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Commentary

Post-traumatic Stress Disorder Risk in Iranian Healthcare Personnel Exposed to War: An Overlooked Priority

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Healthcare workers operate in environments characterized by heavy cognitive workload, ethical pressure, and repeated exposure to human suffering. Even under routine hospital conditions, medical staff, including physicians, nurses, and emergency personnel, face substantial psychological demands. Numerous studies have documented elevated levels of trauma-related symptoms among healthcare workers in high-intensity settings, such as emergency medicine, intensive care units, and trauma departments. Systematic reviews show that frontline clinicians often experience symptoms consistent with post-traumatic stress disorder (PTSD) due to cumulative exposure to critical incidents [1–2].

The COVID-19 pandemic further amplified this vulnerability. Global meta-analyses consistently demonstrated striking rates of PTSD, anxiety, depression, and sleep disturbances among healthcare workers caring for patients during the pandemic [3–5]. These findings highlighted a crucial reality: Healthcare systems worldwide depend on a workforce that is simultaneously responsible for treating trauma and susceptible to developing trauma-related psychopathology. Consequently, the mental health of healthcare personnel is increasingly recognized as foundational to the resilience of the healthcare system.

PTSD is not only a psychiatric diagnosis but also a systemic inflammatory condition. Individuals with PTSD show elevated pro-inflammatory markers (C-reactive protein, interleukin-6, tumor necrosis factor-alpha), hypothalamic-pituitary-adrenal axis dysregulation with glucocorticoid resistance, and suppressed natural killer cell activity. Chronic low-grade inflammation and neuroimmune dysregulation are now recognized as both consequences of traumatic stress and contributors to PTSD maintenance, thereby creating a bidirectional loop between psychological symptoms and immune dysfunction.

It should be noted that not all exposed healthcare workers develop PTSD; many demonstrate remarkable resilience. Factors, such as social support, organizational preparedness, and prior training, have been associated with better outcomes. For example, peer support programs, pre-deployment mental health training, and enforced shift limits have been shown to reduce PTSD risk in high-stress occupational settings. These modifiable factors warrant specific investigation in Iranian war-

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exposed healthcare personnel. Future research should investigate both risk and protective factors to inform balanced intervention strategies.

While occupational trauma in healthcare has been well studied, much less attention has been directed toward the psychological impact of war-related exposure on healthcare personnel. Armed conflict is one of the most severe forms of traumatic stress. Civilians residing in conflict zones often experience high rates of PTSD due to bombardment, displacement, chronic insecurity, and inability to avoid danger. Large meta-analyses conducted by World Health Organization (WHO) and other groups confirm substantial PTSD burden among populations living in war-affected regions [6-9].

Iranian data reinforce the profound psychological consequences of war. A systematic review revealed that PTSD is a major outcome following exposure to disasters and wars in Iran [10]. Additional meta-analytic evidence shows high PTSD prevalence among veterans, combatants, and freed prisoners from the Iran–Iraq war [11]. War trauma has also been associated with PTSD and psychosocial distress among Iranian war immigrants displaced to border regions, such as Mehran [12]. This body of evidence demonstrates that war-related trauma has deep and enduring mental health effects within Iranian society.

Within this context, healthcare workers represent a uniquely exposed and understudied population. During armed conflict, they must simultaneously act as responders and potential victims. Unlike civilians who may flee conflict zones, healthcare staff often remain to treat mass casualties, frequently under unsafe and unpredictable conditions. Research has shown that hospitals and medical personnel are frequently targeted during armed conflicts, facing bombardment, disruption of essential services, and chronic security threats [13]. Reports from recent conflicts, including Ukraine, describe severe psychological pressures on healthcare workers operating under fire, resource shortages, and ongoing danger [14]. For example, during the war in Ukraine, healthcare personnel have worked in active combat zones with limited supplies. Similarly, in the broader Middle East, where armed conflicts have been more prolonged, healthcare workers in Lebanon (e.g. the 2006 war, the 2023–2024 escalation, and associated economic and security crises) and Palestine (e.g. recurrent military operations in Gaza, the 2023–2025 war, and chronic instability in the West Bank) have faced extreme stressors. These include direct attacks on hospitals, repeated mass casualty events, moral injury associated with treating civilians, including children under bombardment, and the collapse of protective infrastructure. Emerging research in conflict medicine indicates rising rates of trauma-related symptoms, moral injury, and chronic stress among healthcare workers exposed to war environments, although systematic data remain limited [14].

