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Review article

Impact of the COVID-19 Pandemic on Injury Rates in the World and in Kazakhstan

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Abstract

During the COVID-19 pandemic, there has been an overall decrease in injury rates. The type of injury also changed depending on the period and the strengthening of restrictive measures: the number of street, sports, and school injuries decreased. However, the share of domestic injuries increased.

This information can be useful in planning the work of health authorities and allocating resources in pandemic situations that may arise in the future.

Keywords: injuries, COVID-19, pandemic, quarantine measures, Kazakhstan.

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Introduction

Injuries, along with diseases of the circulatory system and cancer, are one of the main medical and social problems in most countries of the world [1]. Thus, based on the above data, it can be seen that injuries have a complex, multifaceted structure and represent a major medical and social problem.

In the world, more than 5 million deaths due to injuries are registered annually, which is about 10% of the total number of deaths [2-4]. As the analysis of accidents shows, the main causes of fatal injuries are violations of traffic rules, safety regulations, labor and industrial discipline. The situation is aggravated by a large number of deaths and injuries of children [5]. In Kazakhstan, injuries in all its manifestations take the second place in the structure

of morbidity (6.88 percent), as the reason for disability-the third place [7].

The COVID-19 pandemic has significantly affected almost all areas of health care, with the exception of trauma and injuries in all its manifestations. The isolation caused by the COVID-19 pandemic has had a great psychological impact on the population, increasing the number of cases of domestic violence and domestic injuries. However, we believe that the quarantine measures introduced during the COVID-19 pandemic in the form of restrictions on the movement of the world's population could significantly affect the statistics.

The aim of this review is to study the dynamics of injury rates during the COVID-19 pandemic.

Indicators of injuries of various types in the world

Injuries remain one of the main medical and social problems not only in the post-Soviet space, but also in most countries. In 2001-2012, the dynamics of injury rates was characterized by an increase in the level of injuries from 87 to 93 cases per 1000 population. In 2012 and beyond, there is a downward trend in injury rates, but there is not enough data to indicate an unambiguous fracture. Despite the progress in the treatment of the wounded, the reduction in mortality and the development of rehabilitation programs, the significant prevalence of injuries in the countries of the Commonwealth of Independent States is associated with the inadequate effectiveness of preventive efforts of society and the health system to reduce the risks for the population to get injured [3]. The importance of actions to prevent accidents and injuries can be seen from the review of cause of death statistics. Accidents, which led to 146,000 deaths in 2016 (3.2% of all deaths), were one of the most common causes of death in the 27 EU countries [4].

According to WHO data, more than 200,000 people die from injuries caused by falls every year, of which more than 80% of deaths occur in middle-or low-income countries. In all regions, the highest mortality rates due to falls are more often observed among adults over 70 years of age (more than 40% of injuries) and, in particular, among women. About 40% of the total number of lost years of healthy life (DALYs) also occur in children under the age of 15 [5].

Risk factors associated with accidental falls include old age, being female, alcohol consumption, and certain

physical factors associated with aging, disease, or other conditions. These conditions include: impaired vision, delayed reaction, impaired attention due to alcohol use, substance abuse, illness or medication, and impaired motor function [6].

The main risk factors for burn injuries are age, smoking (especially smoking in bed and falling asleep with an unopened cigarette), alcohol consumption, as well as certain physical conditions and diseases, such as epilepsy [7].

Among all types of injuries (domestic, industrial, transport, street and agricultural), sports injuries range from 2 to 7%. The decisive factor in reducing injuries is prevention, which consists of a set of measures that are developed based on the causes of injuries [8].

One of the most common causes of injuries and deaths of the population is road traffic accidents (road accidents). According to WHO, the average global death rate in road accidents, as at the beginning of the century, exceeds 18 people per 100 thousand inhabitants [9], which means that research on the causes and the search for ways to reduce the number of road accidents should continue. The death rate from road accidents is 27.5 deaths per 100.000 populations, the risk is 3 times higher in low-income countries than in high-income countries where the average is 8.3 deaths per 100.000 population (Figure 1).

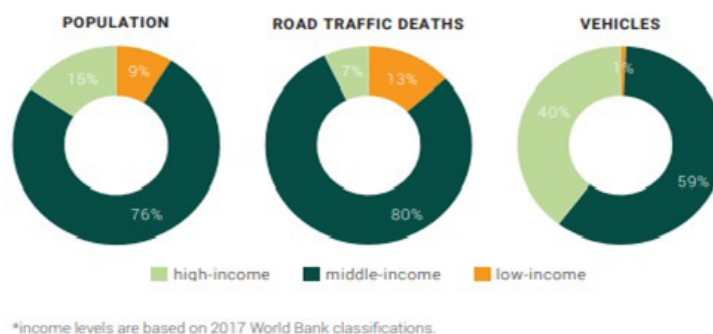


Figure 1 - Proportion of population, road traffic deaths, and registered motor vehicles by country income category*, 2016 [2]

In the Republic of Kazakhstan, which belongs to middle-income countries, according to WHO [10], in the period from 2007 to 2009, there was a pronounced annual

decrease in the level of mortality from road accidents, and in the period 2009-2013, this trend significantly smoothed out, and by 2013, there was already a minimal decrease in

mortality compared to the level of 2009. By 2012, about 4 million vehicles per 16.7 million people were registered in Kazakhstan. At the same time, according to 2009 data. [11], Kazakhstan was the leader in the WHO European Region in terms of the number of road traffic fatalities (30.6 persons per 100.000 population), ahead of the Russian Federation, which ranks 2nd in terms of the number of road traffic fatalities (25.2 persons per 100.000 population). Despite a significant decrease in all indicators of accidents in road transport, Kazakhstan lags significantly behind many developed countries in terms of the overall state of road

safety. Every year in Kazakhstan there are more than 18 thousand registered road accidents, regularly, as noted in statistical reports, about 2.5 thousand Kazakhstani die in them, about 23 thousand people are injured [12].

