PSYCHOSOCIAL STRESSORS AND HAZARDS AMONG EMERGENCY MEDICAL RESPONDERS (EMR) IN MANSOURA CITY

By

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Abstract:

Aim of work: This research was done to assess the possibility of higher levels of psychosocial stressors and related hazards (burnout, depression and post-traumatic stress disorder) among EMR compared to control group. Objective assessment of stress exposure was done through measuring levels of urinary cathecholamines. **Methods:** A comparative cross sectional study was conducted upon (140) emergency medical responders (EMR) and a matched control group composed of (140) non-emergency workers. The groups studied were interviewed using semi structured questionnaire including sociodemographic data, job stressors, Malach burnout inventory (MBI), Beck depression inventory (BDI) and Davidson Trauma scale for PTSD. Urine cathecholamine levels were assessed in subsample of studied population. **Results:** The most severe acute stressors among EMR were dealing with traumatic events followed by dealing with serious accidents and young victims. Chronic stressors were more commonly reported among EMR compared to comparison group. EMR had higher prevalence of high levels of emotional exhaustion and depersonalization compared to comparative group. More than tenth of EMR had clinical level of PTSD compared to 3% only of comparison group. The mean levels of epinephrine and Nor epinephrine were significantly higher among EMR compared to comparative group. **Conclusion:** EMR had perceived dealing with traumatic events and serious accidents as the most severe acute stressors. EMR group had higher prevalence of chronic work related stressors than comparative groups.EMR had higher levels of burnout and PTSD compared to control group. Depression was not statistically significant different between EMR and control group.

Introduction:

Until recently, occupational health within the ambulance services has received relatively little attention from researchers. In the past few years, researchers have become increasingly aware that ambulance personnel may be at risk of developing work-related health problems (Regehr, 2003; Bennett et al.,2004).

No study has systematically compared the level of symptoms and prevalence of ill health between ambulance workers and the normative sample of a relevant working population. Previous research comparing the health status in ambulance personnel with that of general populations has not considered the healthy worker effect (Li, 1999).

In the field of occupational health, psychology researchers have mostly focused their attention on negative effects of long-term work characteristics, in particular chronic work-related stressors, such as job overload, shift work, role conflict, and lack of social support. Implications of these sources of work-related stress include the effects on worker satisfaction and productivity, mental as well as physical health, absenteeism, and the potential for employer liability. However, the role of acute and intense stressors are often neglected (Ploeg and Kleber, 2003).

This research was done to assess the possibility of higher levels of psychosocial stressors and related hazards (burnout, depression and post-traumatic stress disorder) among emergency medical responders compared to control group. Also, objective assessment of stress exposure through assessing levels of urinary cathecholamines as a biological index was also carried out.

Subjects and Methods:

A comparative cross-sectional study was conducted over the period from June1st, 2011 to August 31st 2012 on emergency medical responders (EMR) and a matched control group in Mansoura city.

Study Population:

- The study population comprised (280) subjects employed in the main ambulance service in Mansoura city. They were divided into two groups: emergency medical responders (EMR) group which consisted of 140 responders and control group which consisted of 140 non- emergency workers from ambulance main center and Mansoura University.

EMR group:

One hundred and forty EMR were randomly selected after approval to participate in the present study. They were all males. Their ages ranged from 22- 58 years with a mean age of 37 ±9.35 years. The duration of employment ranged from 1-40 years with mean duration of 11.2±9.9 years. This group consisted of 80 EMT and 60 emergency drivers.

Job description:

Emergency medical technicians (EMTs) are trained to provide immediate care for sick or injured people and transfer them to medical facilities. They usually work in teams of two (EMT and driver). The emergency driver drives an ambulance to transport sick, injured to/from a health facility, and performs various duties related to this main job such as administering (medicines, oxygen, etc.); assisting; cleaning; communicating; handling and lifting. (International Occupational Safety and Health Information Centre (CIS), 1995). Most of EMTs and drivers are required to work 24 hours a day every other day. There are two types of shifts in Mansoura ambulance service either 24 hr day after day shift or daily 8 hours shift rotating between day, evening, and night shifts.

Control group:

This group comprised 140 male workers in Mansoura's main ambulance center, Technical Institute of Health, and Faculty of Commerce and Faculty of Medicine at Mansoura University, who matched EMR in most of the variables except for the risk of exposure to stressful job situations due to emergency work. They were all males. Their ages ranged from 22- 59 years with a mean age of 39.5±11years.The duration of employment ranged from 1-40 years with a mean duration of 13.5±9.9 years.

