

## **Evaluation of the effectiveness of the work of the Sanitary-epidemiological welfare and public health service of the Almazar district of Tashkent during the COVID-19 pandemic**

Valikhan Rashidov<sup>2,4</sup> Jae Wook<sup>1,2,3</sup> Kyunh Hee Kim<sup>1,3</sup>

1. Institute for Environmental Health, Korea University, Seoul, Korea.

2. Graduate School of Public Health, Korea University, Seoul, Korea.

3. Department of Preventive Medicine, Korea University College of Medicine, Seoul, Korea.

4. Department of Communal Hygiene and Occupational Health, Tashkent Medical Academy, Tashkent, Uzbekistan

Kyunh Hee Kim.

Graduate School of Public Health, Korea University College of Medicine, 73 inchon-ro, Seongbuk-gu, Seoul 02841, Korea.

### **ABSTRACT**

#### **Background**

During the first month of 2020 and the outbreak of a new coronavirus disease (COVID-19), Almazar District Sanitary, Epidemiological Welfare, and Public Health Service (Service) staff took the necessary measures to prevent the disease. The purpose of the research is to evaluate the effectiveness of the work performed by the Sanitary Epidemiological Welfare and Public Health Service and public health staff during this pandemic by analyzing the epidemiological chart and survey.

#### **Methods**

A retrospective study of 1900 “epidemiological cards” from the epidemiology department of the Sanitary Epidemiological Welfare and Public Health Service activity in Almazar district and a questionnaire to its staff and employees was selected based on the analysis of the epidemiological investigation was conducted. The questionnaire was selected using Google Docs, and in Google Docs the questionnaire was created and sent through social media channels. A Likert scale was used to mark (1=yes, 2=partially, 3=no, 4=difficult to answer). The data from the sanitary epidemiological Welfare and Health service were analyzed using the SPSS program.

#### **Results**

A sample from an analysis of the epidemiological cards obtained from the Almazar District Epidemiology Department showed that patients were infected from workplaces and family members, where they were the main carriers of the disease. 96.2% of patients had a symptomatic course, and patients mainly had symptoms of fever, olfaction and taste disorders, weakness, and headache. The vast majority of patients, 90%, were treated at home. The average day of the epidemiological investigation was 1.6 days. Patients showed that they interacted with an average of 5 people. Patients showed an average of 4 days of symptom onset. The Service staff were satisfied with the measures taken by the Government to prevent coronavirus during the pandemic. 61.1% of employees reported that they were provided with PPE in a timely manner. Almost half of the employees (52.8%) reported that the provision of modern equipment helped to speed up the work process of providing modern equipment. Participants sampled from the epidemiological chart analysis (72.5%) reported that staff of the service used a special PPE during the pandemic to conduct epidemiological investigation and analysis and disinfection. Awareness of coronavirus among the personnel and rapid identification of those who had contacted with patients revealed that about half of the workers responded that 57.8% were satisfied with the measures taken.

**Conclusion:**

We analyzed the epidemiological card and administered a questionnaire. In the analysis of the epidemiologic chart, we analyzed data on the timing of the epidemiologic interview, clinical signs and laboratory site of infection, patients and patients grouped by COVID-19 severity, and evaluated the effectiveness that the public health and epidemiological well-being services conducted for employees during the pandemic through questionnaires. For the Sanitary, Epidemiological Welfare and Public Health Service workers, the sudden occurrence of COVID-19 brought them new challenges and responsibilities. Our research is critical to improving staff practice in coping with the epidemic and improving prevention efforts, as well as developing new strategies to address identified gaps.

**Keywords:** COVID 19; Service; Tashkent; Survey; “epidemiological cards”, PPE.

## INTRODUCTION:

COVID-19, which causes pneumonia and other complications worldwide, was first reported in December 2019 in Wuhan, China.<sup>1</sup> Coronavirus disease has also spread rapidly from China to other countries and has caused concern for humanity.<sup>2</sup> The World Health Organization (WHO) announced the coronavirus to the world on January 30, 2020.<sup>3</sup> Coronavirus infection is mainly transmitted from person to person by airborne droplets.<sup>4</sup> Because of the COVID-19 pandemic, the lifestyle of mankind began to change and many people began to communicate less with their close friends and relatives, these changes led to people moving less, eating more than they should, leading unhealthy lifestyles.<sup>5</sup> Information about COVID-19 was published on various Internet and mainstream TV and radio channels, and the public received various necessary advice and recommendations on how to transmit, spread, and prevent the coronavirus.<sup>6</sup> Some scientific studies showed that government intervention was effective in preventing the spread of the coronavirus infection in the population.<sup>7,8</sup> The Japanese government banned various public events to prevent an outbreak of the coronavirus and prohibited older people from going out for non-essential purposes.<sup>9</sup> All public transportation in Wuhan, China, was stopped, airports and railroads temporarily shut down, and various holiday events were cancelled.<sup>10</sup>

The coronavirus infection has also hit Uzbekistan and started to be registered since March 2020. As of February 15, 2022, the number of coronavirus infections in Uzbekistan reached 234359, a figure that is increasing day by day.<sup>11</sup> Accordingly, rapid identification and isolation of confirmed patients and people contacted with them became necessary to prevent further epidemics.<sup>12</sup>

