African Journal of Emergency Medicine (2015) 5, 12–18

African Federation for Emergency Medicine

African Journal of Emergency Medicine

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ORIGINAL RESEARCH ARTICLES

Exposure to daily trauma: The experiences and coping mechanism of Emergency Medical Personnel. A cross-sectional study

Exposition quotidienne aux traumatismes: Les expériences et stratégies d'adaptation du personnel des urgences médicales. Étude transversale

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Received 8 July 2014; revised 12 September 2014; accepted 3 October 2014; available online 6 January 2015

Introduction: To investigate the experience and coping mechanisms used by Emergency Medical Services (EMS) personnel following exposure to daily or routine traumatic events.
Methods: A total of 189 respondents from three EMS in the Cape Town Metropole completed a questionnaire, containing close-ended quantitative questions. This was followed up by a semi-structured interview in order to get greater insight from in-depth qualitative data.
Results: The significant results of this study indicate that EMS personnel find dealing with seriously injured children most traumatic. They experience avoidance symptoms after exposure to a traumatic incident and apply emotion-focused coping to help them deal with their emotions. Very little or no training has been received to prepare them for the emotional effects of traumatic incidents or how to deal with the bereaved family, and there was consensus amongst the participants that their company debriefings and support structures are inadequate.
Conclusion: EMS personnel are exposed to critical incidents on a daily basis. Commonly used emotion-focused coping mechanisms are not effective in long-term coping. A key recommendation emanating from this finding is that integrated intervention programmes are needed to assist EMS personnel working in this sustained high-stress environment. The findings can assist health care educators in the design of co-curricular activities intended to help in the development of resilience and the psychological wellbeing of EMS personnel. Policy makers and EMS managers may find the results useful as they evaluate the effectiveness of their current debriefing and support structures.

Introduction: Les accidents et décès liés à des traumatismes représentent une partie importante du quotidien du personnel des services des urgences médicales. Selon les études menées, le personnel de ces services fait l'expérience de nombreuses réactions après avoir été exposé à un événement traumatique. Cette étude avait pour objectif d'enquêter sur l'expérience et les stratégies d'adaptation utilisées par le personnel des services des urgences médicales suite à une exposition à des événements traumatisants quotidiens ou habituels.
Méthodes: Au total, 189 personnes issues de trois services d'urgences médicales de la ville du Cap ont répondu à un questionnaire composé de questions quantitatives fermées. Un entretien semi-structuré a ensuite été réalisé afin de tirer davantage d'informations de ces données qualitatives détaillées.
Résultats: Les résultats significatifs de cette étude indiquent que le personnel des services des urgences considère que la prise en charge d'enfants victimes de blessures graves est l'événement le plus traumatisant. Ils se retrouvent confrontés à des symptômes d'évitement après avoir été exposés à un accident traumatique et ont recours à des stratégies d'adaptation axées sur les émotions les aidant à gérer leurs émotions. Une formation très limitée, voire aucune formation n'a été reçue pour les préparer aux effets émotionnels associés aux accidents traumatiques ou à la façon de faire face à des familles endeuillées; les participants à l'étude s'accordaient sur le fait que les structures de débriefing et de soutien proposées par leur entreprise étaient inadéquates.
Discussion: Le personnel des services des urgences médicales est quotidiennement exposé à des incidents critiques. Les stratégies d'adaptation axées sur l'émotion ne sont pas efficaces pour l'adaptation sur le long terme. L'une des principales recommandations découlant de cette conclusion est que des programmes d'intervention intégrée sont nécessaires pour aider le personnel des urgences médicales à travailler dans un tel environnement hautement stressant. Les conclusions peuvent aider ceux qui délivrent des formations au personnel des services des urgences médicales à élaborer des activités destinées à favoriser le développement de la résilience ainsi que du bien-être psychologique de ce personnel. Les décideurs et directeurs de ces services peuvent trouver les résultats utiles lors de leur évaluation de l'efficacité de leurs structures de débriefing et de soutien actuelles.

African relevance

- Injury mortality rates in South Africa are approximately six times higher than the global average.
- Due to the burden of disease and socio-economic realities, EMS personnel are exposed to traumatic incidents and death.

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Peer review under responsibility of African Federation for Emergency Medicine.

ELSEVIER Production and hosting by Elsevier

http://dx.doi.org/10.1016/j.afjem.2014.10.010

- Prior research on similar samples specifically focussing on coping mechanisms has primarily been conducted in Western developed countries.

