

Critical incidents among intensive care unit nurses and their need for support: explorative interviews

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ABSTRACT

Aims: This article aims (a) to get insight into intensive care nurses' most critical work-related incidents, (b) their reactions and coping and (c) perceived support, in a Dutch intensive care unit.

Background: Research about the impact of critical incidents has largely been aimed at ambulance and emergency nurses; knowledge about intensive care nurses in this respect is scarce. Persistent stress reactions after critical incidents may cause symptoms of post-traumatic stress disorder, depression and anxiety. Unresolved problems may also cause poor behaviour towards patients. In response, nurses reduce work hours or even resign. Social support alleviates emotional problems, but little is known about actual support perceived.

Design: This study is a qualitative explorative study.

Method: Thematic analysis of semi-structured interviews was performed among a purposive sample of 12 intensive care nurses in a university hospital in The Netherlands.

Findings: Four main themes have been identified in critical incidents: high emotional involvement in patient-related incidents (in contrast to major life-threatening events as such), avoidable incidents, sub-standard patient care and intimidation. Themes discerned in nurses' reactions after critical incidents were physical reactions, emotional reactions and cognitive/behavioural reactions. After critical incidents, nurses talked with colleagues, friends or relatives, but would have appreciated additional support.

Conclusions: Incidents under emotionally demanding circumstances are among the most difficult situations, but may not be recognized as critical incidents by colleagues. Both adequate and inadequate coping strategies, with long-lasting problems after critical incidents, were reported. Feelings of anger, shame and powerlessness, may have hindered recovery. Talking to colleagues was perceived to be helpful, but intensive care nurses' need for support was insufficiently met.

Relevance to clinical practice: Managers should acknowledge the effects of critical incidents on intensive care nurses and take preventive measures: reducing critical incidents, improving open communication, imposing a buddy-system for collegial support, and timely evaluating the necessity of professional help.

Key words: Critical incidents • Health care providers • Nurses • Post-traumatic stress • Work-related stress

BACKGROUND

Experienced intensive care unit (ICU) nurses typically show professional reactions in critical situations, and would not even characterize these incidents as

stressful. However, after critical incidents, significant cortisol surges were measured in neonatal and paediatric critical care nurses and physicians, despite conscious unawareness of stress (Fisher *et al.*, 2000). This endocrine stress reactivity did not diminish with increased professional experience. Post-traumatic stress reactions after critical incidents may cause poor behaviour towards patients (Jonsson *et al.*, 2003), and lasting post-traumatic stress symptoms may be the reason for nurses to reduce work hours or even give up their job (Laposa and Alden, 2003; Laposa *et al.*, 2003).

A critical incident can be defined as 'a sudden unexpected event that has an emotional impact sufficient to overwhelm the usually effective coping skills of an individual and cause significant psychological stress in otherwise healthy persons' (Caine and Ter-Bagdasarian, 2003, p.59).

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Coping with critical incidents

Facing a critical incident may disrupt certainties of existence, such as invulnerability, justice or a positive self-image (Janoff-Bulman, 1992). Immediate stress responses may be physical (e.g. increased heart rate, restlessness, stomach-ache, headache); behavioural (e.g. rigidity, harshness, hyper reactivity, smoking or drinking excessively); emotional (e.g. irritation, crying, powerlessness, panic) or cognitive (e.g. forgetfulness, insecurity, indecisiveness, loss of control, loss of humour). These symptoms are considered to be normal reactions after abnormal events.

In coping with critical incidents, two broad patterns are distinguished: active, problem-focussed coping and defensive coping. Active, problem-focused coping may help nurses to effectively deal with the critical incident, their own stress responses and thus avoid long-term emotional and physical dysregulation (Mealer *et al.*, 2012). In problem-focused coping, nurses face the experience by thinking it over, talking with colleagues or friends, and testing reality. They learn to live with what has happened and finally regain control and security (Olf *et al.*, 2005). The intensity and frequency of resulting stress symptoms will usually decline over time (Kleber and Van der Velden, 2003). Because this recovery process sometimes takes weeks or months, those nurses who frequently encounter critical incidents have an increased risk to develop symptoms of post-traumatic stress disorder (PTSD) when stress accumulates (Michael and Jenkins, 2001; Jonsson and Segesten, 2004; de Boer *et al.*, 2011).

