event.	90.7%	93.8%
Acquiring physical injury as a result of an extreme stress event will increase the likelihood that staff will have a traumatic response to the event.	92.9%	90.1%
Being directly involved in, or in close proximity to, an extreme stress event will increase the likelihood of having a traumatic response to the event.	79.1%	
If staff feel autonomous in their job role, they will be less likely to have a traumatic response to an extreme stress event.	36.6%	
Being more familiar with clients' backgrounds and presentations will reduce the likelihood that staff will have a traumatic response to an extreme stress event.	50%	
Having high levels of self-esteem regarding their job competence will reduce the likelihood that staff will have a traumatic response to an extreme stress event.	50%	
Job satisfaction will reduce the likelihood that staff will have a traumatic response following an extreme stress event.	61.9%	
Having been previously exposed to extreme stress and having managed it successfully will reduce the likelihood that staff will have a traumatic response following an extreme stress event.	39%	
Following an extreme stress event, forcing oneself back to work too quickly will increase the likelihood of having a traumatic response to the event.	86.1%	81.3%
A tendency to use substances such as alcohol or drugs as a means of coping will increase the likelihood that staff will have a traumatic response to an extreme stress event.	67.4%	
Knowing the details of a client's forensic background can increase the likelihood that a staff member will have a traumatic response to an extreme stress event.	41.9%	
Having been previously assaulted by a patient will increase the likelihood that staff will have a traumatic response to an extreme stress event.	76.7%	
Staff who hold negative attitudes about patients will be more likely to have a traumatic response when exposed to an extreme stress event.	53.5%	
Staff who have poor communication with patients will be more likely to have a traumatic response when exposed to an extreme stress event.	58.1%	
Staff whose interactions with patients are led predominantly by implementing rules and restrictions will be more likely to have a traumatic response when exposed to an extreme stress event.	32.6%	
Staff who take a punitive/managerial approach with patients will be more likely to have a traumatic response to an extreme stress event than those who take a more therapeutic approach with patients.	41.9%	
Feeling conflicted about whether their role should be caring or punitive in nature will increase the likelihood that a staff member will have a traumatic response to an extreme stress event.	55.8 %	
Staff being overly negative/critical with clients will increase the likelihood of them having a traumatic response to an extreme stress event.	53.5%	
Having a high level of experience working in a psychiatric setting will reduce the likelihood of staff experiencing a traumatic response to extreme stress events.	38.1%	
Having completed a formal qualification (such as NVQ, diploma, BSc etc.) relevant to mental health will reduce the likelihood of a traumatic response to extreme stress events.	16.7%	
Having accessed formal training aimed at developing an <i>understanding</i> of complex client behaviours will reduce the likelihood that staff will have a traumatic response to an extreme stress event.	57.1%	
Having accessed formal training aimed at <i>managing</i> complex client behaviours will reduce the likelihood that staff will have a traumatic response to an extreme stress event.	66.7%	
Insufficient staffing on the wards will increase the likelihood that staff will have a traumatic response to extreme stress events.	83.7%	84.4%
Having access to clear and consistent policies regarding the management of client risk to self and/or others will reduce the likelihood that staff will have a traumatic response following an extreme stress event.	70.7%	
Working in an environment with robust procedural and environmental security measures will reduce the likelihood that staff will have a traumatic response to an extreme stress event.	63.4%	
Staff feeling like they do not receive support from colleagues from other disciplines will increase the likelihood that the staff member will have a traumatic response to an extreme stress event.	78.1%	
Perceiving that the organisation prioritises investigation/inquiry over support following an incident will increase the likelihood that a staff member will have a traumatic response to an extreme stress event.	79.1%	
If staff perceive there to be conflict between colleagues in the same discipline, they are more likely to have a traumatic response to extreme stress events.	53.5%	

(Continued)

Table 1. (Continued).

