

# **IMPACT OF BURNS AND EYE INJURIES ON PATIENTS' QUALITY OF LIFE (REVIEW ARTICLE)**

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## **Topicality.**

Burns and injuries to the eye are one of the most serious medical and social problems affecting patients' quality of life. Modern research shows that the consequences of such injuries can range from mild temporary visual impairment to severe ones, leading to permanent vision loss and a significant reduction in quality of life. The question of the impact of burns and eye injuries on various aspects of human life, including physical condition, psycho-emotional well-being and social adaptation, is becoming especially relevant [1,2].

Eye burns account for a significant proportion (between 11.5% and 22.1%) of all eye injuries. Children between the ages of 1 and 2 and workers between the ages of 20 and 34 are at greatest risk of eye burns. This highlights the need to raise awareness of risks and preventive measures, especially in work and domestic settings [4, 6].

The study of the impact and consequences of eye burns and injuries on the quality of life of patients occupies a significant place in modern medical science. The problem is acute for the medical community due to the increase in the number of cases of ophthalmic injuries, especially in the young and active part of the population. Such injuries not only cause direct damage to health, but also have a profound impact on the psychological state, social adaptation and overall quality of life of the victims.

Many studies have emphasized the importance of assessing quality of life in patients after penetrating eye injuries using the National Eye Institute Visual Function Questionnaire (NEI VFQ-25) and the Non-Specific Patient Quality of Life Questionnaire (SF-36) as tools. The results showed that patients with eye injuries experienced a significant reduction in quality of life compared to a control group of healthy people. This emphasizes the need for a comprehensive approach to the treatment and rehabilitation of this category of patients, including not only medical, but also psychological and social aspects of recovery [5].

Thus, the study by Walsh A. (2023) on the impact and consequences of burns and eye injuries on various aspects of patients' quality of life is of particular relevance. Given the high prevalence and serious consequences of such injuries, it is important to focus on effective



methods of prevention, diagnosis and treatment to minimize their impact on the health and well-being of those affected [11].

Understanding the depth of the problem and its impact on various aspects of patients' lives can contribute to the development of new approaches to treatment and rehabilitation, as well as raising public awareness and injury prevention.

A study conducted by Yüksel H. et al. (2014) found a significant reduction in quality of life in patients after penetrating eye injuries compared to a control group of healthy individuals.

Patients with burns and eye injuries rated their overall health significantly lower than those in the control group.

A significant deterioration of vision was recorded, including distortion of objects both near and far and, as a result, difficulties in social adaptation. The results also showed a deterioration in the psycho-emotional state of the patients, which was reflected in a decrease in emotional well-being and mental health. Patients who were able to drive reported a significant impairment in their ability to drive, highlighting the impact of visual impairment on traffic safety.

The study found that eye injuries can significantly reduce patients' professional performance and ability to work. Many participants were faced with the need to change their professional activities or leave their jobs completely due to restrictions caused by vision loss.

These findings of the study emphasize the importance of assessing quality of life as a key aspect in the recovery and rehabilitation of patients who have suffered burns and eye injuries and points to the need for coordinated efforts of medical professionals, psychologists and social workers.

Creating a supportive environment and providing access to social resources can lead to better adaptation and a better quality of life [12].

Today, the scientific work of Yüksel H. (2014) is relevant, as it provides valuable data on the impact of penetrating eye injuries on the quality of life of patients. Also, the use of the National Eye Institute Visual Function Questionnaire (NEI VFQ-25) and the short form questionnaire (SF-36) allowed the authors to study in detail how changes in vision under the influence of various pathological conditions affect many aspects of patients' lives, and the results can serve as a basis for the development of new strategies to improve the quality of life, as well as for prevention and education aimed at reducing the risk of ophthalmic injuries [12].

According to a study conducted in the United States, about 7.5% of the population will experience eye injuries during their lifetime. Of these, 6.1% experience vision impairment, 6.9% become partially blind, and 0.6% lose vision completely. This means that about 1.5 million people suffer from permanent vision loss, 1.7 million from partial blindness, and 147,000 from total blindness. Between 2 and 2.4 million cases of eye injury occur each year, with hospitalization required in about 22% of cases.

It should be noted that the elderly part of the population is most often hospitalized due to eye injuries. Men are more likely to be injured, with the causes of injuries differing by age: older people are more likely to be injured by falls, while adolescents and young adults are more likely to be injured by road traffic accidents and assaults. In children, there has been an increase in accidental and sports-related injuries. Eye injuries are one of the most common and preventable causes of vision impairment and blindness. Despite increased attention to the use of safety glasses in recent decades, the prevalence of the problem is expected to increase due to the development of modern technology [11].



A study of the impact and consequences of burns and injuries of the eye on different aspects of patients' quality of life revealed important aspects in the change in quality of life related to vision (HRC) in patients with vision loss after eye injury (OT) and non-traumatic diseases (NTOD). Using the National Eye Institute's (VFQ-25) questionnaire under the Individuals with Disabilities Rights Act (RPwD) 2016 and consisting of 25 questions, it was possible to assess quality of life and its association with disability score (PI).

Among the 88 respondents, the median age was  $40,272 \pm 9.35$  years. An almost equal number of participants had OT and NTOD.

The most common causes were traumatic optic neuropathy and corneal diseases. Low FLS scores were recorded in all cases ( $57.52 \pm 16.08$ ), in particular in visual acuity, near vision and driving. Based on the PI%, the rate was  $\leq 40\%$  in 77 cases and  $>40\%$  in the remaining cases.

