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Clinical and Epidemiological characteristics of COVID-19 cases in Afghan-Japan Communicable Diseases Hospital

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Abstract

Background: Coronavirus disease 2019 is an infectious illness caused by the novel coronavirus 2019, which is now called Severe Acute Respiratory Syndrome Coronavirus 2. It is said that this virus has emerged from bats and was first discovered during an outbreak of respiratory illness in Wuhan city of Hubei province China.

Objective: the objective of this study was to find the epidemiologic and clinical characteristics of the COVID-19 cases admitted in Afghan-Japan infectious diseases hospital, Kabul, between 20 June to 20 August 2020

Method: this is a descriptive cross-sectional study. The data were collected using the registry books, the data collection sheet and the files of the patients diagnosed as COVID-19 by the reverse transcriptase-polymerase chain reaction (rT-PCR). The data were analyzed using the SPSS version 26th software.

Results: from 20 June to 20 August 2020 total of 124 adult laboratory-confirmed COVID-19 patients were admitted to Afghan-Japan communicable diseases hospital. 96 patients (77.4%) were males, and 28 patients (22.6%) were females. The mean age of the patients was 57.27 ± 37.15 and mostly occurred between 65-75 years, and the least cases were between 25-35 years. 100 patients (80.6%) have had severe clinical manifestations; 18 patients (14.5%) were in critical condition, and 6 patients (4.8%) had moderate clinical manifestations. 116 patients (93.5%) had shortness of breath; 98 patients (79%) had cough; 70 patients (56.5%) had fever; 52 patients (41.9%) body pain; 40 patients (32.3%) had tachypnea; 38 patients (30.6%) respiratory rales and 24 patients (19.4%) had respiratory distress. In laboratory findings, 80 patients (64.5%) had leukocytosis, 8 (6.5%) leukopenia, 30 (24.2%) had low hemoglobin and 22 (17.7%) thrombocytosis and 26 (21%) thrombocytopenia; 60 (48.4%) had high ESR. 44 (35.5%) elevated hepatic enzymes and 16 patients (12.9%) had renal dysfunctions.

Keywords: Epidemiology, symptoms, signs, COVID-19, laboratory investigations, Afghan-Japan hospital

Introduction

Coronavirus Disease 2019 (COVID-19) is an infectious illness caused by the novel coronavirus 2019, now known as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). It is said that this virus originated from bats. This virus was first identified during an outbreak of respiratory illness in Wuhan city of China in December 2019 and was reported to the World Health Organization (WHO). On 30 January 2020, the WHO declared this outbreak as an emergency in the world which later turns into a pandemic. The causative agent of the disease belongs to the Betacoronaviruses and has RNA nucleic acid. This virus belongs to the coronaviridae family, has a close association with SARS-CoV, and has a 70% identical genetic sequence. S, M and E proteins make the envelope of the virus. M and S proteins have a role in the replication of the virus. ⁽¹⁻³⁾

Transmission of the COVID-19 occurs through direct contact with respiratory droplets and body fluids with eye, nose, mouth, ulcers and skin abrasions in a healthy person. ⁽¹⁵⁻¹⁷⁾

The surfaces may be a major source of the transmission as it is found out that SARS-CoV remains viable in the surfaces up to 96 hours and other coronaviruses for up to 9 days. ^(20,21)

On average, each COVID-19 case results in four new cases. ⁽¹⁸⁾ all people are susceptible to the virus. Information about COVID-19 is still limited and needs further researches. The clinical manifestations of the disease vary from asymptomatic to mild and severe fatal disease. Pneumonia is the most common form of severe disease, which manifests with fever, cough, shortness of breath and bilateral infiltrates in chest radiography. Most of the infections are not severe, and only in some patients the disease course in critical form. Most of the fatal cases occur among patients with old age and with co-morbidities. In addition to respiratory manifestations, gastrointestinal symptoms like nausea, vomiting, diarrhea are also reported in some patients, but these symptoms are not usual. The disease complications include severe pneumonia, septic shock, ARDS, and multiorgan failure, leading to death. ⁽⁴⁻⁶⁾

The presence of symptoms and signs help in diagnosis. Additionally, the standard method for confirmation of the diagnosis is the real-time Reverse Transcription–Polymerase Chain Reaction (rRT-PCR) on samples from the respiratory tract. The result can be obtained within hours up to 2 days. The leukocyte count is variable in these patients. Leukopenia, leukocytosis and lymphopenia reported, but lymphopenia is reported more often. The chest radiography may reveal lung infiltrates. In a CT scan of the lungs, bilateral ground-glass infiltrates associated with dense areas may be seen. Elevated liver transaminases are also reported. ^(7,8,22,23,24,25,26,27)

The fatality rate of the COVID-19 varies in different countries but generally is 1-3%. At the beginning of the outbreak, the WHO reported that the severe cases in china have mostly occurred among people aged 40 years and beyond and among those with associated illnesses and mostly affected men, but this characteristic may be changing. According to the WHO, the recovery time of the disease is about 2 weeks in mild cases and 3-6 weeks in severe cases. ^(2,9)