In general, a successful solution to the problem of reducing injuries and deaths from external causes is possible only if joint actions of state structures at the interdepartmental level, support for ongoing activities (to promote a healthy and safe lifestyle) by public organizations and, very importantly, by the general public.

On the impact of quarantine measures related to the COVID-19 pandemic on the incidence of injuries

The COVID-19 pandemic was characterized by an active and passive response from authorities around the world. Governments, in almost all countries, have made various attempts to impose restrictions at their discretion. The coronavirus infection has made significant changes in people's lives and the work of the health system. Due to self-isolation, the closure of kindergartens and schools, the picture of child injuries has also changed. Theoretically, we can expect a decrease in the frequency of road accidents, sports injuries, and possibly an increase in domestic injuries. This in turn has led to changes in the hospitalization of patients with injuries and their medical care in different countries [13].

According to Kuptsov A.O. et al. (2021), in 2020, the level of injuries decreased by 66% compared to the same period in 2019. A decrease in the number of medical care requests during the COVID-19 pandemic was noted by many authors of publications from different countries, who describe a reduction in injuries in both adult patients and children from 20 to 80% [14].

The isolation caused by the COVID-19 pandemic has had a great psychological impact on the population, increasing the number of cases of domestic violence and domestic injuries. The COVID-19 pandemic could have serious consequences for mental health [13].

Since most sports that require active physical activity have been banned, the number of sports-related injuries has decreased by more than 20% [16].

In the Republic of Kazakhstan, measures have also been taken to prevent infection. In order to ensure the safety of the population of the country, President K. Tokayev issued Decree No. 285 "On the introduction of a state of emergency in the Republic of Kazakhstan" on 15.03.2020, which declared a state of emergency throughout the country for the period from March 16, 2020 to April 15, 2020 [17]. This was the first declaration of a state of emergency on the entire territory of the Republic of Kazakhstan in the

entire history of the country's independence. On the basis of this Decree, since March 19, 2020, quarantine measures have been introduced in major cities of the Republic of Kazakhstan, including Nur-Sultan and Almaty, which consisted in strengthening sanitary and epidemiological measures, closing markets, except for food, closing shopping and entertainment centers, restricting exits and entrances to cities of the country [18].

According to the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan, in the first 5 months of this year, 4.178 road accidents were registered in Kazakhstan, in which there were more than 6 thousand victims. Compared to the same period in 2019, the accident rate decreased by 26.6%. The obvious reason for such indicators is the COVID-19 pandemic, which led to quarantine measures, the introduction of movement restrictions, including for car drivers [5,6].

Due to the fact that during the quarantine period, all sports events were canceled, training sections temporarily stopped working, sports injuries decreased to zero [19]. Thanks to distance learning, school injuries have also fallen to zero. Due to the restriction of car traffic, despite the increase in daylight hours and the increase in transport units on the roads in the spring and summer period, the accident rate decreased by 44.2% [20]. Quarantine measures have made minor adjustments to occupational injuries: they have decreased by only 9.5%. It should be noted that these changes occurred against the background of an increase in injuries by 22.1% during the study period compared to the comparison period [19].

The analysis of the structure of injuries by injury areas showed a decrease in chest injuries during the study period compared to the comparison period by 43.8%, against the background of an increase in head injuries by 33.3%, upper limb injuries by 14.4%, and lower limb injuries by 35.2% over the same periods [20].

This information can be useful in planning the work of health authorities and the allocation of resources in pandemic situations that may arise in the future.

Conflict of interest. The authors state that there is no conflict of interest in this work.

Conclusions

Thus, during the COVID-19 pandemic, there is an overall decrease in the level of injuries. The type of injuries also changed depending on the period and the strengthening of restrictive measures: the number of street, sports, and school injuries decreased. However, the share of domestic injuries has increased.

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COVID-19 пандемиясының әлемдегі және Қазақстандағы жарақаттану көрсеткіштеріне әсері

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Түйіндеме

COVID-19 пандемиясы кезеңінде жарақаттану деңгейінің жалпы төмендеуі байқалады. Жарақаттану түрі де кезеңге және шектеу іс-шараларының күшеюіне байланысты өзгерді: көше, спорт, мектеп жарақаттарының саны азайды. Алайда тұрмыстық жарақаттанудың үлесі артты.

Бұл ақпарат денсаулық сақтау органдарының жұмысын жоспарлау және болашақта туындауы мүмкін пандемия жағдайында ресурстарды бөлу кезінде пайдалы болуы мүмкін.

Түйін сөздер: жарақаттану, COVID-19, пандемия, карантиндік шаралар, Қазақстан.

Влияние пандемии COVID-19 на показатели травматизма в мире и в Казахстане

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Резюме

В период пандемии COVID-19 наблюдается общее снижение уровня травматизма. Вид травматизма также изменился в зависимости от периода и усиления ограничительных мероприятий: уменьшилось количество уличной, спортивной и школьной травмы. Однако увеличилась доля бытового травматизма.

Данная информация может быть полезна при планировании работы органов здравоохранения и распределении ресурсов в пандемических ситуациях, которые могут возникнуть в будущем.

Ключевые слова: травматизм, COVID-19, пандемия, карантинные меры, Казахстан.