Others use defensive coping strategies when confronted with critical incidents, such as withdrawal, denial, minimization, delusion (assuming things are best the way they are, despite facts that support alternatives), suppression or dissociation (coping mechanisms that convey feelings associated with the experience

to the unconscious), which were very recognizable described for critical care nurses by Acker (1993). This strategy may at first be beneficial, as it protects against overwhelming emotions; it is, however, ineffective in the long run because the frightening character of the incident is maintained (Birmes *et al.*, 1999).

Long-term consequences of critical incident stress

When coping is unsuccessful, the initial stress reactions, such as involuntary recurrent thoughts or dreams about the incident, denial, distorted cognitions and hyperarousal, can persist and lead to development of PTSD-symptoms (Table 1). Moreover, those who suffer from PTSD(-symptoms) often also show depression, substance abuse or anxiety disorders (Gersons and Olf, 2005).

In general, compared to men, women are about twice as likely to develop PTSD during their lifetime: 10.4% versus 5.0% (Kessler *et al.*, 1995). Although contributing factors have been explored, women's greater vulnerability to PTSD remains poorly understood. A meta-analysis (Tolin and Foa, 2006) revealed no gender differences in this respect following traumatic events that are more frequently experienced by women (e.g. sexual violence) but a higher percentage of PTSD in women than in men after more 'typical male' traumatic events (e.g. accident and non-sexual violence).

Prevention

Preventive measures to ensure that nurses' basic energy resources are maintained, restored and/or strengthened are to be taken at the primary, secondary and tertiary level (Neuman Systems Model; Neuman and Fawcett, 2002, p.13). At the primary level,

Table 1 Proposed criteria for post-traumatic stress disorder in DSM-5 (APA, 2011)

| | |
|---|---|
| A | The person was exposed to or witnessed one or more of the following events: death or threatened death, actual or threatened serious injury, or actual or threatened sexual violation. |
| B | One or more of five intrusion symptoms associated with the critical incident (e.g., experiencing spontaneous or cued recurrent, involuntary, and intrusive distressing memories of the traumatic event). |
| C | Presence of one or more of two avoidance symptoms (e.g., efforts to avoid internal reminders of the critical incident (thoughts, feelings or physical sensations) that arouse recollections of the traumatic event). |
| D | Negative alterations in cognitions and mood, associated with the critical incident, evidenced by three or more of seven symptoms (e.g., inability to remember an important aspect of the incident, pervasive negative emotional state like: fear, horror, anger, guilt, shame or feeling detachment or estrangement from others). |
| E | Alterations in arousal and reactivity associated with the critical incident, evidenced by three or more of six symptoms (e.g., irritable or aggressive behaviour, hyper vigilance, or sleep disturbance). |
| F | Duration of the disturbance (symptoms of criteria B, C, D and E) is more than one month. |
| G | The disturbance causes clinically significant distress or impairment in social, occupational or other important areas of functioning. |
| H | The disturbance is not due to the direct physiological effects of a substance or a general medical condition. |

sources of stress, like critical incidents should be reduced as much as possible. Support should be encouraged and necessary conditions be fulfilled such as time and a quiet room. Social support reduces the risk of enduring PTSD-symptoms after critical incidents (Brewin *et al.*, 2000; Bisson, 2007). Second-line emergency workers considered talking with colleagues about the event very important to achieve natural recovery; although not everyone wanted to talk (Ørner, 2003). Dissatisfaction with support is predictive of both onset and severity of persisting PTSD-symptoms (Curuvastra and Cloitre, 2007), which underscores the importance of social support. In daily practice, however, nurses' emotional needs often seem to be sub-optimally addressed (Peebles-Kleiger, 2000).

Because it is an illusion to think that critical incidents could be totally banished and social support always prevents lasting PTSD-symptoms, secondary level measures will be necessary as well. These measures include: early screening, referral and treatment of those nurses who suffer from enduring PTSD-symptoms. Additional tertiary level measures aim to maintain stability and prevent relapse after readaptation.

As research about the impact of work-related critical incident in nursing practice has largely been aimed at ambulance and emergency nurses, the current explorative study was performed to increase our knowledge about the impact of critical incidents on intensive care nurses.

