

Traumatic Stress Symptomatology among Emergency Medical Technician

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Abstract: Emergency medical technicians (EMTs) are members of a discipline that forms a unique part of the emergency services. As pre-hospital providers they are constantly and increasingly facing with heavy stressors and obstacles that are physically, mentally and emotionally tiring, and placing them at the risk of developing Post-Traumatic Stress Disorder (PTSD).

Aim of the study: to Assess traumatic stress symptomatology among emergency medical technicians.

Methodology: Setting: This study was conducted in all of thirty-seven ambulance centers which cover the geographical division of Ismailia Governorate.

Subject: All available emergency medical technicians in previously mentioned sitting, (210) emergency medical technician was included.

Tools: Tools of data collection: Four tools were used for data collection: (I) Socio- demographic and Emergency Work Backgrounds Questionnaire, (II) Obstacles Facing EMTs Questionnaire, (III) Impact of Event Scale-Revised (IES-R) that assesses subjective distress caused by traumatic events and (IV) Dispositional Resilience Scale (DRS) that measure the concept of hardiness.

Results: it was found that, more than half of studied EMTs had Post- Traumatic Stress Symptoms.

Conclusion: The emergency work had a negative impact on psychological health and social relationship of EMTs. Also, The level of post-traumatic stress symptoms among emergency medical workers was moderate.

Recommendation: Developing a formal critical incident stress debriefing program within the organization and encourage the maintenance of supportive work environment.

Key Words: "EMTs, PTSS, PTSD, IES-R"

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I. Introduction

The most critical health problems recently are the sudden loss of life and disability caused by catastrophic and emergency accident, emergency conditions such as cerebrovascular accident and road traffic accident are included within the top ten causes of death worldwide. In Egypt around 12000 persons loses their lives due to road traffic crashes every year, the lack of adequate and available emergency medical care that is delivered within the first few hours of the onset after emergency conditions can worsening of the situation and become more problematic (Mistovich & Karren, 2014; Clark et al., 2016 WHO, 2018).

Emergency Medical Technicians (EMTs) are first pre-hospital emergency medical responders trained to give an urgent and immediate care for sick or injured people and transport them to health care facilities, also they responsible for decision making about emergency care of the patients, so EMTs can make a positive difference by providing emergency medical care to prevent complications and saving others life through being a competent, productive, valuable and available members in emergency situations (Khashaba et al., 2014; Mistovich & Karren, 2014).

Unlike other medical staff who usually see patients in sterile and stable circumstances, EMTs are unique in many ways that they had direct encounter with many stressors include emergencies, tragedies and critical accidents such as death, life-threatening injury or a crisis situation during their daily work and may exposed to illness which can threat their own psychological and physical wellbeing, also work environment can trigger other stressors such as conflict with the supervisor, lack of support from colleague, unavailable time for rest after exposure to critical accidents, work overload and long time work shift (Sofianopoulos et al., 2012; Porter, 2013; Kerai et al., 2017).

Additionally, there are barriers and obstacles facing EMTs that can hinder working ability and perceived as stressors by EMTs such as poor communication and coordination with other health care facilities, interference of people surrounding the accident in the emergency work, traffic congestion and road repairs that can delay patient's hospital administration, and exposure to verbal or physical violence from patient or relatives (Landman et al., 2013; Ebrahimian et al., 2014; Alinia et al., 2015; Rafeea et al., 2017).

Recurrent exposure to stressors and traumatic events may trigger serious mental health and behavioral problems to EMTs such as Post-traumatic Stress Symptomatology(PTSS), anxiety and depression, PTSS include avoidance of stimuli associated with the traumatic event, intrusion symptoms such as flash back and night mares, symptoms of hyper-arousal such as staying asleep and symptoms of negative alterations in cognition and mood such as low self-esteem, shame, guilt and fear (Skogstad et al., 2013; Shakespeare-Finch & Lurie-Beck, 2014; Black & Grant, 2014; Shoji et al.,2015) .

