Post-Traumatic Stress Disorders and Burnout Syndrome among Community Paramedic Staff

Doaa Abd El Salam Amin Yacout[*], Neama Yousef Mohamed[**], Hanan Hosni El Sherbini[**]
[*]Assistant professor, Community Health Nursing, Faculty of Nursing, Damanhour University, Egypt
[**]Assistant professor, Community Health Nursing, Faculty of Nursing, Alexandria University, Egypt

Abstract

Background: Community health nursing specialties is continuously changed and updated according to the community needs, ambulance paramedics staff is one of the specialties in community health nursing, and they play a vital role in emergencies even at home, they play a role in advancing home care which reduces the cost in the health care system, they deal with serious conditions such as pandemic situation as in case of COVID-19 pandemic nowadays. So, this group of staff must be studied to understand the occupational problems that might be facing them and help them to deal with it. **Aims of the study:** the current study aimed to assess the post-traumatic stress disorders among paramedic staff, and to evaluate the burnout syndrome severity among paramedic staff as a community paramedic. **Material and Methods:** A descriptive exploratory research design was used. **Settings:** The study was carried out at once out of the seven regions served by the Egyptian Ambulance Organization (EAO) namely Alexandria region which serves three Egyptian governorates (Alexandria, Matrouh and Beheira governorate). **Subjects:** All paramedic staff working at the chosen settings and meet the inclusion criteria (68) was recruited in the study. **Tools:** Data was collected through using three tools "Paramedic Staff Health Profile and Sociodemographic Assessment Tool, Maslach Burnout Inventory – Human Services Survey for Medical Personnel (MBI-HSS) Tool and the Clinician-administered Post Traumatic Stress Disorder Scale for DSM-5 (CAPS-5) Past Month Version. **Results:** The current study indicate that the studied paramedic staff has different degree of burnout syndrome and post-traumatic stress disorder with a significant association with multivariable such as age, marital status level of education, years of experiences, working hours per week, sleeping hours and their evaluation for their health condition. **Conclusion and Recommendations:** it was concluded that, the paramedic staff burnout inventory scale indicate that around one third of them have high emotional exhaustion level, whereas, more than two fifths of them have low level of personal accomplishment. Around one third have high level of depersonalization. Furthermore, three quarters of the studied paramedic have mild, minimal distress or disruption of activities followed by moderate, distress clearly present but still manageable. It was recommended that, regular screening of paramedic staff should be done for evaluating stress, depression, and anxiety. Proper management must be held at early stage of symptoms of BOS and PTSD. Inservice stress management training especially for invoice community paramedic staff must be executive to raise their awareness regarding the possibility of PTSD and BOS and how to deal with.

Keywords: Post traumatic, paramedic staff, burnout, stressors.

Introduction

Community Paramedic is an evolving field that involves paramedics in more than emergency care and transport. It reduces emergency room visits and filling gaps in health care delivery by reducing the burden on primary care physicians. Additionally, it's being used to improve access to appropriate care for patients who are unable to reach the health care facilities especially when they call the emergency service since they respond to this call and provide immediate care even at home. According to **Zavadsky report, 2014,** Community Paramedic staff provides in-home and telephone-based support to patients who call the emergency service and work as a part of mobile integrated health care practice as they conduct an in-depth patient's assessment, develop a customized plan of care, and provide needed support for patients and their family. **Raynovich (2014), Blacker, Pearson and, Walker (2009)** added that the Emergency Medical Services Professionals also participate in disease and injury prevention and they accurately assess both the patient's clinical condition and the environmental context in which they live. Community paramedics have trusted members of the community who focus on outreach, education, and informal counseling, contribute to improved health care outcomes for the underserved populations they serve. There is growing interest in bringing the skills of these workers to specific condition-focused initiatives or patient-centered medical homes **Wingrove (2014) and Reforming States Group (2014). World Health Organization (2011)** recommends different training program for community paramedic staff who served population under difficult circumstances.

Community Paramedics facing different occupational hazards at their work either physical, mechanical, biological, or psychological hazards, they face unique mental health challenges, like no other job. One of the main challenges facing them is lacking human resources which make the care provision difficult and put extra load among them to provide safe high-quality care for those in casualty or at home especially in remote marginalized and unserved area. Additionally, paramedic staff is forced to work in critical situations, and they must sustain commitment to disaster preparedness and planning since they deal with major casualties and have to save victim's life. Traumatic events they experienced at work makes them unable to deal effectively and lead to the exposure to post-traumatic stress disorders and burnout syndrome **(Viswanathan, Wizemann, and Altevogt, 2011).** A study done at Mansoura city, Egypt (2014) concluded that Emergency Medical Responders (EMRs) group had more frequent exposure to both acute and chronic work-related stressors than the comparative group. Also, community EMRs had higher levels of Emotional exhaustion (EE), depersonalization (DP), and PTSD compared with comparative group. EMRs are in need for stress management program for prevention these of stress related hazards on health and work performance **(Khashaba, El-Sherif, Ibrahim, and Neatmatallah, 2014).** Further, working as a community paramedic can be demanding

psychologically and physically, setting a high pressure on community paramedic in prehospital care all over the world. This pressure may cause a higher risk for them to develop burnout and stress **(Auvinen, and Lisitsyn, 2017).**

Emergency service workers (Paramedics) are already at high risk of burnout especially due to many occupational hazarders as coronavirus stress now days.

Paramedics are often the first on the scene of major accidents, often involving gruesome deaths. People's lives depend on their quick reaction and care. Add to this the physical stress of the job, and it's not hard to see why paramedics need to be proactive about their own health, mental and physical. All these variables are contributing to burnout and stress among them **(Emergency Service Health Team, 2020).**