Item	Round one (n=43)	Round two (n=32)	
If staff perceive there to be conflict between colleagues in their discipline and those from other disciplines, they are more likely to have a traumatic response to extreme stress events.	55.8%		
Fear of stigma/judgement from the public/media can increase the likelihood that staff will have a traumatic response to an extreme stress event.	41.9%		
Feeling unsupported or abandoned by management following exposure to an extreme stress event will increase the likelihood of staff having a traumatic response to the event.	95.4%	93.8%	
Feeling unable to confide in colleagues about the emotional impact of an extreme stress event due to fear of judgement regarding their work abilities will increase the likelihood that staff will have a traumatic response to the event.	86.1%	84.4%	
Having access to informal support from a strong work team, including colleagues on the ward, will reduce the likelihood that staff will have a traumatic response to an extreme stress event.	97.6%	90.6%	
Having access to formal support provided by the employer, such as counselling services, will reduce the likelihood that staff will have a traumatic response to an extreme stress event.	85.7%	93.8%	
Feeling well supported by the organisation in terms of reporting, debrief and follow-up procedures will reduce the likelihood that staff will have a traumatic response to extreme stress events.	85.7%	90.6%	
If staff feel they can confide in their supervisor, they will be less likely to experience a traumatic response to an extreme stress event.	76.2%		
Having regular clinical supervision will reduce the likelihood that staff will have a traumatic response following an extreme stress event.	69.1%		
Having regular group reflective practice will reduce the likelihood that staff will have a traumatic response following an extreme stress event.	68.3%		
Feeling able to talk to family and/or friends outside of work regarding their experiences following an extreme stress event will reduce the likelihood that staff will have a traumatic response	69.1%		
Not having supervision or a debrief session following the event to voice concerns will increase the likelihood that staff will experience a trauma response.		93.8%	
Feeling responsible or to blame for an extreme stress event will increase the likelihood of a trauma response.		87.5%	
Experiences of trauma outside of work and feeling unable to discuss this at work will increase the likelihood of a trauma response.		93.8%	
Returning to work too quickly following exposure to an extreme stress event will increase the likelihood of staff experiencing a trauma response.		81.3%	
A "saving face" culture where staff do not discuss distress will increase the likelihood of a staff experiencing a trauma response to an extreme stress event.		81.3%	
Negative ward dynamics and poor communication between colleagues will increase the likelihood of a staff experiencing a trauma response to an extreme stress event		93.8%	
Tiredness and fatigue will increase the likelihood of a staff experiencing a trauma response to an extreme stress event.		84.4%	
Feeling safe from judgement/criticism following exposure to extreme stress event will reduce the likelihood of a trauma response.		87.5%	
Having regular, structured reflective practice sessions to offer understanding of the patients and their presentations will reduce the likelihood of a trauma response following an extreme stress event.		87.5%	
Having more staff training available will reduce the likelihood of a trauma response following an extreme stress event.		81.3%	
Having support available immediately after the event as well as on-going after exposure will reduce the likelihood that staff will have a trauma response.		93.8%	
Managers "going the extra mile" to support staff following exposure will reduce the likelihood that staff will experience a trauma response.		81.3%	
Item	Percentage (%)		
	Increases likelihood of trauma	Decreases likelihood of trauma	Makes little difference
1a Sufficient staffing on the wards (n=20)	55.0	35.0	10.0
1b Insufficient staffing on the wards (n=20)	80.0	5.0	15.0
2a Having more staff training available (n=20)	40.0	55.0	5.0
2b Not having training available (n=20)	95.0	5.0	0.0
3a Acquiring physical injury as a result of an extreme stress event (n=20)	65.0	15.0	20.0
3b Not acquiring physical injury as a result of an extreme stress event (n=20)	5.0	55.0	40.0
4a Feeling able to confide in colleagues about the emotional impact of an extreme stress event without fear of judgement regarding work abilities (n=20)	50.0	50.0	0.0
4b Feeling unable to confide in colleagues about the emotional impact of an extreme stress event due to fear of judgement regarding their work abilities (n=20)	75.0	25.0	0.0
5a Having access to formal support provided by the employer, such as counselling services (n=20)	10.0	75.0	10.0

Table 1. (Continued).