In turn, presence of PTSS more than one month will converted to Post Traumatic Stress Disorder (PTSD), PTSD is a serious condition that has negative consequence on the overall individual health and associated with several psychological and physical comorbid conditions such as major depressive disorder, alcohol abuse or dependence, other anxiety disorder neurological disorders, cardiovascular problems, respiratory and metabolic disease (Sareen, 2014& Ishibashi, 2014).

Additionally, post-traumatic stress responses can negatively impact working efficiency and satisfaction of many health professionals and trigger them to reduce their work hours and increase rate of absenteeism or even to switch jobs and can originate non-empathic behavior toward patients, also social relationships are severely harmed and withdrawal behavior become more prominent (Pierre et al., 2011; Lloyd et al, 2015).

For most people the first few weeks after experiencing a traumatic event are the most challenging, so the availability of social support including family members, peer colleague and senior support, low stressful environment, and the availability of enough time for emotional regulation before exposure to next traumatic event are generally important to help the people to handle the painful stressor, control of critical situation, and prevent long-term emotional dys-regulation (Shakespeare-Finch et al., 2014; Greenberg et al., 2015; Qi et al., 2016).

Concerning the important role of EMTs in community health and the negative impact of emergency health on overall their health, it's important to maintain a protective measures against trauma related symptomatology for EMTs group, develop healthier coping mechanism, ensure early identification and early treatment of PTSS are essential (Pierre et al., 2011; Drewitz-Chesney, 2012 & Lloyd, 2015).

Significance of the study

The role of emergency medical technicians is very important because they are usually the first helpers called in emergency events of individuals and run to provide urgent and emergency medical intervention for all individuals in many different settings such as individual homes, on the street and under cars for the purpose of mortality and morbidity prevention (Donnelly, 2011; Porter, 2013).

Despite the significance of emergency health care in saving life of other people , it gradually drain the life of EMTs personnel by continuous exposure to critical accidents and traumatic events that arouse intense post-traumatic stress symptoms which can interfere directly with functioning or result in later several psychological, physical and social complications (Halpern et al., 2014).

In addition, EMTs have the highest incidence of PTSD, highest incidence of physical symptoms and second highest of job dissatisfaction among other emergency services workers (Drewitz-Chesney, 2012; Halpern et al., 2014). Therefore, the psychiatric health nurse had a vital role in assessing stressors included within emergency work and its negative effect on psychological health of EMTs, also shed light on the post-traumatic stress symptomatology and its level among this occupational group

II. Subject And Methods

Aim of the study

The aim of the present study is to assess traumatic stress symptomatology among emergency medical technicians (EMTs).

Objectives:

- Assess emergency work background related to traumatic stress symptomatology.
- Assess obstacles facing emergency medical technicians in their emergency work.
- Assess manifestation indicate traumatic stress symptomatology and its level among emergency medical technician.

Research design:

A descriptive explorative survey was utilized for the present study.

Setting:

This study was conducted in all of thirty-seven (37) ambulance center divided into 14 centers in urban areas and 23 centers in rural areas which cover the geographical division of Ismailia Governorate.

Subjects:

All of the emergency medical technician worked in the thirty seven ambulance center.

The sample

All available emergency medical technician in previously mentioned sitting, 210 emergency medical technicians were included to recruit the study sample

Tools for data collection:

In order to fulfill the aim of the study, four tools were used for data collection.

Tool I: Semi- structured Interviewing Questionnaire divided into two parts:

Part I: Socio- demographic Questionnaire

The questionnaire elicits data about the emergency medical technicians as age, marital status, place of residence, and years of emergency medical technicians career experience.