Despite these realities, the psychological impact of conflict exposure on Iranian healthcare staff remains almost completely unexamined. Most Iranian war-related PTSD research has focused on veterans, chemically injured survivors, immigrants, and family members [10–12]. No systematic epidemiological studies have yet assessed PTSD risk among Iranian healthcare workers who might be exposed to war conditions, mass casualty influxes, blasts, and direct threats to hospital infrastructure.

The absence of such research represents a critical gap—particularly given Iran's geographic location in a region marked by episodic conflict and security instability. Healthcare workers in high-risk border provinces may encounter overlapping stressors: treating war-related injuries, navigating moral and operational dilemmas, and simultaneously facing threats to personal and institutional safety. Considering evidence showing substantial PTSD prevalence among Iranian nurses even under non-war clinical conditions [15–18], the psychological impact of potential war exposure on this group could be significantly magnified.

Addressing this gap is essential for several reasons. First, understanding PTSD prevalence among healthcare personnel in conflict-prone regions could guide the development of early screening programs, resilience training, and mental health support systems. Second, data generated from such research may improve crisis preparedness and workforce retention in high-risk provinces. Finally, foundational epidemiological studies would facilitate future investigation into the biological and psychological mechanisms underpinning trauma response, an area highlighted in global PTSD research [2, 8].

In conclusion, while international and Iranian evidence clearly demonstrates the substantial mental health burden associated with occupational trauma, pandemics, and war exposure, healthcare workers in potential war zones remain an understudied high-risk group. Given Iran's documented history of war-related PTSD across multiple civilian and military populations and the significant PTSD burden among healthcare workers in non-war settings, the lack of research on war-exposed healthcare personnel constitutes an urgent and remediable oversight. Prioritizing this research area could yield critical insights to protect healthcare workers and strengthen Iran's healthcare system's resilience in times of crisis.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

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Authors' contributions

Study design, review & editing: Hossein Hassanpour; Investigation and writing the original draft: Marzieh Mojtahed.

Conflicts of interest

The authors declared no conflict of interest.

References

[1] Petrie K, Crawford J, Baker ST, Dean K, Robinson J, Veness BG, et al. Interventions to reduce symptoms of common mental disorders and suicidal ideation in physicians: A systematic review and meta-analysis. Lancet Psychiatry. 2019; 6(3):225-34. [DOI:10.1016/S2215-0366(18)30509-1] [PMID]

[2] Donnelly E, Siebert D. Occupational risk factors in the emergency medical services. Prehospital and Disaster Medicine. 2009; 24(5):422-29. [DOI:10.1017/S1049023X00007251] [PMID]

[3] Pappa S, Ntella V, Giannakas T, Giannakoulis VG, Papoutsi E, Katsaounou P. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID 19 pandemic: A systematic review and meta-analysis. Brain, Behavior, and Immunity. 2020; 88:901-7. [DOI:10.1016/j.bbi.2020.05.026] [PMID]

[4] Marvaldi M, Mallet J, Dubertret C, Moro MR, Guessoum SB. Anxiety, depression, trauma-related, and sleep disorders among healthcare workers during COVID 19: A systematic review and meta-analysis. Neuroscience & Biobehavioral Reviews. 2021; 126:252-64. [DOI:10.1016/j.neubiorev.2021.03.024] [PMID]