Job Description: They were service and office workers. Service workers included cleaners, security, and laboratory and maintenance technicians. Office workers were carring out technical, maintenance jobs, accountant service and financial affairs.

Methods:

An interview with each study subject was carried out to help filling-in the questionnaire and direct observation of work environment. After filling-in the questionnaire, study subjects were instructed about urine samples collection and storage for catecholamine hormone assessment.

1. Questionnaire: a semi-structured questionnaire was designed to obtain sociodemographic data including age, sex ,residence, lifestyle (such as smoking and illicit drug abuse),occupational history (job description ,duration of employment, shift work hours, job stress survey (frequency and types) for acute stressors in the form of dealing with psychiatric patients ,dying patients ,young victims (Ploeg and Kleber,2003).The responders were asked to rate how stressful these stressors were on a scale from1(not stressful) to 4 (extremely stressful). Questions about chronic work-related stressors according to the "questionnaire on the experience and assessment of work (QEAW)" were included such as lack of job autonomy; and lack of social support from colleagues and supervisors (Veldhoven et al., 1997).

2. Psychosocial health hazards assessment tools

A. Maslach Burnout Inventory (MBI): Burnout was assessed according to the Maslach Burnout Inventory (MBI). This instrument contains 17 items that measure the cumulative effects of work-related pressure on three states: 'emotional exhaustion, depersonalization,' and 'personal accomplishment.' Each question is assessed on a scale ranging from 0 (not

at all) to 5 (yes, absolutely). High scores for the first two scales and low scores for the last scale are associated with burnout (Maslach et al., 1996).

B. Beck depression inventory "Arabic version" The instrument had 21 questions each item is rated on a 4-point scale ranging from 0 to 3. The maximum total score is 63 (Beck et al., 1996).

C. Davidson Trauma scale (DSM-IV) "Arabic form": a 17-item scale measuring each DSM-IV symptom of PTSD on 5-point frequency and severity scales. The subjects were diagnosed with PTSD symptoms when having one of the re-experience OR recall symptoms, three avoidance symptoms and one of the arousal symptoms.

3. Urine collection and catecholamine analysis:

Collection of urine samples from the subjects was during the work shift. Each employee was instructed to come to the test room at a specific time and was asked to empty his bladder exactly 2 hr before coming to the test room. Upon arrival at the test room, the subjects were asked to provide a urine sample. The urine sample were kept and transferred in icebox. Urine stick test was performed immediately to screen for urinary occult blood, urinary

protein and urinary sugar in order to exclude subjects with renal function abnormalities. Urine specimens were aliquoted in four 1.5 ml ependoorf tubes and stored at –40°C until analysis. The levels of epinephrine and nor-epinephrine hormones in urine were analyzed using Eliza technique. The concentration of each hormone was estimated as a rate ng/g creatinine (lee et al., 2010). Also, Pre-shift and post shift urine cathecholamines samples were collected from 12 EMR.

4. Statistical analysis

Data were analyzed with SPSS version 16 for Windows. The normality data were first tested with one-sample Kolmogorov-Smirnov test. The groups were compared with Student t test for continuous parametric variables and Man whitney test (z) for non-parametric continuous data. Chi square (χ2) test was used for categorical variables. Fisher exact test was used when 50% of cells or more were less than 5; p <0.05 was considered as statistically significant.

Result:

The EMR group matched control group as regards all sociodemographic variables. The mean age of EMR group and control group were 38±9.4 and 39.5 ±11.5 respectively. Both groups were males. The majority of EMR and comparative group were from rural area respectively (60%, 54.3%) and married (81.4%,82.9%).Also, most of studied EMR and comparative group had technical education(61.4%,48.6%) (Data are not tabulated).