Part II: Emergency Work Backgrounds

It created by (Alexander & Klein, 2001) and modified by the researcher. It divided into three sections Section 1: Ranking of stress according to types of accidents in emergency work; it includes six questions about situations/cases/events by using a scale of 1 to 3, "1" being mild, "2" being moderate and "3" being sever. Section 2: Negative Impact of emergency work on psychological health, social relationship and work efficiency of EMTs; it include twelve questions by using scale of 0 to 2, "0" being never, "1" being sometimes and "2" being always. Section 3: Available support after exposures to critical accident, it includes four questions by using scale of 0 to 3, "0" being never, "1" being slightly, "2" being considerably and "3" being extremely. Also, this section include two questions about barriers of seeking support after exposure to stressful accident by using scale of "0" being No, and "1" being yes.

Tool II: Obstacles Facing EMTs Questionnaire.

It was developed by the researcher after reviewing the following literature (Holland, 2008; Greenberg & Madsen, 2011; Porter, 2013; Mistovich & Karren, 2014 & Cone, 2015). The questionnaire elicits obstacles facing EMTs before arriving to the place of accident, during presence in accident location and after leaving accident location. The questionnaire include ten questions, answering the questions by using scale of 0 to 2, "0" being never "1" being sometime and "2" being always.

Tool III: Impact of Event Scale Revised (IES-R)

The IES-R is a 22-item self-report measure that assesses subjective distress caused by traumatic events based on three clusters of symptoms identified in the Diagnostic and Statistical Manual of Mental Disorder, third edition (DSM-III), as indicators of posttraumatic stress disorder (PTSD). It developed by Weiss & Marmar, 1997 and translated by researcher. It is a revised version of the older version, the 15-item IES (Horowitz, Wilner, & Alvarez, 1979). The IES-R contains eight items to assess intrusion symptoms, eight items to assess avoidance symptoms and six items to assess hyper-arousal symptoms. Respondents are asked to identify a specific stressful life event and then indicate how much they were distressed or bothered during the past seven days by each "difficulty" listed. Items are rated on a 5-point scale ranging from 0 ("not at all") to 4 ("extremely"). The IES-R yields a total score (ranging from 0 to 88) and subscale scores can also be calculated for the Intrusion, Avoidance, and Hyper-arousal subscales. The authors recommend using means instead of raw sums for each of these subscales scores.

Scoring system of (IES-R): - there was two scoring system for IES-R were utilized in this study, the first one is regarding cut-off point, based on literature, cut-off point of 33 and above was found to provide the best diagnostic accuracy of sever post- traumatic stress symptoms and "cut-off" point of 24 to 32 was found to provide the best diagnostic accuracy of partial PTSD or at least some of the symptoms (Asukai et al., 2002; Creamer et al, 2003; Scott, 2012& Pomeroy, 2014)

On the other hand, the second scoring system is regarding the level of post-traumatic stress symptoms, the total score for each subscale should be calculated using the mean of the scored responses. Scores will range from 0 to 4, in which 0 indicate not at all, 1 indicates little bit symptoms, 2 moderate symptoms, 3 indicate quite bit symptoms and 4 indicate extreme symptoms. Therefore the maximum 'total mean' IES-R score will range from 0 to 12. Lower scores are better (Weiss, 2007; Hyer & Brown, 2008, Kerai et al., 2017).

Tool IV: Dispositional Resilience Scale (DRS)

DRS-15 consists of fifteen statements that measure the concept of hardiness. It was developed by (Bartone 1995), and includes three dimensions which describe a generalized style of functioning. Control

contains five items, (e.g., "by working hard you can nearly always achieve your goals") commitment contains five items (e.g., "life in general is boring for me") and challenge contains five items (e.g., "changes in routine are interesting to me"). Respondents are required to indicate their agreement on a four-point scale: 0 (not at all true); 1 (a little true); 2 (quite true); 3 (completely true). There are six items that are negatively keyed items are 3,4,8,11,13,14. Once items are reverse coded, an overall hardiness score is obtained by summing all 15 items.