Burnout syndrome (BOS) associated with stress has been documented in health care professionals in many specialties, among them the emergency department and the pre-hospital healthcare services which are highly stressful environments **(Cicchitti, Cannizzaro, Rosi, Maccaroni, Menditto, 2014).** Burnout has been typically described as a mental health problem that has three key components "personal accomplishment, emotional exhaustion and depersonalization" according to Maslach Burnout Inventory – Human Services Survey for Medical Personnel (MBI-HSS). Burnout has also been described as a stress related illness which can manifest itself physically with typical stress responses leading to serious health and safety concerns thus shed the light on the importance of minimizing its risks among the frontline care providers. Burnout due to workload in general in community paramedics emergency services in major accidents may leads to serious consequences among the frontline care providers and the paramedic staff **(Dubale, Friedman, Chemali, Denninger, Mehta, Alem, Fricchione and Gelaye et al, 2019).** The paramedic health team always complain from variant level of anxiety and stress according to workplace variables and overloaded workload as was found to have a positive correlation with Maslach burnout inventory scores **(Shah, Chaudhari, Kamrai, Lail, and Patel, 2020, Shah, Kamrai, Mekala, Mann, Desai, Patel, 2020, Christine, Emilie, and Martine, 2019, Patel, Bachu, Adikey, Malik, and Shah, 2018).**

Burnout is not occurred alone; it mainly has another side like the coin. The other phenomena that mainly joined with burnout syndrome (BOS) are post-traumatic stress disorders (PTSDs). The co-existence of PTSDs and BOS is associated with altered perceptions of work and nonwork-related activities affecting the paramedic's health and their productivity and working performance. The extreme effect of PTSDs and BOS among these workers including loss of their life due to exhaustion and stress **(Mealer, Burnham, Goode, Rothbaum, and Moss, 2009).**

The Clinician-administered Post Traumatic Stress Disorder Scale for DSM-5 (CAPS-5) was used to assess PTSDs related intrusion symptoms, avoidance symptoms, cognitions, and mood symptoms, and arousal and reactivity symptoms. Also, it used to assess the disturbance characteristics of PTSD "onset, duration, associated

distress or impairment, subjective distress, impairment in social functioning, impairment in occupational or other important areas of functioning. And finally, it assess the incidence of dissociative symptoms (Depersonalization, Derealization); where depersonalization is known as persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly). While derealization indicates persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

Until recently, occupational health as one of community health nursing specialties 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. So, the current study aimed to assess the PTSDs and BOS among paramedic staff working as a community paramedic in Egypt.

Significance of the study

Paramedics have the highest rate of posttraumatic stress disorder (PTSD) and burnout syndrome among emergency service workers, higher than police or firefighters. This disorder can be detrimental to their personal and family lives, as well as their careers. Occupational health nurses can influence the triad of factors contributing to PTSD among paramedics by facilitating social support and emotional expression while advocating for reduced job exposure to traumatic events and burnout (Chun Ma, Hung Chang, Wu, and Lin, 2020, Drewitz-Chesney, 2012).

Aims of the Study

The current study aims to

- Assess the post-traumatic stress disorders among paramedic staff as a community paramedic.
- Evaluate the burnout syndrome severity among paramedic staff as a community paramedic.

Research Questions:

- What are the post-traumatic stress disorders total score among paramedic staff as a community paramedic?
- What is the burnout syndrome severity among paramedic staff as a community paramedic?

Materials and Method

Study Design:

A descriptive exploratory research design was used.

Study Setting:

Egyptian Ambulance Organization (EAO) is a governmental organization affiliated to the Egyptian Ministry of Health and Population (MOHP). It is one of the most important organizations affiliated to the Egyptian Ministry of Health. It starts to work since 1902 to provides responsive, quality emergency clinical care and support for patient transport, rescue and retrieval services that aimed to meet the community needs. The EAO serve seven regions covering the whole country; which are Greater

Cairo region (Cairo, Giza, October, Helwan, and Qalyubia governorates), Alexandria region (Alexandria, Matrouh and Beheira governorates), Delta region (the governorates of Menoufia, Dakahlia, Damietta, Kafr El-Sheikh and Gharbia), Canal region (Suez, Ismailia, Eastern, Port Said, North Sinai, and South Sinai governorates), North Upper Egypt region (Beni Suef, Minya, and Fayoum governorates), Central Upper Egypt region (Assiut, Sohag and New Valley governorates), and South Upper Egypt region (Aswan, Luxor, Qena and Red Sea governorates).

The current study was carried out at one out of the seven regions served by the EAO namely Alexandria region which serve three Egyptian governorates (Alexandria, Matrouh and Beheira governorate).

Study Subjects:

All paramedic staff working at the previously selected settings and meet the inclusion criteria was included in the study. The total number of the selected paramedic is 68 members (30 members working at Alexandria governorate, 30 members working at Beheira governorate and 8 members working at Matrouh governorate). They selected according to the following inclusion criteria:(Working at the EAO since at least one year).

Tools:

In order to collect the necessary data for the study, the following tools were used:

Tool I: Paramedic Staff Health Profile and Sociodemographic Assessment Tool:

This tool was developed by the researchers after reviewing recent literature to collect data about paramedic staff's health profile, sociodemographic data, occupational history (job description, duration of employment, shift work hours, working experiences in addition to their lifestyle pattern. Also, weight, height and blood pressure were assessed.

Tool II: Maslach Burnout Inventory – Human Services Survey for Medical Personnel (MBI-HSS):

It is a self-reported instrument used to measure the frequency of the three aspects of burnout syndrome namely: emotional exhaustion, depersonalization, and personal accomplishment **(Maslach, Jackson, Leiter, 1996, Maslach, Jackson, 1981, Maslach, Schaufeli, Leiter, 2001, Lheureux and Borteyrou, 2017).** It contains 22 items grouped into three subscales according to the following; emotional exhaustion (9 items) which allows subjects to describe feelings of being emotionally overextended and fatigued; depersonalization (5 items) which measures the extent of unfeeling and impersonal attitudes toward clients, and personal accomplishment (8 items) which describes feelings of competence and successful achievement in relation to working with clients. The responses are 6-point Likert- type scale ranging from never = 0 to every day= 6. The total score of burnout scale is 132. The classification of scores on subscales of the Maslach Burnout Inventory (MBI) was divided into the following:

Emotional exhaustion (EE): The maximum allowed score was 54 point which categorized into: Low EE (0-18

point), Moderate EE (19-26 point), and High EE (27 point and more)

Personal accomplishment (PA): The maximum allowed score was 48 point which categorized into: Low (40 point or more), Moderate (34-39 point), and High (0-33 point)

Depersonalization (DP): The maximum allowed score was 30 point which categorized into: Low DP (0-5 point), Moderate DP (6-9 point), and High DP (10 point or more).