Introduction

Traumatic incidents and death constitute a significant part of the daily routine of the personnel of EMS.[1,2] Research suggests that EMS personnel experience many reactions after exposure to a traumatic event[1,3–6] yet admitting to being emotionally affected is regarded as difficult as it may lead to being perceived by their peers as not tough enough for the job.[7] The attitude of 'no one dies on my watch' is common amongst EMS personnel. Research suggests that EMS personnel often suppress their emotions and feelings so as to live up to this image of being strong and resilient. They, therefore, are reluctant to seek help during times of personal emotional crisis.[5,8] International studies in this area predominantly focus on EMS personnel's reactions to large scale disasters. A minority of studies have researched reactions to day-to-day traumatic events, which include road traffic accidents, incidents involving children, cot death, burns, suicides and mass casualties.[3,8–13]

While previous studies have examined the relationship between traumatic events and post-traumatic stress disorder (PTSD) symptoms, as well as the psychological effects of trauma, few studies have investigated the EMS worker's attitude towards death and dying on a normal day-to-day shift system and the subsequent coping mechanisms employed.[5,6,10,14] EMS plays a vital role in any society, especially in a country with a burden of disease such as South Africa. Injury mortality rates in South Africa are approximately six times higher than the global average.[15] One of a handful of studies conducted amongst EMS personnel in the Western Cape found higher prevalence of exposure to critical incidents compared to their counterparts in other low income countries. The study also found higher levels of general psychopathology especially anxiety and depression.[16]

Little is known about what impact exposure to traumatic events on a normal shift system has on EMS personnel and what coping mechanisms they use to overcome the psychological effects these incidents have on their lives. This paper reports on a study that investigated the experience of, and coping mechanisms used by, EMS personnel in the Cape Town Metropole, following exposure to daily or routine traumatic events. The research attempts to begin addressing this knowledge gap about the experience of day-to-day traumas inherent in the work of EMS personnel.

Methods

The study uses a quantitative as well as a qualitative descriptive design. For this study, purposive sampling was used. Due to time and accessibility constraints, a sample of 350 operational personnel from three EMS in the Cape Town Metropole was invited to participate in an anonymous study. This sample did not include EMS administrators, fire fighters or volunteers. The final sample consisted of 189 participants. Of these 64% were male (n = 121). A total of 65 were Basic Life Support (BLS) (34%), 87 Intermediate Life Support (ILS) (46%) and 37 Advanced Life Support (ALS) (20%). The participants' age ranged between 21 and 61 years (M = 33.83, SD = 7.74) and the years of full-time employment in the EMS ranged from one month to 29 years. Nine operational EMS personnel volunteered to participate in the interviews by completing an informed consent form. Of these, four were ILS (44%) and the rest ALS, and the years of full-time employment in the EMS ranged from 10 years to 21 years. The respective managers of the three EMS that participated in the study also consented to participate in the interviews, enabling the researcher to obtain information on the support systems that are available to their staff.

EMS personnel from two private and one provincial service in the Cape Town Metropole were approached by the researcher during shift change at different EMS bases. A five-minute introduction to the study was given, in the aims of the research which was explained, and instructions provided on how to complete the consent form and questionnaire. The EMS personnel were asked to voluntarily participate in the study, and were assured of their anonymity. Participants were requested to complete and return the questionnaire as well as a signed informed consent letter.

Two measuring instruments were used in this study to gather information: a survey-type questionnaire to gather quantitative data and a semi-structured one-on-one in-depth interview to gather qualitative data.

The questionnaire was developed by the principle investigator using information interpreted from an in-depth literature review. The questionnaire included standardised scales, namely, the Revised Impact of Events Scale[18] and the COPE scale[19] as well as close-ended, fixed alternative questions, consisting of multichotomous and dichotomous questions. All the questions were associated with the issue of exposure to critical events on a day-to-day shift system, centring on the coping methods which EMS personnel use.

The raw data of the questionnaires were entered into a Microsoft Excel 2010 spread sheet and the statistical values were calculated to reflect the views of the sample. Comparison and correlation were done via chi-squared, the Spearman Rank Correlation Co-efficient, the Mann–Whitney/Wilcoxon Rank Sum-Test and the Kruskal–Wallis test.