Due to the situation with coronavirus infection in the territory of the Republic of Uzbekistan, in order to avoid a wide spread among the population in connection with various events, weddings, travel, religious ceremonies, activities of cafes, large open air markets and shopping hubs (supermarkets, shopping malls) were suspended, and vacations were announced in all educational institutions, in particular from March 27, traffic (bus, car, long distance taxicabs, air, rail transport) was completely stopped.<sup>13</sup>

The Government of Uzbekistan allocated 1.7 billion soums, the World Bank and the Asian Development Bank - 194.5 million dollars to strengthen the technical base, construction, reconstruction and capital repairs,

equipped with high-tech laboratory equipment, devices and equipment to detect and prevent diseases in the shortest possible time, and to strengthen the material and technical base of the sanitary-epidemiological service with modern laboratory equipment, office equipment.<sup>14</sup>

The main purpose of this article was to evaluate the effectiveness and efficiency of the activities carried out by the Sanitary Epidemiological Welfare and Public Health Service of Almazar district of Tashkent to fight the pandemic.

## **METHOD:**

**Research Material: Data collection for our study consists of two parts.**

### **1.Data from epidemiological charts are a retrospective analysis.**

In the district of Almazar of Tashkent, the population comprises 310000 people. The activities of the Sanitary Epidemiological Welfare and Public Health Service of Almazar was studied during the pandemic through retrospective analysis of 1900 epidemiological cards during the peak period from July to October of the disease actions to be taken were determined by reviewing the epidemiological cards of patients and assessing the rate of disease spread, age of patients, and type of hotbeds of disease. Existing defective processes were eliminated through public assistance, and this work was evaluated by patients living in the Almazar District and by the officials of the service through a survey.

### **2.survey design:**

In consideration of the situation with the COVID-19 pandemic, the use of Google Docs for sample collection methods was chosen for the online survey, and a questionnaire was created in Google Docs, which was sent by social networks via e-mail, mainly via telegram channels. The questionnaire was prepared in Uzbek. Only persons 18 years participated in the survey. The questionnaire was developed by professional researchers. The survey was conducted among those selected based on the analysis of 1900 epidemiological cards of the Sanitary Epidemiological Welfare and Public Health Service activity in Almazar district of Tashkent. All participants in the survey have given their consent before participating in the survey. The questionnaire contained demographics information (gender, age, work experience, education, and travel) 10 questions for the assessment of the work done by the sanitary government efforts.

Responses were calculated in percentages to determine how high the sanitation epidemiology score was and how effective public health officials were during a pandemic. Responses were recorded on a Likert scale. (Yes=1, partially=2, No=3, I am struggling to answer =4).

#### **Statistical analysis:**

The statistical analysis was performed using Microsoft Excel 2016 and Statistical Package of Social Sciences (SPSS) version 23. We presented continuous variables as median (interquartile range [IQR]) and categorical variables as number (%). Furthermore, we used the median with IQR, considering the skewed distribution of the data.

#### **Ethics statement:**

**The Ministry of Health of the Republic of Uzbekistan's Review Board reviewed and approved the protocol for this study (No.5/13-1680 from 5 July 2022 year).**

#### **RESEARCH SUMMARY:**

##### **1. Results of study participants with retrospective analysis of the epidemiological card**

As shown in **Table 1**, a total of n=1900 epidemiologic data records were obtained from June to October 2020 and a retrospective analysis was conducted. All participants in the epidemiological analysis resided in Almazar district. Most were male n=1005 (52.9%), and female n=895 (47.1%). Average age-36.0 years old (IQR 24.0-51.0). It was divided into the following age groups. 0-17 years old N=317 (16.7%) 18-40 middle age n=814 (42.8%) 41-65 aged n=622 (32.7%) elderly n=147 (7.7%) <66 years and older. Most participants (36.6%) worked in a variety of businesses. Most participants (96.2%) had symptoms, and most (83.9%) had body temperature. Less than half of the participants had symptoms: loss of smell (25.4%), loss of taste (30.9%), weakness (27.9%), dry cough (30.2%) wet cough (3.5%) sore throat (21.5%) muscle pain (18.3%) diarrhea (0.4%). The vast majority (90.2%) of participants had mild illness and were treated at home. Most participants were married, lived with family (39.1%) and (29.9%) workplaces where they contracted the disease. The average time from each of the first test receipt to diagnosis was 2.0 days (IQR 2.0-3.0). Regarding those with whom the staff interacted, the mean was 5 (IQR 4.0-7.0). The mean time to

first symptoms for participants was 4.0 days (IQR 6.0-8.0). Regarding the epidemiologic survey, the mean time from the onset of illness to completion of the epidemiologic survey was 1.62 days (IQR 1.0-2.0).

## 2. Survey results:

As shown in **Table 2**, there were 36 Sanitary Epidemiological Welfare and Public Health Service employees in Almazar District, of whom 26 (72.2%) were women and 10 (27.8%) were men. According to the employees, 16 (44.4%) were doctors of the highest category, and 20 (55.6%) were mid-level health workers. In addition, the majority of employees (n=28, 77.8%) were aged 31-55 years. People aged 18-30 were (n=8, 22.2%). (n=6, 16.7%) employees had 1 to 5 years of work experience. (n=12, 33.3%) with 6 to 10 years of work experience. (n=18, 50%) with 11 to 20 years of work experience. All survey participants are over 18 years of age.