The EMR group was composed of eighty EMT (57.1%) and sixty drivers (42.9%) while, the control group was composed of 61 administration staff (43.6%) and 79 service workers (56.4%). About half of EMR group (52.9%) were hired with short contracts while, most of comparative group subjects (72.1%) were permanent workers with a statistically significant difference (p<0.05). The mean duration of employment was 11± 9.9 for EMR and 13.3± 9.8 for control group with no statistically significant difference (p>0.05). Also, it was observed that most of EMR (68.6%) were 24 hr shift workers and most of comparative subjects (47.1%) were day workers (≤ 8 hours), the difference was statistically significant (p<0.05)(Data are not tabulated)

EMR suffered from different acute job stressors. The most severe acute stressors was dealing with traumatic events (88.57%) followed by dealing with serious accidents (87.8%) and young victims (87.14%). Dealing with psychological patients was

the least frequently encountered acute stressor (45.7%) (Data not illustrated).

EMR group experienced exposure to overall job stressors with different degrees more frequently (100%) than control group (56.4%) and the difference was statistically significant (p<0.05). Also, lack of decision control at work and lack of organizational decision control were more commonly reported (30.7%,72.1%) among EMR compared to control group (10.7%,50%), the difference was statistically significant (p<0.05).EMR group reported poorer communication with their organization (27.1%) than control group with statistically significant difference (p<0.05). Also, social support with supervisors among EMR (85%) was less than that reported by comparative group (92%) with no statistically significant difference (p>0.05). In addition, social support of co-workers was (95.6%) among EMR compared to 95.9% among the control group with no statistically significant difference (p>0.05). EMR had higher levels of group moral and cohesion (98.6%) compared to control group (93.6%) with statistically significant difference (p<0.05) (Table 1).

EMR had significantly higher percentage of physically strenuous activities, rapid pace of work, overtime work, work overload, never receiving compensatory financial rewards and lower percentage for reporting enough resources than control group with statistically significant difference (p<0.05)(Data are not tabulated).

EMR had higher levels of emotional exhaustion (20%) compared to control group (4.3%) with statistically significant difference (p<0.05). Also, depersonalization levels were higher among EMR (9.3%) compared to control group (1.4%) with statistically significant difference (p<0.05).However, high personal achievement was more frequently found in EMR group (80.7%) than in the control group (74.3%) but the difference was not statistically significant between the two groups (p>0.05) (Table 2).

Total Beck depression inventory score and depression grade was not significantly different among EMR when compared to control group (p>0.05) (Table 3).

Median total score of Davidson scale for PTSD was higher among EMR (5) compared to the control group (0) with statistically significant difference (p<0.05). Also, 13.6% of EMR had PTSD compared to (2.9%) of the control group with statistically significant difference (p<0.05) (Table 4).

The mean levels of epinephrine (32.1±6.8) and nor-epinephrine (100± 18.6) were higher among EMR compared to the control group (19.7± 5.8), (61 ±10.3) respectively with statistically significant difference (p<0.05). Also, the majority of (96.3%) responders had elevated levels of epinephrine with statistically significant difference (p<0.05).However, there was no statistically significant difference between the two groups as regards levels of normal or elevated nor epinephrine between the two groups (p>0.05) (Table 5).

There were higher mean urinary epinephrine and nor- epinephrine levels in post-shift samples (42± 2.2, 105.6±3.5) compared to pre-shift samples (17 ±1.5, 35± 0.8) among EMR with statistically significant difference (p<0.05) (Data are not tabulated).

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Table (1): Subjective work- related chronic psychosocial stressors among studied groups

Occupational stressors	Emergency medical responders (EMR) n=140	Control group n=140	Test of significance
	No (%)	No (%)	
❖ Exposure to overall stressful events			
-Never	0(0%)	61(43.6%)	χ^2=136.6 p <0.001*
-Yes sometimes	54(38.6%)	74(52.8%)	
-yes regularly	42(30%)	4(2.9%)	
-yes always	44(31.4%)	1(0.7%)	
❖ Decision control at work			χ^2=17 p=0.001*
-Never	43(30.7%)	15(10.7%)	
-yes	97(69.3%)	125(89.3%)	
❖ Organizational decision control			χ^2=14.4 p=0.001*
-Never	101(72.1%)	70(50%)	
-yes	39(27.9%)	70(50%)	
❖ Communication with the organization			
Never	38 (27.15%)	17 (12.15%)	χ^2=13.25 p=0.004*
Sometimes	45 (32.14%)	50 (35.71%)	
Regularly	33 (23.57%)	31 (22.14%)	
Always	24 (17.14%)	42 (30%)	
❖ Social support of supervisors			
-Never	21(15%)	10(7.1%)	χ^2=6.9 p=0.07
-Sometimes	49(35%)	61(43.6%)	
-Regularly	49(35%)	41(29.3%)	
-Always	21(15%)	28(20%)	
❖ Social support of co-workers			
-Never	6(4.4 %)	6(4.3%)	χ^2=2.7 p= 0.4
-Sometimes	13(9.3%)	21(15%)	
-Regularly	52(37%)	54(38.6%)	
-Always	69(49.3%)	59(42.1%)	
❖ Group moral and cohesion			
-Never	2(1.4%)	9(6.5%)	χ^2=8.06 p= 0.04*
-Sometimes	20(14.3)	24(17.1%)	
-Regularly	67(47.9)	49(35%)	
-Always	51(36.4%)	58(41.4%)	