The audio-taped interviews were transcribed and read repeatedly to gain an overall insight of the ideas expressed by the participants. The researcher copied the interview transcripts onto computer-based directories, each of which held a particular theme or analytical idea. The generation of codes, by splitting the data into its components during the examination process, was done in a 'line by line' fashion. This method, although time consuming, is generally considered the most productive and accurate, and highly recommended by qualitative researchers. Similarities were noted between the transcripts, with participants describing similar stressors, emotions and coping mechanisms, and themes emerged. These themes were identified because the responses occurred consistently. This allowed the researcher to make comparisons between the participants' answers. The data were then coded by themes and patterns so that differences and similarities between all the different items could be identified.

This study was granted ethics approval from the Research Ethics Committee, University of Cape Town.

Results

The data of the questionnaires produced statistical results by quantifying the relationship and interactions between variables. The interview questions followed the questionnaire in order to obtain additional rich information.

Analysis of questions revealed the following trends and themes:

Theme 1a. What are the reported stressors amongst EMS personnel?

A total of 27% of the participants indicated that incidents involving children traumatise them the most. Subsequently, serious injury or death of a colleague (17.1%), when a patient dies in their care (13.2%), violent crime victims (8.2%), burns patients (7.8%), multiple casualties (7.2%), suicides (4.5%) and road traffic accidents (4.5%) were also noted as traumatic, with arriving on a scene to find dead bodies (3.5%) seen as least traumatic.

Further comparisons gave a fair indication that the participants with a BLS and ILS qualification find all calls more traumatising than those with an ALS qualification, with the biggest differences observed for road traffic incidents (Fig. 1).

Interview data also revealed that incidents involving children affected the participants more after they had become parents themselves. They reported that their experience of treating children changed as they now related to them on a new and more personal level.

Theme 1b. Which of the following two scenarios affect EMS personnel the most? Arriving at a scene and finding that the patient is dead, or when the patient dies in your care?

Most (93%) participants indicated that they find it more traumatic when the patient dies in their care as compared with when they arrive at a scene and the patient is dead already. Comparing the two scenarios to years of service showed that the average number of years of service is lower for those that found the latter scenario to be the more traumatic of the two (Fig. 2).

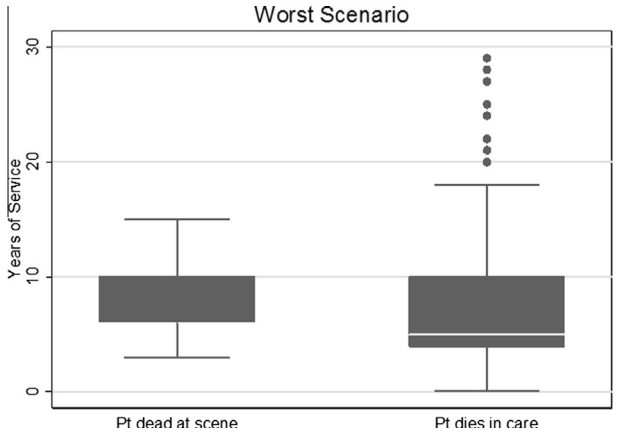

Figure 2 Box and whisker plot mapping the worst scenario compared with years of service.

The qualitative date supported this finding and most of the participants reported that it is more traumatic when a patient dies in their care, as opposed to arriving on a scene with fatalities. This is the case because they then ask themselves questions like: 'could I have done something better, could I have done something more? Did I do something wrong? Was I supposed to do something different, was it my fault that the patient died?'

Theme 2. Reported symptoms and emotional reactions EMS personnel's experiences after a critical event.

Table 1 shows the symptoms that the participants experience when exposed to a traumatic incident.

The qualitative data revealed that the symptoms and emotional reactions experienced while treating a critically ill patient differ from those felt afterwards. While focused on the task at hand the participants reported experiencing certain emotional reactions. Stress was the main reaction as well as anger, sadness, rage and disgust especially where innocent victims were involved. The key emotions experienced after the incident included feeling drained and sad. The latter was