Tool III: Clinician-administered Post Traumatic Stress Disorder Scale for DSM-5 (CAPS-5) Past Month Version:

The Clinician-administered Post Traumatic Stress Disorder Scale for DSM-5 (CAPS-5) was used to assess the current PTSDs among the clinicians. The past month version of the CAPS-5 was used to evaluate PTSD symptoms over the past month **(Weathers, Bovin, Lee, Sloan, Schnurr, Kaloupek Marx et al, 2018).** The CAPS-5 is a 30-item structured interview questions; each question was scored (0) if the respondents didn't have the symptoms or (1) if the respondents have the symptom. CPTSD total score was divided into four levels of distribution which are:

- None, who reported no symptoms of distress.
- Mild, minimal distress or disruption of activities (1-10 points).
- Moderate, distress clearly present but still manageable disruption of activities (11-20 points).
- Severe, distress clearly present with unmanageable disruption of activities (21-30 points).

Methods

Administrative process:

- Official letters from the faculty of Nursing, University of Alexandria were directed to Egyptian Ambulance Organization at Alexandria, Beheira and Matrouh governorate to obtain their permission to collect data from the selected settings.

Development of study tools:

- Tools I was developed by the researchers after reviewing of the recent literature.
- Tool II and III were translated into Arabic language and revised extensively by expertise in language translation.

Content validity

- The content validity of the study tools was tested by a group of (5) experts in the field and their opinions and their suggestions were taken into consideration.

Reliability of the tool

The reliability of the tool II and III was ascertained using the Cronbach Alpha test, where both were more than 80% reliable.

Pilot study

A pilot study was carried out on 5 paramedic staff to test the clarity, feasibility and applicability of the study tools. The necessary modifications were done. These staff were excluded from the total study subjects.

Field work

- Data was collected individually from the paramedic staff after receiving

their written approval to participate in the study.

- An individual interview was carried out in order to collect the necessary data from each subject. The interview took around 20-30 min.
- Weight and height were measured to calculate Body Mass Index (BMI) according to WHO standard. Blood pressure was measured also using mercury sphygmomanometer, while the paramedic staff was setting at a relaxed atmosphere.
- Data was collected since the beginning of October 2019 till the end of January 2020.

Statistical analysis:

- The collected data was coded and feed into the PC using IBM-SPSS version 25.
- Data was analyzed using the suitable statistical analysis where, descriptive statistical methods were used to summarize data as frequencies (n) and percentages (%) for categorical variables.
- Different tests were used. Chi square and Fisher's exact test are used to determine if there are associations between two categorical variables.
- A value of $P \leq 0.05$ was considered statistically significant.

Ethical Considerations

- Written consent was obtained from every participant included in the study after an explanation of its aims and assured them that the collected data will be used only for the study purpose.
- Dealing with the study subjects respectively regardless of their age, sex, religion, and their socioeconomic status.
- Confidentiality and anonymity of individual's response was ensured by statement in the cover page of the tool, and a code number was used instead of the names as well.
- Participation was maintained voluntarily.
- The study subjects assured that they have the right to withdrawal at any time.
- The researchers credit the study subjects and everyone who assisted in the study in the research acknowledgment statement.

Results

Table 1 shows that less than two fifths of the studied subjects aged 30 to less than 40 and 40 to less than 50 years old (36.8% and 38.2% respectively) with the mean age 39.6±9.0. The majority (89.7%) of them were married. A quarter of them have finished secondary education and just half (51.5%) of them finished above average education (technical health institute), compared to around a tenth of them who have bachelor degrees or diploma and fellowship in an emergency (13.2% and 10.3% respectively). Regarding mean years of experience, it was 16.4±9.3 years. More than seventy percent (79.4%) of them work at a long day shift. In this regard, it was noticed that they work around 46.2 hours per week since 35.3% of them work for 36 hour, 54.4 % work for 48 hour and 10.3% of them work for 72 hour as they work as a block

working hours and be on call. The majority (91.2%) of them deal with victim directly. Only 11.8% of the paramedic staff was satisfied by their work compared to 51.5% who dissatisfied. Finally, more than a quarter (27.9%) of them has a desire to change their career.

Table 2 presents that only around one third (33.8%) of the paramedic staff has adequate sleeping hours with a mean sleeping hour 7±1 hour a day. Slightly more than half (51.5%) of them were smokers. It was observed that slightly more than two thirds (67.6%) of them eat regular meals per day. Only 10.3% of them didn't complain of any health problems, compared to less than three quarters (73.5%) who suffered from headache, followed by less than two fifths (39.7%) who have low back pain, and the minorities who have insomnia, hypertension and DM (11.8%, 8.8%, and 4.4% respectively). Regarding blood pressure measurement findings, it was noticed that the mean systolic blood pressure is 127.6±15 mmHg, while the diastolic blood pressure is 82.2±8 mmHg. Body mass index (BMI) classification of them revealed that more than a quarter (26.5%) were overweight, while more than one fifth (22.1%) of them classified as obese class I. Finally, according to their self-evaluation for their health condition self-rating scale it was noticed that only 5.9% of them have a good health condition, two thirds (67.6%) stated that they have a fair health condition and slightly more than a quarter (26.5%) of them have a poor health condition.

Table 3 portrays the paramedic staff burnout based on Maslach burnout inventory-human services survey for medical personnel (MBI-HSS) findings. Regarding emotional exhaustion domain, it was found that around one third (33.8%) of them have high emotional exhaustion level and more than a quarter (27.9%) of them have moderate emotional exhaustion level with a mean of 23.3±10.3 point. Whereas more than two fifths (44.1%) of them have low level of personal accomplishment followed by one fifth (20.6%) who have moderate level of personal accomplishment, with a mean of 37±8 points. Finally, around one third (33.8%) have high level of depersonalization with a mean of 6.6±6.3 points.

Figure 1 portrays that three quarters (70.6%) of them have mild, minimal distress or disruption of activities followed by moderate, distress clearly present but still manageable, some disruption of activities among less than a quarter (23.5%) of them according to the CPTSD total score based on clinician-administered post-traumatic stress disorder scale for DSM-5 (CAPS-5) past month version.