Item	Round one (n = 43)		Round two (n = 32)
5b Not having access/a lack of access to formal support provided by the employer, such as counselling services (n = 20)	55.0	40.0	5.0
6a Having access to informal support from a strong work team, including colleagues on the ward (n = 20)	15.0	75.0	10.0
6b Not having access to informal support from a strong work team or colleagues on the ward (n = 20)	55.0	40.0	5.0
7a Having regular, structured reflective practice sessions to offer understanding of the patients and their presentations (n = 20)	25.0	55.0	20.0
7b Not having regular, structured reflective practice sessions to offer understanding of the patients and their presentations (n = 20)	50.0	35.0	15.0
8a Having predisposed physical or mental health conditions (n = 20)	60.0	25.0	15.0
8b Having no experiences of physical or mental health difficulties (n = 20)	30.0	25.0	40.0
9a Having a discussion with the patient(s) involved in the event (n = 20)	35.0	40.0	25.0
9b Not discussing the event with the patient(s) involved in the event (n = 20)	35.0	10.0	50.0
10a Having regular and familiar staff consistently placed on the ward (n = 20)	10.0	75.0	15.0
10b Having unfamiliar staff placed on the ward (n = 20)	45.0	20.0	35.0
11a Positive ward dynamics and good communication between colleagues (n = 20)	35.0	65.0	0.0
11b Negative ward dynamics and poor communication between colleagues (n = 20)	60.0	25.0	15.0
12a Experiencing feelings of being judged/criticised following exposure to extreme stress (n = 20)	90.0	10.0	0.0
12b Feeling safe from judgement/criticism following exposure to extreme stress (n = 20)	20.0	60.0	20.0
13a Having support from immediate management and superiors following exposure to an extreme stress event (n = 20)	40.0	55.0	5.0
13b Feeling unsupported or abandoned by immediate management and superiors following exposure to an extreme stress event (n = 19)	63.2	15.8	21.1
14a Having supervision or debrief session following the event to voice concerns (n = 20)	35.0	55.0	10.0
14b Not having supervision or a debrief session following the event to voice concerns (n = 20)	70.0	25.0	5.0
15a Staff having spent less time working in high dependency, thus less likely to be desensitised (n = 20)	20.0	40.0	40.0
15b Staff becoming desensitised to risk due to being placed on higher dependency wards for longer periods (n = 20)	60.0	20.0	20.0
16a Experiencing stressors outside the workplace, such as a relationship break-up or bereavement (n = 20)	95.0	5.0	0.0
16b Not having any stressors outside of work (n = 20)	10.0	75.0	15.0
17a Feeling well supported by the organisation in terms of reporting, debrief and follow-up procedures (n = 20)	30.0	60.0	10.0
17b Feeling unsupported by the organisation in terms of reporting, debrief and follow-up procedures (n = 20)	65.0	30.0	5.0
18a Having support available immediately, as well as on-going support following exposure (n = 20)	40.0	60.0	0.0
18b Not having immediate support following exposure (n = 20)	65.0	20.0	15.0
19 Feeling responsible or to blame for an extreme stress event (n = 20)	85.0	15.0	0.0
20 Returning to work too quickly following exposure to an extreme stress event (n = 20)	70.0	10.0	20.0
21 A "saving face" culture where staff do not discuss distress (n = 19)	68.4	21.1	10.5
22 Managers "going the extra mile" to support staff following exposure (n = 20)	25.0	70.0	5.0
23 Tiredness and fatigue (n = 20)	50.0	30.0	20.0
24 Experiences of trauma outside of work and feeling unable to discuss this at work (n = 20)	85.0	10.0	5.0

strongly disagree). Higher scores indicate a more positive social environment. The scale had good internal consistency (mean Cronbach's alpha = 0.82 patient cohesion, 0.77 experienced safety and .81 therapeutic hold; Tonkin et al., 2012). It has been validated in forensic hospitals (Howells et al., 2009).

Procedure

Approval was obtained from the relevant NHS Trust, with this forming part of a service evaluation. Questionnaire packs were provided to staff attending an introductory training course on trauma informed care, prior to any training delivery. Completion was voluntary. All participants were provided with an information, consent and debrief sheet.