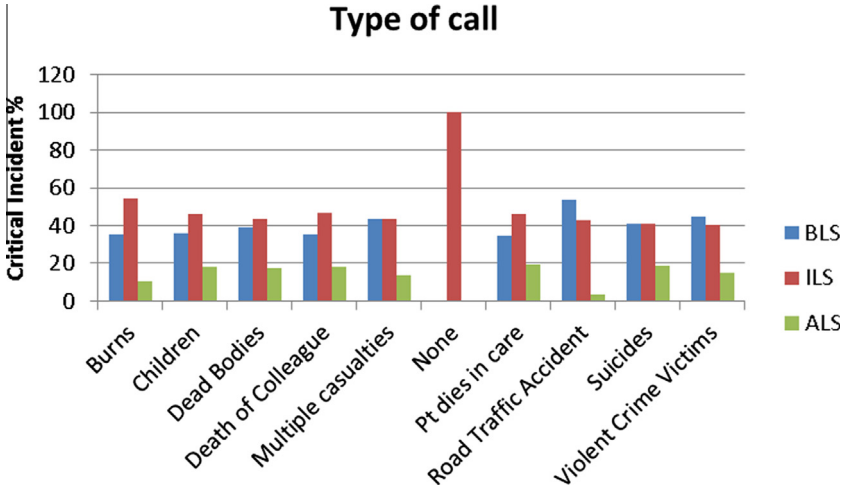

Figure 1 Trauma and scenarios compared with qualification type.

Table 1 Symptoms experienced after a traumatic incident.

Emotions	Frequently (%)	Never (%)	Sometimes (%)
Any reminder brought back feelings about it	27	25	48
I had trouble sleeping	13	69	18
Other things kept making me think about it	27	43	30
I felt irritable and angry	31	41	28
I avoided letting myself get upset when I thought about it or was reminded of it	44	24	32
I thought about it when I did not mean to	25	44	31
I felt as if it had not happened or was not real	18	58	24
I stay away from people or places that reminded me of it	16	71	13
Pictures of it popped into my mind	34	34	32
I was jumpy and easily startled	11	76	13
I tried not to think about it	47	26	27
I was aware that I still had a lot of feelings about it, but I did not deal with them	33	44	23
My feelings about it were kind of numb	30	49	21
I had waves of strong feelings about it	25	54	21
I tried to remove it from my memory	50	33	17
I had trouble concentrating	15	70	15
Reminders of it caused me to have a physical reaction, such as sweating, nausea	9	82	9
I had dreams about it	13	71	16
I felt watchful and on guard	21	56	23
I tried not to talk about it	29	56	15
I cannot remember important details of it	18	59	23
Activities that used to be fun and interesting, do not interest me anymore	13	66	21
I feel estranged from people	8	77	15
It made me feel negative about the future	11	76	13
I did not feel loving or affectionate	13	69	18

frequently felt especially if the patient died in their care. In this case sadness was coupled with doubt and feelings of inadequacy. Participants explained that a traumatic incident can affect them immediately, or it can take several days, sometimes weeks, to make an impact on them.

Theme 3. What coping methods do EMS personnel use?

EMS personnel use emotion-focused coping (63%) more than problem-focused coping (28.4%) methods. Mental disengagement (5%) and denial (3%) are not used often as coping mechanisms, with alcohol and drugs (0.6%) being used the least (Fig. 3).

In the interviews, 45% of the participants reported talking to their colleagues after the incident as a key mechanism for managing their emotions. This is regarded as informally debriefing one another. The informal debriefing mainly involves discussing the technical details of the incident as opposed to expressing the emotions elicited. The pervasive attitude of 'boys don't cry' amongst EMS personnel results in a caution regarding expressing emotions. This caution is fuelled by concerns of maintaining a tough and resilient image in order to protect their reputation. A reputation of weakness can compromise an individual's acceptance on the EMS team and hence impact on performance.

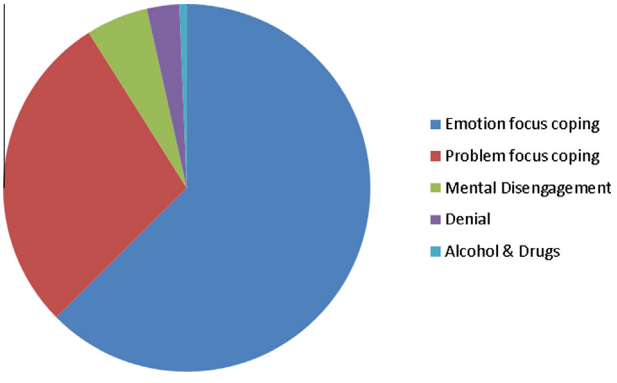

Figure 3 The coping mechanisms used by EMS personnel.