AIMS

In an attempt to fill the existing knowledge gap, we interviewed intensive care nurses to find answers to the following research questions:

1. What categories of work-related incidents are perceived as most stressful?
2. What are nurses' reactions and coping preferences after their 'most critical' incidents?
3. To what extent did colleagues and/or supervisors address nurses' need for support after critical incidents?

Participants

The study was conducted at an ICU of a teaching hospital in The Netherlands, with a maximum capacity of 18 patients and about 600 (57% men, 43% women) admissions annually. Patients of all medical (sub) specialties are admitted, with a mean age of 56 years (range 17–91). Guest *et al.* (2006) obtained 92% and 88% data saturation in the first 12 of 30 and 60 interviews, respectively. They concluded that additional interviews could perhaps have revealed

new information, but to disproportionate effort. That is why we included a purposive sample, with a proper distribution of gender, age and experience, of 12 of the 60 nurses employed at this ICU. They were invited to participate and received oral and written information explaining the aim and the procedure of the interview and assuring confidentiality. All 12 invited nurses gave their consent.

DATA COLLECTION

Face-to-face, semi-structured interviews lasting about half an hour each were conducted in August and September 2009 by the second author, a psychology student who also worked as an intensive care nurse. The interviewer was trained and supervised by the first author, a nurse/psychologist who had former interview training and was familiar with thematic analysis. An interview scheme, based on the aims of the study and expected stress reactions, guided the interviews. Six initiating questions stimulated the nurses to talk about (a) the most critical incident they encountered personally in their present ward; (b) their immediate and later reactions, and whether they regretted anything; (c) the support they received after the incident, and their opinion about that support; (d) whether they felt the need for support after work-related critical incidents in general, and how often they received support, indicated as a percentage of support needed; (e) by whom they were supported; and (f) what support they had missed. Additional in-depth questions followed when certain aspects were not mentioned. For example, when a nurse was talking about her reactions and did not mention any physical response, the interviewer asked: 'Did you also have physical reactions? and (if yes) what did these consist of?' The interviews were conducted in a quiet room on the ward where only the participant and the interviewer were present. The interviews were MP3-recorded with permission of the participants.

ETHICAL CONSIDERATIONS

The Institutional Ethical Review Board approved the study (MEC-2008-236/NL23132.078.08,V02). The study protocol stated: all adverse events will be followed until they have abated or until a stable situation has been reached. Depending on the event, follow-up may require referral to the general physician or a medical specialist. The company doctor and psychologist have been informed about this study, to know that participants may be referred. Ethical procedures of the Declaration of Helsinki (World Medical Association, 2008) were followed.

Participation was voluntary and participants were informed that they could withdraw from the study at any time without consequence. Participants received oral and written information about the purpose of the study and study procedures. Confidentiality was assured and participants' names were not used in the presentation of the results; names were replaced by participant numbers.

DATA ANALYSIS

Thematic analysis is proposed as a method to investigate under-researched areas (Braun and Clarke, 2006). In this study the method, including five phases, was performed by the first and the second author.

The first phase consisted of verbatim transcription of the interviews. Subsequently, all interviews were repeatedly read independently by the two researchers (J. B. and S. R.). Striking or ambiguous statements were discussed extensively until consensus about their meaning was obtained. In the second phase, the text was independently searched for meaningful phrases and patterns, and initial codes were generated. Subsequently, these codes were reviewed together and differences were discussed until consensus was reached. The data relevant for each code were clustered. In the third phase, codes were aggregated into coherent, consistent and distinctive themes; again, this process was first independently executed by the same two authors, followed by discussion until consensus was obtained. In the fourth phase, the themes were reviewed in relation to the entire dataset; in the fifth phase, the themes were named and defined.

RESULTS

Participants

The purposive sample of 12 participants had the following composition with respect to gender, age and experience (Table 2).

High-impact critical incidents

With respect to the first research question: 'what categories of work-related incidents are perceived as most stressful?', we defined four distinct themes from the

Table 2 Composition participant sample

| Gender | Women (9) | Men (3) |
|--------------------|-----------------|-----------------|
| Age | <30 years (3) | 30–39 years (3) |
| Nursing experience | <5 years (3) | 6–10 years (3) |
| | 11–20 years (3) | >20 years (3) |

'most critical' incidents that were reported. Quotations were selected on the basis of representativeness:

- 'High emotional involvement', e.g. when a nurse has a special relationship with or identifies with a dying patient or a patient's relative '... *this woman was going to die and her daughter was so sad ... that intense sadness ... suddenly it occurred to me that I could be the one sitting there*' (participant 3; age 28); or when a patient dies after the nurse's first resuscitation;
- 'Preventability/Avoidability of incidents', in the nurse's opinion, such as when a patient's condition is misjudged or a medication error is made '... *I should have insisted they go home by ambulance rather than in their own car (the patient died on his way home)*' (participant 10; age 30);
- 'Sub-standard care' based on miscommunication/unprofessional behaviour '... *no one actually knew if we were supposed to start resuscitation or not ...*' (participant 6; age 29);
- 'Intimidation' by a patient's friends or relatives '*aggressive behaviour ... by a patient's friend who did not take no for an answer ...*' (participant 8; age 52).

Time elapsed since the incident varied; for four nurses, the incident had occurred within the past 12 months. For six nurses, it happened 1–5 years ago, for one nurse 6–10 years ago, and for another nurse more than 10 years ago.

Nurses' reactions to their most critical incident

Concerning the second research question 'what are nurses' reactions and coping preferences after their 'most critical' incidents?', we derived three distinct themes from the data with their subthemes (Table 3).

Nurses reported that at first they reacted professionally: '*at that moment, you act and have adequate reactions*' (participant 9; age 51). After the incident was over, physical, emotional, and/or behavioural/cognitive reactions began. Junior and senior nurses reported similar reactions: '*I was sweating and afterwards in a rush ... trembling, but also very excited*' (participant 2; age 47), '*I was overwhelmed by emotions ... tears were in my eyes*' (participant 3; age 28), '*it affected me a lot ... I started shaking from stress*' (participant 11; age 39), '*I felt like I was sinking into the ground*' (participant 5; age 42), or '*I told the whole story, and I cried loudly, very loudly*' (participant 2; age 47).

Nurses felt powerless '*I felt I could not help those grieving relatives; they were so upset*' (participant 7; age 27), '*it was painful, just because I had not noticed it ... that bothered me most*' (participant 4; age 55), ashamed '... *I told it to one of the doctors ... It shamed to admit*

Table 3 Nurses' reactions during and after their most critical incident, themes and sub-themes

| Physical | Emotional | Behavioural/cognitive |
|-------------------|------------------|--|
| Feeling warm/hot | Deeply impressed | Acting professionally |
| Hurried, stressed | Painful | Talking about the incident with colleagues |
| Fast heartbeat | Insecurity | Talking about the incident with friends or relatives |
| Trembling | Crying | (Repeatedly) thinking about the incident |
| | Anger | Being more careful |
| | Powerlessness | Negative (verbal) reactions |
| | Shame | Avoiding comparable situations |
| | Guilt | Distancing |
| | Regret | Physical exercise |

it' (participant 5; age 42), and guilty 'I had very strong feelings of guilt towards his wife' (participant 10; age 30).

The nurses talked about the incident with other nurses, doctors, their superior 'I told it to my superior and the doctor ... actually, they just listened ... they could not say much about it ... I felt supported by them' (participant 5; age 42), and friends and their own family 'my partner is also a healthcare worker ... a few words are enough to understand what I am talking about ...' (participant 7; age 27).

They often thought about the incident 'no, I don't try to avoid it ... at night I deliberately think about what has happened ...' (participant 9; age 51), were doubtful 'doubt, if you've done it right' (participant 7; age 27); but none of them dreamt about it or avoided reminders of the incident.

Sometimes, certain patients were avoided '... when it happens frequently I sometimes feel the need to choose 'risk-free' patients' (participant 1; age 34). Depending on the incident, some nurses were extra attentive to the patients involved; others reacted non-responsively or distantly '... when such a thing happens (intimidation) I can't forget it and after the incident I pay no special attention anymore ... when she asks for coffee, it will take longer before she gets it. ... I have no sympathy anymore ...' (participant 8; age 52).

One month after the incident, some nurses had left the incident behind them 'I have come to terms with it' (participant 9; age 51). Others, however, remembered having upsetting thoughts and reactions for much longer than a month: 'I still do not understand what exactly happened.' (participant 4; age 55)

At the time of the interview, nurses reported that they could think without emotional distress about the incident as something from the past 'now I can just tell it ... yes ... just very objectively' (participant 3; age 28), but others believed that they still would not be able to adequately deal with a comparable situation 'I try to avoid such situations' (participant 8; age 52), and thoughts about the incident could still be emotionally

charged 'In fact, it still bothers me' (participant 4; age 55). Nurses also reported to have learned from the incident.

