



## FEATURES OF THE SPREAD OF CORONAVIRUS INFECTION (COVID-19) ON THE EXAMPLE OF THE ANDIJAN REGION OF UZBEKISTAN

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### ✓ *Resume*

*The spread of COVID-19 among the population of different districts in the Andijan region, the Republic of Uzbekistan has general patterns and is higher among middle-aged and older people. This is probably due to the social activity of this group, the density of the population. The study of the seasonality of distribution did not reveal any definite relationships with the seasons. From the current situation in Uzbekistan, as well as in the world, it follows that it is necessary to improve epidemiological surveillance and adequate preventive measures in relation to coronavirus infection.*

*Key words: coronavirus infection, COVID-19, epidemiology, risk factors, seasonality, distribution, organized and unorganized population groups, age composition.*

## ОСОБЕННОСТИ РАСПРОСТРАНЕНИЯ КОРОНАВИРУСНОЙ ИНФЕКЦИИ (COVID-19) НА ПРИМЕРЕ АНДИЖАНСКОЙ ОБЛАСТИ УЗБЕКИСТАНА

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### ✓ *Резюме*

*Распространение COVID-19 среди населения разных районов в Андижанской области, Республики Узбекистан имеет общие закономерности и выше среди людей среднего и старшего возраста. Вероятно, это связано с социальной активностью этой группы, уплотненности населения. Изучение сезонности распространения не выявило определенных связей временами года. Из сложившейся ситуации в Узбекистане, как и в мире, следует, что необходимо улучшение эпидемиологического надзора и адекватных профилактических мер по отношению к коронавирусной инфекции.*

*Ключевые слова: коронавирусная инфекция, COVID-19, эпидемиология, факторы риска сезонность, распространение, организованные и неорганизованные группы населения, возрастной состав.*

## О‘ЗБЕКISTONNING ANDIJON VILOYATI MISOLIDA KORONAVIRUS INFEKSIYASI (COVID-19) TARQALISHINING XUSUSIYATLARI

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### ✓ *Rezyume*

*O‘zbekiston Respublikasi, Andijon viloyatining turli tumanlari aholisi o‘rtasida COVID-19 ning tarqalishi umumiy ko‘rinishga ega bo‘lib, o‘rta va keksa yoshdagi aholi orasida yuqoriroqdir. Bu, ehtimol, ushbu guruhning ijtimoiy faolligi, aholi zichligi bilan bog‘liq. Tarqatishning mavsumiyligini o‘rganish fasllar bilan aniq aloqalarni aniqlamadi. Jahonda bo‘lgani kabi O‘zbekistonda ham mavjud vaziyatdan ko‘rinib turibdiki, koronavirus infeksiyasiga qarshi epidemiologik nazoratni yaxshilash va tegishli profilaktika choralarini ko‘rish zarur.*

*Kalit so‘zlar: koronavirus infeksiyasi, COVID-19, epidemiologiya, xavf omillari, mavsumiylik, taqsimot, aholining uyushgan va uyushmagan guruhleri, yosh tarkibi.*

### Relevance

**H**uman-to-human transmission of COVID-19 is spreading, affecting almost all countries of the world. Over the past 100 years, the globe has not faced a pandemic similar in scale to COVID-19.

Coronaviridae is a large family of RNA—containing viruses capable of infecting humans and some animals. Coronavirus infection (CI) are divided into three genera: Alfa ( $\alpha$ ), Beta ( $\beta$ ) and Gamma ( $\gamma$ ) coronavirus. The natural carriers of most of the currently known HF are mammals. In people, CI can cause mild forms of acute respiratory viral infection (ARVI) and SARS. To date, the world has faced two outbreaks of mutated coronavirus infection: SARS (SARS — Severe acute respiratory syndrome) in 2002-2003. and in 2009-2010 — Middle East respiratory syndrome (MERS — Middle East respiratory syndrome). It is known about the circulation among the population of four KV (HCoV-229E, -OC43, -NL63 and -HKU1), which are present year-round in the structure of ARVI[1]. Coronavirus 2 with severe acute respiratory syndrome (SARS-CoV-2) causes the 2019 coronavirus disease pandemic (COVID-19). Taken together, both previous outbreaks of other members of the coronavirus family (severe acute respiratory syndrome (SARS-CoV) and Middle East respiratory syndrome (MERS-CoV)) did not cause even 1% of the global harm already caused by COVID-19. There are also four other NCOV viruses capable of infecting humans that are constantly circulating in the human population, but their phenotypes are usually moderate, and relatively little attention has been paid to these COV viruses(2).