Responses to questions 2, 4, and 6 (**Table 3**) showed that more women than men answered "yes," "partly," and "no," while there were twice as many women as men in the survey.

**The first question** in this study is whether the government provides modern equipment (e.g., personal protective equipment, antiseptics) and reagents in a timely and adequate manner to combat COVID-19 to Sanitary Epidemiological Welfare and Public Health Service workers. As shown in Figure 1, the vast majority of employees were provided on time 22/36 (61.1%). Epidemiologic investigation 1900 sampled from card analysis staff were asked, "Did the District Sanitary and Epidemiologic Welfare and Public Health Service staff use PPE (masks, gloves, safety glasses, overalls) and antiseptic agents during the epidemiologic investigation, analysis and disinfection process?" An overwhelming 29/40 (72.5%) majority of workers were Service employees, and they stated that they used personal protective equipment during the sampling and disinfection process.

**Question 2:** "Are physicians and their assistants of the sanitary and epidemiological well-being and public health service of Almazar district trained in special courses on coronavirus control?" n=15 (41.7%) employees reported that they were trained in specific coronavirus courses, while n=13 (36.1%) of the remaining employees reported that they were partially trained in specific coronavirus courses.

To the question "Do you think the employees of the sanitary and epidemiological well-being and public health service of Almazar district had an adequate level of knowledge about COVID-19 during the epidemiological investigation and during the process of receiving laboratory tests", n=23 (57.5%) participants stated that the level of knowledge of employees during the epidemiological investigation and receiving of laboratory tests and prevention of coronavirus was adequate.(plagiyat)

**Question 3** is "Has the Sanitary Epidemiological Welfare and Public Health Service and Public Health Service been provided with a special vehicle to store and transport COVID-19 samples?" As shown in **Figure 1**, n=29 (80.6%) employees reported that they were provided special bags and vehicles to store and transport samples taken during laboratory work processes.

"Can you assess whether there is a special bag for the samples taken, whether labeling and storage requirements for the samples are followed, and whether a designated vehicle is used to transport them?" n=23 (57.5%) participants sampled reported full compliance with sampling, storage, and transparent controls during the work process by Sanitary Epidemiological Welfare and Public Health Service

**Question 4:** "Did the district administration help to provide Sanitary, Epidemiological, Welfare, and Public Health Services with modern electronic and working equipment important to their work during the pandemic to speed up the workflow?"n=19 (52.8%) employees reported that the modern equipment purchased on the government side during the pandemic helped to immediately isolate confirmed patients and inform appropriate organizations, as well as to identify those who were in contact with them in a timely manner. Work selected from the epidemiological chart analysis allowed staff to determine, "Were COVID-19 detection processes expedited by the district Sanitary Epidemiological Welfare and Public Health Service? "n=22 (55%) participants reported that Sanitary Epidemiological,Welfare and Public Health Service staff helped expedite processes related to coronavirus infection during the pandemic with the use of modern electronic equipment.

**Question 5:** "Has a special vehicle been allocated for district Sanitary Epidemiological Welfare and Public Health Service officials to conduct epidemiological investigations quickly and efficiently?" n=28 (77.8%)

of the staff reported that the government has allocated a special vehicle to conduct epidemiological investigations quickly and efficiently.

Participants, selected from the epidemiological card analysis, were asked: "Do you think the district Sanitary Epidemiological Welfare and Public Health Service officials quickly conducted an epidemiological investigation, quickly identified contacts, and helped prevent the spread of the disease?". An overwhelming majority of participants n=21 (52.5%) confirmed that the service officials monitored epidemiological investigation workflows and patients, it was reported that the rapid identification of contacts helped avoid further outbreaks.

As shown in **Table 4**, a total of n=40 respondents selected from the epidemiological card analysis participated, of which n=23 (57.5%) were female and n=17 (42.5%) were male. The largest number of respondents (n=34, 85.4%) were aged 18-40 years, while (n=5, 12.2%) were aged 41-65 years. (n=1, 2.4%) were transported at age 66 or older. Employees (n=20, 50% highest category), (n=20, 50% secondary category). Employers (n=24, 60%) employed by various organizations, students (n=9, 22.5%), temporarily unemployed (n=5.12, 5%), and retirees (n=2, 5%) participated in the survey. Participants (n=32, 80%) reported that they were married. Participants (n=8, 20%) reported that they were not yet married. The survey showed that participants (n=3, 7.5%) had traveled.

Responses to questions 2, 4, and 6 (**Table 5**) showed that more women than men answered "yes," "partially," and "no," but in question 4 the proportion of men who answered "partially" and "found it difficult to answer" was higher than for women.

**Question 6:** "Is the service of Sanitary Epidemiological Welfare and Public Health Service of Almazar district provided with enough vehicles for disinfection, chemicals and special apparatus for spraying?".

N=21(58.3%) of Sanitary and Epidemiological Welfare and Public Health officials stated that the government provided enough chemicals and sprayers to work on disease prevention and disinfection during the pandemic.