Theme 4. What training have EMS personnel been given to help them deal with the bereaved family?

Eighty-two percent indicated that they have not received sufficient training to deal with the bereaved family. They had to teach themselves the skill through experience. They perceive that their lack of training often results in them behaving in a manner that could be misconstrued as unsympathetic.

Theme 5. What training have EMS personnel received to cope with the emotional effects of daily exposure to traumatic incidents?

Most (76%) participants indicated that they have not received sufficient training to cope with the emotional effects of traumatic incidents. The training they receive focuses on diagnostics and patient treatment and not on coping mechanisms.

Theme 6. What support structures do EMS personnel rely on?

The participants indicated that they mainly rely on their families as their support structure (40%), followed by their colleagues (31%) and friends (20%). Other means of support include religious leaders and psychologists (9%). EMS personnel rely on their colleagues for emotional support.

They debrief each other after a traumatic incident. They also rely on other medical professionals as additional support. They tend to discuss incidents with specialist doctors from whom they seek diagnostic advice and confirmation on the appropriateness of the steps they had taken and treatment offered.

Theme 7. Do EMS personnel know what debriefing or support structures are in place in their company?

Only 51% of participants were aware what debriefing or support structures are available in their company. Those that responded 'No' appeared to have lower median years of service (Fig. 4).

The result of the Mann–Whitney/Wilcoxon Rank-Sum Test supports this conclusion ($Z = -1.919$, $p = 0.0549$ (almost < 0.05)).

Theme 8. Do EMS personnel feel the debriefing or support structures in their company are adequate?

Most (78%) participants indicated that the debriefing or support structures in their company are not adequate. They are reluctant to approach management for help due to issues of confidentiality. Debriefing was reported as only being available after a major incident and in that situation the counsellors to whom they are referred are not suitable for EMS personnel. A number of participants commented on the need to receive more support from the control room staff. It was suggested that these staff should plan for ad hoc substitutions as opposed to expecting EMS personnel to keep working their shift after a particularly difficult experience.

Semi-structured one-on-one interviews were held with EMS managers to obtain information specific to the support structures available to their staff. The managers highlighted that there is no reporting structure in place for them to be notified when their personnel have been exposed to a traumatic incident. They rely on their knowledge of the individual's personality and normal work behaviour. They suggested that they would pick up trends in attitude and behaviour change amongst their staff.

Interviewees felt that one possible improvement strategy would be for the control room and dispatchers to have a system by which they are made aware of crew exposure to traumatic events. This notification system could then be extrapolated for supervisors and support services to be proactively set in motion for relevant debrief and counselling.

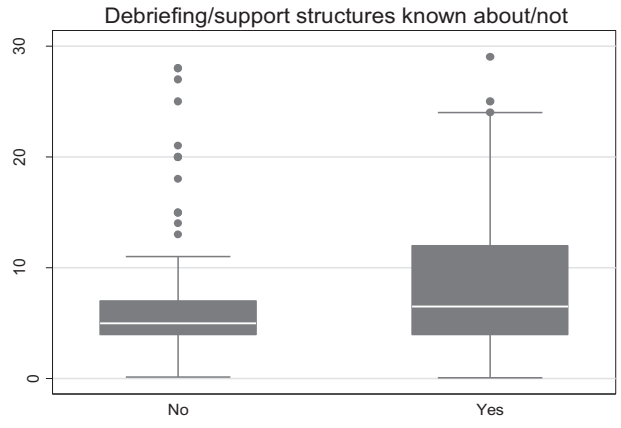

Figure 4 Comparison of knowledge about debriefing/support structures to years of service.

Theme 9. What should be implemented to improve the debriefing and support structures in the workplace?

This question was probed only through the qualitative interviews. EMS personnel want a counsellor that has an EMS qualification and has been exposed to traumatic incidents. The necessity and value of regular debriefing sessions amongst crew members were also highlighted.

The control room and dispatchers need to be aware when the crews have had a traumatic call, notify management so that the correct support structures can be activated and give the personnel time to debrief.

Discussion

Critical incidents that EMS personnel identified as traumatising

Participants in this study indicated that cases involving seriously injured children traumatise them the most, even more so after they had become parents because they identify with the injured child and imagine that it could have been one of their own. This viewpoint has regularly emerged in the literature[1,3–5,8,9,17,20] which also suggests that it is common amongst EMS personnel across countries and in different contexts. Even though the incidents tend to vary in severity, the events that have been most troubling for EMS personnel in this study are not the major incidents or disasters, but rather the ones to which they have an emotional connection.