Support after critical incidents

The last research question was: 'To what extent did colleagues and/or supervisors address nurses' need for support after critical incidents?' Among the ICU nurses, having received sufficient support from colleagues or supervisors after critical incidents in general varied enormously, from 'in 100% of cases' to 'in 10% of cases'. For some nurses support was usually adequate 'get sufficient support from colleagues ... the informal network' (participant 12; age 50), but others have felt the need for additional support: '... if you are not so extravert, it is good that you're offered support' (participant 2; age 47), or 'when it is your first time, they might pay special attention' (participant 11; age 39).

Other nurses would have liked to talk about it again after some time or preferred more structural evaluation 'more structural support ... that someone asks you about it ... that is lacking' (participant 5; age 42).

Absence of support was also mentioned '... in my ward ... yes we were busy and ... of course I could say quite severe incident ... but we did not take time to discuss it together' (participant 7; age 27), or '... I mentioned the incident, but did not get any support' (participant 8; age 52).

It also happened that colleagues scaled down the incident, or only talked about unimportant details. Some mentioned even negative reactions that had upset them, like: feeling not really being heard or being told that they had done a poor job 'They think it's your own fault' (participant 2; age 39), or others labelling their responses hysterical.

Talking to colleagues was perceived as most helpful 'Telling it to my colleagues has helped me very much' (participant 3; age 28), 'colleagues said: you have done a good job' (participant 11; age 39), or '... it happened to me and a colleague, we could talk it over together very well' (participant 2; age 47). Nurses received active

emotional as well as practical support from colleagues (nurses, doctors, and supervisor) '*colleagues took over from me to give me some time to recuperate*' (participant 1; age 34).

For other nurses, their partners or children were the main source of support '*I told it to my husband at home ... he listens and asks interested*' (participant 1; age 34); they listened, asked about the incident and showed compassion.

DISCUSSION

Critical incidents

The results of these interviews shed new light on the categories of work-related incidents that are perceived as most stressful by nurses. In earlier studies among ambulance personnel, nurses, emergency service personnel and uniformed officers, caring for dead or dying patients, patients with particularly severe injuries or wounds (Alexander and Klein, 2001; Mealer *et al.*, 2007), the involvement of a child (Alexander and Klein, 2001), or witnessing a particularly tragic occurrence (Ørner, 2003) were reported as traumatic events. Surprisingly, in this study, the high-impact incidents mentioned in the interviews were not merely a patient's death or severity of injuries, but rather those incidents occurring under emotionally demanding special circumstances, e.g. when the nurse has a special relationship with the dying patient or the nurse identifies with the patient or one of the relatives. For colleagues, these 'special circumstances' are not always known or visible, which may lead them to underestimate the impact of the situation. Afterwards they may not feel the need to offer the support that is considered to be so highly important in preventing long lasting PTSD-symptoms (Brewin *et al.*, 2000). Other categories mentioned were 'possibly avoidable incidents that jeopardize good patient care', and 'sub-standard care caused by miscommunication and misbehaviour'. These categories were described in earlier research as 'failure to provide a satisfactory standard of professional care' (Ørner, 2003). Finally, 'intimidation by the patients' friends or relatives' was mentioned, which compares to the earlier finding that verbal abuse was perceived as very stressful (Mealer *et al.*, 2007).

Immediate reactions and coping

The immediate reactions after nurses' most critical incident were largely in line with those mentioned in earlier studies, including the professional response at the time of the incident and the onset of physical and emotional responses only after the situation has calmed down (Caine and Ter-Bagdasarian, 2003; Kleber and Van der Velden, 2003).

Physical reactions were: feeling stressed, hurried, trembling and feeling hot; complaints such as aches and pains, or intestinal problems were not mentioned. This could probably be explained by the high level of training of ICU nurses; there was tension, and they had to work under time or situational pressure, but were able to respond professionally. The emotional reactions varied, nurses were deeply impressed and some cried, but also powerlessness, anger, shame and guilt were mentioned, like in the paper of Brewin and Holmes (2002). Powerlessness has been demonstrated to negatively affect coping (Schmitz *et al.*, 2000). Especially shame, in which the 'self' is rejected, is strongly related to PTSD-symptoms (Leskela *et al.*, 2002), while anger is related to slower recovery (Brewin and Holmes, 2002).