Table (2): Levels of burnout subscales among study groups according to Maslach burnout inventory

Burnout subscales	Emergency medical responders n=140	Control group n=140	Test of significance
	No (%)	No (%)	
Emotional Exhaustion			z=7.6 p<0.001*
Median	20	8	
Minimum-maximum	1-50	0-45	
-Low and moderate burn out (≤ 30)	112 (80%)	134(95.7%)	□²=16 p<0.001*
-High burn out (>30)	28 (20%)	16(4.3%)	
Depersonalization			#z=9 p<0.001*
Median	6	1	
Minimum-maximum	0-22	0-18	
-Low and moderate burn out ≤12	127 (90.7%)	138 (98.6%)	□²=8.5 p=0.004*
-High burn out >12	13 (9.3%)	2 (1.4%)	
Personal achievement			
Median	28	28	
Minimum-maximum	12-48	3-48	
-Low and moderate burn out ≥33	113(80.7%)	104 (74.3%)	□²=1.6 p=0.2
-High burn out <33	27(19.3%)	36(25.7%)	
Total score			
Mean ±SD	56.62±15.14	40.85±16.84	t=8.2 p<0.001*
Minimum-maximum	18-97	8-93	

*p>0.05 was considered as statistically significant

#z for Man whiney test

Table (3): Depression symptoms among studied groups according to Beck depression
       inventory

Depression score level	Emergency medical responders n=140	Control group n=140	Test of significance
-Total score			^{a}z=1.3 p=0.2
Median	9	9	
Minimum-maximum	0- 41	0- 32	
Depression Grade	No (%)	No (%)	
-Less than 15 (mild)	101(72.1%)	114 (81.4%)	□²=3.46 p=0.17
-15-30 (moderate)	34 (24.3%)	22 (15.7%)	
->30 (severe)	5 (3.6%)	4 (2.9%)	

Table (4): Post traumatic stress symptoms among study groups according to Davidson
       scale of post traumatic stress disorders (PTSD)

PTSD score level	Emergency medical responders n=140	Control group n=140	Test of significance
-Total score			
Median	5	0	
Minimum-maximum	0-48	0-34	
Diagnosis of PTSD	No(%)	No(%)	
-Present	19(13.6%)	4 (2.9%)	□²=10.5 p=0.001**
-Absent	121 (86.4%)	136 (97.1%)	

*p>0.05 was considered as statistically significant

Table (5): Urine cathecholamines levels among studied   groups

Urine Catecholamines levels	Emergency medical responders n=54	Control group n=30	Test of significance
Epinephrine (Mean ±SD)	32.1±6.8	19.7± 5.8	t=8.4,p<0.001*
Nor epinephrine(Mean ±SD	100± 18.6	61 ±10.3	t=10.5,p<0.001*
-Level of cathecholamines			
- **Epinephrine**			
Normal	2(3.7%)	21(70%)	$\square^2$=42.6,p<0.001*
Elevated	52(96.3%)	9(30%)	
- **Nor epinephrine**			
Normal	0(0%)	1(3.3%)	$\square^2$=1.5, p=0.2
Elevated	47(100%)	29(96.7%)	

Discussion:

Emergency responders, including EMS personnel, firefighters, and law enforcement officers, risk their health and safety to assist in medical emergencies; motor vehicle incidents; building and wild-land fires; hazardous material spills; crimes and public disturbances; search and rescue; and natural and human-caused disasters (Reichard and Jackson, 2010).

Current study results demonstrated that the EMR group experienced exposure to acute and chronic job stressors with different degrees more frequently (100%) than control group (56.4%) with statistically significant difference (p<0.05).