Results

Data for two participants was removed due to having completed less than 30% of the questionnaire pack. No extreme univariate outliers were identified, with one multivariate outlier noted and removed. Median splits were calculated for the subscales of the PROQOL, EssenCES and Resilience, to allow for High (median and above) and low (below the median) groups to be established. Median scores for PLC-C for each measure are presented in Table 2.

Continuous variables were not normally distributed on the PCL-C and across age, years worked. This remained the case following log transformation and therefore, non-parametric analyses were conducted. Spearman's rank correlation was also applied to explore the relationship

Table 2. Median score for the subscales of the PROQOL and essence and resilience.

Scale	Median	N participants in the high group	N participants in the low group	N missing
ProQOL compassion satisfaction	37	82	60	10
ProQOL burnout	24	75	68	9
ProQOL secondary trauma	22	74	72	6
EssenCES patient cohesion	22	68	61	23
EssenCES experienced safety	12	76	54	22
EssenCES therapeutic hold	20	77	54	21
Resilience	20	68	55	29

between level of trauma symptoms in staff, their age, the number of years they have worked in a secure setting, and the number of years they have worked in their current work placement, resilience, compassion satisfaction, burnout, secondary, trauma symptoms, patient cohesion, experienced safety, therapeutic hold (See Table 3). Means across measures are presented in Tables 4 and 5. Prevalence figures of trauma symptoms are presented in Table 6.

Nature and prevalence of trauma symptoms

Approximately one-fifth of participants (19.6%, $n=28$) met a “presumptive diagnosis” for PTSD using the criteria proposed by the PCL-C. Symptom clusters were also explored, namely where having at least one item in a category rated as moderate is recorded as a symptomatic response. The results can be seen in Table 1. Thirty-eight participants (25.1%) scored at least one item as moderate in all three symptom clusters.

Internal and external (organisational) factors

Mann-Whitney tests were computed to explore the role of resilience, professional quality of life, ward atmosphere and sex on trauma symptoms. Due to the number of analyses undertaken, the alpha level was adjusted to .006. Those who reported low levels of burnout (Mean Rank = 57.06) reported significantly lower levels of total trauma symptoms than those who reported higher burnout levels (Mean Rank = 82.84; $U=1545.00$, $N_1=67$, $N_2=73$, $p<.001$). Individuals who reported low levels of secondary trauma (Mean Rank = 52.28) reported significantly lower levels of trauma symptoms when compared to those who reported high levels of secondary trauma (Mean Rank = 89.46; $U=1174.50$, $N_1=70$, $N_2=71$, $p<.001$). Finally, those who reported lower levels of resilience (Mean Rank = 77.45) reported significantly higher levels of trauma symptoms compared to those with high levels of resilience (Mean Rank = 48.18; $U=930.00$, $N_1=53$, $N_2=68$, $p<.001$).

There were no significant differences in total trauma symptoms between individuals who reported low levels of compassion satisfaction (Mean Rank = 73.34) and those who reported high levels of compassion satisfaction (Mean Rank 67.68; $U=2146.50$, $N_1=57$, $N_2=82$, $p=.414$), or between those who reported low levels of a feeling of safety on the ward (Mean Rank = 70.18) and those with high levels (Mean Rank = 62.18; $U=1799.50$, $N_1=54$, $N_2=76$, $p=.232$). No significant difference was found in trauma symptoms in those who reported low levels of therapeutic hold on the ward (Mean Rank = 65.87) and those who reported high

levels (Mean Rank = 66.09; $U=2072.00$, $N_1=54$, $N_2=77$, $p=.974$). Individuals who reported low levels of patient cohesion on the ward (Mean Rank = 65.47) did not report significantly different levels of trauma symptoms when compared to those who reported high levels (Mean Rank = 64.58; $U=2045.50$, $N_1=61$, $N_2=68$, $p=.893$). There were no significant differences in total trauma symptoms between women (Mean Rank 59.20) and men (Mean Rank 73.58; $U=1703.00$, $N_1=65$, $N_2=67$) when considering the adjusted alpha level.

