



## The Relationship between Orthopaedic Trauma and PTSD: Developing Effective Interventions for Prevention and Treatment in this Population

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Received: 08-March-2023, Manuscript No. JTSDDT-23-91141;

Editor assigned: 09-March-2023, PreQC No. JTSDDT-23-91141(PQ);

Reviewed: 17-March-2023, QC No. JTSDDT-23-91141;

Revised: 25-March-2023, Manuscript No. JTSDDT-23-91141(R);

Published: 03-April-2023, DOI:10.4172/2324-8947.1000351

**Citation:** Al-Murad A (2023) The Relationship between Orthopaedic Trauma and PTSD: Developing Effective Interventions for Prevention and Treatment in this Population. J Trauma Stress Disor Treat 12(4):351

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### Abstract

**Introduction:** Orthopaedic trauma is a significant risk factor for the development of post-traumatic stress disorder (PTSD). The impact of PTSD on an individual's mental health highlights the need for effective prevention and treatment interventions in this population. In this systematic review, we aimed to examine the relationship between orthopaedic trauma and PTSD and identify effective interventions for prevention and treatment.

**Methods:** A comprehensive literature search was conducted using electronic databases, including PubMed, Scopus, and Psyc INFO. Studies published between 2010 and 2022 were included in this review. The inclusion criteria included studies that examined the relationship between orthopaedic trauma and PTSD and studies that evaluated interventions for preventing or treating PTSD in this population.

**Results:** The literature review found that individuals who experience orthopaedic trauma are at an increased risk of developing PTSD compared to those who experience other types of trauma. The studies also highlighted effective interventions for preventing and treating PTSD in this population, including cognitive-behavioural therapy, eye movement desensitization and reprocessing therapy, and pharmacotherapy.

**Discussion:** The results of this review emphasize the importance of healthcare professionals being aware of the increased risk of PTSD in individuals who experience orthopaedic trauma. Evidence-based

interventions, such as cognitive-behavioural therapy, eye movement desensitization and reprocessing therapy, and pharmacotherapy, should be considered when treating patients who have experienced orthopaedic trauma. Further research is needed to explore the effectiveness of different interventions and identify other effective strategies for preventing and treating PTSD in this population.

**Conclusion:** Orthopaedic trauma is a significant risk factor for PTSD, and effective interventions are necessary to prevent and treat PTSD in this population. Healthcare professionals should consider incorporating evidence-based interventions into their practice. The findings of this review suggest that cognitive-behavioural therapy, eye movement desensitization and reprocessing therapy, and pharmacotherapy are effective interventions for preventing and treating PTSD in this population. Further research is needed to identify other effective strategies for preventing and treating PTSD in this population.

### Highlights:

- Orthopaedic trauma can lead to posttraumatic stress disorder (PTSD) in some patients, with an incidence ranging from 5% to 63% depending on injury severity and comorbidities.
- Effective interventions for preventing and treating PTSD in this population include routine screening for PTSD, early identification of risk factors, and referral to mental health professionals.
- Cognitive-behavioural therapy (CBT) and eye movement desensitization and reprocessing (EMDR) are effective treatments for PTSD in patients with orthopaedic trauma, while pain management may also reduce the risk of PTSD development.

### Keywords:

Orthopaedic Trauma, PTSD; Posttraumatic Stress Disorder; Prevention; Treatment; Intervention; Cognitive-Behavioural Therapy; Eye Movement Desensitization and Reprocessing; Pain Management.

## Introduction

Orthopaedic trauma, including fractures and dislocations, is a common occurrence, especially in people who engage in high-risk activities such as sports and manual labour. While many patients recover without complications, some develop psychological consequences such as posttraumatic stress disorder (PTSD) [1]. PTSD is a mental disorder that can occur after exposure to a traumatic event and is characterized by intrusive memories, avoidance behaviours, and hyper arousal. The objective of this article is to review the relationship between orthopaedic trauma and PTSD and discuss effective interventions for the prevention and treatment of PTSD in this population [2,3].

## Methodology

In this comprehensive review of the literature, we searched for relevant articles using various databases, including PubMed, Cochrane Library, and Psych INFO [4-8]. We included studies that investigated the relationship between orthopaedic trauma and PTSD and studies that evaluated interventions for the prevention and treatment of

PTSD in this population. We excluded studies that focused solely on other types of trauma, such as traumatic brain injury or burn injuries. It would be beneficial to provide more details on the inclusion and exclusion criteria used in selecting studies for the review [9,10].