Several studies have been conducted on COVID-19 in the world so far. A study by Zheng et al. titled evaluation of the clinical and epidemiologic characteristics of the COVID-19 cases in Wuhan city of China between 16 January to 4 February 2020 on 73 patients (40 male and 33 females) majority of the patients were aged 40-49 years. The main symptoms were fever and cough, respectively. In 30 % of the patient's leukopenia was reported, and in 45% of the patients, lymphopenia was present. ⁽¹⁰⁾

Another study by Maria khan et al. titled epidemiologic and clinical characteristics of COVID 19 cases in a tertiary hospital of Peshawar, Pakistan between 15 March to 21 April on 121 patients whose PCR tests was positive; the mean age of the patients was 43 years, and 70% of them were males. Common symptoms of the patients were fever, cough, and shortness of breath, respectively. ⁽¹¹⁾

Another study by Tambe et al. between 31 March to 24 April 2020 in a tertiary hospital in Pune state of India conducted in descriptive cross-sectional method shows that among 197 confirmed cases, the age of the majority of the patients was between 30-61 years and in terms of gender males were more affected. Among them, only one patient had a history of travel abroad. In contrast, 57% had a history of contact with a confirmed case, of which 47 % had contact with family members and 10% were infected in the work environment. Dyspnea was the most common symptom of the patients, followed by fever and cough. ⁽¹²⁾

Objective

The objective of this study is to find the clinical and epidemiologic characteristics of the COVID-19 cases admitted to Afghan-Japan communicable diseases hospital Kabul between 20 June to 20 August 2020

Research Questions

1. How is the distribution of the COVID-19 cases in terms of gender, age, residence and occupation
2. What are the symptoms and signs of COVID-19 cases in Afghan-Japan communicable diseases hospital
3. What are the laboratory findings of the COVID-19 cases into Afghan-Japan communicable diseases hospital

Materials and method

This is a descriptive cross-sectional study. The data about the COVID-19 cases admitted to Afghan-Japan communicable diseases hospital Kabul between 20 June to 20 August 2020 was collected using the patients' files and laboratory reports. These data were put in data collection sheets and the data was analyzed using the SPSS-20 and Microsoft Excel.

Sample Size

All the patients admitted to Afghan-Japan communicable diseases hospital Kabul between 20 June to 20 August 2020 constitute the study's sample size.

Sampling Method

Sampling was convenient; information about all the patients admitted to Afghan-Japan communicable diseases hospital Kabul between 20 June to 20 August 2020 was found.

Inclusion criteria

- Those patients were admitted to Afghan-Japan communicable diseases hospital Kabul between 20 June to 20 August 2020, and their PCR test of blood or respiratory samples was positive.

Exclusion criteria

- Those patients whose information was lacking

Main variables

Gender, age, residence, occupation, symptoms, signs, laboratory investigations

Research tools

- Patients files
- Laboratory results
- Data collection sheet

Results

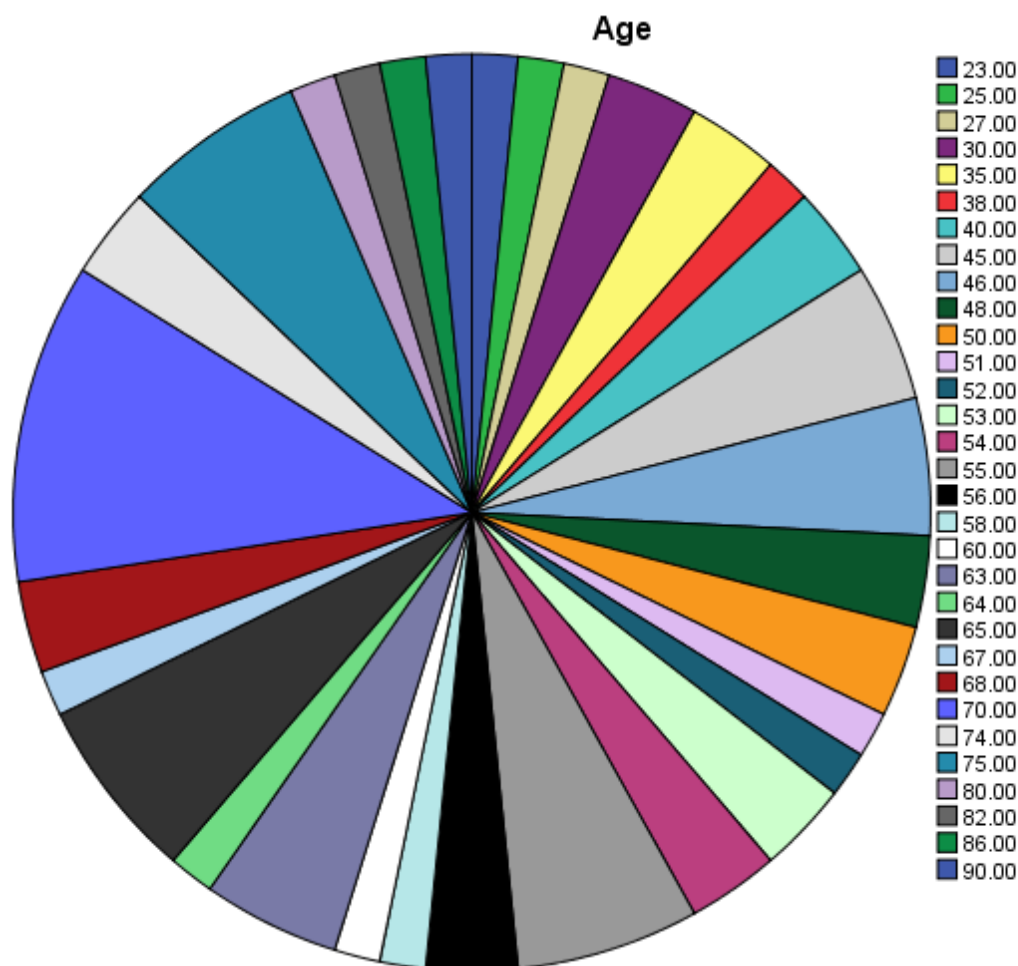
This research was conducted within two months in the descriptive cross-sectional retrospective method and included 124 COVID-19 patients admitted to Afghan-Japan communicable diseases hospital Kabul between 20 June to 20 August 2020. The results are presented as follows