The causative agent of COVID-19 coronavirus infection is the SARS-CoV-2 virus, which was first detected in Wuhan, China, in December 2019. By mid-July 2021, more than 188 million people were diagnosed with the disease worldwide, for more than four million, the disease ended in death[3]. Epidemiological and virological studies show that the transmission of infection occurs mainly from patients with clinically pronounced disease to other people through close contact by airborne droplets, through direct contact with an infected person or through contact with infected objects and surfaces [4,5].

The mortality rates of the infected world population according to WHO and SCMP (RBC 2020) fluctuated significantly: MERS from 2012 to March 2019 — 858 cases among 2494 cases (34.4%); SARS June 2003 — 774 cases among 8096 cases (9.6%); COVID-19 as of February 27, 2020 — 2805 cases deaths among 82,320 patients (3.4%) and 32,756 people recovered [6].

According to the analysis of 72314 cases of diseases by the Center for Disease Control and Prevention of China, as of February 11, 2020, 87% of cases were aged 30 to 79 years, 1% were children 9 years and younger, another 1% were children and adolescents aged 10 to 19 years, and the elderly at the age of 80 years — 3%. The proportion of male and female patients was 51% and 49%, respectively. Among the COVID-19 cases, medical workers accounted for 4% [7].

For 7 months of 2020, the number of cases in the world increased by 28.4 times, deaths — by 19.8 times. On 30.09.2020, 33867876 people fell ill in the world, 1018175 people died, 25338163 people recovered and the mortality rate was 3.01% [8].

The spread of COVID-19 among the population of different countries has common patterns and is higher among men, older people, among people with impaired immunity and the presence of chronic diseases, in which the frequency of deaths also increases. Analysis of the number of cases of diseases and deaths reveals significant differences in the spread of COVID-19 in different countries of the world. Since May, there has been a decrease in mortality from COVID-19 in the world, which continued in the following months, despite an increase in the number of sick people. In Russia, there was a direct correlation between the number of people who became ill and died from COVID-19, although the mortality rates were 2 times lower than the average worldwide. The system of anti-epidemic measures carried out in different countries has a great impact on the spread and control of such an infectious disease as COVID-19[6].

Considering that there are no materials available to us regarding the epidemiology and spread of HF infection in Uzbekistan, a comprehensive study of the situation is required to develop and implement anti-epidemic measures that will be effective in combating infectious diseases like COVID-19 in the future.