Table 4 shed the light on the significant association between age and emotional exhaustion status of the studied paramedic staff where the high level of exhaustion is prevalent among the older one with p value <0.001. Regarding marital status it was observed that around one third (37.7%) of the married have high level of emotional exhaustion with a significant association between marital status and emotional exhaustion, with p value 0.002. The majorities (88.9%) of those who have

bachelor's degree of education have high level of emotional exhaustion followed by 42.9% among those who have diploma and fellowship in emergency with a significant association (p value <0.001). Furthermore, the majority (81%) of those who have 5 to less than 10 years of experiences have high level of emotional exhaustion compared to 15.4% of those who have 20 years of experience and more with a significant difference (p value <0.001). it also observed that less than half (42.6%) of those who working long day shift a day have high level of emotional exhaustion, with a significant association between working shifts and emotional exhaustion with p value <0.001. Moreover, around half of those who working 48 and 72 working have high level of emotional exhaustion (51.4% and 57.1% respectively) with a significant association between working hours per week and emotional exhaustion with p value <0.001. More than two fifths (45.7%) of dissatisfied at their work have high level of emotional exhaustion with a significant association (p value 0.005). Slightly less than half (46.7%) of those who have adequate sleeping hours have low emotional exhaustion compared to 30.4% of those who have inadequate sleeping hours who have high emotional exhaustion with a statistically significant association between sleeping hours and emotional exhaustion with p value 0.023. Finally, it was noticed that 61.1% of those who evaluate his health condition as poor condition have high level of emotional exhaustion with p value 0.007.

Table 5 shed the light on the significant association between age and personal accomplishment status of the studied paramedic staff where the high level of accomplishment is prevalent among the older one with p value <0.001. Regarding marital status it was observed that around one third (36.1%) of the married have high level of accomplishment compared to 41% who have low accomplishment level with a significant association between marital status and personal accomplishment, with p value 0.035. The majorities (88.9%) of those who have bachelor degree of education have moderate level of accomplishment compared to 82.4% of those who have nursing diplome, while all of those who have diploma and fellowship in emergency have high level of accomplishment with a significant association (p value <0.001). Furthermore, less than two thirds (63.6%) of those who have 10 to less than 15 years of experiences have high level of accomplishment with a significant difference (p value <0.001). It also observed that around one third (31.5%) of those who working long day shifts have high level of accomplishment, with a significant association between working shifts and personal accomplishment with p value <0.001. Moreover, more than two thirds (66.7%) of those who working 36 hours have high level of accomplishment with a significant association between working hours per week and accomplishment with p value <0.001. More than half (54.3%) of dissatisfied at their work have low level of accomplishment with a significant association (p value 0.003). Slightly more than half (56.5%) of those who have inadequate sleeping hours have low personal accomplishment with a statistically significant association between sleeping hours and personal accomplishment with p value 0.011.

Finally, it was noticed that all of those who evaluate his health condition as good condition have high level of accomplishment with p value <0.001.

Table 6 found significant association between age and depersonalization status of the studied paramedic staff where the low level of depersonalization is prevalent among all of those aged 50 years and more compared to the majority (90%) of those aged less than 30 years who have high depersonalization with p value <0.001. Regarding marital status it was observed that around one third (34.4%) of the married have high level of depersonalization compared to 40% of single with a significant association between marital status and depersonalization, with p value 0.022. The majorities (88.9%) of those who have bachelor degree of education have low level of depersonalization compared to 47.1% of those who have nursing diplome, while half (52.9%) of those who have nursing diplome have high level of depersonalization with a significant association (p value <0.001). Furthermore, more than half (53.8%) of those who have 20 years of experiences and more have low level of depersonalization compared to 46.2% of them who have high level depersonalization with a significant difference (p value <0.001). Moreover, majority (85.7%) of those who working 72 hours have high level of depersonalization with a significant association between working hours per week and depersonalization with p value 0.002. Less than one third of dissatisfied and partially satisfied at their work have high level of depersonalization (31.4% and 32% respectively) with a significant association (p value <0.001). Finally, there is no statistically significant association between working shift, sleeping hours, and self-evaluation of health condition and depersonalization.

Table 7 shed the light on the significant association between age and CPTSD total score of the studied paramedic staff where the high level of CPTSD is prevalent among the younger one with p value <0.001. No one of those who have bachelor degree of education and who have diploma and fellowship in emergency and those working as physician and paramedic have high level of CPTSD with a significant association between level of education and CPTSD total scores (p value <0.001). Furthermore, around one-third (33.3%) of those who have 15 to less than 20 years of experiences having a high level of CPTSD with a significant difference where p value 0.004. It also observed that less than three quarters (70.4%) of those who working long day shifts have high level of CPTSD, with a significant association between working shifts and CPTSD with p value <0.001. Moreover, more than two fifths (42.9%) of those who working 72 hours have high level of CPTSD followed by a quarter (24.3%) of those who working 48 hours per week with a significant association between working hours per week and CPTSD with p value 0.054. Slightly more than a quarter (26.7%) of those who have adequate sleeping hours have high CPTSD compared to 17.4% of those who have inadequate sleeping with a statistically significant association between sleeping hours and CPTSD with p value 0.014. one of the surprising findings revealed that all of those who evaluate his health condition as good condition have high level of CPTSD with p value 0.003. Finally, there is no statistically significant association between marital status, work satisfaction and CPTSD total score.

Table 1. Distribution of the Studied Paramedics According to Their Socio-Demographic Data and Working Experiences (n.68)

Socio-Demographic Data and Working Experiences	No. (68)	%
Age (Years)		
Less than 30	10	14.7
30 to less than 40	25	36.8
40 to less than 50	26	38.2
50 and more	7	10.3
Mean±SD	39.6±9.0	
Marital status		
Single	5	7.4
Married	61	89.7
Divorced	2	2.9
Level of Education		
Secondary level of education (Diplome)	17	25.0
Above average education (Technical Health Institute)	35	51.5
High level (Bachelor)	9	13.2
Post-graduate (Diploma and Fellowship in Emergency)	7	10.3
Years of experience		
5 to less than 10 years	21	30.9
10 to less than15 years	22	32.4
15 to less than 20 years	12	17.6
20 years and more	13	19.1
Mean±SD	16.4±9.3	
Working shift		
Morning	10	14.7
Evening	4	5.9
Long day	54	79.4
Number of working hours a week		
36.00	24	35.3
48.00	37	54.4
72.00	7	10.3
Mean±SD	46.2±10.4	
Deal with victim directly		
No	6	8.8
Yes	62	91.2
Work satisfaction (Self-rating scale)		
Satisfied	8	11.8
Partially satisfied	25	36.8
Dissatisfied	35	51.5
Desire to change the career (Career shift desire)		
No	49	72.1
Yes	19	27.9

