

REVIEW ARTICLE

Post-Traumatic Stress Disorder Among ICU Survivors

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Abstract

Post-traumatic stress disorder (PTSD) can occur following an exposure to a stressful event that poses a threat to the life. The person's reaction to this event includes intense feeling of fear, helplessness, and variety of psychological and behavioral symptoms. Evidence shows that a stay in an intensive care unit (ICU) is a traumatic experience leading to ICU survivors developing PTSD. A literature review was done across PubMed, Google scholar, SCOPUS. ICU survivors, post-traumatic stress disorder, were the keywords used for the search. The overall prevalence of PTSD among ICU survivors ranged between 3.7% - 43.7%. The most commonly observed features included nightmares, memories of the trauma, hypervigilance, irritability, emotional withdrawal, poor concentration, and difficulty sleeping. Some individuals also experienced depression (32%) and anxiety (38%) in conjunction with PTSD. Management of PTSD among ICU survivors includes pharmacological as well as non - pharmacological interventions. The article concluded that PTSD among ICU survivors vary significantly and this condition is common, with symptoms of post-traumatic stress potentially lasting for several months following recovery from critical illness.

Keywords: Post-traumatic stress disorder, ICU survivors, Persistent memories, Traumatic events, Quality of life

Introduction

Post-traumatic stress disorder (PTSD) results from exposure to a stressful event that poses a threat to life, leading to significant harm or injury. Admission to intensive care unit (ICU) is associated with many stressors and traumatic occurrences. The mortality rates are influenced by factors such as the geographical

location of the ICU, specific health care setting, and the frequency of patient visitation.¹ Additionally, invasive procedures such as endotracheal intubation and mechanical ventilation can further worsen stress and evoke feelings of helplessness in the patients.

Research indicates that admission to an intensive care unit (ICU) increases the risk of developing PTSD

symptoms in patients who survive and reintegrate into the community. This condition is influenced by various factors, including immobility, pain, sleep disturbances, and sensory deprivation. Studies have also shown that agitation, physical restraint, benzodiazepine sedation, low serum cortisol levels, duration of mechanical ventilation and length of ICU stay, are some of the significant predictors for post ICU PTSD.^{2,3} Admission to the ICU results in patients encountering a highly stressful atmosphere filled with medical apparatus and unfamiliar personnel which adds to the psychological and physiological stresses and patients often undergo either continuous or intermittent sedation, which is associated with the emergence of sleep disturbances and, in some cases, overt delirium.^{1,2} The specific elements of intensive care that contribute to trauma remain uncertain; however, clinical risk factors prior to ICU stay include pre-existing psychological conditions, and risk factors during the ICU stay include administration of benzodiazepines, length of sedation, the necessity for mechanical ventilation, use of restraints, immobility, pain, sleep disturbances, and sensory deprivation.⁴

Post-intensive Care Syndrome (PICS) encompasses a range of physical, cognitive, and psychological deficits that may arise during a patient's stay in the ICU or after their discharge, along with long-term outcomes for individuals who have been treated in the ICU's. PICS is one of the causes of PTSD. Patients admitted to an ICU encounter profound stressors, including respiratory

distress, pain, presence of tubes in their nasal or oral cavities, a sense of lost autonomy, sleep deprivation, physical restraints and inability to communicate effectively. The progression of the disorder can differ significantly among individuals. Some individuals may experience recovery within a six-month period, while others may endure symptoms for a year or more. It is common for those with PTSD to also face depression, substance use disorder, or one or more anxiety disorders.⁵ Moreover, the occurrence of delusions and hallucinations, which can be deeply unsettling, is often linked to the treatment received in the ICU.⁶ For an individual to be diagnosed with PTSD, the symptoms must persist for more than one month and must be sufficiently intense to disrupt various facets of daily living, including personal relationships and occupational responsibilities. Additionally, these symptoms should not be attributed to medication, substance abuse or other medical conditions.⁷

Prevalence and Assessment of PTSD

Overall, about 16-20% of ICU survivors develop PTSD symptoms, sometimes even three months after the ICU discharge.¹ PTSD prevalence among ICU survivors ranges between 3.7% and 43.7%.⁸ Symptoms of Post-Traumatic Stress Disorder (PTSD) typically manifest within three months following a traumatic incident. However, they may also appear later.^{4,9,10}

There are several tools for the assessment of PTSD as shown in the table given below.