Scoring system of (DSR): Scores for all three subscales can be calculated individually by summing the relevant questions for each of the subscales within five scoring bands: 39+ (Very high), 34-38 (High), 28-33 (Average), 22-27 (Low), and 22 and below (Very low) (Fogarty, 2017).

Tools validity:

Before data collection tools of data collection was revised by a jury of academic nursing staff from faculties of nursing of Ain Shams University and Suez Canal University for their validation, modification was done based on expertise opinion.

Tools Reliability:

The reliability was assured by means of Cronbach's alpha (α); it indicates that the tool has a reliability of 0.86 for total score of Impact of event scale revised (IES-R), and 0.80 for total score of Dispositional Resilience Scale (DRS)

Field work:

Data was collected from the selected settings by the researcher using the pre-constructed tools.

Pilot Study

The pilot study was conducted on (10%) of emergency medical technicians in the previously mentioned setting. Those emergency medical technicians included in pilot study were excluded from the actual study. The pilot study was done to ascertain the relevance, clarity and applicability of data collection tool and to estimate the time needed to fill the questionnaire sheet. Based on the finding of the pilot study, modification was made such as omission, addition, and rewording in order to make the tool more applicable to emergency medical technicians. The final form of the tool was formulated and the time needed for completing them was also determined.

Administrative Design:

Permission to carry out the study from the responsible authorities was obtained. Before conducting the study, official letter was submitted from the faculty of nursing, Suez Canal University to the director of Egyptian ambulance authority in Giza and the director of main ambulance center in Ismailia Governorate, explaining the aim of the study and the expected outcome to obtain their permission to carry out the study and to gain their cooperation. At the time of data collection a verbal agreement was taken from every participant in the study after clear and proper explanation of the study purpose and its importance to them.

Statistical Analysis:

After data were collected, they were coded and transferred into a specially designed format so as to be suitable for computer feeding. Following data entry and statistical analysis were done using SPSS version 20 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. Also, T test, chi square, person correlation coefficient r , F test, Proportion probability of error and Cronbach alpha are used for statistical analysis of collected data. The level of significance was adopted at $p < 0.05$.

III. Results

*** Demographic characteristics:**

Table (1): shows demographic characteristics of study subject, the mean age of the study subject was 39.25 ± 8.55 SD. Concerning marital status; the majority of the study subject (91.9 %) was married and (59.5%) live in rural areas where (55.2%) graduated from secondary ambulance school with mean of years of experience in emergency work was 15.3 ± 8.701 SD, and regarding the number of working hours (57.1%) work twelve hours/day.

Table (1): Demographic characteristics of emergency medical technicians. (N=210).

Personal data	N	%
Age		
25- 35	75	35.7
35- 45	52	24.8
>45	83	39.5
Marital status		
Single	17	8.1
Married	193	91.9
Level of education		
Diploma of Ambulance	116	55.2
Technical Health Institute	57	27.1
Emergency services program	37	17.6
Years of experience		
≤10 years	100	47.6
> 10- 20years	46	21.9
>20-30	58	27.6
>30	6	2.9
Number of working hours		
8 hours	90	42.9
12 hours	120	57.1

***Obstacles facing emergency medical technicians.**

Table (2) Shows obstacles facing study subjects. Concerning obstacles before access to cases, (52.4%) of study subjects sometimes have difficulties in reaching some cases to save it, and (53.8%) sometimes exposure to delay of rescue team. Regarding obstacles at accident location, the highest frequency always exposed to verbal violence from victims or their families (57.6%), and interference from surrounding in the emergency work (57%), while sometimes exposed to physical violence from victims or their families(52.9), and blame from surrounding (47%). About obstacles after leaving accident location, more than half of emergency workers had difficulties in the following: transporting vitims to hospital (50.5%), coordination with hospitals administrative team (53.8%), sometimes find difficulties in coordination with hospital health team such as doctors and nurses (55.2%), and victims admission to hospital (51%).