Table 2. Distribution of the Studied Paramedics According to Their Lifestyle Pattern and Health Profile (n.68)

Lifestyle pattern and health profile	No. (68)	%
Number of sleeping hours		
Inadequate (less than 6hours)	23	33.8
Adequate (6hours and more)	45	66.2
Mean ±SD	7.0±1.0	
Smoking habit		
No	33	48.5
Yes	35	51.5
Regular eating of meals		
No	22	32.4
Yes	46	67.6
Health complains #		
None	7	10.3
Headache	50	73.5
Low back pain	27	39.7
Insomnia	8	11.8
Hypertension	6	8.8
DM	3	4.4
Blood pressure assessment		
Mean ±SD of Systole blood pressure	127.6±15.0 mmHg	
Mean ± SD of Diastole blood pressure	82.2±8.0 mmHg	
BMI		
Average weight	35	51.5
Overweight	18	26.5
Obese class I	15	22.1
Self-evaluation for health condition (Self-rating scale)		
Good	4	5.9
Fair	46	67.6
Poor	18	26.5

 # Multiple response.

Table 3. Distribution of the Studied Paramedics According to Their Burnout Syndrome Related Symptoms (Emotional exhaustion, Personal accomplishment, and Depersonalization) (n.68)

Maslach Burnout Inventory – Human Services Survey for Medical Personnel (MBI-HSS) Domains	No. (68)	%
Emotional exhaustion		
Low (0-18)	26	38.2
Moderate (19-26)	19	27.9
High (27 and more)	23	33.8
Mean ± SD (Maximum allowed score is 54 point)	23.2±10.3	
Personal accomplishment		
Low (40 or more)	30	44.1
Moderate (34-39)	14	20.6
High (0-33)	24	35.3
Mean ± SD (Maximum allowed score is 48 point)	37.0±8.0	
Depersonalization		
Low (0-5)	34	50.0
Moderate (6-9)	11	16.2
High (10 or more)	23	33.8
Mean ± SD (Maximum allowed score is 30 point)	6.6±6.3	

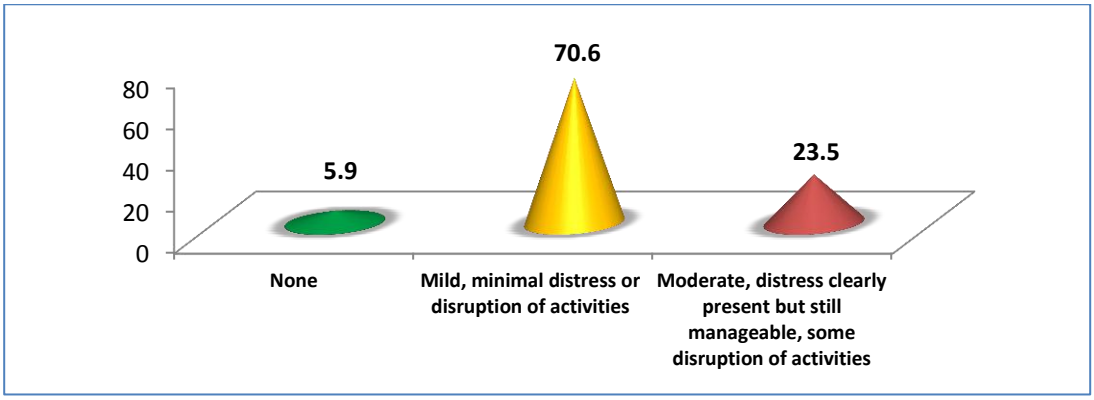

Figure 1. Distribution of the Studied Paramedics According to Their Clinician Post Traumatic Stress Disorder (CPTSD) Total Score

Table 4. The Association between the Studied Paramedics Socio-Demographic Data and Working Experiences and Their Emotional Exhaustion (n.68)

Variables	Emotional exhaustion						Sig.
	Low		Moderate		High		
	No.	%	No.	%	No.	%	
Age							
Less than 30	1	10.0	3	30.0	6	60.0	
30 to less than 40	18	72.0	4	16.0	3	12.0	FET:43.794
40 to less than 50	0	0.0	12	46.2	14	53.8	P:<0.001*
50 and more	7	100.0	0	0.0	0	0.0	
Marital status							
Single	0	0.0	5	100.0	0	0.0	FET:16.961
Married	24	39.3	14	23.0	23	37.7	P: .002*
Divorced	2	100.0	0	0.0	0	0.0	
Level of Education							
Secondary level of education (Diplome)	0	0.0	12	70.6	5	29.4	
Above average education (Technical Health Institute)	21	60.0	7	20.0	7	20.0	FET:39.861
High level (Bachelor)	1	11.1	0	0.0	8	88.9	P:<0.001*
Post-graduate (Diploma and Fellowship in Emergency)	4	57.1	0	0.0	3	42.9	
Years of experience							
5 to less than 10 years	1	4.8	3	14.3	17	81.0	
10 to less than15 years	18	81.8	4	18.2	0	0.0	FET:53.668
15 to less than 20 years	0	0.0	8	66.7	4	33.3	P:<0.001*
20 years and more	7	53.8	4	30.8	2	15.4	
Working shift							
Morning	7	70.0	3	30.0	0	0.0	FET:24.756
Evening	0	0.0	4	100.0	0	0.0	P:<0.001*
Long day	19	35.2	12	22.2	23	42.6	
Number of working hours a week							
36.00	20	83.3	4	16.7	0	0.0	FET: 34.655
48.00	6	16.2	12	32.4	19	51.4	P:<0.001*
72.00	0	0.0	3	42.9	4	57.1	
Work satisfaction							
Satisfied	4	50.0	4	50.0	0	0.0	FET: 15.022
Partially satisfied	15	60.0	3	12.0	7	28.0	P:.005*
Dissatisfied	7	20.0	12	34.3	16	45.7	
Sleeping hours							
Inadequate	5	21.7	11	47.8	7	30.4	X2: 7.510
Adequate	21	46.7	8	17.8	16	35.6	P: .023*
Self-evaluation for health condition							
Good	4	100.0	0	0.0	0	0.0	FET: 14.044
Fair	18	39.1	16	34.8	12	26.1	P:.007*
Poor	4	22.2	3	16.7	11	61.1	

FET: Fisher Exact Test X^2: Chi square test P: P value of test of significance *Significant at P value ≤0.05.