[5] Saragih ID, Tonapa SI, Saragih IS, Advani S, Batubara SO, Suarilah I, et al. Global prevalence of mental health problems among healthcare workers during the COVID 19 pandemic: A systematic review and meta-analysis. International Journal of Nursing Studies. 2021; 121:104002. [DOI:10.1016/j.ijnurstu.2021.104002] [PMID]

[6] Charlson F, van Ommeren M, Flaxman A, Cornett J, Whiteford H, Saxena S. New WHO prevalence estimates of mental disorders in conflict settings: A systematic review and meta-analysis. Lancet. 2019; 394(10194):240-8. [DOI:10.1016/S0140-6736(19)30934-1] [PMID]

[7] Morina N, Stam K, Pollet TV, Priebe S. Prevalence of depression and PTSD in adult civilian survivors of war. The Journal of Clinical Psychiatry. 2018; 79(2):17r11750. [DOI:10.1016/j.jad.2018.07.027] [PMID]

[8] Steel Z, Chey T, Silove D, Marnane C, Bryant RA, van Ommeren M. Association of torture and other potentially traumatic events with mental health outcomes in conflict-exposed populations. JAMA. 2009; 302(5):537-49. [DOI:10.1001/jama.2009.1132] [PMID]

[9] Hoppen TH, Morina N. The prevalence of PTSD and major depression in the global population of adult war survivors: A meta-analytically informed estimate in absolute numbers. European Journal of Psychotraumatology. 2019; 10(1):1578637. [DOI10.1080/20008198.2019.1578637] [PMID]

[10] Sepahvand H, Hashtjini MM, Salesi M, Sahraei H, Jahromi GP. Prevalence of PTSD in Iranian population following disasters and wars: A systematic review and meta analysis. Psychiatry and Behavioral Sciences. 2019; 13(1):12. [DOI:10.5812/ijpbs.66124]

[11] Shahmiri Barzoki H, Ebrahimi M, Khoshdel A, Noorbala AA, Rahnejat AM, Avarzamani L, et al. Prevalence of PTSD in veterans and combatants of the Iran-Iraq war: A meta analytic review. Psychology, Health & Medicine. 2023; 28(3):812-8. [DOI:10.1080/13548506.2021.1981408] [PMID]

[12] Masoudnia E, Farmani FR. Psychosocial etiology of PTSD among war immigrants in Mehran, Iran. Journal of Migration and Health. 2024; 9:100225. [DOI:10.1016/j.jmh.2024.100225] [PMID]

[13] Rubenstein LS, Bittle MD. Responsibility for protection of medical workers and facilities in armed conflict. Lancet. 2010; 23:329-40. [DOI:10.1016/S0140-6736(09)61926-7] [PMID]

[14] Devi S. Ukrainian health workers under fire. Lancet. 2022; 399(10334):1685. [DOI:10.1016/S0140-6736(22)00695-X] [PMID]

[15] Hosseininejad SM, Jahanian F, Elyasi F, Mokhtari H, Koulaei ME, Pashaei SM. The prevalence of post-traumatic stress disorder among emergency nurses: A cross sectional study in northern Iran. Biomedicine. 2019; 9(3):19. [DOI:10.37796/2211-8039.1608] [PMID]

[16] Mirzaei A, Molaei B, Habibi Soola A. PTSD and related factors in nurses caring for COVID 19 patients. Iranian Journal of Nursing and Midwifery Research. 2022; 27(2):106-11. [DOI:10.4103/ijnmr.ijnmr_456_20] [PMID]

[17] Fateminia A, Hasanvand S, Goudarzi F, Mohammadi R. PTSD and burnout among frontline nurses during COVID 19. Iranian Journal of Psychiatry. 2022; 17(4):436. [DOI:10.18502/ijps.v17i4.10693] [PMID]

[18] Gehisari Z, Hashemzadeh E, Fazlizade S, Razaghpour H, Abdi M, Asadi Aghajari.M. Epidemiology of post-traumatic stress disorder in intensive care nurses: A systematic review. Iranian Journal of Public Health. 2025; 54:2566-78. [DOI:10.18502/ijph.v54i12.20811]