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BRIEF REPORT

Identifying, Describing, and Expressing Emotions After Critical Incidents in Paramedics

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For paramedics, critical incidents evoke intense emotions and may result in later psychological difficulties. We examined 2 ways to deal with emotions after critical incidents: (a) identifying emotions, and (b) describing and expressing emotions, and their association with recovery from acute stress and psychological symptoms. We surveyed 190 paramedics, examining how impaired capacity to identify and describe emotions (alexithymia) and voluntary expression of emotions during contacts with others in the first 24 hours after the incident were associated with recovery from acute stress and current symptoms of PTSD, depression, burnout, and somatization. Overall alexithymia was not associated with recovery, but the component of difficulty identifying feelings was associated with prolonged physical arousal ($\chi^2 = 10.1$, $p = .007$). Overall alexithymia and all its components were associated with virtually all current symptoms (correlation coefficients .23–.38, $p < .05$). Voluntary emotional expression was unrelated to current symptoms. Greater emotional expression was related to greater perceived helpfulness of contacts ($\chi^2 = 56.8$, $p < .001$). This suggests that identifying emotions may be important in managing occupational stress in paramedics. In contrast, voluntary emotional expression, although perceived as helpful, may not prevent symptoms. These findings may inform education for paramedics in dealing with stress.

Paramedics are exposed to critical incidents that evoke intense emotions and are implicated in posttraumatic stress disorder (PTSD), depression, and burnout (Alexander & Klein, 2001). Suppressing postincident emotions predicts signs of stress (Wastell, 2002). Both emotional suppression (Marmar, Weiss, Metzler, & Delucci, 1996) and difficulty expressing feelings (Carlier, Lamberts, & Gersons, 1997) are associated with PTSD. Conversely, expression of emotions in compulsory Critical Incident Stress Debriefing (CISD) may increase stress (Rose, Bisson, & Churchill, 2002). Paramedics state that emotions may impair their functioning during the critical incident (Regehr, Goldberg, & Hughes, 2002) and expressing emotions may compromise reputations and damage emotional balance (Halpern, Gurevich, Schwartz, & Brazeau, 2009).

Alexithymia consists of difficulties identifying and describing emotions and externally oriented thinking. In first responders, alexithymia is associated with stress symptoms (Wastell, 2002) and posttraumatic stress disorder (PTSD; McCaslin et al., 2006). In others, alexithymia is associated with depression, stress-related symptoms (Taylor, Bagby, & Parker, 1997), and burnout (Bratis et al., 2009).

This study addresses three questions. First, do deficits in identifying and describing emotions delay recovery from acute stress reaction (ASR; World Health Organization, 2007) postincident? Persistence of postincident ASR symptoms predicts PTSD (Koren, Arnon, Lavie, & Klein, 2002; Shalev et al., 1998; Halpern, Maunder, Schwartz, & Gurevich, 2011). Second, is expressing feelings immediately postincident related to recovery from ASR? Third, are abilities to identify and describe emotions, or emotional expression postincident, related to later symptoms?

Method

Participants and Procedure

Paramedics and supervisors in an urban emergency medical services (EMS) organization were recruited at a mandatory continuing medical education program, and individuals on leave were informed by mail. Participants were self-selected. After completing consent forms, they completed a self-report survey over the next few months, which they returned either online or by mail. The study was approved by both Mt. Sinai Hospital and Sunnybrook Health Sciences

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Centre Research Ethics Boards. Of 906 paramedics informed, 635 paramedics who provided consent received the survey and 243 (38.3%) returned it. The sample studied comprised 190 participants with complete alexithymia measures, including 118 men (62%) and 72 women. Mean age was 37.5 ($SD = 9.3$ years). Mean years of service were 7.6 ($SD = 3.3$). Level of training, from basic to advanced, was 80 (42.1%) level 1, 36 (18.9%) level 2, 69 (36.3%) level 3, 3 (1.6%) supervisors; for two participants (1.1%) data were missing. The sample was similar to the organization except for overrepresentation of females and paramedics with more experience and training.

Measures

We defined critical incidents as "calls that have generated unusually strong feelings, either because of the incident itself, or how it was handled or some other reason." Participants identified an index critical incident that was "still troubling" (51%), "had been troubling in the past" (40%), "a composite of a number of critical incidents" (2%), or "one of your worst calls" (6%).