A multiple regression analysis was conducted to explore whether resilience, professional quality of life, ward atmosphere, and age were predictive of trauma symptoms. This resulted in a significant regression model ($F(8,88)=6.57$, $MSE=83.22$, $p<.001$). Higher levels of secondary trauma ($\beta=.34$, $t=3.00$, $p=.004$), lower experienced safety ($\beta=-.24$, $t=-2.41$, $p=.018$) and lower resilience ($\beta=-.29$, $t=-2.98$, $p=.004$) were significant predictors of increased total trauma symptoms. However, compassion satisfaction ($\beta=-.01$, $t=-.06$, $p=.952$), burnout ($\beta=-.02$, $t=-.13$, $p=.896$), patient cohesion ($\beta=.02$, $t=.20$, $p=.846$), therapeutic hold ($\beta=-.07$, $t=-.82$, $p=.417$), and age ($\beta=-.16$, $t=-1.73$, $p=.087$) were not predictive of total trauma symptoms.

Discussion

The systematic review indicated three superordinate themes; outcomes adversely impacting staff and patients; personal characteristics moderating the impact of events; and organisational and interpersonal support moderating the impact of events. The Delphi reinforced these themes, as well as offering additional observations of negative self-perceptions that could exacerbate a negative response, alongside the importance of stressors outside of work exacerbating impact. The final study confirmed findings from the systematic review, in that not all staff experience a negative reaction to an extreme stressful event, or even an accumulative effect. It further indicated that almost a fifth of participants reported trauma symptomology, which is considerable in nature. The main areas of distress for staff included re-experiencing, avoidance/numbing and/or hyper-arousal in response to an extreme stress event. Staff trauma symptomology was further linked to both staff burnout and the experience of secondary trauma symptomology, especially in regard to re-experiencing, hyper-arousal, and overall symptomology.

Overall, the findings from this research note that, whilst not all staff experience a negative impact by exposure to an extreme staff event, and, of course, not all staff will be

Table 3. Correlation between staff trauma symptoms (PCL – C) resilience, age.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. PCL-C total	–												
2. Resilience	–.48**	–											
3. Age	–.13	–.04	–										
4. Years in current placement	.09	–.12	.57**	–									
5. Years working in secure care	.08	–.10	.60**	.93**	–								
6. Compassion satisfaction	–.12	.23*	–.35**	–.30**	–.25**	–							
7. Burnout	.39**	–.33**	.14	.29**	.29**	–.67**	–						
8. Secondary trauma symptoms	.57**	–.35**	.06	.12	.09	–.25**	.58**	–					
9. Patient cohesion	–.06	.13	–.10	–.07	–.04	.35**	–.34**	–.08	–				
10. Experienced safety	–.20*	.01	–.05	–.12	–.19*	.28**	–.32**	–.08	.32**	–			
11. Therapeutic hold	–.03	.10	–.11	.01	.05	.19*	–.11	–.13	.16	–.12	–		
12. PCL-C cluster B	.84**	–.40**	–.17*	.14	.09	–.08	.35**	.51**	–.03	–.14	.51**	–	
13. PCL-C cluster C	.90**	–.42**	–.08	.07	.08	–.06	.30**	.49**	.04	–.20*	–.07	.66**	–
14. PCL-C cluster D	.88**	–.41**	–.08	.06	.03	–.14	.41**	.54**	–.16	–.20*	.10	.63**	.69**

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Years working in current placement, years working in secure care, compassion satisfaction, burnout, secondary, trauma symptoms, patient cohesion, experienced safety, therapeutic hold.

Table 4. Means and standard deviation of total trauma symptoms severity split by group.

Variable	Trauma symptoms	
	Low	High
Compassion satisfaction	31.58 (12.16)	29.51 (10.80)
Burnout	26.76 (9.86)	33.54 (11.43)
Secondary trauma	25.29 (8.55)	35.53 (11.84)
Patient cohesion	30.60 (11.01)	30.57 (11.51)
Experienced safety	31.89 (12.01)	29.36 (10.77)
Therapeutic hold	30.79 (11.37)	30.78 (11.54)
Resilience	34.93 (12.29)	25.46 (7.96)
Sex	Men 32.78 (12.77)	Women 27.98 (10.37)

Table 5. Means and standard deviations for resilience, professional quality of life and ward atmosphere.