Table 5. The Association between the Studied Paramedics Socio-Demographic Data and Working Experiences and Their Personal Accomplishment (n.68)

Variables	Personal accomplishment						Sig.
	Low		Moderate		High		
	No.	%	No.	%	No.	%	
Age							
Less than 30	4	40.0	3	30.0	3	30.0	FET: 34.027 P:<0.001*
30 to less than 40	8	32.0	0	0.0	17	68.0	
40 to less than 50	18	69.2	8	30.8	0	0.0	
50 and more	0	0.0	3	42.9	4	57.1	
Marital status							
Single	5	100.0	0	0.0	0	0.0	FET:10.311 P: .035*
Married	25	41.0	14	23.0	22	36.1	
Divorced	0	0.0	0	0.0	2	100.0	
Level of Education							
Secondary level of education (Diplome)	14	82.4	3	17.6	0	0.0	FET:54.545 P:<0.001*
Above average education (Technical Health Institute)	15	42.9	3	8.6	17	48.6	
High level (Bachelor)	1	11.1	8	88.9	0	0.0	
Post-graduate (Diploma and Fellowship in Emergency)	0	0.0	0	0.0	7	100.0	
Years of experience							
5 to less than 10 years	4	19.0	11	52.4	6	28.6	FET: 38.734 P:<0.001*
10 to less than15 years	8	36.4	0	0.0%	14	63.6	
15 to less than 20 years	12	100.0	0	0.0	0	0.0	
20 years and more	6	46.2	3	23.1	4	30.8	
Working shift							
Morning	0	0.0	3	30.0	7	70.0	FET:21.817 P:0.001*
Evening	4	100.0	0	0.0	0	0.0	
Long day	26	48.1	11	20.4	17	31.5	
Number of working hours a week							
36.00	8	33.3	0	0.0	16	66.7	FET: 27. 748 P:<0.001*
48.00	22	59.5	11	29.7	4	10.8	
72.00	0	0.0	3	42.9	4	57.1	
Work satisfaction							
Satisfied	4	50.0	0	0.0	4	50.0	FET: 16.086 P:.003*
Partially satisfied	7	28.0	3	12.0	15	60.0	
Dissatisfied	19	54.3	11	31.4	5	14.3	
Sleeping hours							
Inadequate	13	56.5	0	0.0	10	43.5	FET: 9.027 P:.011*
Adequate	17	37.8	14	31.1	14	31.1	
Self-evaluation for health condition							
Good	0	0.0	0	0.0	4	100.0	FET: 31.477 P:<0.001*
Fair	26	56.5	3	6.5	17	37.0	
Poor	4	22.2	11	61.1	3	16.7	

FET: Fisher Exact Test P: P value of FET ***Significant at P value ≤0.05**

Table 6. The Association between the Studied Paramedics Socio-Demographic Data and Working Experiences and Their Depersonalization (n.68)

Variables	Depersonalization						Sig.
	Low		Moderate		High		
	No.	%	No.	%	No.	%	
Age							
Less than 30	0	0.0	1	10.0	9	90.0	FET: 39.929 P:<0.001*
30 to less than 40	11	44.0	10	40.0	4	16.0	
40 to less than 50	16	61.5	0	0.0	10	38.5	
50 and more	7	100.0	0	0.0	0	0.0	
Marital status							
Single	3	60.0	0	0.0	2	40.0	FET: 11.420 P:0.022*
Married	31	50.8	9	14.8	21	34.4	
Divorced	0	0.0	2	100.0	0	0.0	
Level of Education							
Secondary level of education (Diplome)	8	47.1	0	0.0	9	52.9	FET: 23.659 P:0.001*
Above average education (Technical Health Institute)	11	31.4	10	28.6	14	40.0	
High level (Bachelor)	8	88.9	1	11.1	0	0.0	
Post-graduate (Diploma and Fellowship in Emergency)	7	100.0	0	0.0	0	0.0	
Years of experience							
5 to less than 10 years	11	52.4	1	4.8	9	42.9	FET:21.624 P:0.001*
10 to less than15 years	8	36.4	10	45.5	4	18.2	
15 to less than 20 years	8	66.7	0	0.0	4	33.3	
20 years and more	7	53.8	0	0.0	6	46.2	
Working shift							
Morning	7	70.0	0	0.0	3	30.0	FET:11.339 P:0.078
Evening	0	0.0	0	0.0	4	100.0	
Long day	27	50.0	11	20.4	16	29.6	
Number of working hours a week							
36.00	12	50.0	8	33.3	4	16.7	FET: 16. 792 P:0.002*
48.00	21	56.8	3	8.1	13	35.1	
72.00	1	14.3	0	0.0	6	85.7	
Work satisfaction							
Satisfied	4	50.0	0	0.0	4	50.0	FET: 25.417 P:<0.001*
Partially satisfied	6	24.0	11	44.0	8	32.0	
Dissatisfied	24	68.6	0	0.0	11	31.4	
Sleeping hours							
Inadequate	15	65.2	1	4.3	7	30.4	FET: 4.734 P:0.094
Adequate	19	42.2	10	22.2	16	35.6	
Self-evaluation for health condition							
Good	4	100.0	0	0.0	0	0.0	FET: 7.410 P:0.116
Fair	19	41.3	10	21.7	17	37.0	
Poor	11	61.1	1	5.6	6	33.3	

FET: Fisher Exact Test **P: P value of FET** ***Significant at P value ≤0.05**

Table 7. The Association between the Studied Paramedics Socio-Demographic Data and Working Experiences and Their CPTSD Total Score (n.68)