Table (2) Obstacles facing emergency medical technicians. (N= 210).

Obstacles	always %	Some- time %	Never %
Before access to cases.			
- Difficulties in reaching some cases to save it	41.9	52.4	5.7
-Delay rescue team	41.9	53.8	4.3
At the accident location			
-Verbal violence from victims or their families	57.6	42.4	-
-Physical violence from victims or their families	18.1	52.9	29
-Blame from surrounding	46.7	47.1	6.2
-Interference from people surrounding the accidents	57.1	38.1	4.8
After leaving accident location			
- Difficulties in transporting to hospital	37.1	50.5	12.4
- Difficulties in coordination with the hospital	22.4	53.8	23.8
- Difficulties in coordination with the hospital team (such as doctors and nurses)	28.1	55.2	16.7
- Difficulties in admitting victims to hospital	14.3	51	34.8

Figure (1) Distribution of post-traumatic stress symptoms of emergency medical technicians according cutoff point of (IES-R). (N=210).

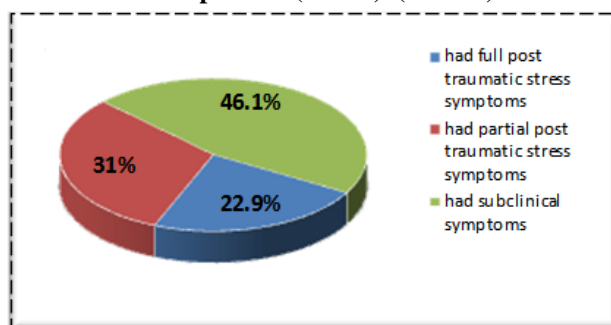


Figure (1) Shows, (54%) of study subjects have post- traumatic stress symptoms, (22.9%) of them have full symptoms post-traumatic stress and (31%) have partial post-traumatic stress symptoms.

***level of post-traumatic stress symptomatology among emergency medical technicians according to mean of (IES-R).**

Table (3) Shows, the mean avoidance subscale is 1.44±0.48 SD that indicate moderate level and intrusion subscale is 1.18±0.525 SD that indicate moderate level while the mean of hyper arousal subscale is 0.85±0.566 SD that indicate little bit level. So, by the sum of mean of each subscale, the mean of total IES-R is 3.48±1.58SD which indicate moderate level of post-traumatic stress symptomatology among study subjects.

Table (3) level of post-traumatic stress symptomatology among emergency medical technicians according to mean of (IES-R).

PTSS	Mean ± SD	Level of PTS
Avoidance symptoms	1.44±0.48	Moderate
Intrusion symptoms	1.18± 0.525	Moderate
Hyper-arousal symptoms	0.85±0.566	A little bit
Total PTSS	3.48±1.58	Moderate

Figure (2) Level of hardiness of emergency medical technicians according to (DRS). (N=210).

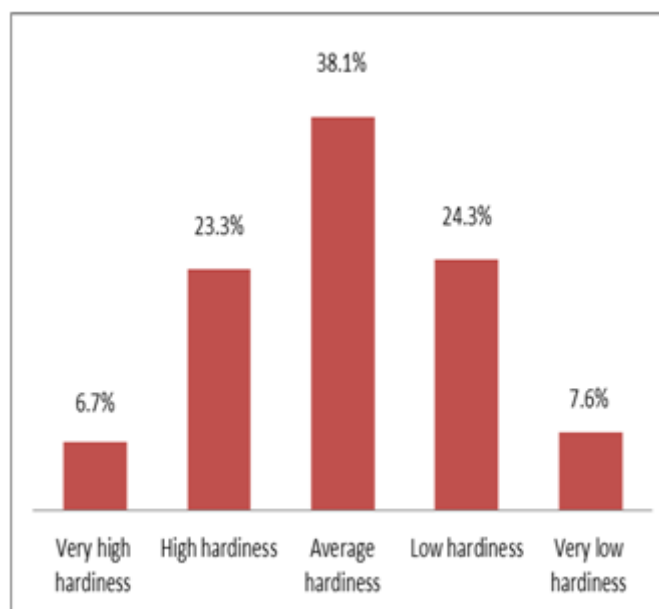


Figure (2) Shows, the highest frequency of study subjects (38.1%) have average level of hardiness.