Variable	Mean (standard deviation)
Total trauma symptoms	30.62 (11.83)
Compassion satisfaction	1.58 (.50)
Burnout	1.52 (.50)
Secondary trauma	1.51 (.50)
Patient cohesion	1.53 (.50)
Experienced safety	1.58 (.49)
Therapeutic hold	1.59 (.49)
Resilience	1.55 (.50)

Table 6. PCL-C trauma severity and symptoms overall and across staff roles and sex.

Total PCL-C and symptom clusters	Overall sample (n = 153)	Trauma symptoms across staff roles				Trauma symptoms across staff sex		
		Qualified nursing staff (n = 50)	Non-qualified nursing staff (n = 73)	Non-ward based staff (n = 16)	Job role not specified (n = 14)	Female (N = 66)	Male (N = 72)	Sex not indicated (N = 15)
Proportion of staff who rated at least one symptom category as moderate	99 (64.71%)	31 (62.00%)	52 (71.23%)	8 (50.00%)	8 (57.14%)	38 (24.84%)	51 (33.33%)	10 (6.54)
Overall symptom severity ^a	28 (18.30%)	11 (22.00%)	13 (17.81%)	1 (6.25%)	3 (21.43%)	9 (5.88%)	17 (11.11%)	2 (1.31%)
Presentation across individual symptom clusters								
Cluster B (re-experiencing)	63 (44.06%)	21 (42.00%)	34 (46.58%)	3 (18.75%)	5 (35.71%)	24 (15.69%)	32 (20.92%)	7 (4.58%)
Cluster C (avoidance and numbing)	64 (44.76%)	20 (40.00%)	34 (46.58%)	3 (18.75%)	7 (50.00%)	22 (14.38%)	35 (22.88%)	7 (4.58%)
Cluster D (hyperarousal)	75 (49.02%)	23 (46.00%)	40 (29.20%)	4 (25.00%)	8 (57.14%)	27 (17.65%)	40 (26.14%)	8 (5.23%)
Presentation across combined symptom clusters								
Cluster B and C	46 (32.17%)	16 (32.00)	24 (32.88%)	1 (6.25%)	5 (35.71%)	15 (9.80%)	25 (16.34%)	6 (3.92%)
Cluster B and D	45 (29.41%)	15 (30.00%)	24 (32.88%)	1 (6.25%)	5 (35.71%)	16 (10.46%)	24 (15.69%)	5 (3.27%)
Cluster C and D	51 (33.33%)	16 (32.00%)	27 (36.99%)	1 (6.25%)	7 (50.00%)	18 (11.76%)	28 (22.88%)	5 (3.27%)
Cluster B, C and D	39 (25.49%)	14 (28.00%)	19 (26.03%)	1 (6.25%)	5 (35.71%)	14 (9.15%)	21 (13.72%)	4 (2.61%)

^aStaff rated at or above the cut off score of 44.

exposed to such events, there are around a fifth of staff who do experience a negative response through varied trauma symptomology. This research supports the work of Merrick et al. (2017) and Carleton et al. (2020), who observed that exposure to traumatic events can result in numerous negative impacts, including deterioration in psychological and mental health. This is certainly mirrored in these findings, such as a negative impact on staffs view of self and others, as well as psychological health issues such as anxiety.

The current research confirms that, whilst not all reactions would equate to a PTSD diagnosis, there are several trauma symptoms that can be detrimental for staff, leading to burnout. As such, this research amplifies the value in moving away from considering only PTSD diagnoses as a signal of trauma, but to recognise the negative impact of even a few trauma symptoms on an individual. It further consolidates the importance of pre-vulnerabilities that a staff member may already bring prior to their exposure to an extreme stress event, such as external unresolved stressors outside of the workplace. This would certainly fit with the notion of “hidden” traumas in staff, prior to their exposure (Van der Kolk, 2005) and is an area that would be well-suited for future research. Furthermore, this work highlights the potentially detrimental impact of exposure to vicarious and/or secondary traumatic stress, where those who are exposed to highly stressful environments are susceptible to burnout, as well secondary traumatic stress (Wagaman et al., 2015). This was certainly observed by the staff trauma symptomology noted here, where it was linked to staff burnout and the experience of secondary trauma symptomology, especially in regard to re-experiencing, hyper-arousal and overall symptomology.

