Prevalence of post traumatic stress disorder among all emergency workers at Saudi tertiary care center in Riyadh, Saudi Arabia

ABSTRACT

Aims: Our objective for this study is to assess post traumatic stress disorder and its severity point prevalence among all emergency department workers.

Study design: A cross-sectional model is most appropriate for this study's aims, objectives and time frame.

Place and duration of study: This study took place at the emergency department of King AbdulAziz Medical City (KAMC) in Riyadh, Saudi Arabia, between December 2021 and November 2022.

Methodology: Our study concluded 202 emergency department workers (94 men, 108 women: age range 24-60). A self-administered questionnaire consisting of two parts was distributed. The first part was demographic variables. The second part was the PTSD Checklist for DSM-5 - Civilian Version (PCL-5).

Results: From our 202 ER employees, 26.7% met the criteria for PSTD. Using logistic regression, we found a relation between PTSD and verbal or physical abuse with a P value of 0.004. we also observed a significant P value of 0.018 between the age groups, indicating the younger population of our study were more prone to develop PTSD.

Conclusion: There is a concerning high prevalence of self-reported post-traumatic stress disorder among the emergency medicine department workers, including an increased number of employees having been a victim of physical assault or verbal abuse. It is crucial at the organizational level to prioritize prevention of workplace violence.

Key words: Post traumatic stress disorder, Emergency medicine department, psychiatry, occupational health, Saudi Arabia.

1. Introduction

Post-traumatic stress disorder (PTSD) occurs when a person is exposed to or witnesses one or more death, near death, serious trauma, or sexual abuse [1] instances. In Saudi Arabia, the most prevalent psychiatric disorders in a lifetime are anxiety disorders, including PTSD [2]. PTSD is a psychiatric disorder that often is undermined and can lead to both personal and social disabilities. However, with the proper interventions, beginning with detecting people who suffer from it, will lead to better outcomes. Complex PTSD has been the focus of many studies in recent years. A significant number of factor analytic studies tend to converge on the proposed factor structure of the disorder, with evidence of two overarching factors of PTSD symptoms and disturbances in self-organization [22]. To diagnose PTSD according to ICD-10, a person needs to be exposed to a trauma and experiencing symptoms that are grouped into three groups. The first group includes intrusive symptoms, manifesting as recurrent thoughts, images, or dreams related to the trauma. The second group is characterized by avoidant symptoms, displayed as avoidance of people, places, or topics related to the trauma experience. The final group encompasses arousal symptoms, shown as attention deficit disorders, circadian rhythm disorders, and hypervigilance. Affected individuals must have reported symptom prevalence for approximately one month or more and evidence functional impairment to meet the criteria [3].

When analyzing the available literature, we found an online survey study assessing PTSD point prevalence in emergency physicians only to the general population and was conducted in the United States. This study sampled 526 participants and discovered the prevalence of PTSD was 15.8%. Also, this study illustrated that not everyone experiences PTSD the same, and there was a particular PTSD severity score that appropriately assessed PTSD on a person's life [4]. A systematic review study of 32 publications for assessing PTSD symptoms in healthcare workers showed some geographical variables that may predict PTSD symptoms: number of working years, violence toward health care workers, history of other mental disorder [5].

Working in Emergency Departments (ED) can be a very stressful and difficult job. The emergency department personnel including physicians, nurses, respiratory therapists, radiology technologists, etc. can often encounter horrible human injuries. For example, they will see gruesome open wounds, open fractures, burn victims, and motor vehicle accidents more often than other medical specialties. In addition, ED professionals usually jump from one case to another without having enough time to take care of themselves due to ED crowding. Additionally, PTSD is well associated with other mental disorders such as depression and anxiety [6]. When health care workers, including

ED personnel, continue living and working with undetected PTSD, worrisome effects may develop, including emotional distance between health workers and patients, reduced productivity, burnout, medication error, and overall lower quality of patient care [7-9]. Unfortunately, after a thorough literature review, we could not find any local study that measured PTSD prevalence among ED workers even though they are frequently exposed to traumatic events. Failing to detect PTSD among ED professionals may result in burden to the health establishment and care for patients.

Our objective for this study is to assess PTSD and PTSD severity point prevalence among all ED professionals, including physicians, nurses, respiratory therapists, radiology technologists, pharmacists, housekeeping, and social workers. The secondary objective is to find if demographical data count as risk factors for PTSD development. Identifying high-risk groups will help to enhance PTSD prevention and treatment not only in the ED, but for all health providers.