Variables	CPTSD Total Score						Sig.
	None		Mild		Moderate		
	No.	%	No.	%	No.	%	
Age							
Less than 30	0	0.0	4	40.0	6	60.0	FET: 45.635 P:<0.001*
30 to less than 40	0	0.0	21	84.0	4	16.0	
40 to less than 50	0	0.0	20	76.9	6	23.1	
50 and more	4	57.1	3	42.9	0	0.0	
Marital status							
Single	0	0.0	5	100.0	0	0.0	FET: 3.251 P:0.517
Married	4	6.6	41	67.2	16	26.2	
Divorced	0	0.0	2	100.0	0	0.0	
Level of Education							
Secondary level of education (Diplome)	0	0.0	12	70.6	5	29.4	FET: 41.686 P:<0.001*
Above average education (Technical Health Institute)	0	0.0	24	68.6	11	31.4	
High level (Bachelor)	0	0.0	9	100.0	0	0.0	
Post-graduate (Diploma and Fellowship in Emergency)	4	57.1	3	42.9	0	0.0	
Years of experience							
5 to less than 10 years	0	0.0	15	71.4	6	28.6	FET: 19.212 P: 0.004*
10 to less than15 years	0	0.0	18	81.8	4	18.2	
15 to less than 20 years	0	0.0	8	66.7	4	33.3	
20 years and more	4	30.8	7	53.8	2	15.4	
Working shift							
Morning	4	40.0	6	60.0	0	0.0	FET: 38.952 P:<0.001*
Evening	0	0.0	4	100.0	0	0.0	
Long day	0	0.0	38	70.4	16	29.6	
Number of working hours a week							
36.00	4	16.7	16	66.7	4	16.7	FET: 9.302 P:0.054*
48.00	0	0.0	28	75.7	9	24.3	
72.00	0	0.0	4	57.1	3	42.9	
Work satisfaction							
Satisfied	0	0.0	4	50.0	4	50.0	FET: 7.286 P:0.122
Partially satisfied	(	0.0	20	80.0	5	20.0	
Dissatisfied	٤	11.4	24	68.6	7	20.0	
Sleeping hours							
Inadequate	٤	17.4	15	65.2	4	17.4	FET: 8.525 P:0.014*
Adequate	(	0.0	33	73.3	12	26.7	
Self-evaluation for health condition							
Good	(	0.0	0	0.0	4	100.0	FET: 15.768 P:0.003*
Fair	٤	8.7	33	71.7	9	19.6	
Poor	(	0.0	15	83.3	3	16.7	

FET: Fisher Exact Test **P: P value of FET** ***Significant at P value ≤0.05.**

Discussion

Despite the authority's efforts to fight the accidents and its consequences, the front-line paramedics involved directly in handling these patients are at greater risk than others consequently they may suffer from the psychological consequences due

to the type of care they provide and the type of victim's problem they deal with. The reasons for such adverse psychological outcomes in them range from excessive workload/work hours, inadequate personal protective equipment, young age or lack of experience, over- enthusiastic media news, and feeling inadequately supported. The mental health issue must be not underestimated during this critical phase **(Spoorthy, Pratapa, and Mahant, 2020).**

The number of medical and paramedic staff suffering from burnout and stress has increased over the years, possibly causing negative effects on patient care, working environments and staffing shortages **(Holdren, Paul, and Coustasse, 2015)**, furthermore, Mealer, Burnham, Goode, Rothbaum, and Moss (2009) identified that PTSD and BOS are common in nurses and those with PTSD will almost uniformly have symptoms of BOS. Co-existence of PTSD and BOS has a dramatic effect on work and nonwork-related activities and perceptions. Creating a healthy work environment in which nurses feel supported by their coworkers and management, in addition, to make available stress management programs that address symptoms of burnout and assure safe nurse staffing patterns are in place are important in minimizing BOS and PTSDs **(Holdren, Paul, and Coustasse, 2015).** The current study confirmed that only one-tenth of the paramedic staff was satisfied by their work and more than a quarter of them have a desire to change their career. These findings go in line with Duffy, Avalos, and Dowling (2015) who study the secondary traumatic stress among emergency nurses who reported that they have a strong desire to change their carrier.

Regarding health profile and lifestyle pattern of the studied paramedic staff in the current study, only around one-third of the paramedic staff has adequate sleeping hours. Slightly less than half of those who have adequate sleeping hours have low emotional exhaustion compared to one-third of those who have inadequate sleeping hours who have high emotional exhaustion with a statistically significant association between sleeping hours and emotional exhaustion. Slightly more than half of those who have inadequate sleeping hours have low personal accomplishment with a statistically significant association between sleeping hours and personal accomplishment. Slightly more than two thirds of them eat regular meals per day. Less than three quarters of them suffered from headache, followed by less than two fifths have low back pain, and the minorities have insomnia. In contrast Belotto (2017) indicated that their qualitative study among the EMS providers revealed that they have adequate sleeping especially at night without any sleeping disturbance and they eat well with no problems. This discrepancy may be due to other factors affecting sleeping hours of research subjects as worrying about their life , lack in the protective measures used or due to working multiple shifts especially night, which can affect on their circadian rhythm and sleep quality. According to the studied paramedic self-evaluation for their health condition it was noticed that only 5.9% of them have good health condition. In this regard, Blau (2011) indicate that sleep deprivation affects the

general health perception of the emergency medical service (EMS) providers. Moreover, Nayback (2009) stated that PTSD may cause a wide spectrum of symptoms including flashbacks and nightmares of the event, anger, anxiety, depression, irritability, and impaired concentration, and added that it also causes difficulty in sleeping, panic attacks, hyper vigilance and an exaggerated startle response.

Paramedic's healthy lifestyle and positive health status perception mainly affect their responses in critical situations. A relaxed paramedic staff that sleep well and have good health condition can control the psychological and emotional outburst arises from dealing with stressful conditions like major accidents and catastrophe.

The current study portrayed the paramedic staff burnout based on Maslach burnout inventory-human services survey for medical personnel (MBI-HSS) findings. Regarding emotional exhaustion domain, it was found that around one third of them have high emotional exhaustion level. Whereas, more than two-fifths of them have low level of personal accomplishment. Finally, around one third have high level of depersonalization. These findings confirm Cicchitti et al findings who declared that, BOS-related symptoms have been identified in at least half of the nurses, half of them suffered a medium-high emotional exhaustion, there quarters had a medium-high depersonalization and the majority had a medium–high reduced professional accomplishment.