Ambulance specific stressors were reported as significantly more severe than the general organizational stressors. Serious operational demands were reported as the most severe stressor (Boudreaux and Mandry, 1996 ; Stured eta l., 2006), and physical demands were the second most severe stressor (Boudreaux and Mandry 1996; Mahony, 2001).

In the current research, severity of acute ambulance specific stressors and frequency of general chronic stressors were assessed. It was found that emergency medical responders suffered from different acute job stressors. The most severely encountered acute stressors were dealing

with traumatic events (88.57%) followed by dealing with serious accidents (87.8%) and young victims (87.14%).Dealing with psychological patient was the least frequently encountered acute stressor (45.7%).

In accordance with our hypotheses, ambulance specific stressors were identified as the most severe stressors. Serious operational tasks, and the items 'dealing with seriously injured friends and people you know' and 'dealing with seriously injured children' in particular, were rated as the most severe stressor (a higher mean score than the two general stressors time pressure and challenging job tasks) (Stured et al.,2008).

In the current study, the frequency of chronic organizational stressors were assessed, rapid pace of work was the most frequently reported organizational stressor among the EMR group (96.3%) followed by physical strain (95.3%),work-overload (83.6%) and overtime work(62.1%) compared to control group (45%,68.7%,57.9%,8.6%) respectively with statistically significant difference (p<0.05).

These results are in accordance with Stured et al. (2008) who reported that physical demands were the most frequent stressors and second most severe compared to all other stressors. The authors explained their finding by much heavy lifting and carrying under difficult conditions. In addition, this concurs with other studies, which have found that ambulance personnel report higher levels of musculoskeletal strain than employees in other health services (Ploeg and Kleber,2003),and that ambulance personnel self-report more musculoskeletal and physical health problems than the general population (Johnson et al.,2005;Okada et al.,2005).

These results are consistent with Ploeg and Kleber (2003) who reported that ambulance workers scored higher than a reference group, which meant that they reported more chronic work- related stressors.

Moreover, emergency medical responders in Mansoura reported a statistically significant poorer communication with their organization (27.1%) than control group (12.1%) (p<0.05). These results came in agreement with a similar study in the Netherland that reported significantly higher mean levels of poor communication among ambulance workers compared to a reference group (Ploeg and Kleber, 2003).

Also, social support from supervisors among EMR (85%) was less than that reported by control group (92%) but, the difference was not statistically significant (p>0.05).In addition, social support from co-workers was (95.6%) among EMR compared to (95.9%) among the control group with no statistically significant difference (p>0.05). EMR had statistically significant higher levels of group morale and cohesion (98.6%) compared to control group (93.6%) (p<0.05).

It was noticed that the levels of social support with supervisors and coworkers in the current study were satisfactory in comparison to Stured et al. (2008) who reported that lack of social support from coworker and leaders was the second most frequent stressor after physical demand and most severe general stressors. Moreover, Ploeg and Kleber (2003) reported a statistically significant higher mean levels for lack of social support from colleagues and supervisors among ambulance workers compared to reference group(p<0.001).

Frank and Ovens (2002) have pointed to the fact that emergency work is both rewarding and demanding in that little control over patient-mix exists, compounded by the fact that life and death decisions have to be made quickly.

The current research revealed that lack of decision control at work and lack of organizational decision control were more commonly reported (30.7%, 72.1%) among EMR compared to control group (10.7%, 50%) with statistically significant difference (p<0.05).

Ploeg and Kleber (2003) reported higher mean levels for lack of job autonomy among ambulance workers than reference group with statistically significant difference (p<0.001).

Alexander and Klein (2001) reported high levels of job satisfaction among ambulance workers. However, a distinction between satisfaction with regard to the job and satisfaction with regard to the organization can be made. Expressed job satisfaction does not mean that the organization does not have to be concerned about the well being of its employees. Dissatisfaction with organizational aspects has a price: a price to be measured in terms of the levels of general psychopathology, burnout, and post-traumatic symptoms. The current study results revealed that lack of organizational decision control among emergency medical responders can be important source for organizational dissatisfaction and psychopathological diseases among the studied population.

The levels of burnout subscales in the form of emotional exhaustion and depersonalization were statistically significant higher among EMR compared to control group (p>0.001). The percentage of workers with high score on separate subscales were (20%) for emotional exhaustion (EE), 9.3% for depersonalization (DP), and 19.3% for low personal accomplishment (PA).