Based on literature review and a pilot study, we inquired in the survey about five common and sometimes persistent ASR components. We asked whether paramedics had experienced each of the following during or immediately after the index critical incident—physical arousal, distressing feelings, disturbed sleep, irritability, and social withdrawal—and how long it took for each to return to normal. The options were as follows: (a) did not have this reaction, returned to normal (b) soon after the call; (c) by the next night; (d) by the next week; (e) by the next month; (f) within a few months; (g) still not normal.

The 20-item, reliable and valid, Toronto Alexithymia Scale (TAS-20) measures total score and three subscales: Difficulty Identifying Feelings, Difficulty Describing Feelings, and Externally-Oriented Thinking (Parker; Taylor, & Bagby, 2003). A score of > 61 represents alexithymia, and < 51 nonalexithymia, 51–61 is borderline-alexithymia. Alexithymia scores were normally distributed ($M = 47.2$, $SD = 11.6$, Cronbach's $\alpha = .87$).

Contact with others in the first 24 hours postincident was calculated as the total number of categories contacted, including friends, family, and nine types of workplace contacts or helping professionals (0–11). Helpfulness of each contact was rated on a 5-point scale (*very unhelpful* to *very helpful*). Contacts rated helpful or very helpful were tallied. Participants rated the degree of emotional expression: "I kept them to myself," "I let out some of my feelings," "I really showed how I felt," and "I couldn't control my feelings." Emotional expression was tabulated as a dichotomous variable (any/none) or analyzed as a categorical variable with groups defined by four response anchors, as appropriate.

Depressive symptoms were measured with the 10-item Center for Epidemiologic Studies Depression Scale (Andresen, Malmgren, Carter, & Patrick, 1994). The period "your current or most recent block of shifts on duty" was used rather than "over the last week" because paramedics reported greater distress during shifts on duty. Cronbach's $\alpha = .77$. Scores were normally distributed ($M = 7.4$, $SD = 4.6$).

Posttraumatic symptoms were measured with the 22-item Impact of Event Scale-Revised (IES-R; Weiss & Marmar, 1997), Cronbach's $\alpha = .91$. Using the IES-R instructions, we asked how the respondent was feeling in the present about "a distressing incident." Because accumulating stressors may have additive effects, especially in high-risk occupations, self-identification of a specific trigger for posttraumatic symptoms may not be accurate. We offered the option of relating the IES-R responses to the index critical incident "or something different which is distressing you now." Fifty-six participants (25%) identified the IES-R event as the critical incident, 126 (55%) another experience and 46 (20%) did not specify. The IES-R scores were nonparametrically distributed and skewed toward low scores ($Mdn = 0.7$, interquartile range = 0.3–1.0).

Physical symptoms were measured with the 7-item somatization subscale of the Brief Symptom Inventory (Derogatis & Melisaratos, 1983). Somatic symptom scores were nonparametrically distributed and skewed toward low scores ($Mdn = 0.36$, interquartile range = 0.14–0.64, Cronbach's $\alpha = .78$).

Burnout was measured with the 9-item emotional exhaustion subscale of the Maslach Burnout Inventory Human Services Survey (Maslach, Jackson, & Leiter, 1997). Burnout scores were approximately normally distributed ($M = 21.8$, $SD = 11.6$, Cronbach's $\alpha = .92$).

Data Analysis

Bivariate relationships were tested using Spearman's rank-order correlations, χ^2 test, t tests as appropriate. For post-critical incident recovery from ASR components, results were grouped as did not occur/recovered by the next night/not recovered by the next night. Differences in medians of other variables across groups were evaluated using the Kruskal-Wallis test. Analyses were conducted with SPSS 17.0.

Results

One hundred twenty-one participants (63.68%) were nonalexithymic, 43 (22.63%) borderline alexithymic, and 26 (13.68%) alexithymic. Comparing paramedics to a normative community sample (Parker et al., 2003), total alexithymia scores did not differ, nor did difficulty identifying feelings, whereas difficulty describing feelings and externally oriented thinking were higher in paramedics (Table 1). Alexithymia did not differ by gender $t(188) = 0.19$, $p = .85$, age $\rho(187) = .03$, $p = .67$, years of experience $\rho(187) = .04$, $p = .61$, or number of critical incidents, $\chi^2(3, N = 184) = 5.52$, $p = .14$. Most participants (122, 64.21%) reported one to five career critical incidents. For most (124, 65.26%) the index incident was >1 year in the past.