The predominant coping pattern, however, was active and problem-focused. Most nurses talked with their colleagues, friends or family members, which helped them to deal and live with the incident, as did taking time to think it over and physical exercise. Signs of defensive coping were diminished responsiveness to patients' needs and distancing, confirming earlier findings that unresolved critical incidents can lead to poor behaviour towards patients (Jonsson and Segesten, 2004). Remarkably, none of the nurses mentioned having dreamed about incidents or having avoided reminders; however, at the time of the interview, some still avoided comparable situations, which may indicate ineffective coping.

Support

Peer support is considered highly important to overcome stress reactions. The finding that talking to colleagues was perceived as most helpful is in line with Ørner's report that 84% of second-line emergency workers welcomed contact with colleagues, whereas only 10% welcomed contact with department staff after critical events (Ørner, 2003). Next to a listening ear and questions about the incident, compassion was mentioned as highly valuable. Lilius *et al.* (2008, p.193) in this regard found that it is important in sense making: '... employees who receive, witness or participate in the delivery of compassion reshape understandings of their co-workers, themselves, and their organisations'. The frequency of perceived support immediately after critical incidents varied enormously. For some nurses support was sufficient, but many would have appreciated additional support and particularly relatively inexperienced nurses may need special attention; immediately after the incident and later on.

Also, negative reactions were mentioned, like feeling they were not heard, getting accusatory remarks or being called hysterical. Colleagues should better avoid

such reactions, because a negative social environment or negative appraisal of support is an even stronger predictor of lasting PTSD-symptoms than lack of social support (Brewin and Holmes, 2002). Another point of concern is that most nurses work in shifts, and therefore, colleagues who were also involved in the incident may be on leave or may work different shifts in the days/weeks after the incident. When the nurse and colleague(s) meet again, both may be reluctant to bring up the critical incident that happened weeks ago.

Preventive strategies

When following Neumans' Systems Model (Neuman and Fawcett, 2002, p.13), measures for *primary prevention* should be aimed at reducing critical incidents. Adjusting workstations, improving work processes, working according to protocol, professional training, and improving open communication and feedback could possibly prevent incidents that were characterized as avoidable or sub-standard patient care. Other measures for primary prevention could be aimed at strengthening resilience. After very stressful experiences, resilience is generally viewed as a positive asset, but there is ongoing debate about 'the process by which a proposed resilience trait develops, whether resilience can be taught or learned, and how resilience can best be measured' (Atkinson *et al.*, 2009, p.143). In a recent qualitative study about resilience among ICU nurses, Mealer *et al.* (2012) demonstrated that having a supportive social network, being optimistic, and having a resilient role model are important aspects of effective coping. This study can be considered as an important step to identify characteristics of highly resilient nurses, but interventions that aim to improve resilience must still be developed and carefully tested. An example of such an intervention could perhaps be that 'dyads of colleagues' serve as mutual buddies. More vulnerable nurses could be coupled with more resilient and optimistic colleagues. In these dyads, colleagues learn to know each other better, are more easily aware of circumstances that could be burdensome, could more easily give and ask support, and resilience could possibly be promoted.

In addition, all mutual buddies should be educated on critical incidents, reactions, coping, the importance of repeated attention, and being aware of each others' coping preferences and probable alternatives. And, because nurses mentioned emotionally challenging circumstances as important determinants of critical incidents, distance/proximity in nurse-patient/family relations are important themes to be aware of and to discuss with colleagues. Besides, imposing some structure to collegial support could perhaps help to overcome the perceived lack of support.

For *secondary prevention*, if stress symptoms persist for longer than a month, or worsen, a 10-question screening instrument could help buddies to voluntarily evaluate the necessity for additional professional help; which could be indicated when you have answered 'Yes' to 6 or more of the 10 questions (Table 4; Brewin *et al.*, 2002).

Subsequent diagnostic assessment by a psychologist or a psychiatrist, however, is needed to determine if someone is suffering from PTSD, and treatment is indicated. In the latter case, one of the following evidence-based interventions could be applied: Trauma Focused Cognitive Behavioural Therapy (Gray and Litz, 2005) or Eye Movement Desensitization and Reprocessing (Shapiro and Maxfield, 2002; Powers *et al.*, 2010).