"Did the district public health and sanitation staff handle dysentery well and quickly?" N=19 (47.5%) workers sampled from the epidemiological chart analysis reported that sanitation and disinfection



performed by the public health service was effective. n=13 (32.5%) of the remaining workers reported that disinfection work was partially effective.

**Question 7:** "the SNR 0372-20, 0375-20, etc. temporary sanitary norms, regulatory documents for coronavirus disease during the pandemic useful?". n=21 (58.3%) of Almazar District Sanitary and Epidemiological Welfare and Public Health Service employees reported that these regulatory documents helped to arrange optimal working conditions and certification process to protect workers and employees during the heightened epidemiological situation for the spread of COVID-19 infection.

"Did various organizations and enterprises, schools, kindergartens located throughout the area comply with requirements such as measuring the body temperature of employees before and after work, conducting disinfection measures, and observing intermediate distances during work in the control of aging with Covid-19?" n=20 (50%) workers sampled from the epidemiological chart analysis reported compliance with regulations such as measuring body temperature, conducting disinfection measures, and keeping an intermediate distance from workers and employees during the spread of COVID-19 infection.

**Question 8:** "Did the joint work of the District Sanitary and Epidemiological Welfare and Public Health Service staff, employees of polyclinics, mahalla, and internal affairs inspectors contribute to the prevention of coronavirus disease?". As shown in **Figure 2**, n=22 (61.1%) employees reported that joint work to identify, monitor, and provide first aid to individuals with whom they had contact during the COVID-19 outbreak helped them prevent the disease.

"What do you think was the joint work of employees of the District Sanitary and Epidemiological Welfare and Public Health Service and employees of polyclinics, mahallas, and internal affairs bodies effective?" The majority of participants n=21 (52.5%) selected from the analysis of the epidemiological chart showed the effectiveness of joint work of employees of the sanitary and epidemiological welfare service and public health service.

**Question 9:** "Did the supporting forces deployed by authorities during the pandemic help to fight the infection?" Sanitation and Epidemiology stated that n=11 (30.5%) of the auxiliary forces brought in to assist Sanitary and Epidemiological Welfare and Public Health Service staff helped fight the infection. The

remainder of the staff reported that n=14 (38.9%) partially helped with infection control. "Was the work of disinfecting dehkan markets, large food stores, residences, higher education institutions, colleges, schools, and kindergartens allocated by the authorities during the pandemic useful enough?". n=17 (42.5%) participants sampled from the epidemiological chart analysis reported that the auxiliary forces allocated by the authorities helped fight the infection.

**Question 10:** "Did the additional funds allocated by the government increase employees' responsibility and attention on their work in the district sanitary and epidemiological well-being and public health services?"

As shown in **Figure 2**, n=25 (69.4%) of Sanitary, Epidemiological, Welfare, and Public Health Service employees stated that the employees were attentive and responsible for their work during the pandemic.

"Was the work done twenty-four hours day and night by District Sanitary and Epidemiological Welfare and Public Health Service staff to control and prevent the spread of COVID-19 during the pandemic satisfactory?".

n=23 (57.5%) of the participants selected from the epidemiological card analysis gave a positive assessment of the work done day and night by the Sanitary Epidemiological Welfare and Public Health Service staff during the pandemic.

## 5. Discussion

Evaluation of the effectiveness of the staff of the Sanitary Epidemiological Welfare and Public Health Service of Almazar District of Tashkent in combating COVID-19. The Service is of great importance due to the retrospective analysis of the epidemiological card and the survey conducted. A retrospective analysis of the epidemiological chart of the Sanitary and Epidemiological Welfare and Public Health Service of Almazar District of Tashkent city revealed n=1005 (52.9%) men and n=895 (47.1%) women.

According to a retrospective scientific study by Yusuf M Alsofayan and others,<sup>15</sup> in Saudi Arabia, (54.3%) of patients were male and (45.7%) were female.

A study by Michael G. Argenziano and others,<sup>16</sup> reported that both men (59.6%) and women (40.4%) were carriers, and this study also reported that more patients were men.

In a retrospective analysis of the epidemiologic chart, the median age of coronavirus incidence was 37.0 years and the mean (median)-36 years (IQR 24.0-51.0). In terms of age group, 42.8% of patients were aged 18-40 years, 32.7% were aged 41-65 years, 16.7% were aged 0-17 years, and 7.7% were older than 66 years.

A study by Mattieu Million and others<sup>17</sup> showed that the mean age of the participants was 43.6 years.

A retrospective analysis of the epidemiological chart of the Sanitary and Epidemiological Welfare and Public Health Service of the Almazar District of Tashkent showed that the most common symptoms in patients were fever 83%, loss of taste and smell 30.9%, weakness 27.9%, dry cough 30.2%, and headache 25.4%.

A study by Eu Suck, Kim, and others.<sup>18</sup> reported that cough (28.6%) and sore throat (28.6%) followed by fever (25.0%), diarrhea was not frequent.

In a study by Huipeng, and others.<sup>19</sup> symptoms were shown to include fever (77.4-98.6%), cough (59.4-81.8%), fatigue (38.1-69.6%), shortness of breath (3.2-55.0%), sputum discharge (28.2-56.5%) and headache (6.5-33.9%).