Due to the fact that so little is known about these experiences, it is vital that our knowledge is increased of the type and frequency of critical incidents that may lead to psychological distress in EMS personnel. Although EMS personnel are trained and prepared to deal with the technical aspects of incidents they will face in their career, they are less prepared to manage the psychological impact of these events.

Coping mechanisms used by EMS personnel

Participants used avoidance as a coping mechanism by focusing on patient management and the anatomy, physiology and pathology related to the patient's condition within their relevant scope of practice and treatment. By doing this, they reduce the risk of developing an emotional connection with the patient.

Talking to their colleagues after the incident was a key coping mechanism and acted as an informal debriefing tool. This method of debriefing and getting confirmation that their patient care was correct contributes a great deal to their ability to cope with the trauma.

Although avoidance as a coping method is associated with poor mental health,[21–29] it can in some circumstances be the better strategy,[30] especially at the time of the event. By concentrating only on the scene and their treatment of the patient, they avoid getting emotionally involved with the patients [6].

Training as preparation for the emotional effects of critical incidents

Most participants indicated that they had received little or no training to prepare them for the emotional effects of traumatic incidents or how to deal with the bereaved family. Historically, the EMS curriculum has prioritised the technical aspects of patient care. It focuses on the speed and efficiency of diagnosis, stabilisation and treatment of the critically ill or injured and although death education forms a part of the medical and nursing curriculum, it offers very little recognition of the psychological aspects of the EMS environment.

Support structures EMS personnel rely on

Participants in this study indicated that their family is their biggest support structure, followed by their colleagues and friends. They rely on their colleagues for emotional support and debrief each other after a traumatic incident to help counteract the psychological effects they experience.

Debriefing structures available to EMS personnel

Although EMS personnel rely on their family and colleagues, one of the support structures used by the EMS in the Cape Town Metropole is Independent Counselling and Advisory Services (ICAS), a 24 h a day trauma counselling service with a toll-free number that employees can call if they need trauma counselling. It is also available to employees and their families for domestic problems or legal support.

The attitude of 'boys don't cry' in EMS might hinder personnel to contact ICAS or utilise one of the other available support structures. They do not show their emotions because they have to maintain the image of being the provider, protect their reputation of being strong, and do not want people to think that they are weak when they show that an incident has affected them emotionally.

Limitations

The study used a non-experimental descriptive design. Sampling, therefore, was not random. The results could therefore not be generalised to other medical professionals or beyond this occupational cohort. Strictly speaking, the EMS in the Cape Town Metropole is representative of the other EMS systems in South Africa, so there is a possibility that the results of this study may have resonance with EMS as a whole.

Not all of the EMS personnel employed in Cape Town participated in the research, so the results may not be representative of all the employees in the area. This may be due to time constraints or the reluctance of EMS personnel to participate in the study. Their unwillingness to participate may be due to concerns that the results would not be anonymous and confidential. Fear of being seen as weak when admitting that an incident affected them emotionally may also contribute to the fact. However, the researcher felt that the sample size was sufficient to be appropriately representative of the cohort.

Both the questionnaire and interview requested the participants to reflect on the symptoms, emotional reactions and coping mechanisms they used after exposure to a traumatic incident. If the participant had not been exposed to a traumatic incident recently, it could be difficult to recall these symptoms and coping mechanisms, which could lead to inaccurate results. The possibility of this was mitigated by the fact that only operational personnel who are exposed to traumatic incidents on a day-to-day shift system participated in the study.

Conclusion

This study confirmed that while EMS personnel in Cape Town are exposed to traumatic incidents on a daily basis their most common coping strategy is one of, avoidance. They have received very little or no training to prepare them for the emotional effects of traumatic incidents and this research suggests that there are inadequate debriefing structures in place. The results of this study demonstrate that EMS personnel in Cape Town have adapted well to their working environment by developing some coping mechanisms amongst themselves. The emotion-focused coping mechanism, however, is not sustainable in the long-term and there is perhaps a need for more targeted and robust intervention programmes.

Conflict of interest statement

LAW serves on the African Journal of Emergency Medicine's editorial board. He was in no way involved in the peer review process of this paper or the subsequent decision to publish the work. The authors declare no other conflict of interest.

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