Table 1: Tools for assessment of PTSD among ICU survivors

Name of the tool	No. of Items	Parameters	Utilization
UK-Post-Traumatic Stress Syndrome ¹¹	14	Serves as a valuable resource for assessing the need for referral to specialized professional assessment. ¹²	4-14 days, two months and three months post-ICU discharge.
ICUM (ICU memory) tool	7	Assesses types of memory in patients, which include the memory of factual events feeling memory, and delusional memory The stability of memory over time can also be monitored via this tool. ¹²	Three months post ICU discharge.
Post-Traumatic Stress Symptoms Checklist-10 (PTSS-10)	10	Measures the presence and severity of PTSD symptoms. ⁴	One- and three-months post ICU discharge.
Impact of Event Scale-Revised (IES-R)	22	For measuring post-traumatic stress. ¹¹	-
Post-Traumatic Diagnostic Scale (PDS)	40	To evaluate the severity of PTSD symptoms. ¹³	Three months post ICU discharge.

Features of PTSD

Common symptoms of PTSD include nightmares, intrusive trauma memories, hypervigilance, irritability, emotional withdrawal, poor concentration, and sleep disturbances.⁴ The prevalence of significant post-ICU PTSD symptoms is notably high and tends to persist over time. Studies report a median point prevalence of 22% for questionnaire-based PTSD symptoms and 19% for clinician-diagnosed PTSD. These figures are quite high compared to a 3.5% one-year prevalence of PTSD reported in a recent study on US adults that utilized non-clinicians administering a structured interview. In addition, these figures are as high as the median point prevalence of substantial PTSD symptoms in survivors of myocardial infarction (16%) or cardiac surgery (17%) as reported in a recent review study. Also, these figures are only slightly lower than the median point prevalence of substantial PTSD symptoms in Acute lung injury (ALI)/ acute respiratory distress syndrome (ARDS) survivors (28%).³

PTSD symptoms may not appear at once following the traumatic event; they can develop weeks, months, or even decades later. Individuals may show hyper-arousal symptoms, including heightened startle responses and increased vigilance, alongside avoidant behaviors that prevent them from confronting reminders of the trauma, such as specific thoughts, locations, or situations. Some individuals also experienced depression (32%) and anxiety (38%) in conjunction with PTSD.¹⁰

Psychological risk factors may involve a history of psychiatric disorders, the experience of hallucinations or delusions while in intensive care, and disturbances in memory or cognition.¹¹ These symptoms may vary in intensity over time, often worsening during stressful periods.¹⁴

Impact of PTSD on Quality of Life

ICU care can be highly stressful, leading to long-term psychological issues that negatively impact patients' quality of life. PTSD symptoms are particularly linked to poorer mental health, affecting social interactions, emotional well-being, and overall mental health more than physical health aspects.

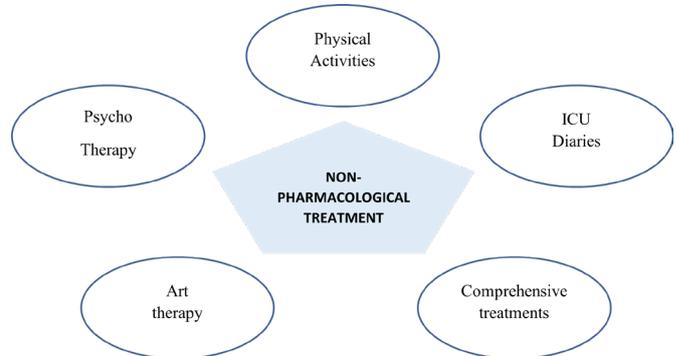
Treatment for PTSD

ICU diaries

ICU diaries can be utilized by patients, family members, and healthcare workers to document daily events. Their use has been shown to reduce the incidence of

new-onset PTSD, anxiety, and depressive symptoms while enhancing the psychological well-being of both patients and their families. The use of diary gives a basic chronological event and a symbol of support for those patients who survive their long-term hospital stay.¹⁵

Non-pharmacological Management of PTSD



The use of an ICU diary with photographs fills the gap between patients' memories as well as allows patients to change what they think about their experience of ICU by providing a narrative story which they can reread the diary over months after their ICU discharge.¹⁶ The diary acts as a connector between the past and the future, encompassing the time leading up to the patient's death and the post-death bereavement period. The diary can act as a source of information, providing bereavement support to the family and helping them to understand the patient's death.¹⁷