2. Materials and methods

Study design and setting

A cross sectional study was conducted at the emergency department of King AbdulAziz Medical City (KAMC) in Riyadh, Saudi Arabia. KAMC is a tertiary level 1 trauma healthcare facility that provides 24-hour daily care alongside proper management by various specialties. The study was carried out from 2021/12/6 to 2022/12/1.

2.1 Sample size

Using Raosoft sample size calculator, set at 95% confidence interval and 5% margin of error with an estimated population of 600, and a response distribution of 50%, our sample size was determined to be 202.

2.2 Date collection:

We approached all available Emergency department professionals who were willing to participate in our study. The questionnaire used in this study was composed of two parts and was distributed physically by our data collectors after explaining the purpose and objective of the study to the participants. The first aspect examined demographic variables, such as age, marital status, occupation, years working in the ER, having children, and whether the respondent was a victim of physical assault or verbal abuse from patients. The second part is the PTSD Checklist for DSM-5 - Civilian Version (PCL-5) [10]. It was a self-administered questionnaire in which respondents indicated how often they have been bothered by a symptom over the past month using a 4-point (0- 4) scale, circling their responses with the following ranges: 0 Not at All - 4 Extremely. The PTSD checklist is composed of 20 questions

that are answered on a five-point Likert scale i.e., cluster B (items 1-5), cluster C (items 6-7), cluster D (items 8-14), and cluster E (items 15-20). From this survey, we calculated a total PTSD severity score (range = 0-80) and defined PTSD according to the DSM 5 criteria. Initial research suggests that a PCL-5 cutoff score between 31-33 is indicative of probable PTSD across samples [10].

2.3 Statistical analysis

Microsoft Excel version 2204 was used for data entry, and data were double checked and exported to JASP for data management and analysis. Categorical variables are illustrated as percentage and frequency tables. For the outcome variable of PTSD status, a cut-off points of 32 was used to consider the presence of PTSD symptoms, as suggested by the National Center for PTSD [10]. A logistic regression was used to test association between categorical variables and PTSD. A 95% confidence interval was used to report the precision of the prevalence and a p- value of 0.05 was considered statistically significant.

3. Results

There were 202 ED employees in the study, and from this sample, all respondents consented to participate in answering the survey questions. As shown in table 1, the demographic characteristics of the study participants are represented, indicating that most of the employees were female (53.5%). Among our participants, the majority were nurses (39.6%). As for the age range, almost half of the subjects were between 24-32 years (52.5%), and those who had worked between 0-5 years in the ED comprised 57.4% of the sample population. Those who reported being a victim of physical assault or verbal abuse from patients comprised 55.7% of the employees.

The prevalence of PTSD is shown in table 2 for each subgroup. Among our 202 employees, females were 57.4%, those who did not have children were 53.7%, and 50% of our employees were single. As for the duration of service in years, those who worked less than 5 years were 53.7% while employees who worked more than 18 years were 11.1%. Regarding the age groups, employees aged from 24-41 were 74%, and for those aged between 42-60 formed 26%. Among all our employees, 26.7% met the criteria for PSTD as shown in table 3. Out of those, nurses formed the highest proportion 50%. Most of our employees who met the criteria reported being physically assaulted or verbally abused from patients 74%. Moreover, the mean score of the subjects who met the criteria was 48.98 [standard deviation = 14.8].

We analyzed the relation between PTSD and demographics as shown in table 3 using logistic regression. The mean PTSD score for those who reported being a victim of physical assault or verbal abuse from patients was 52.5 as seen in table 4, statistically different than that of non-victims 48.98. In addition, there was also a statistical significance between the age groups of the participants. We found no significant relation between PTSD and having children, gender, marital status, or how many years worked in the ER department.

4. Discussion

In this study, it was the first time where PTSD prevalence among all health care workers in EDs was assessed locally in Saudi Arabia. The point prevalence of self-assessed PTSD in the ED was extremely high in comparison to the local general population, as it reached 26.7%; whereas, the lifetime prevalence of PTSD among the general population in Saudi Arabia is just 3.3% [2]. This result also indicated that the prevalence is also higher than some international studies, as one study showed the prevalence of PTSD in emergency physicians in the United States is 15.8% [4].