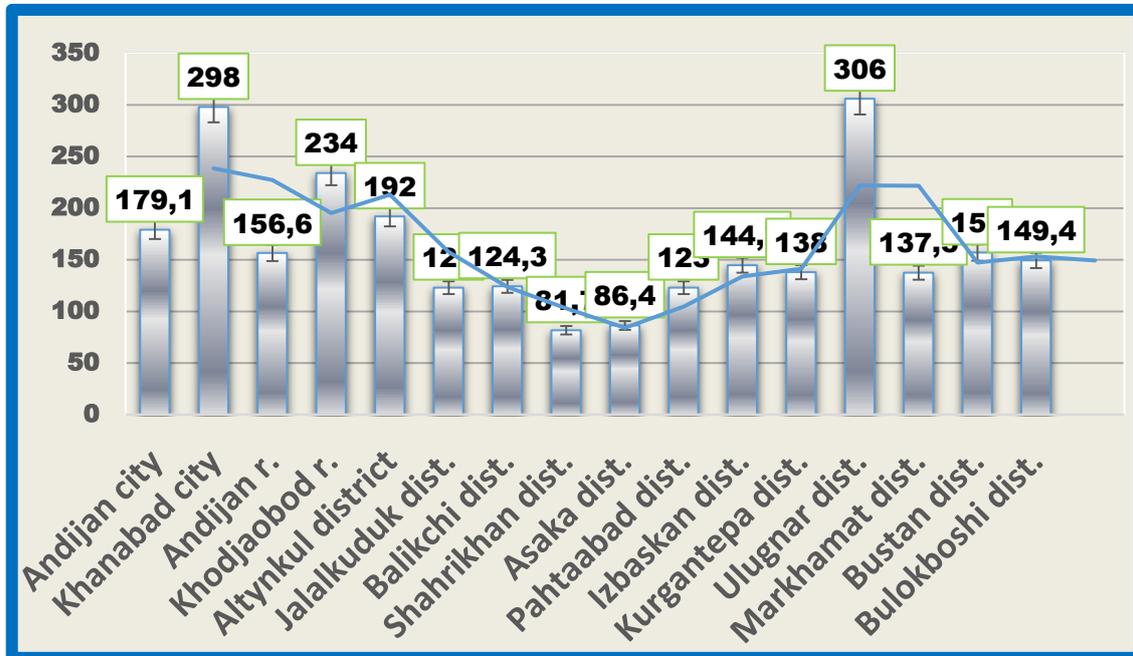
**The aim of the study** was to study the epidemiological features of the spread of COVID-19 infection among the population of the Republic of Uzbekistan on the example of the Andijan region.

### Material and methods

The material was the official statistical data of the state sanitary and epidemiological supervision of the Andijan region on the incidence of COVID-19, for 2020-2022. Epidemiological and statistical research methods were used in this work. Statistical processing was carried out with the calculation of relative values.

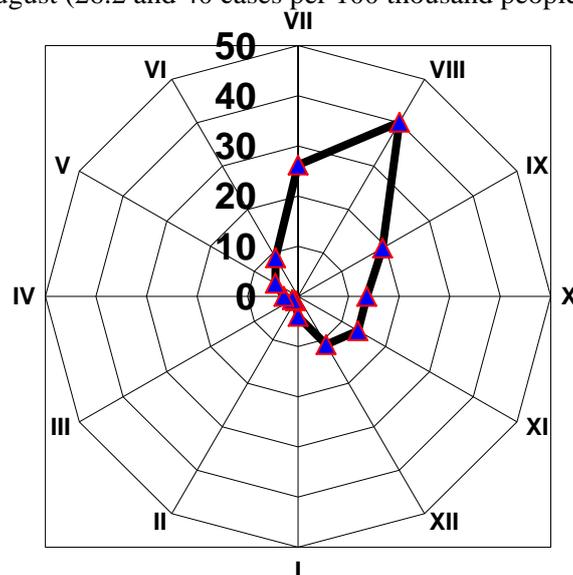
### Result and discussion

The diagnosis was confirmed by RT-PCR. When analyzing the incidence of HF infection by averaged indicators for the year, a trend of a systematic decrease in morbidity rates was established. If in the period 2020 the incidence rate was 225 cases per 100 thousand people, in 2021 this indicator decreased to 147.2 cases per 100 thousand people. When analyzing the incidence of KV infection in the context of administrative territories, it was found that the highest rates were observed in Khanabad, Ulugnar and Khodjaobod districts (298.0; 306.0; 234.0 per 100 thousand. population, respectively), indicators in other areas are significantly lower (Fig.1).