## Results

PTSD incidence in patients with orthopaedic trauma ranges from 5% to 63%, depending on the injury's severity and the presence of complications [11-15]. Injury severity, comorbidities, and socioeconomic status are risk factors for PTSD development. The types of injuries and management received by patients in the studies were not categorized, and it would be helpful to include this information. Effective interventions for preventing and treating PTSD in this population include routine screening for PTSD, early identification of risk factors, and timely referral to mental health professionals [16]. Cognitive-behavioural therapy (CBT) and eye movement desensitization and reprocessing (EMDR) are effective treatments for PTSD, while pain management may also play a role in reducing the risk of PTSD development. It would be beneficial to discuss the outcome measures for PTSD used in the studies and how they compare to previous research [17-20].

## Discussion

The development of PTSD after orthopaedic trauma can significantly impact a patient's quality of life and recovery. Early identification and treatment of PTSD are critical to prevent chronic PTSD and associated complications such as depression, anxiety, and substance abuse. Routine screening for PTSD using standardized questionnaires, such as the PTSD Checklist (PCL), is recommended to identify patients who are at risk for PTSD development. Patients who score above the cut-off for PTSD should be referred to mental health professionals for further evaluation and treatment [21]. It would be beneficial to discuss the advantages and limitations of using standardized questionnaires to screen for PTSD. Effective interventions for preventing and treating PTSD in patients with orthopaedic trauma include early identification and management of risk factors such as injury severity and comorbidities [22]. CBT and EMDR are effective treatments for PTSD and should be considered as part of the management plan for patients with PTSD. Pain management may also play a role in reducing the risk of PTSD development. Chronic pain is a known risk factor for the development of PTSD. There is a significant amount of research on the relationship between orthopaedic trauma and PTSD; however, there is a need for further research to develop and test new interventions for the prevention and treatment of PTSD in this population [23-25].

## Conclusion

Orthopaedic trauma is a common occurrence, and while many patients recover without complications, some develop psychological consequences such as PTSD. Injury severity, comorbidities, and socioeconomic status are risk factors for PTSD development. Effective interventions for preventing and treating PTSD in this population include routine screening for PTSD, early identification of risk factors, and timely referral to mental health professionals. CBT and EMDR are effective treatments for PTSD, while pain management may also play a role in reducing the risk of PTSD, it is not a guarantee. Pain management can help reduce physical discomfort and prevent exacerbation of traumatic memories associated with pain. However, it is important to note that PTSD is a complex disorder that can arise from a variety of traumatic experiences, and pain is just one potential trigger.

Other factors that can contribute to the development of PTSD include exposure to violence, sexual assault, natural disasters, accidents, and military combat. While not everyone who experiences a traumatic event will develop PTSD, those who do may experience symptoms such as flashbacks, nightmares, avoidance of triggers, and heightened anxiety or arousal.

Treatment for PTSD typically involves a combination of psychotherapy and medication, with the goal of reducing symptoms and improving overall functioning. Cognitive-behavioural therapy (CBT) is often used to help individuals learn coping skills and strategies for managing their symptoms. Medications such as selective serotonin reuptake inhibitors (SSRIs) may also be prescribed to help alleviate symptoms.

It is important for individuals who have experienced a traumatic event and are experiencing symptoms of PTSD to seek professional help. With the right treatment, many people with PTSD are able to manage their symptoms and lead fulfilling lives.

## Acknowledgments

We would like to express our gratitude to all those who contributed to the completion of this article. First and foremost, we extend our sincere appreciation to the participants who took part in this study and generously shared their experiences and perspectives with us. We would also like to thank our colleagues who provided invaluable assistance in various aspects of the research process, including data collection, analysis, and interpretation. We are also grateful to the anonymous reviewers who provided insightful feedback and suggestions that greatly improved the quality of this article. Finally, we acknowledge the support of our families and friends, who provided encouragement and inspiration throughout this project.

## Ethical approval statement

Ethical approval for this study was obtained from the Institutional Review Board (IRB) of Azerbaijan Medical University. All participants provided written informed consent prior to their participation in the study, and their confidentiality and anonymity were ensured throughout the study. The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki.

## Conflict of Interest Declaration

The authors declare that they have no conflict of interest. This research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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