A study from the Netherlands by Ploeg and Kleber (2003) used the Maslach Burnout Inventory to investigate the prevalence of burnout in workers from 10 regions and found a higher risk for burnout in ambulance workers (8.6%) than in the general working population (5.3%).The percentages of workers with high scores on the separate dimensions were reported as 12% for emotional exhaustion (EE), 18% for depersonalization (DP), and 16% for low personal accomplishment (PA).

However, a study from a single service in the USA reported an opposite result and concluded that the average burnout scores in ambulance workers were slightly but not significantly lower than the national average (Weiss et al.,1996). However, this conclusion was based on a small and non-representative sample. A study from a Scottish regional ambulance service reported the percentages of workers with high scores on the Maslach Burnout Inventory for the separate scales as 26% for EE, 36% for low PA, and 22% for DP, but did not report confidence intervals (Alexander and Klein,2001).

Our research results have reported comparable levels of depression symptoms according to Beck depression inventory among EMR and comparative group. The prevalence of depression was 3.6% among EMR compared to 2.9% among control group. The difference was not statistically significant (p>0.05). A lower prevalence (2.1%) of severe symptoms, as measured by Beck›s Depression Inventory, was reported in a study from a single ambulance service in Canada (Regehr et al., 2002). Three other studies reported a similarly high prevalence of psychological distress (> 20%), as measured by the General Health Questionnaire (Thompson, 1993; Clohessy and Ehlers, 1999; Alexander and Klein, 2001).

The median total score of Davidson scale for PTSD was higher among EMR (5) compared to control group (0). Also, 13.6% of EMR had PTSD compared to (2.9%) of control group and the difference was statistically significant (p<0.05).

The prevalence of post-traumatic stress symptoms was also high in some studies (Regehr et al., 2002; Bennett et al., 2004; Jonsson and Segesten, 2004) although these studies used different scale for evaluation of PTSD. However, these findings should be interpreted with caution, particularly because the high PTSD symptom scores in the ambulance services might reflect that, when asked to report on a traumatic incident, ambulance workers may have a larger reservoir of potentially traumatic memories to choose from than the general population (Stured et al., 2006).

The level of urinary catecholamines is significantly correlated with various stressful job situations, such as those experienced by police officers (Piercecchi-Marti et al., 1999).

Three studies described the associations between work-related stressors and physiological stress symptoms. Ambulance workers exhibited higher physiological arousal (e.g., elevated heart rate and blood pressure) (Shapiro et al., 1993), salivary cortisol response (Sluiter et al.,2003), and noradrenalin and adrenalin levels (Lehmann et al.,1983) when running calls and during more severe emergency incidents than during less severe incidents. Our results came to confirm the above

results of previous studies as the mean level of epinephrine was higher among EMR (32.1±6.8) compared to control group (19.7± 5.8) with statistically significant difference (p<0.05). The mean level of Nor-epinephrine was statistically significantly higher among EMR (100± 18.6) compared to control group (61 ±10.3) (p<0.05). Moreover, when comparing pre-shift and post-shift urinary levels of epinephrine and nor-epinephrine, there was a statistically significant difference (p<0.05) with higher levels during post shift hours. These results came to suggest that elevated levels of cathecholamines were probably related to stressful job situations of emergency medical responders.

These results were in agreement with Dutton (1978) who reported that paramedics felt their jobs more exhausting, less satisfying and requiring too much responsibility. For the paramedics, statistically significantly higher levels of epinephrine and nor-epinephrine were found for the work as compared to the off day.

Limitations of study: Inclusion of subsample (96 subjects) for urinary cathecholamines levels assessment due to difficulties in collection, transportation and storage of the samples.

Conclusion: The EMR had perceived dealing with traumatic events and serious accidents as the most severe acute stressors. There were statistically significant differences between EMR group and control groups as regards most of the chronic work-related stressors except for lack of social support from colleagues and supervisors. EMR had higher mean levels of emotional exhaustion and depersonalization compared to control group. In addition, EMR had more than a tenth with clinical levels of PTSD compared to 3% in control group. However, there was no evident difference between the two groups as regards depression score. The mean levels of urine catecholamines were significantly higher among EMR compared to control group indicating that those emergency responders are in urgent need for stress management and debriefing programs for prevention and alleviating these psychosocial health hazards with particular stress on organizational role in enhancing levels of satisfaction among emergency responders.

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