When the epidemiologic chart was analyzed retrospectively, the vast majority of participants (90.2%) were treated at home for the disease. Most participants were from families (39.1%) and (29.9%) from jobs where they had contracted the disease. The mean time from receipt of the first test to diagnosis was 2.0 days (icr 2.0-3.0). A study by Kyung Hee Kim and others.<sup>20</sup> showed that the mean time from first symptoms to diagnosis was 2.0 days (IQR 1.0-3.0).

As for the individuals with whom the participants interacted, the mean was 5 (IQR 4.0-7.0). The average time participants experienced their first symptoms was 4.0 days (ICR 6.0-8.0). Regarding epidemiologic interviewing, the mean time from the time the disease was detected to the end of the epidemiologic interviewing was 1.62 days (ICR 1.0-2.0). Concerning the direction of infection, it was shown that most of the confirmed cases were from family members and workplaces, leading to a sharp increase in cases detected early in Almazar District of Tashkent.

The Government of Uzbekistan took measures to prevent the entry and spread of the disease during the COVID-19 pandemic. During the COVID-19 pandemic, the Sanitary and Epidemiological Welfare and

Public Health Services under the Ministry of Health were timely and adequately supplied with personal protective equipment (medical masks, goggles, gloves, overalls, boots) and reagents to combat the disease. The necessary measures taken quickly by our government resulted in a decrease in the incidence of the disease.

When we looked at the results of the Sanitary Epidemiological Welfare and Public Health survey, the service workers (61.1%) reported that personal protective equipment was delivered in time to control the disease. When we looked at a sample of respondents from the epidemiological chart analysis (72.5%), it appeared that the Almazar District Sanitary and Epidemiological Wellness and Public Health Service employees used personal protective equipment. In a study conducted by Nan-Chang Chiu,<sup>21</sup> say that wearing a mask, maintaining hand hygiene and social distance can not only help prevent COVID-19, but also reduce other respiratory infections. The World Health Organization (WHO) recommendation<sup>22</sup>, and Sun-Hee Park study,<sup>23</sup> conducted on SARS-CoV-2 showed that it is mainly transmitted through respiratory droplets and close contact, and recommended that health workers who had contact with suspected or confirmed COVID-19 patients use personal protective equipment such as droplets and contact precautions such as surgical masks, gowns and gloves to protect the eyes to prevent transmission of coronavirus.

52.8% of employees reported in the survey that the sanitary epidemiological well-being and public health service of Almazar district has been equipped with modern electronic and working equipment to speed up the work. Of the respondents (55%) sampled from the epidemiological map, the work of the Sanitary Epidemiological Welfare and Public Health Service of Almazar District was accelerated, and the introduction of modern information technology and work equipment for rapid disease detection, data collection and monitoring in the activities of the Sanitary Epidemiological Welfare and Public Health Service resulted in the acceleration of their work efficiency. In a study conducted by Boccolo Antonio Jr.<sup>24</sup> reported that the use of information and communication technologies, such as telemedicine and virtual medicine, maximized the efficiency of health care delivery in the health care system and helped health centers manage long waiting times and the risk of disease development to reduce the spread of the virus.

According to the survey participants, chosen from the analyses of epidemiological cards allocated to the service staff, automobiles markedly contributed to expediting the processes of conducting epidemiological investigations, laboratory analyses and disinfection operations. Moreover the participants informed that the online capacity building training for the service staff on controlling and preventing the spread of the coronavirus, establishing the optimal working conditions and processes for the people and staff of different enterprises in accordance with the sanitary rules and regulations #0372-20 and the knowledge sharing campaign conducted by the Service staff among the population and workers helped reduce the spread of the disease.

The epidemiological card analysis shows that the financial incentives allocated by the government to the service staff during the pandemic period had also contributed to encouraging them to feel responsibility and show perseverance, which conducted to gain faster, results in reducing disease incidents (the survey participants reported).

The majority of them (n=21 (52.5%)) also confirmed that during the pandemic, the collaborative work of the Sanitary staff of mahalla, polyclinics and local police office representatives on the prevention and control of the disease and first aid was efficient.

#### **ACKNOWLEDGMENTS**

The authors would like to thank the Almazar district Sanitary, Epidemiological and Public Health Service for their contribution to the collection of data.

#### **Disclosure**

The authors have no potential conflicts of interest to disclose.