This study offers some support in understanding the potential longer-term impact of trauma, and where there can be a cumulative impact of exposure to such events over time. This includes where the staff member experiences

feelings of helplessness, fear of re-assault, feeling unsafe and heightened vulnerability. As such, the findings would offer support for the work of McElvaney and Tatlow-Golden (2016), and Osofsky (2011), where they note staff may experience deterioration in their psychological health over time, such as feeling helpless and vulnerable, with experiences of social anxiety, panic disorder, and depression (Fusco et al., 2021). This research is echoed in the present findings. Support for previous research is also supported, namely that noting psychological symptoms, such as emotional numbing, hypervigilance, and personal difficulties, such as feeling discouraged and cynical (Neuman & Gamble, 1995).

Findings of reported staff trauma symptoms comprising of re-experiencing, avoidance/numbing and/or hyper-arousal in response to an extreme stress event, would fit closely with information processing theories, and where there is a focus on the event and how this is represented in memory (Brewin & Holmes, 2003). As such, the findings here would demonstrate support for the Bio-Informational Theory of Emotional Imagery (Lang, 1977), and where the network holds information relating to the trauma stimulus, and which continually is triggered by the staff member; this is represented through symptoms such as re-experiencing and hyper-arousal as this “fear network” continually identifies a parallel between the staff member’s current stress reaction and their previous trauma to other unresolved extreme stress events.

When considering the buffering factors against the potential negative impact, several findings from the current research fit well with literature highlighting factors such as education about trauma being key (e.g., McElvaney & Tatlow-Golden, 2016; Motta, 2012; Osofsky, 2011), including self-awareness, emotional regulation, and affective response (Wagaman et al., 2015). Although the current research did not emphasise self-care techniques, such as exercise and work-life balance, it instead identified traits, such as the value of resilience in staff through the