The current study documented that three quarters of the paramedic staff have mild minimal distress or functional impairment of the global severity of symptoms. Also, three quarters of them have mild, minimal distress or disruption of activities followed by moderate, distress clearly present but still manageable. This may be attributed to the ever-increasing number of casualties, overwhelming workload, depletion of personal protection equipment, widespread media coverage, lack of specific drugs, and feelings of being inadequately supported may all contribute to the mental burden of these workers as reported by **Lai, Ma, Wang, Cai, Hu, Wei, Hu, et al (2020).** The same findings are reported at the previous researches conducted at the similar situations **(Maunder, Hunter, Vincent, Bennett, Peladeau, Leszcz, et al, 2003, Bai, Lin, Lin, Chen, Chue, and Chou, 2004, Lee, Wong, McAlonan, Cheung, Cheung, Sham, et al, 2007)**. All these symptoms may be attributed to seeing patient death and dealing with those who going to die suddenly due to accidents consequences especially if they are children. These findings confirmed by Carmassi, Gesi, Corsi, Cremone, Bertelloni, Massimetti, Olivieri et al (2018) and Aisling, Aisling, and David (2016) findings as they indicate that improved resources and psychoeducation will decrease distressing dreams and psychological distress among EMS.

The current study shed the light on the significant association between age and emotional exhaustion status, level of accomplishment and depersonalization of the studied paramedic staff where the high level of exhaustion and high level of accomplishment and low level of depersonalization is prevalent among

the older one. It was observed that around one third of the married have high level of emotional exhaustion and have high level of accomplishment, around one third of the married have high level of depersonalization with a significant association. The majorities of those who have bachelor's degree of education have high level of emotional exhaustion and have moderate level of accomplishment and have low level of depersonalization with asignificant association. Furthermore, the majority of those who have 5 to less than 10 years of experiences have high level of emotional exhaustion and have high level of accomplishment, whereas, more than half of those who have 20 years of experiences and more have low level of depersonalization with a significant difference. It also observed that less than half those who working long day shifts a day have high level of emotional exhaustion with a significant association. Moreover, around half of those who working 48 and 72 working have high level of emotional exhaustion and high level of accomplishment with a significant association. More than two fifths of dissatisfied at their work have high level of emotional exhaustion and have low level of accomplishment, and less than one third of dissatisfied and partially satisfied at their work have high level of depersonalization with a significant association. Finally, it was noticed that around two thirds of those who evaluate their health condition as poor condition have high level of emotional exhaustion and it was noticed that all of those who evaluate his health condition as good have high level of accomplishment. Theses finding may be attributed to lack of experience of those who young or had bachelor degree because of the fear of risk is high among knowledgeable than other or those who work for long period the level of stress and exhaustion affect on their emotional reaction in advance.

The same findings were reported by Vidotti, Ribeiro, Galdino, and Martins (2018) as they declared that levels of burnout syndrome were significantly higher among those working the day shift and associated factors included high demand; low control; low social support; dissatisfaction with sleep and financial resources. Professionals working the night shift, having low social support, being dissatisfied with sleep, having children, not having a religion, having worked for a short period in the institution, and being a nursing technician or aid were significantly more likely to experience high levels of the syndrome and nearly the same results were reported by Iranmanesh, Tirgari, and Bardsiri (2013). Additionally, according to a study done in Colombia (2013) the professional staff may suffer from depersonalization. It is evident that greater emotional exhaustion occurs within the first 10 years of work, with the increasing link up time the risk decreases. The night work schedule is a risk factor that determines the appearance of burnout **(Verdugo, Patricia, Bocanegra, and Migdolia, 2013).**

The global impact of post-traumatic stress disorder and burnout syndrome has been profound, and the public health threat due to this is the most serious seen since the significant association between CPTSD and different variables as age, working experiences as well as different lifestyle pattern **(Kar, Arafat, Kabir,**

Sharma, Saxena, 2020). In this regard, the current study shed the light on the significant association between age and CPTSD total score of the studied paramedic staff where the high level of CPTSD is prevalent among the younger one. Furthermore, around one third of those who have 15 to less than 20 years of experiences have high level of CPTSD with a significant difference. It also observed that less than three quarters of those who working long day shifts have high level of CPTSD. Moreover, more than two fifths of those who working 72 hours have high level of CPTSD with a significant association. Slightly more than a quarter of those who have adequate sleeping hours have high CPTSD with statistically significant association between sleeping hours and CPTSD. One of the surprising findings revealed that all of those who evaluate his health condition as good condition have high level of CPTSD.

Community health nurse have a significant role in protecting the community paramedic staff against PTSDs and BOS when preparing them to fight such situations and help them to be positive and try to isolate themselves from inclusion in drastic situation and also train them through proposing training program for ambulance paramedic staff to prevent or decreases feeling of burnout or stress as occupational hazards, and to maintain their physical and mental health intact. Application of the three levels of prevention model; primary, secondary, and tertiary level are highly important.

Conclusion

The findings of the present study concluded that,

The paramedic staff burnout based on Maslach burnout inventory-human services survey for medical personnel (MBI-HSS) findings indicate that around one third of the studied paramedic staff have high emotional exhaustion level. Whereas, more than two-fifths of them had a low level of personal accomplishment. Around one third have high level of depersonalization.

Furthermore, three quarters of the studied paramedic have mild, minimal distress or disruption of activities followed by moderate, distress clearly present but still manageable, some disruption of activities among less than a quarter of them according to the CPTSD total score based on clinician-administered post-traumatic stress disorder scale for DSM-5 (CAPS-5) past month version. There are a statistically significant association noted between the PTSD and BOS and different variables as age, educational level, working experiences, marital status, sleeping pattern and work satisfaction level.

Recommendations

Based on the findings of the current study, the following recommendations are suggested:

- Regular screening of paramedic staff involved in emergency care should be done for evaluating stress level and burnout symptoms by using multidisciplinary psychiatry teams.
- Proper management must be held at early stage of symptoms of BOS and PTSD.
- Develop policy that supports the human resources availability to

decrease the workload among the paramedic staff.

- Establish a PTSD and BOS high risk centers in order to deal with crisis effectively.
- Form a rehabilitation hotline in order to help community paramedic staff to deal with any BOS or PTSD properly.
- Develop a special guideline to describe essential interventions to promote mental well-being in community paramedic staff.
- Inservice stress management training especially for invoice community paramedic staff must be executive to raise their awareness regarding the possibility of PTSD and BOS and how to deal with.

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Conflict of Interest

The authors declared that they have no conflict of interest.

Author Contribution

All three authors were part of the initial design of the research. They shared in collected and analyzed the data, wrote and edited the final version of the text of the manuscript and formatted it and submitted it for publication.

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