#### **Author Contributions**

Conceptualization: Choi JW, Kim KH, Rashidov V.A

Data curation: Rashidov V.A

Formal analysis: Rashidov V.A

Investigation: Rashidov V.A

Methodology: Choi JW, Kim KH, Rashidov V.A

Validation: Rashidov V.A

Writing - original draft: Rashidov V.A

Writing - review & editing: Rashidov V.A

### ORCID iDs

Jae Wook Choi <https://orcid.org/0000-0002-1996-7524>

KyungHee Kim <https://orcid.org/0000-0003-0260-2649>

Valikhan Rashidov <https://orcid.org/0000-0001-7556-3287>

### References

1. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med.* 2020;382(8):727–733. doi: 10.1056/NEJMoa2001017.
2. Vang C, Horby PW, Hayden FG, Gao GF. A new coronavirus epidemic of global public health concern. *Lancet.* 2020; 395 (10223): 470–473. doi: 10.1016/S0140-6736(20)30185-9.
3. World Health Organization (WHO). Novel Coronavirus (2019-nCoV): situation report, 11. Geneva. Updated 2021-01-31. Accessed February 16, 2022. <https://apps.who.int/iris/handle/10665/330776>
4. KK, Tsang OT, Yip CC, Chan KH, Wu TC, Chan JM va boshqalarga. Consistent detection of a new 2019 coronavirus in saliva. *Clin Infect Dis.* 2020; 71 (15): 841–843. doi: 10.1093/cid/ciaa149.
5. Ammar A, Brach M, Trabelsi K, Chtourou H, Boukhris O, Masmoudi L, et al. Effects of COVID-19 Home Confinement on Eating Behaviour and Physical Activity: Results of the ECLB-COVID19 International Online Survey. *Nutrients.* 2020;12(6).
6. Ernandes-Garsiya I, Gimenez-Julvez T. Evaluation of medical information about COVID-19 prevention on the Internet: An Infomediological Survey. *JMIR Public Health Surveill* 2020-yil 01;6(2): e18717
7. Zhao, X.M.; Li, X.H.; Nie, C.H. Backtracking transmission of COVID-19 in China: Based on big data source, and effect of strict pandemic control policy. *Bull. Chin. Acad. Sci.* 2020, 35, 248–255.
8. Li, Y.L.; Wang, W.Z.; Wang, J. Government intervention behavior and optimization strategy of major epidemic control: Based on game theory and China's H7N9 prevention and control practice in 2013. *J. Hunan Agri. Uni. (Soc. Sci.)* 2018, 19, 61–66.
9. Tomoyuki Shinohara. Actual Frailty Conditions and Lifestyle Changes in Community-Dwelling Older Adults Affected by Coronavirus Disease 2019 Countermeasures in Japan: A Cross-Sectional Study. First Published June 24, 2021.
10. Wei Liu. Response to the COVID-19 Epidemic: The Chinese Experience and Implications for Other Countries. *Int. J. Environ. Res. Public Health* 2020, 17(7), 2304
11. According to the Ministry of Health of the Republic of Uzbekistan (MOH). Updated 2022. Accessed February 15, 2022. <https://ssv.uz/uz/news/koronavirus-7-janvardan-buen-jurtimizda-kasallanishlar-soni-ilk-bor-300dan-pasajdi>
12. Jiabin Chen, Tao Han. Clinical characteristics of asymptomatic carriers of novel coronavirus disease 2019: A multi-center study in Jiangsu Province. *Virulence.* volume 11,2020. Pages 1557-1568
13. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan. "On additional measures to combat the spread of coronavirus infection". Updated 2020.03.23. N-176 Accessed February 1, 2022. <https://lex.uz/docs/-4772484>
14. Presidential Decree No. PD-6035. "On measures to mitigate the coronavirus pandemic and radically improve the system of sanitary and epidemiological well-being and protection of public health. Updated 2020.07.25. Accessed February 4, 2022. <https://lex.uz/docs/-4914688>
15. Yousef M Alsofayan, M Althunayyan. Clinical characteristics of COVID-19 in Saudi Arabia: A national retrospective study. *J Infect Public Health.*2020 jun; 13 (7); 920-925

16. Maykl G Argenziano, Samuel L Bryus. Characterization and clinical course of 1000 patients with coronavirus disease 2019 in New York: retrospective case series. *BMJ*. 2020; 369: m1996
17. Matthieu Million, Jean-Christophe Lagier. Early treatment of COVID-19 patients with hydroxychloroquine and azithromycin: A retrospective analysis of 1061 cases in Marseille, France, May-June 2020, 101738,
18. Eu Suk Kim, Bum Sik Chin, Clinical Course and Outcomes of Patients with Severe Acute Respiratory Syndrome Coronavirus 2 Infection: a Preliminary Report of the First 28 Patients from the Korean Cohort Study on COVID-19. *J Korean Med Sci*. 2020 Apr 6; 35(13): e142,
19. Huipeng Ge, Xiufen Wang, The epidemiology and clinical information about COVID-19. *Eur J Clin Microbiol Infect Dis*. 2020; 39(6): 1011–1019.
20. Kyung Hee Kim, Jae Wook Choi. Clinical Features of COVID-19 in Uzbekistan. *J Korean Med Sci*. 2020 Nov 23; 35 (45).
21. Nan-Chang Chiu, Hsin Chi, Yu-Lin Tai. Impact of Wearing Masks, Hand Hygiene, and Social Distancing on Influenza, Enterovirus, and All-Cause Pneumonia During the Coronavirus Pandemic: Retrospective National Epidemiological Surveillance Study. *J Med Internet Res* 2020; 22(8): e21257
22. World Health Organization (WHO) Infection prevention and control during health care when COVID-19 is suspected: interim guidance, 19 March 2020. <https://apps.who.int/iris/handle/10665/331495>
23. Sun Hee Park. Personal Protective Equipment for Healthcare Workers during the COVID-19 Pandemic. *Infect Chemother*. 2020 Jun; 52(2): 165–182.