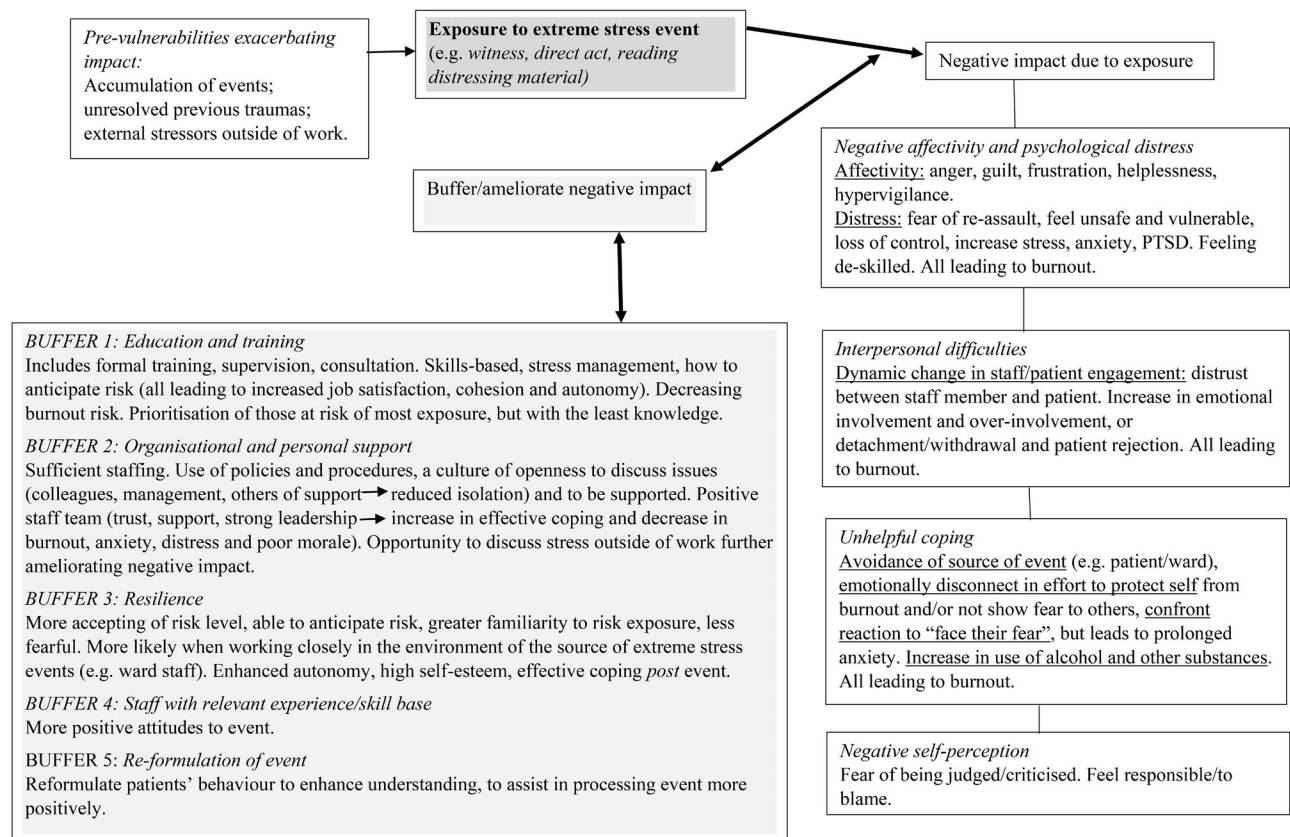


Figure 2. IA model: Impact and amelioration of extreme stress events model.

anticipation of risk, as well as the critical value of organisational and personal support. The findings of the systematic review note how the nature of organisational support could be varied, such as formal training, and then supervision and consultancy, followed by the importance of clear policies and procedures in place. Yet, at a deeper level, and noted from the Delphi study, the focus was more on organisational culture, such as an environment where staff felt able to seek support from a range of individuals, without fear of blame or judgement, but with a focus on support. This was a key contribution to the literature. Of further key consideration was the staff who were exposed to such events. The literature has previously noted that younger staff were seen as more at risk of a trauma response, such as being younger with no formal education (Kelly et al., 2015). However, and whilst the systematic review from this research raised this, it was not repeated in later components of the study. This therefore questions if age is a true factor, and that the response to the trauma is more complex than this single fact. For instance, this study raises more the possibility that an extreme stress response is more likely when a staff member is working in an area outside of their skill set and knowledge base, as opposed to age. This is certainly worthy of further consideration.

In summary, this study has identified that the negative impact for staff by exposure to extreme stress events can include negative affectivity and psychological distress, interpersonal difficulties, unhelpful coping, and negative

self-perception. Factors that can buffer and/or ameliorate against the potential for a negative impact can include education and training, organisational and personal support, resilience, having relevant experience/skill base, and being able to positively re-formulate the event. The systematic review, combined with the two studies presented here, allows for consideration of a proposed model—*IA Model: Impact and Amelioration of Extreme Stress Events Model*—that summarises the potential negative impact of exposure to extreme stress events, as well as factors that may buffer/ameliorate against such risk, alongside pre-vulnerabilities that could exacerbate the negative impact to an extreme stress event. This is detailed in Figure 2.

This research is not however without its limitations. For example, those who do experience high levels of PTSD may not be detected in cross-sectional studies, may not engage in research owing to avoidance symptoms, or may have left the profession owing to their difficulties. As such, they may not be captured in this sample. Furthermore, several studies included in the systematic review contained small samples, which may question how well they can apply to secure hospital staff as a collective group. Equally, the Delphi method comprised a small proportion of staff, with some attrition, with the final study moderate in size and based on self-reported symptoms. Clearly there are disadvantages with this, coupled with a lack of being able to capture causality. Nevertheless, the research is presented as a whole, with its multi-faceted elements, to provide a more comprehensive outline and drive future research.

This research has implications, however, certainly for the effective support of staff following extreme stress events. Ultimately it raises awareness of the potential negative impact on staff and offers key suggestions of areas to focus on to benefit services when looking to support staff, and buffer against the impact of such extreme stress events that can often be a component of daily work. These are outlined in the proposed IA Model, with the noted buffers useful areas for future research to consider.

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