

## Epidemiology of Ocular Trauma

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Ocular trauma is one of the leading causes of unilateral blindness in different age groups<sup>1</sup>, particularly in developing nations, and can be prevented by taking protective measures. Unfortunately, we have very little data available on the epidemiology of ocular trauma worldwide. Back in 1992, the World Health Organization estimated that each year, 55 million people worldwide experience ocular trauma or disability. That included 19 million who suffer from blindness in one eye, 2.3 million with reduced vision in both eyes, 200,000 with open-globe injuries, and 1.6 million with trauma-related blindness that requires hospitalization.<sup>2</sup> The incidence of blindness resulting from ocular trauma calculated was 9/100,000 individuals in developed countries and 75/100,000 individuals in developing countries. Globe injuries occurred in 3.5/100,000 people worldwide, resulting in roughly 203,000 new cases each year.<sup>1</sup> The exact prevalence of ocular trauma-related blindness remains uncertain, however it has been conservatively estimated that at least half a million individuals are blind as a result of ocular trauma, highlighting the public health significance of this issue.<sup>2</sup>

Similar studies suggested that men are six times more susceptible to ocular trauma than women. Accidents and sports-related incidents are the some of the important causes of ocular injuries in young children and adolescents. Majority of cases with trauma-related ocular injuries were men, and the primary causes included accidents, industrial work-related injuries, chemical injuries, foreign bodies, and burns<sup>3</sup>. The prevalence of ocular trauma was 5.2% among 6-12-year-old children, of which 9.3% and 4.7% required hospitalization and surgical intervention, respectively.

In addition to causing health problems for the individual, ocular injuries can also cause mental distress, reduced quality of

life, cosmetic issues, and decreased efficiency resulting in significant loss of working days. Studies show that ocular trauma causes a decrease in physical performance and mental health scores, leading to reduced quality of life, which can be significant in children.<sup>4</sup>

Visual impairment can result from ocular trauma, but it does not always reflect the overall incidence of trauma. According to a study conducted in Nepal, 8.6 individuals per 1000 showed signs or reported a history of ocular trauma, but only 38% of those individuals had experienced visual impairment. Additionally, in over 70% of those cases, the visual impairment was unilateral. Unfortunately, there is no reliable data on the true incidence of ocular trauma.<sup>5</sup>

Although ocular trauma can result in blindness, it is more commonly associated with monocular vision impairment, particularly in settings with limited access to healthcare services. Epidemiological studies have shown that up to one-third of cases of monocular blindness may be attributed to severe trauma and its late complications, underscoring the importance of preventive measures and timely intervention. Several factors influence the epidemiology of ocular trauma, including age, gender, socioeconomic status, and cultural practices. Additionally, socioeconomic disparities contribute to variations in the prevalence and severity of ocular trauma, with lower-income individuals and non-white populations experiencing a higher burden of injury. The discussion of causative factors for ocular trauma is complex and varies widely depending on the setting, with workplace accidents, sports injuries, road accidents, and domestic mishaps being common causes.

The socioeconomic impact of late complications from ocular trauma is

substantial, encompassing medical expenses, lost productivity, and the need for rehabilitation services. Preventive strategies and prompt management of ocular trauma are essential to mitigate the socioeconomic burden associated with late complications. By addressing the underlying risk factors and improving access to quality eye care services, it is possible to reduce the incidence of ocular trauma and its adverse consequences on individuals and communities worldwide.

Moving forward, there is a need for continued research and surveillance to monitor trends in ocular trauma epidemiology, identify high-risk populations, and evaluate the impact of preventive interventions. Collaborative initiatives involving healthcare providers, public health agencies, policymakers, and community stakeholders are essential for implementing evidence-based strategies to prevent ocular injuries and improve outcomes for affected individuals. Furthermore, fostering interdisciplinary collaborations and leveraging technological innovations hold promise for enhancing early detection, management, and rehabilitation of ocular trauma cases.

It is crucial to recognize the limitations that come with the current data and the outdated nature of available information regarding the epidemiology of ocular trauma. Considering these limitations, it is not practical to view the current update on ocular trauma epidemiology as a comprehensive or representative assessment of the present situation. The lack of recent and robust data highlights the critical need for updated surveys to accurately evaluate the morbidity of ocular trauma globally and nationally. Without the current epidemiological studies, our knowledge of the prevalence, incidence, and associated risk factors of ocular trauma remains inadequate. To address this knowledge gap and make informed decisions on public health policies and clinical practices, we need to make

concerted efforts to conduct fresh surveys that capture the contemporary epidemiological profile of ocular trauma. By doing so, we can better understand the actual burden of ocular trauma and implement targeted interventions to reduce its impact on individuals and communities worldwide.

#### **References:**

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