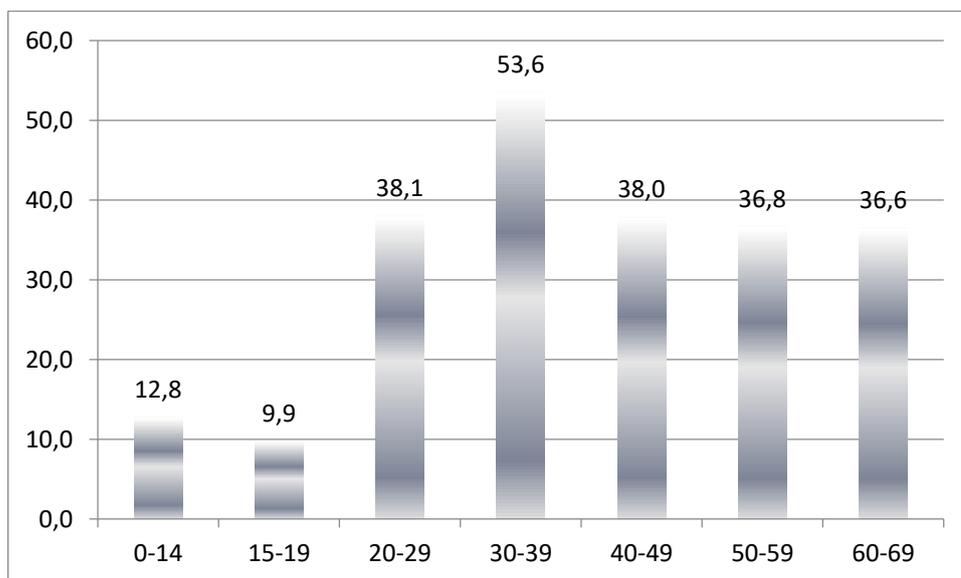
*Fig. 1. Intensive indicators of the incidence of HBV infection in the context of the districts of the Andijan region of Uzbekistan in 2021 (int.ind. per 100 thousand population)*

When analyzing the monthly distribution of the incidence of coronavirus infection, it was found that in 2020, non-cyclical rises in the incidence are characteristic of KV infection. The rise in morbidity in 2020 occurred in autumn: September and October (35.7 and 81.6 cases per 100 thousand people, respectively); the lowest incidence rates occur in May and June (0.52 and 1.48 cases per 100 thousand people, respectively). And in 2021, the increase in morbidity begins at the end of July, with a peak in the month of August (26.2 and 40 cases per 100 thousand people, respectively).



*Fig. 2. Monthly distribution of morbidity in intensive indicators with COVID 19 infection in 2021 in the Andijan region, Republic of Uzbekistan.*

According to the study, the cases of COVID-19 with a confirmed diagnosis in 2021 in the Andijan region were distributed by age as follows: 13.7% - children under 14 years, 4.8% - aged 15-19 years, 20% - 20-29 years, 22.8% - 30-39 years, 14.4% - 40-49 years, 13.2% - 50-59 years old, 10.8% - patients over 60 years old. The most affected contingent were people aged 30-39 years, the incidence rates among which amounted to 33.6 per 100 thousand of this age, as well as among the population aged 20-29 years, this indicator was equal to 29.6. Among the sick children and adolescents from 1 to 14 years, the incidence rate was 20.1, the lowest rate was among people from 15 to 19 years and amounted to 7.1. Cases among children are rarely reported, usually they were cases of diseases of the whole family or as a result of a child's contact with an infected patient.



**Fig.3. Incidence of coronavirus infection in various age groups according to 2020 data per 100 thousand population of these age groups.**

When analyzing the age composition of those infected with KV infection, for the 2020 period, the same pattern of the epidemic process was revealed, with the maximum involvement of the contingent aged 30-39 years and the minimum incidence rates among 15 persons or less (Fig.3).

The study of the conditions and the place of the possibility of infection showed that organized groups of the population are the most often ill (the share of organized children under 7 years old in 2021 was 3.1%, schoolchildren - 11.2% and medical staff - 8.6%, teachers – 5.8%). 12.0% were infected in family conditions, in 17.7% of cases - as a result of contact with patients in preschool institutions, 13.8% in schools and in 8% of cases infection occurred when communicating with people in the neighborhood.

### Conclusions

The spread of COVID-19 among the population of different districts in the Andijan region, the Republic of Uzbekistan has common patterns and is higher among middle-aged and older people. This is probably due to the social activity of this group, the density of the population. The study of the seasonality of distribution did not reveal any definite links with the seasons. From the current situation in Uzbekistan, as well as in the world, it follows that it is necessary to improve epidemiological surveillance and adequate preventive measures in relation to coronavirus infection.

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