**Table1. The epidemiological card analyzes the demographic and basic characteristics of study participants (n=1900).**

<b>Variables</b>	<b>Values n=1900</b>
<b>Age, median [IQR]</b>	<b>36. [24.0-51.0]</b>
<b>Age group, n (%)</b>	
0-17	317 (16.7)
18-40	814 (42.8)
41-65	622 (32.7)
66<	147 (7.7)
<b>Sex, n (%)</b>	
Male	1005 (52.9)
Female	895 (47.1)
<b>Workplace or place of study, n (%)</b>	
Householder	423 (22.3)
Pensioner	334(17.6)
Work	695 (36.6)
Unemployed	116 (6.1)
Institute	59 (3.1)
College	15 (0.8)
School	177(9.3)
Kindergarten	81(4.3)
<b>The way of getting infected. n (%)</b>	
From family members	742 (39.3)
From workplace	569 (29.7)
Unknown	327 (17.2)
From neighbor	176 (9.3)
From study place	27 (1.4)
From markets and etc. places	59 (3.1)
<b>The number of persons contacted, median [IQR]</b>	<b>5 [4-7]</b>
Without contacts	3 (0.2)

1	108 (5.7)
2	188 (9.9)
3	326 (17.2)
4	418 (22.0)
5	345 (18.2)
6<	512 (26.9)
<b>Course of the disease n (%)</b>	
Asymptomatic	73 (3.8)
Symptomatic	1827 (96.2)
<b>Symptoms, n (%)</b>	
Fever	1594 (83.9)
The loss of smell.	587 (30.9)
The loss of taste.	588 (30.9)
Weakness	588 (27.9)
Dry cough	573 (30.2)
The headache.	483 (25.4)
The sore throat	409 (21.5)
The shortness of breath.	228 (12.0)
The pain in muscles	348 (18.3)
Wet cough	67 (3.5)
Diarrhea	7 (0.4)
<b>The day symptoms of the disease manifested, median [IQR]</b>	<b>4 [6-8]</b>
< 3.0	364 (19.2)
4-6	739 (38.9)
7 – 9	630 (33.2)
10<	167 (8.8)
<b>The day of the preliminary diagnosis, median [IQR]</b>	<b>2 (2-3)</b>
Same day	53 (2.8)
1	663 (34.9)
2	741(39.0)
3<	443 (23.3)
<b>The date the epidemiological survey conducted, median [IQR]</b>	<b>1.62 (1-2)</b>
Same day	839 (44.2)
1	939 (49.4)
2<	122 (6.4)
<b>Treatment place, n (%)</b>	
Home	1714 (90.2)
Hospital	186 (9.8)

**Table 2. Sanitary Epidemiological Welfare and Public Health Service and demographic characteristics of public health workers (P=36).**

<b>Variables</b>	<b>Participants, n (%)</b>
<b>Gender</b>	
Female	26 (72.2)
Male	10 (27.8)
<b>Age (years)</b>	
18-30	8 (22.2)



31-55	28 (77.8)
<b>Education</b>	
Higher	16 (44.4)
Secondary-special	20 (55.6)
<b>Work experience:</b>	
1-5 years	6 (16.7)
6-10 years	12 (33.3)
11-20 years	18 (50)

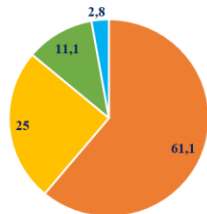
**Table 3. Questions and answers on the gender mainstreaming of Sanitary Epidemiological Welfare and Public Health Service Workers. SEWPHS (N=36).**

Variables	Male, n (%)	Female, n (%)	Total, n (%)
<b>Question 2: Have doctors and assistants of the District Sanitary Epidemiological Welfare and Public Health Service Center been trained in special courses on coronavirus control?</b>			
Yes	4 (26.7)	11 (73.3)	15 (100)
Partially	3 (23.1)	10 (38.5)	13 (100)
No	3 (42.9)	4 (57.1)	7 (100)
I find it difficult to answer.	0	1 (100)	1 (100)
<b>Question 4: During the pandemic, did the provision of the district sanitary and epidemiological tranquility center with modern electronics and work equipment, which are essential for its operation, help speed up the work process?</b>			
Yes	6 (31.6)	13 (68.4)	19 (100)
Partially	2 (28.6)	5 (71.4)	7 (100)
No	2 (25)	6 (75)	8 (100)
I find it difficult to answer.	0 (0)	2 (100)	2 (100)
<b>Question 6: Was the District Sanitary Epidemiological Welfare and Public Health Service Center adequately equipped with vehicles for disinfection, chemicals and special spraying equipment?</b>			
Yes	5 (23.8)	16 (76.2)	21 (100)
Partially	5 (35.7)	9 (64.3)	14 (100)
No	0 (0)	1 (100)	1 (100)
I find it difficult to answer.	0 (0)	(0)	(0)

## 1. Figure

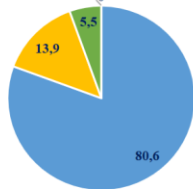
**A questionnaire amongst the staff of the SEWPHS.**

1. Is the SEWPHS laboratory provided with modern equipment (Personal protective equipment, antiseptics) and reagents to combat COVID-19 in a timely and adequate manner?