Table (4) It shows, the high frequency of study subjects sometimes suffers from, fatigue (81%), depressed mood (62.2%), anxious feeling (51.4%), insomnia (71.9%), and of study irritability (61.4%) in relation to emergency work. Regarding relationships; the majority of study subjects (60%) hadn't negative effect on relationship with colleagues, but (66.2%) sometimes had poor relationship with family members, and (63.3%) sometimes had poor relationship with friends not work related in relation to emergency work. Concerning work efficiency, the high percentage of study subjects hadn't negative effect on work performance (66.7%), work judgment (53.8%), work satisfaction (70%), and work adaptation (79.5) in relation to emergency work.

Table (4) Negative impact of emergency work on the psychological condition, social relationship and work efficiency of emergency medical technicians. (N=210)

Characteristics	Never		Some-times		Always	
	N	%	N	%	N	%
Psychological health	29	13.8	170	81	11	5.2
Fatigue	65	31	137	62.2	8	3.8
Depressed mood	97	46.2	108	51.4	5	2.4
Anxiety	51	24.3	151	71.9	8	3.8
Insomnia	70	33.3	129	61.4	11	5.2

Irritability						
Social relationships	126	60	84	40	-	-
Poor colleagues relationships						
Poor family relationship	67	31.9	139	66.2	4	1.9
Poor friends aren't work related relationships	73	34.8	133	63.3	4	1.9
Work efficiency						
Weak work Performance						
Weak judgment at work Weak work satisfaction	140	66.7	68	32.4	2	1
Weak work adaptation						
	113	53.8	94	44.8	3	1.4
	147	70	29	13.8	34	16.2
	167	79.5	35	16.7	8	3.8

IV. Discussion

Emergency Medical Technician (EMT) is a person who provides basic emergency medical care and transportation of patients to access the Emergency Medical Services (EMS), so the availability of competent and trained members of the EMTs in emergency events can make positive differences (*Mistovich & Karren, 2014*). Emergency persons may encounter directly with many stressful events which an integral part of emergency job that threat their own wellbeing during their daily (*Mishra et al., 2010; Lanctôt & Guay, 2014*).

Concerning the obstacles facing EMTs in emergency work, all of the EMTs in the current study exposed to verbal violence and the majority of them exposed to physical violence from the victim's family or others peoples surround the accident. This result might be due to, the waiting time until the arrival of the ambulance produce more tension, anxiety, and fear of the victims' relatives and therefore express these negative feelings into physical or verbal violence.

The prior result was in the similarity with a study conducted by *Hyland et al., (2016)* which titled "Rates of workplace aggression in the emergency department and nurses' perceptions of this challenging behavior" which reported that all participants had experienced verbal abuse and/or physical abuse during their emergency work. Also, *Petzall et al., (2011)* study on Swedish pre-hospital emergency, *Vezyridis et al., (2015)* study on Cypriot emergency department health team and *Rafeea et al., (2017)* study on Bahrain defense force royal emergency medical services was in agreement with the previous result.

In addition, the majority of EMTs in this study faced with interference in their emergency work by people at the accident location which perceived by EMTs as a barrier to perform their work. This result might be due to, the people surround the accident being the first responder before arrival of trained emergency team that push them to provide help for victim in order to save his/her life but this help can harm the victim's life. Also, lack of public education programs about principles of first aid seem to be the reasons for the interference of people emergency work.