Diet supplementation therapy

Omega 3 capsules are prescribed as a non-pharmacological intervention for PTSD among ICU survivors. The fatty acids in Omega-3 serve as precursors for neurogenesis in the cerebral hippocampus, a region associated with the formation of fear-related memories. These capsules can be administered for 12 weeks.¹⁸

Art therapy

It is a therapy that promotes the use of art for the narrative reconstruction of traumatic events with oral or written expression, allowing the management of stress, physical and mental symptoms related to PTSD.¹⁸ Art therapy can effectively tap into trauma memories by stimulating the senses.¹⁹

Psychotherapy

It helps in addressing psychological aspects in order to symbolize memories or emotions linked with traumatic events.¹⁸ Psychotherapy includes Cognitive Processing Therapy (CPT). CPT has been widely supported as

an effective treatment for PTSD, which assumes that after experiencing a traumatic event, survivors strive to comprehend the circumstances surrounding it, which frequently results in distorted beliefs about themselves, their environment, and other individuals.²⁰

Physical exercise

It includes sports, yoga and mental relaxation exercises among which yoga is one of the exercise types that helps in the reduction of depressive symptoms.¹⁹ Engaging in low to moderate intensity physical activity has been demonstrated to alleviate anxiety, enhance mood, and serve as a protective factor against stress. Research indicates that exercise can diminish the manifestations of depression and PTSD, with particular effectiveness noted in mind-body exercises and low-intensity aerobic activities.²¹

Pharmacological Management of PTSD

According to a novel research, fluoxetine, venlafaxine, and paroxetine have demonstrated greatest efficacy as mono therapy in the treatment of post-traumatic stress disorder. The advantages of utilizing selective serotonin re-uptake inhibitors (SSRIs) or selective norepinephrine re-uptake inhibitors (SNRIs) include their well-tolerated side effect profiles. In clinical settings, psychiatrists often adjust the prescribed SSRI or SNRI based on the patient's response, tolerability, or issues related to the metabolism of these medications, whether slow or rapid. Notably, paroxetine is prescribed less frequently due to its higher incidence of anticholinergic side effects compared to other SSRIs and its short half-life, which often necessitates dosing twice daily. Commonly used class of drugs for PTSD are:

- Antipsychotics - To improve the symptoms
- Anxiolytics - To relieve sleep symptoms and to improve overall PTSD symptoms
- Anti-depressants - For overall symptom management.¹⁰

Recommendations

A simple, cost-effective intervention for PTSD includes maintaining an ICU diary and providing follow-up care after the patient is discharged or transferred from the ICU. An inspirational program conducted 10 weeks after ICU discharge can also help reduce PTSD. The use of ICU diaries can be beneficial when integrated into a program that provides comprehensive services

and continuous psychiatric monitoring for patients.¹⁰ A longitudinal study can be conducted on ICU survivors to detect PTSD. Nurses can be trained to identify ICU survivors at risk of developing PTSD.

Conclusion

Although the prevalence of PTSD among ICU survivors varies significantly, it is evident that this condition is common, with symptoms potentially lasting for several months following recovery from critical illness. Numerous factors contribute to the onset of PTSD in individuals who have survived critical illness. It is crucial to identify individual risk factors that may increase susceptibility to PTSD and to recognize and mitigate environmental factors within the ICU that could lead to patient trauma. Notably, the implementation of optimal analgesia-based sedation may aid patients in creating accurate memories of their ICU experience, thereby decreasing the likelihood of developing PTSD.

In the Indian context, due to a lack of healthcare facilities, ICU patients often do not receive follow-up care after discharge. Consequently, the prevalence of PTSD remains largely unknown, underscoring the need for more research to assess the physical and psychological symptoms following ICU discharge.

Nurses play a critical role in identifying and managing PTSD in ICU survivors. They should:

- Monitor patients for PTSD risk factors: Such as traumatic events and prolonged ICU stays.
- Use assessment tools: Implement tools like the PTSD Checklist and ICU Memory Tool to evaluate patients.
- Identify early signs of PTSD: Look for symptoms like anxiety, agitation, and depression.

There is a pressing need for structured follow-up programs in the Indian healthcare system to track the long-term outcomes of ICU survivors. By doing so, healthcare providers can better address the mental health needs of these patients, improving their overall quality of life. This approach necessitates a multi-disciplinary effort involving doctors, nurses, mental health professionals, and policymakers to establish comprehensive care pathways for ICU survivors.

Conflicts of Interests

Nil

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