A significant finding in this study was the positive correlation between PTSD and the age of ED professionals, as most of our participants who self-reported symptoms of PTSD were the younger health care workers, specifically from the 24-32-year age group, with a prevalence of 52.5%. On the contrary, another study indicated that older respondents reported higher rates of PTSD in comparison to younger ones, but they speculated that this result was most likely explained by lower education levels [11]. Moreover, some researchers correlate the amount of time spent in the same working area with a higher risk for PTSD development and more severe symptoms [12,13]. Specifically, Berger and colleagues reported higher incidence of PTSD in specific occupational groups of rescue workers, including those with extended job experience [12].

Among all respondents, the prevalence of emergency workers who reported being a victim of physical assault or verbal abuse from patients was as high as 55.7%. Nevertheless, the prevalence increased even more among emergency workers who met the criteria of PTSD (74%). A high odds ratio of 2.763 was a prominent finding for victims of physical or verbal abuse. Within different positions and specialties, the prevalence of PTSD among nurses was distinctly the highest, accounting for 50% of all participants. Workplace violence, bullying, a child's death, a fear of contracting an infectious disease, litigation stress, the use of electronic health records, long work hours, and

circadian disruption brought on by night shifts are all potential risk factors for PTSD in the healthcare industry [14,15]. Data from ER nurses in the United States who are also members of the Emergency Nurses Association was gathered using a cross-sectional design regarding traumatic violent events. Participants were asked to complete the Impact of Events Scale-Revised and Healthcare Productivity Survey [16]. After a violent occurrence, 94% of nurses experienced at least one symptom of post-traumatic stress disorder, with 17% scoring high enough to be classified probable for PTSD. This indicates significant indirect connections between stress symptoms and workplace productivity [16]. According to the findings, violence affects the care ED nurses give. Interventions are required to stop the violence and treat the ED nurse following an incident.

Emergency medicine residents in our study who met PTSD criteria represented 22.5% which is significantly higher in comparison to other medical specialties. For example, multiple international studies reported a 5.2% PTSD point prevalence in pediatric and internal medicine residents15-16. Another study sampling general surgery residents comprised 22% and Intensive Care Unit residents comprised 13% [14,15] from the sample population. The specific stressors of residency training are specifically seen when it comes to treating trauma patients, the death of a child, giving care to a traumatized patient who resembles the resident or family members, treating severely burned patients, death after prolonged resuscitation, and workplace violence or threats associated with PTSD in postgraduate residents working in EDs [9]. Additionally, nurses are more likely to experience numerous traumatic incidents while working. According to a study that was published in the Journal of Heart and Lung Transplantation, up to 48% of nurses who work at an ED are diagnosed with PTSD. Another study that was published in Frontiers in Psychiatry discovered that among emergency responders, emergency and psychiatric nurses experienced the highest rates of PTSD symptoms [16]. PTSD is also linked to greater rates of suicide, which is already alarmingly high among residents, with male and female doctors reflecting 40% and 130% higher suicide rates than the general population, respectively [16].

Post-traumatic stress disorder can have a profound effect on a person's ability to function both professionally and personally, and it is therefore important that future studies continue to examine the prevalence of this disorder among ED professionals. PTSD can have a devastating impact on both physical and mental health, so it is vital that we do everything we can to protect our young employees from its effects. Studying the prevalence of PTSD among

ED professionals is important for several reasons. First, it can help us better understand the psychological impact of working in this environment. Second, it can help us to identify those at risk for developing PTSD so that we can provide them with support and resources. And finally, it can help us to develop interventions that can prevent PTSD [17]. Future studies of PTSD among doctors working in the ED will help us to improve the quality of life for these brave individuals who dedicate their lives to helping others.

These employees deal with distressing and stressful cases, such as dying patients, trauma, and mass casualties that negatively impact their emotional state. Also, this is associated with low professional quality of life, sleep disturbances, and burnout [18]. Moreover, most of our respondents have reported some trouble falling or staying asleep, with a prevalence of 68.3%. Furthermore, PTSD and burnout among ED professionals has been previously linked with poorer patient outcomes [14,19]. According to research, job burnout occurs before the onset of PTSD symptoms; consequently, interventions aimed at increasing resilience and reducing burnout should lessen the prevalence of PTSD among healthcare workers [20,21].

Limitations

In this study, PTSD symptoms were obtained from distributed questionnaires. Thus, symptoms were self-reported depending on the physician's self-awareness. Health care workers who participated in the survey surely have different characteristics than those who did not, which can cause selection bias. Another limitation is the small number of participants. Although we distributed the questionnaire to all health care providers, only few consented to be a part of this research.