The antecedent result was correspond with results of studies conducted in Iran by *Khorasani-Zavareh et al., (2009); Haghparast-Bidgoli et al., (2010) & Alinia et al., (2015)* on pre-hospital emergency medical team. The similarity of these results might reflect the evidence of traditional culture that drive the lay people to interfere with emergency medical work.

Also, the majority EMTs in this study sometimes faced obstacles in coordination with the hospital health team (such as doctors and nurses). This result might be due to the belief of the hospital health team about the lack of knowledge and practice of EMTs, which lead to absences of trust regarding the information provided by them about the patients, also shortage of time for clear communication among hospital staff and EMTs personnel might be other cause of this result.

The prior result was in agreement with the study conducted by *Alanazi (2012)* among pre-hospital emergency medical responders in Saudi Arabia. While, *Landman et al., (2013)* was disagree this result and report that, there were more apparent close and collaborative communication between hospital health team and emergency medical service, the contradiction between both results might due to differences in educational level of participants of both studies and the difference in traditional culture which affect the person's perception of others.

Furthermore, the high frequency of EMTs in the present study sometimes experienced obstacles in coordination with the hospital administrative team and admission of victims to hospital. This result might be due to, the presence of only two main hospitals in Ismailia governorate which a leading cause of contact pressure on the hospital phone that hinder communication between hospital and pre-hospital team, also a lack of adult and pediatric ICU places considered a cause of delayed victim admission to hospitals, in turn the EMTs was being responsible for the victims even after reaching to the hospital which produce a lot of stress for them.

The previous result was in the same line with studies conducted in Iran by *Khorasani-Zavareh et al., (2009)*; *Haghparsast-Bidgoli et al., (2010)* & *Alinia et al., (2015)* on pre-hospital medical services which reported that, high frequency of studied participants found poor coordination and communication with hospitals administrative team concerning the patient and act as a barrier facing them.

Additionally, the majority of EMTs in this study faced with obstacles in reaching to some cases for saving them and found difficulties in transporting cases to hospitals at the proper time. This result might be due to, the EMTs didn't obtain enough explanation regarding address of the victim or accident location, also the location of two main hospitals near to each other and being away from many sectors of Ismailia governorate.

The previous result goes along with the study conducted in Iran by *Ebrahimian et al., (2014)* which titled "Exploring factors affecting emergency medical service's staff's decision about transporting medical patients to medical facilities" and reported that, arrival time for patients is a major challenge of emergency care delivery services in which late arrival produce more difficulties in deciding on transportation. Also, the study performed by *Alanazi, (2012)* in Saudi Arabia report that, high frequency of pre-hospital emergency medical services faced by transportation's obstacles due to traffic congestion, road repairs and traffic signals which interfere with emergency work and time of hospital arrival.

Regarding Post-Traumatic Stress Symptomatology (PTSS), the current study stated that, about half of EMTs had symptoms of post-traumatic stress disorder in which twenty-three percent had a full symptoms and thirty-one percent had partial symptoms. In addition, the level of PTSS according to IES-R was moderate. This result might be due to severe stress, anxious feeling and depressed mood produced by frequent exposure to critical accidents and other natures of emergency work, also obstacles experienced by EMTs might play an important role in this result.

The preceding result was in agreement with studies conducted in Iran by *Bennett et al., (2004)* & *Saberi et al., (2008)* reported that, twenty-two percent and twenty-nine percent respectively of emergency medical persons had post-traumatic stress disorder. Also, an Egyptian study conducted by *Khashaba et al., (2014)* stated that, about forty percent of studied EMTs met full criteria of PTSD. Additionally, the study conducted in southeast Iran by *Iranmanesh et al., (2013)* revealed that ninety-four percent of studied pre-hospital and hospital emergency medical responders had PTSD.