The lack of social support under the RPwD (India, 2016) law for patients with visual disabilities leads to an even greater decrease in the quality of life of patients, due to physical, emotional and psychological impairments, especially among young people. [9].

The study, conducted in Crete, Greece, over a period of five years, aimed to examine the demographic, clinical, and social characteristics of adult patients hospitalized with eye injuries. As a result, it was revealed that a large group of patients with eye injuries were middle-aged men; blunt trauma to the eye (e.g., contusions) was most common in the population; approximately 60.9 per cent of injuries were work-related, predominantly among male manual workers; The most common reason was the non-use of eye protection in the workplace; The severity of visual outcomes correlated with initial visual acuity, type of injury, time of first aid, and hospitalization. Patients with open eye injuries and those who were admitted to the hospital more than two hours after the injury were more likely to have low quality of life scores.

Enhanced measures are needed to prevent eye injuries in the workplace, including worker education programmes and the use of personal protective equipment.

General practitioners can play a key role in the early detection and referral of patients with serious eye injuries for timely first aid and treatment.

Timely hospitalization and improved collaboration between health services can contribute to favourable outcomes for eye injuries.

Studies prove the need to take into account socio-economic factors in the prevention of eye injuries and to ensure the availability and quality of medical care.

Some authors emphasize the importance of a comprehensive approach to the prevention, early detection and treatment of eye injuries in order to minimize their impact on patients' quality of life and improve their socio-economic status [7].

A study conducted in the Netherlands has identified key aspects of the effects of injuries resulting from the use of pyrotechnics. Most of the victims were men (93%) and children under 16 years old (50%), with almost half of the victims being bystanders (46%). Injuries were most often localized in the upper extremities and eyes, mainly in the form of burns (48%) and injuries (24%). 27% of patients were hospitalized, 20% required surgery.

The average total cost of treatment per casualty was €6,320 (high hospitalization costs).

Despite the severity of some injuries, in the long term, only a few patients experienced reduced quality of life and functional limitations.

The study highlights the risks associated with the use of pyrotechnics, especially among youth and children, and points to the need to improve safety and prevent injury measures. Although most injuries did not result in long-term reductions in quality of life, the high medical and



societal costs, as well as the risk of unforeseen and serious damage, underscore the importance of banning the use of pyrotechnics [10].

A study by Mercera G. (2024) examining the impact and consequences of eye burns and injuries on various aspects of patients' quality of life revealed significant psychological and social consequences in children, adolescents and their parents. An analysis of data from 20 children and adolescents who sought medical care for eye injuries between June 2019 and May 2023 found that 60% of participants were boys, with an average age of 11.9 years. 95% of cases were due to penetrating eye injuries. According to the results of the AFSIC-NL scale, 9 patients (45%) were diagnosed with psychiatric disorders, including post-traumatic stress disorder (15%), general anxiety disorder (15%), and major depression (15%). The use of the PedsQL scale showed that the lowest quality of life indicators were observed in schoolchildren and people with high physical activity.

There was an inverse correlation between the number of surgeries performed and indicators of quality of life in children, indicating a deterioration in quality of life with an increase in the number of surgical interventions.

These findings highlight the need to integrate psychological support and quality of life measures into a comprehensive treatment and rehabilitation plan for children who have suffered eye injuries. It is important to note that support should include not only children directly affected by trauma, but also their parents who are experiencing stress and anxiety about their children's condition and future [8].

Eye injuries sustained in combat have a significant impact on the quality of life of service members, according to a study conducted among participants who suffered eye injuries during different wars. Of the 165 participants, 137 were using the National Institute of Vision Visual Functioning Questionnaire (VFQ-25). The results of the studies showed that the average VFQ-25 score was  $74.4 \pm 20.7$ , indicating a decrease in patients' quality of life related to visual acuity.

One of the key findings of the study is that despite the preservation of vision among military patients within the normal range, their quality of life may be significantly reduced for other reasons (e.g., psycho-emotional disorders). This underlines the importance of not only timely medical and surgical treatment of eye injuries, but also the development of improved rehabilitation and counseling programs for patients in order to restore their quality of life.

The study also revealed the need for further study of military field injuries in order to assess the impact of the anatomical location of combat injuries of the eye organ on quality of life indicators, which could be useful in the development of future personal protective equipment and the prevention of complications as a result of traumatic eye injuries [3].

## **Conclusion.**

The studies reviewed in the article indicate that eye injuries and burns have not only physical, but also psychological, social and economic consequences for those affected. A decline in quality of life is observed in both the short and long term, especially when it comes to the decline in visual function and its impact on daily activities, professional activities and social contact.

Particular attention is paid to the need for an integrated approach to the treatment and rehabilitation of patients, which should include not only the restoration of physical health, but also the provision of psychological support and social adaptation. Research highlights the importance of effective injury prevention methods, including education and raising awareness of the risks and the need to use personal protective equipment in certain settings.

Further research should be based on the development of improved rehabilitation techniques, assessing the impact of new technologies on treatment and monitoring, and examining the long-term socio-economic consequences of eye injuries. There is also a need for an in-depth study of the impact of various types of eye injuries on the quality of life, the development of targeted support programs for different groups of patients, taking into account age, gender, social status and characteristics of traumatic injury.

Thus, many authors confirm the need for an interdisciplinary approach to the problem of eye injuries and burns, combining the efforts of ophthalmologists, psychologists, social workers and other specialists, in order to provide victims with highly qualified treatment, rehabilitation and improve their quality of life.

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