Table 1: Distribution of Participants Demographics (n=202)

Characteristics	Characteristics	Number (%)
Age group	24-32 years	106 (52.5)
	33-41 years	61 (30.2)
	42-50 years	24(11.9)
	51-60 years	11 (5.4)
	Male	94 (46.5)

Gender	Female	108 (53.5)
Duration in Service	0-5 Years	116 (57.4)
	6-11 Years	42 (20.8)
	12-17 Years	30 (14.9)
	18-23 Years	12 (5.9)
	24-29 Years	2 (1)
Position	ER consultant	11 (5.4)
	ER fellow	1 (0.5)
	ER Resident	40 (19.8)
	Nurse	80 (39.6)
	Pharmacist	7 (3.5)
	Radiology technicians	17 (8.4)
	Respiratory therapist	19 (9.4)
	Social Worker	6 (3.0)
	Staff physician	18 (8.9)
	House keeping	3 (1.5)
Social Status	Single	109 (54)
	Married	93 (46)
Having children	Yes	83 (41.3)
	No	118 (58.7)

Have you ever been a victim of physical assault or verbal abuse from patients?	YES	112 (55.7)
	No	89 (44.3)

Table 2: Number of PTSD In each Sub-group.

Characteristics	Characteristics	Number of PTSD (%)
Age Group	24-32 Years	23 (42.6)
	33-41 Years	17 (31.4)
	42-50 Years	7 (13)
	51-60 Years	7 (13)
Gender	Male	23 (42.6)
	Female	31 (57.4)
Duration in Service	0-5 Years	29 (53.7)
	6-11 Years	12 (22.2)
	12-17 Years	7 (13)
	18-23 Years	6 (11.1)
	24-29 Years	0
Position	ER consultant	0
	ER fellow	0
	ER Resident	9 (16.7)
	Nurse	27 (50)
	Pharmacist	1 (1.8)
	Radiology technicians	5 (9.3)
	Respiratory therapist	7 (13)
	Social Worker	1 (1.8)
	Staff physician	3 (5.6)

	House keeping	1 (1.8)
Social Status	Single	27 (50)
	Married	27 (50)
Having children	Yes	25 (46.3)
	No	29 (53.7)
Have you ever been a victim of physical assault or verbal abuse from patients?	Yes	40 (74)
	No	14 (26

Table 3: Relation between PTSD and demographics

Table 3: Relation between PTSD and demographics	Odds Ratio	p
(Intercept)	0.055	0.001
What is your gender?	1.179	0.620
what is your age?	1.764	0.018
what is your marital status?	1.222	0.686
Do you have children?	0.626	0.381
Have you ever been a victim of physical assault or verbal abuse from patients?	2.763	0.004

Table 4: PTSD Score

PTSD Level	Number (%)

Mean PTSD severity score	**48.98 (14.8)**
Suffering from PTSD **Yes**	**54**
No	**148**

5. Conclusions

There is a concerning high prevalence of self-reported post-traumatic stress disorder among the emergency medicine department workers, including an increased number of employees having been a victim of physical assault or verbal abuse. It is crucial at the organizational level to prioritize prevention of workplace violence. Future large-scale research on the topic should strive to obtain larger sample sizes.

Ethical approval

The Institutional Review Board (IRB) of this study was obtained by King Abdullah International Medical Research Center, Riyadh, Saudi Arabia with study number NRC21R/ 408/ 10.

Informed Consent

Informed consent was granted from all the participants in the study.

References

1. Diagnostic and statistical manual of mental disorders. Arlington (ed): American Psychiatric Publishing, 2013. 10.1176/appi.books.9780890425787.x07_Trauma_and_Stressor_Related_Disorders
2. Altwaijri Y, Al-Subaie A, Al-Habeeb A, et al.: Lifetime prevalence and age-of-onset distributions of mental disorders in the Saudi National Mental Health Survey. International Journal of Methods in Psychiatric Research [Internet. 2020, 18:2021. 10.1002/mpr.1836
3. Organization W: ICD-10 : international statistical classification of diseases and related health problems : tenth revision [Internet]. Apps.who.int. 2021192021.

4. DeLucia J, Bitter C, Fitzgerald J, Greenberg M, Dalwari P, Buchanan P: Prevalence of Post-Traumatic Stress Disorder in Emergency Physicians in the United States. Western Journal of Emergency Medicine, Volume 20, Issue 5 [Internet. 2019, 18:740-746.

5. G E, V P, G C: Post-traumatic stress disorder symptoms in healthcare workers: a ten-year systematic review [Internet]. PubMed. 2020182021.