Total alexithymia score was unrelated to ASR components. A secondary analysis showed greater difficulty identifying feelings was associated with slower recovery

Table 1
Comparison of Alexithymia and its Components in Paramedics to Community Norms

	Paramedics		Community norm		
	$N = 190$		$N = 1{,}993$		
	M	*SD*	*M*	*SD*	*t*
Total alexithymia score	47.19	11.6	45.57	11.35	1.88
Difficulty identifying feelings	14.39	5.7	14.38	5.21	.03
Difficulty describing feelings	13.35	4.1	12.50	4.20	2.67*
Externally-oriented thinking	19.95	4.6	18.70	4.72	3.50*

Note. Community norms are reported in Parker et al. (2003).

*$p < .05$.

from physical arousal, Kruskal-Wallis $\chi^2(2, 184) = 10.1$, $p = .007$. Alexithymia was associated with depressive, posttraumatic, somatic, and burnout symptoms (range of correlations = .23–.38; a correlation of > .19 is significant for $N = 190$). Postincident, 156 (82.10%) paramedics contacted a colleague or supervisor ($N = 118$, 62.11%, found it helpful), 66.84% contacted a friend or family member (50.00% helpful), and 11.05% contacted a helping professional (4.21% helpful). Alexithymia was not associated with having contact or finding it helpful. However, alexithymia was related to expressing feelings. The proportion of paramedics who expressed feelings during contacts was this: nonalexithymic, 83.47% (101/121); borderline alexithymic, 67.44% (29/43); alexithymic, 53.85% (14/26) with $\chi^2(2, N = 190) = 12.35$, $p = .002$. This relationship was strongest for difficulty describing feelings, which was lower in paramedics who expressed more feelings, Kruskal-Wallis $\chi^2(3, N = 190) = 13.2$, $p = .004$. Paramedics with greater alexithymia also expressed feelings to fewer contacts $\chi^2(18, N = 190) = 31.11$, $p = .03$.

The degree to which paramedics expressed feelings was strongly related to the number of helpful contacts (Table 2). Degree of emotional expression was unrelated to current symptoms and recovery from ASR.

Discussion

Difficulty identifying feelings was associated with current symptoms, which suggests that it is important for paramedics' mental health. Secondary analyses suggested that difficulty identifying feelings may also have been related to slower recovery from physical arousal after critical incidents, although the significance of this relationship did not survive the Bonferroni correction for multiple comparisons (four alexithymia scales × five ASR components, significance requires $p < .0025$). Because subscales of the Toronto Alexithymia Scale are not independent of total score, component relationships need to be interpreted with caution.

Alexithymia affects the autonomic nervous system (Taylor et al., 1997) and difficulty identifying feelings is associated with fear of physical symptoms of anxiety (Devine, Stewart, & Watt, 1999), both of which may contribute to persistent postincident physical arousal in paramedics. Physical arousal may be more predictive of PTSD (Bryant & Panasetis, 2001) and other outcomes (Halpern et al., 2011) than other ASR components.

Our results also suggest that voluntary expression of feelings postincident is neither beneficial nor harmful. Adler et al. (2008) reported similar findings on expression in compulsory CISD; another study (Sijbrandij, Olff, Reitsma, Carlier & Gersons, 2006) found that CISD was harmful only in subjects with postincident hyperarousal.

Our findings suggest that educating paramedics about identifying emotions may offer a new approach to preventing adverse effects of occupational stress. Low participation rate, self-selection, and the single EMS organization surveyed limit generalizability. Recall bias may have

Table 2
Distribution of Types of Expression of Feelings in 24 Hours Following Index Critical Incident as a Function of Degree of Helpful Contact

	Number of helpful contacts					
Degree of expression of feelings	0	1	2	3	≥4	% of Total
I kept them to myself	24	13	4	1	4	24.21
I let out some feelings	14	18	21	13	5	37.37
I really showed how I felt	8	9	14	13	18	32.63
I couldn't control my feelings	0	0	4	2	5	5.79

Note. Total number of categories of contact rated helpful or very helpful in 24 hours postcritical incident of 11 possible categories including friends, family, and 9 types of workplace contacts and helping professionals. $\chi^2 = 56.8$, $df = 12$, $p < .001$.

affected recollection of critical incidents. Further limitations are that alexithymia, measured after the critical incident, may have changed (de Vente, Kamphuis, & Emmelkamp, 2006) although it is usually stable (Mikolajczak & Luminet, 2006), and depressive symptoms scale instructions were slightly modified to fit this unique population. Finally, correlations cannot test causal hypotheses.

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