Tertiary prevention stimulates readaptation and avoidance of relapse prevention. The buddy might keep an eye on the reintegrating nurse, and both could work together until recovery proceeds. Pitfalls are known, and the buddy can warn the nurse not go beyond borders. In relapse prevention, difficult future situations can be discussed including coping strategies.

The ward management could initiate such a buddy system, with attention for: teaching, e.g. what to expect after a critical incident, the do's and don'ts; careful buddy matching; providing time and a quiet room, although probably many buddy contacts will be during work time and do not need any extras; and regular peer

Table 4 Trauma screening questionnaire (Brewin *et al.*, 2002)*

Please consider the following reactions which sometimes occur after a traumatic event. This questionnaire is concerned with your personal reactions to the traumatic event which happened to you. Please indicate (Yes/No) whether or not you have experienced any of the following at least twice in the past week.

1. Upsetting thoughts or memories about the event that come into your mind against your will
2. Upsetting dreams about the event
3. Acting or feeling as though the event were happening again
4. Feeling upset by reminders of the event
5. Bodily reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the incident
6. Difficulty falling or staying asleep
7. Irritability or outbursts of anger
8. Difficulty concentrating
9. Heightened attention of potential dangers to yourself or others
10. Being jumpy or being startled by something unexpected

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interview/supervision to discuss experiences and to identify and solve potential problems at an early stage.

Constraints

In a permanently changing and innovative environment like an ICU, taking these preventive measures is not an easy task, because attention of both managers and nursing staff is unavoidably distributed over many, often competitive, aspects of their jobs. Also, financial restrictions, nursing shortage and 'ICU-patients who cannot wait' may put the attention paid to nurses' needs at risk. In the long run, however, neglecting nurses' well-being may turn out badly. Generating awareness about the importance of social support and facilitating collegial support, could prevent long-lasting symptoms of post-traumatic stress, poor behaviour towards patients, absenteeism and nurses giving up their jobs, which may save money and ensure that the 'nurses of today' can still be our 'nurses of tomorrow'.

LIMITATIONS OF THE STUDY

Some limitations of the study should be mentioned. First, apart from being a psychology student, the interviewer was also a nurse in the ICU, which could have been a source of bias. Certain factors may not have been mentioned or identified because the interviewer is so familiar with these situations, or colleagues possibly have withheld information that was too embarrassing. However, being familiar with the work and the circumstances could also have heightened the researchers' understanding of the incidents and reactions mentioned. In addition, the second author with whom consensus has been reached on all steps of the analysis and report was a nurse/psychologist from another ICU, and the results of the study were reported following a reporting frame for qualitative data proposed by Tong *et al* (COREQ; a 32-item checklist, 2007). Finally, selection bias may

be present. Although care was taken to compose a representative sample, only 3 of the 12 nurses had less than 5 years experience. The other nine nurses probably represent senior nurse 'survivors'; nurses who had more problems may have resigned before reaching seniority.

CONCLUSIONS

Incidents under emotionally demanding circumstances are among the most difficult situations for ICU nurses, but may not be recognized as critical incidents by colleagues. Active problem focused coping like talking to colleagues was perceived as helpful after critical incidents. Defensive coping as well as feelings of anger, shame and powerlessness, may have hindered recovery. The finding that ICU nurses' need for additional support, particularly in the longer term, was not sufficiently met, may be associated with the other finding that colleagues do not always recognize emotionally challenging circumstances, mentioned as crucial in perceiving incidents as critical. Preventive measures were proposed; in particular, more structural peer support could help to overcome problems experienced by intensive care nurses.

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WHAT IS KNOWN ABOUT THE SUBJECT

- Ambulance and emergency nurses may suffer from post-traumatic stress disorder after work-related critical incidents.
- Social support is important for recovery after critical incidents.
- Nurses may quit their job or reduce work hours to deal with the effects of critical incidents, and can show poor behaviour towards patients.

WHAT THIS PAPER CONTRIBUTES

- Patient-related incidents happening under emotionally demanding conditions, often unrecognized by colleagues, are among intensive care nurses' most critical incidents.
- Anger, shame and powerlessness, experienced by ICU nurses after critical incidents, may negatively affect coping.
- Nurses' need for support, particularly in the longer term, was not sufficiently met.

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