Moreover, the studies conducted in Pakistan by *Razik et al., (2013)* & *Kerai et al., (2017. a)* which explore post-traumatic stress disorder and its predictors in emergency medical service personnel in Pakistan among emergency medical personnel represented that, the level of PTSS was moderate by using the same scale utilized in the current study. On the other hand, study of *Shepherd & wild, (2011)* which conducted on ambulance workers revealed that, the level of PTSD was mild among studied participants, and the study conducted by *Ward et al., (2006)* in South Africa showed that, level of PTSS was little bit by using IES-R.

Based on the previous result, the prevalence rate of PTSS was somewhat different from that in similar studies conducted in the same country and other countries which might be due to differences in the size of the research sample, organizational structures in different countries, educational level of participants, working volume, and time of data collection of each study and the results subsequently becomes different..

In the current study we found that, the emergency work produced a negative impact on psychological health, social relationship and work efficiency of EMTs, concerning psychological health, the majority of EMTs sometimes had fatigue, depressed mood, anxious feeling, insomnia, and irritability. This might be due to, the most of EMTs didn't obtain senior and management support or taking enough time for recovery after exposure to stressful accident. Furthermore, they faced a lot of obstacles during emergency work like verbal and physical violence which cause a negative consequences on the psychological health of EMTs.

The preceding result goes along with a study conducted by *Sofianopoulos et al., (2011)* & *Courtney et al., (2013)* where they investigate the sleep quality, fatigue, mental health and physical activity in Australian paramedic and reported that, Australian paramedic had poor sleep quality, high levels of fatigue, depression, and anxiety. In addition, *Fjeldheim et al., (2014)* show high prevalence rates of depression was found among paramedics participants and *Rawat et al., (2015)* showed that a high percentage of Victorian paramedics was experienced sleep disturbances related to their work. So, the similarity in these results might reflect the pre-hospital emergency work background like heavy workloads for long hours, irregular work schedule and frequent exposure to traumatic events that are physically, mentally and emotionally tiring for EMTs.

Also, the majority of EMTs in this study sometimes had poor relationships with family and friends not work related. This result might be due to, hard work for long periods, lack of time for emotional and physical rest and exposure to critical situations which produced a negative impact on the person's mood, thoughts, coping behaviors and subsequently social relationship can be harmed.

In agreement with the previous result, *Wang et al., (2012)* study, which titled "Work-family conflict and burnout among Chinese female nurses" and *Repetti & Wang, (2017)* study, which titled "Effects of Job Stress on Family Relationships" revealed that stressful experiences and conflict at work circumstances had a negative impact on social relations include family interactions, and may cause social withdrawal. The similarities of these results might reflect the evidence of the dynamics that go beyond a simple and direct transfer of stress and emotional burden from work to home and other social instances that has a vital role in this result.

On the other hand, emergency work didn't produce negative impact on work efficiency such as (work adaptation, satisfaction, judgment and performance) as reported by EMTs in this study. This result might be due to, increased alertness and attention of EMTs in the emergency situation to save the life of others despite the emotional and physical peak load which influence rapid decision making and appropriate initiation of emergency intervention within the circumstance limitations which perceived by the participants as good work judgment and work performance and in turn improve their self-confidence and work satisfaction.

Van Schaijk et al., (2017) study about appraisal of work ability in relation to job-specific health requirements in the ambulance was in agreement with the previous result. While, *Khashaba et al., (2014)* study revealed that, thirty one percent of EMTs had a lack of decision control at work and explain this result as related to lack of organizational decision control among the EMTs in Mansoura city. The difference between both results might be due to the nature of a question in which the current study mainly asks about work efficiency in emergency situations only.

From the psychiatric health perspectives, emergency work includes a lot of stress, traumatic event and obstacles that affect overall health and wellbeing of EMTs. The continuous exposure to these difficulties associated with the development of PTSS which considered a comorbid condition. Therefore, the early identification and treatment of potential stress and psychiatric health problems of EMTs is warranted. Also, social support from significant people and active problem focused coping generally help individuals to handle the traumatic stressors.

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