6. Trudgill D, Gorey K, Donnelly E: Prevalent posttraumatic stress disorder among emergency department personnel: rapid systematic review. Humanities and Social Sciences Communications [Internet. 202019202171,

7. Lauvrud C, Nonstad K, Palmstierna T: Occurrence of post traumatic stress symptoms and their relationship to professional quality of life (ProQoL) in nursing staff at a forensic psychiatric security unit: a cross-sectional study. Health and Quality of Life Outcomes [Internet. 200919202171,

8. Adriaenssens J, de Gucht V, Maes S: The impact of traumatic events on emergency room nurses: Findings from a questionnaire survey. International Journal of Nursing Studies [Internet. 201219, 2021:1411-1422. 10.1016/j.ijnurstu.2012.07.003

9. Czaja A, Moss M, Mealer M: Symptoms of Posttraumatic Stress Disorder Among Pediatric Acute Care Nurses. Journal of Pediatric Nursing [Internet. 201219, 2021:357-365.

10. Weathers, F.W., Litz, B.T., Keane: T.M., Palmieri, P.A., Marx, B.P., & Schnurr, P.P. (2013). The PTSD Checklist for DSM-5 (PCL-5). Scale available from the National Center for PTSD.

11. Carmassi C, Gesi C, Corsi M, et al.: Exploring PTSD in emergency operators of a major University Hospital in Italy: a preliminary report on the role of gender, age, and education. Ann Gen Psychiatry 17. 17:

12. Berger W, Coutinho ES, Figueira I, et al.: Rescuers at risk: a systematic review and meta-regression analysis of the worldwide current prevalence and correlates of PTSD in rescue workers. Soc Psychiatry Psychiatr Epidemiol. 2012, 47:1001-11. 10.1007/s00127-011-0408-2

13. Wagner D, Heinrichs M, Ehlert U: Prevalence of symptoms of posttraumatic stress disorder in German professional firefighters. Am J Psychiatry. 1998, 155:1727-32. 10.1176/ajp.155.12.1727

14. Sendler J, Rutkowska A, Makara-Studzinska M: How the exposure to trauma has hindered physicians' capacity to heal: prevalence of PTSD among healthcare workers. Eur J Psychiatry. 2016, 30:321-334.

15. Stehman CR, Testo Z, Gershaw RS, et al.: Burnout, drop out, suicide: physician loss in emergency medicine, part 1. West J Emerg Med. 2019, 20:485-494. 10.5811%2Fwestjem.2019.4.40970

16. Gates DM, Gillespie GL, Succop P: Violence against nurses and its impact on stress and productivity. Nurs Econ. 2011, 29:59-66.

17. https://online.norwich.edu/academic-programs/resources/ptsd-in-nursing.

18. Laposa J, Alden L, Fullerton L: Work stress and posttraumatic stress disorder in ED nurses/personnel. Emerg Nurs. 2003, 29:23-8. 10.1067/men.2003.7

19. Ruitenburg M, Frings-Dresen M, Sluiter J: The prevalence of common mental disorders among hospital physicians and their association with self-reported work ability: a cross-sectional study. BMC Health Serv Res. 2012, 12:292. 10.1186/1472-6963-12-292

20. Shoji K, Lesnierowska M, Smoktunowicz E, B ock J, Luszczynska A, Benight CC, Cieslak R: What comes first, job burnout or secondary traumatic stress? Findings from two longitudinal studies from the US and Poland. PloS one. 2015, 25:0136730. 10.1371/journal.pone.0136730

21. Noben C, Evers S, Nieuwenhuijsen K, et al.: Protecting and promoting mental health of nurses in the hospital setting: Is it cost-effective from a employer's perspective?. Int J Occup Med Environ Health. 2015, 28:5. 10.13075/ijomeh.1896.00465

22. Bryant RA. Post-traumatic stress disorder: a state-of-the-art review of evidence and challenges. World psychiatry. 2019 Oct;18(3):259-69.

Appendices

PTSD Checklist for DSM-5 (PCL-5)

In the past month, how much were you bothered by:	*Not at all*	*A little bit*	*Moderately*	*Quite a bit*	*Extremely*
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again *(as if you were actually back there reliving it)*?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience *(for example, heart pounding, trouble breathing, sweating)*?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience *(for example, people, places, conversations, activities, objects, or situations)*?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world *(for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)*?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings *(for example, being unable to feel happiness or have loving feelings for people close to you)*?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being "superalert" or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4