■ Yes ■ Partially ■ No ■ I find it difficult to answer

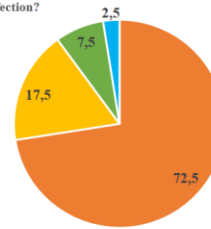
3. During the pandemic, did the provision of the district sanitary and epidemiological welfare center with modern electronics and work equipment, which are essential for its operation, help speed up the work progress?



■ Yes ■ Partially ■ No ■ I find it difficult to answer

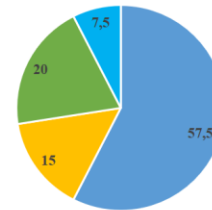
**Questionnaire among participants selected from 1900 epidemiological inquiry document analysis**

1. Did the staff of the District Sanitary and Epidemiological Welfare and Public Health Service use personal protective equipment (masks, gloves, goggles, special clothing) and antiseptics during the epidemiological inquiry, analysis and disinfection?



■ Yes ■ Partially ■ No ■ I find it difficult to answer

3. Can you assess the availability of a special bag for the samples, compliance with the procedures for marking and storage of samples, as well as the use of a specially designated vehicle for their transportation?



■ Yes ■ Partially ■ No ■ I find it difficult to answer

**Table 4. Characteristics of study participants selected from epidemiological card analysis.**

Variables	Participants, n (%)
<b>Gender</b>	
Female	23 (57.5)
Male	17 (42.5)
<b>Age (years)</b>	
18-40	34 (85.4)
41-65	5 (12.5)
66<	1 (2.4)
<b>Education</b>	
Higher	20 (50)
Secondary-special	20 (50)
<b>An activity type:</b>	
Works	24 (60)
Student	9 (22.5)
Temporary unemployed	5 (12.5)
Retired	2 (5)
<b>Marital status</b>	
Married	32 (80)
Unmarried	8 (20)
<b>Have you traveled outside of your residential country in the past 14 days?</b>	
Yes	3 (7.5)
No	37 (92.5)

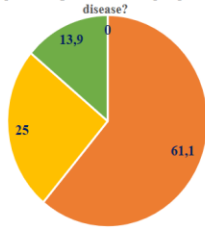
**Table 5. Responses to patients who participated in the epidemiological investigation, given gender differences (N=36)**

<b>Variables</b>	<b>Male, n (%)</b>	<b>Female, n (%)</b>	<b>Total, n (%)</b>
<b>Question 2: When the staff of the District Sanitary Epidemiological Welfare and Public Health Service met with you and during the laboratory analysis, do you think that the level of Secondary Special knowledge on COVID-19 was sufficient?</b>			
Yes	10 (43.5)	13 (56.5)	23 (100)
Partially	4 (40.0)	6 (38.5)	10 (100)
No	3 (50.0)	3 (50.0)	6 (100)
I find it difficult to answer.	0	1 (100)	1 (100)
<b>Question 4: Was the District Sanitary Epidemiological Welfare and Public Health Service quick enough to detect COVID-19 cases?</b>			
Yes	7 (31.8)	15 (68.2)	22 (100)
Partially	5 (71.4)	2 (28.6)	7 (100)
No	2 (28.6)	5 (71.4)	7 (100)
I find it difficult to answer.	3 (75.0)	1 (25.0)	4 (100)
<b>Question 6: Did the staff of the District Sanitary Epidemiological Welfare and Public Health Service carry out disinfection work with quality and speed?</b>			
Yes	8 (38.9)	11 (61.1)	19 (100)
Partially	5 (35.7)	8 (64.3)	13 (100)
No	3 (60.0)	2 (40.0)	5 (100)
I find it difficult to answer.	2 (75.0)	1 (25.0)	3 (100)

2-Figure

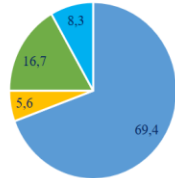
**A questionnaire amongst the staff of the SEWPHS.**

8. Did the joint work of the staff of the polyclinic, local community and security body together with the staff of the District Center for Sanitary and Epidemiological Welfare help to prevent coronavirus disease?



■ Yes ■ Partially ■ No ■ I find it difficult to answer

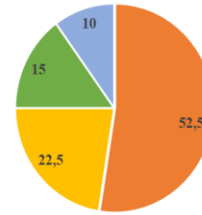
10. Did the additional funding provided by the state to the staff of the District Sanitary and Epidemiological Welfare Center increase the responsibility and focus of the staff to their work?



■ Yes ■ Partially ■ No ■ I find it difficult to answer

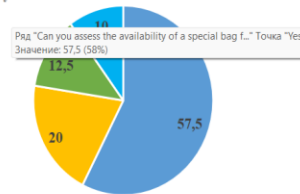
**Questionnaire among participants selected from 1900 epidemiological inquiry document analysis**

8. Do you think that the work of the staff of the District Sanitary and Epidemiological Welfare and Public Health Service and the staff of the Polyclinic, Community and local security bodies was effective?



■ Yes ■ Partially ■ No ■ I find it difficult to answer

10. During the pandemic, were the day-to-day efforts of the District Sanitary and Epidemiological Welfare and Public Health Service staff to combat and prevent the spread of COVID-19 satisfactory?



■ Yes ■ Partially ■ No ■ I find it difficult to answer

