

Letter to the Editor

Cite this article: Seyedin H, Moslehi S and Narimani S (2025). Challenges and Strategies Ahead to Promote Healthy Sleep Among Frontline Forces in CBRNE Attacks. *Disaster Medicine and Public Health Preparedness*, **19**, e180, 1–2
<https://doi.org/10.1017/dmp.2025.10104>

Received: 09 April 2025

Revised: 09 April 2025

Accepted: 09 June 2025

Keywords:

frontline forces; CBRNE attacks; sleep deprivation; health resilience; disaster response

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Challenges and Strategies Ahead to Promote Healthy Sleep Among Frontline Forces in CBRNE Attacks

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Abstract

Frontline forces responding to Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) attacks operate under extreme conditions that severely disrupt sleep patterns, jeopardizing their health and effectiveness. Prolonged shifts, high-stress environments, physical discomfort, and cultural stigmas against rest create significant barriers to healthy sleep. Chronic sleep deprivation not only impairs immediate performance but also increases long-term risks of physical and mental health issues. Addressing these challenges requires a multifaceted approach, including structured rest protocols, sleep-friendly environments, technological tools for sleep monitoring, mental health support, and efforts to combat stigma through education. By prioritizing sleep health, organizations can enhance the resilience and operational readiness of frontline forces, ensuring they are better equipped to handle the demands of CBRNE incidents. This Letter highlights the critical importance of sleep in disaster response and calls for systemic changes to support the well-being of those on the front lines.

Dear Editor,

Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) attacks represent some of the most complex and high-stakes emergencies faced by frontline forces.¹ These incidents demand rapid, coordinated responses from emergency personnel, health care workers, and military teams, often under extreme conditions. While much attention is rightly given to the technical and operational aspects of CBRNE response, 1 critical factor is frequently overlooked: the sleep health of frontline forces. Ensuring that these individuals are well-rested is not just a matter of personal well-being; it is a cornerstone of effective disaster response. However, promoting healthy sleep in the context of CBRNE attacks presents unique challenges that require innovative strategies.

The Unique Challenges of CBRNE Scenarios

CBRNE attacks are inherently unpredictable and high-pressure situations.² Frontline forces operating in these environments face a range of challenges that disrupt normal sleep patterns:

1. **Prolonged and Irregular Shifts:** CBRNE incidents often require continuous operations, leaving little time for rest. The urgency of containment, decontamination, and medical response can lead to extended shifts and unpredictable schedules, making it difficult for responders to establish a consistent sleep routine.
2. **High-Stress Environments:** The nature of CBRNE threats—exposure to hazardous materials, risk of contamination, and potential for mass casualties—creates immense psychological stress. This stress can lead to insomnia, nightmares, and other sleep disorders, further exacerbating fatigue.
3. **Physical and Environmental Barriers:** Frontline forces in CBRNE scenarios often work in hazardous environments wearing protective gear, which can be uncomfortable and restrictive. Additionally, the lack of safe, quiet, and comfortable spaces for rest in disaster zones poses a significant barrier to sleep.
4. **Stigma and Cultural Norms:** In high-pressure professions, there is often a culture of valorizing sleeplessness and equating rest with weakness. This stigma can discourage frontline workers from prioritizing sleep, even when opportunities for rest are available.³

5. **Long-Term Health Risks:** Beyond the immediate challenges, chronic sleep deprivation can have lasting effects on physical and mental health, including increased risks of cardiovascular disease, weakened immune function, and post-traumatic stress disorder (PTSD). These long-term consequences not only affect individuals but also undermine the resilience of entire response teams.

Strategies to Promote Healthy Sleep in CBRNE Scenarios

Addressing these challenges requires a multifaceted approach that combines organizational support, technological innovation, and cultural change. Here are some key strategies to promote healthy sleep among frontline forces in CBRNE attacks:

1. **Implement Structured Rest Protocols:** Organizations must prioritize rest as a critical component of operational readiness. This includes establishing mandatory rest periods, even during prolonged operations, and creating clear guidelines for shift rotations to ensure that responders have adequate time to recover.
2. **Provide Sleep-Friendly Environments:** In disaster zones, creating designated rest areas that are safe, quiet, and comfortable is essential. Portable sleep pods, noise-canceling equipment, and climate-controlled spaces can help mitigate environmental barriers to sleep.
3. **Leverage Technology:** Wearable devices and sleep-tracking apps can help monitor sleep patterns and provide personalized recommendations for improving sleep quality. Additionally, virtual reality (VR) and other relaxation technologies could be used to help frontline workers unwind and manage stress.
4. **Address Psychological Stress:** Mental health support should be integrated into CBRNE response plans. This includes providing access to counseling services, stress management training, and peer support programs to help responders cope with the emotional toll of their work.⁴
5. **Combat Stigma Through Education:** Changing cultural norms around sleep requires education and advocacy. Training programs should emphasize the importance of sleep for performance and health, and leaders should model healthy sleep behaviors to set a positive example.
6. **Develop Long-Term Support Systems:** The impact of CBRNE incidents often extends far beyond the immediate response. Providing ongoing support for sleep health, including access to sleep specialists and PTSD treatment, is crucial for the long-term well-being of frontline forces.⁵

A Call to Action

The challenges of promoting healthy sleep among frontline forces in CBRNE attacks are significant, but they are not insurmountable. By recognizing sleep as a critical component of disaster response, we can develop strategies that enhance the resilience and effectiveness of those on the front lines. This requires a collective effort from policymakers, organizational leaders, and public health professionals to prioritize sleep health and allocate the necessary resources.

In the face of CBRNE threats, the strength of our response depends on the strength of our responders. Ensuring that they are well-rested is not just an act of care; it is a strategic imperative. By addressing the unique challenges of sleep in CBRNE scenarios and implementing targeted strategies, we can build a more resilient and effective response system that safeguards both the health of frontline forces and the communities they serve.

Acknowledgments. This study is supported by the Health in Disasters and Emergencies Department of Iran University of Medical Sciences.

Author contribution. Conceptualization: Hesam Seyedin and Shandiz Moslehi. Formal Analysis: Sajjad Narimani. Writing, original draft: Sajjad Narimani. Writing, review and editing: Shandiz Moslehi and Sajjad Narimani. The finished manuscript has been read and approved by all authors.

Funding statement. Not applicable.

Competing interests. None declared.

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