Table 1: the percentage of COVID-19 prevalence in terms of sex

Sex				
	Frequency	Percent	Valid Percent	Cumulative Percent
male	96	77.4	77.4	77.4
Valid female	28	22.6	22.6	100.0
Total	124	100.0	100.0	

its seen in the table that 77.4% of the COVID-19 patients are males.

چارت (1) سن مریضان COVID-19

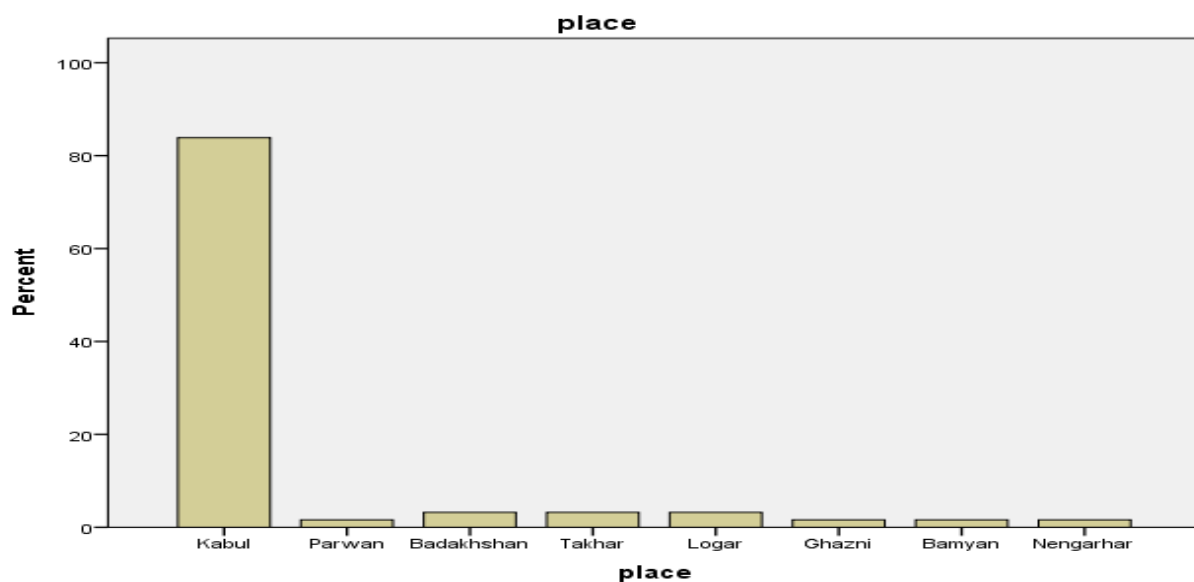


According to the above chart, the majority of the COVID-19 cases are aged 65-76 years

Table 2: Number and percentage of the COVID-19 cases according to the place of residence

Place

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Kabul	104	83.9	83.9	83.9
	Parwan	2	1.6	1.6	85.5
	Badakhshan	4	3.2	3.2	88.7
	Takhar	4	3.2	3.2	91.9
	Logar	4	3.2	3.2	95.2
	Ghazni	2	1.6	1.6	96.8
	Bamyan	2	1.6	1.6	98.4
	Nengarhar	2	1.6	1.6	100.0
	Total	124	100.0	100.0	



As it is seen in the table majority of the COVID-19 cases are the residence of Kabul province

Table 3: prevalence of the COVID-19 in terms of occupation

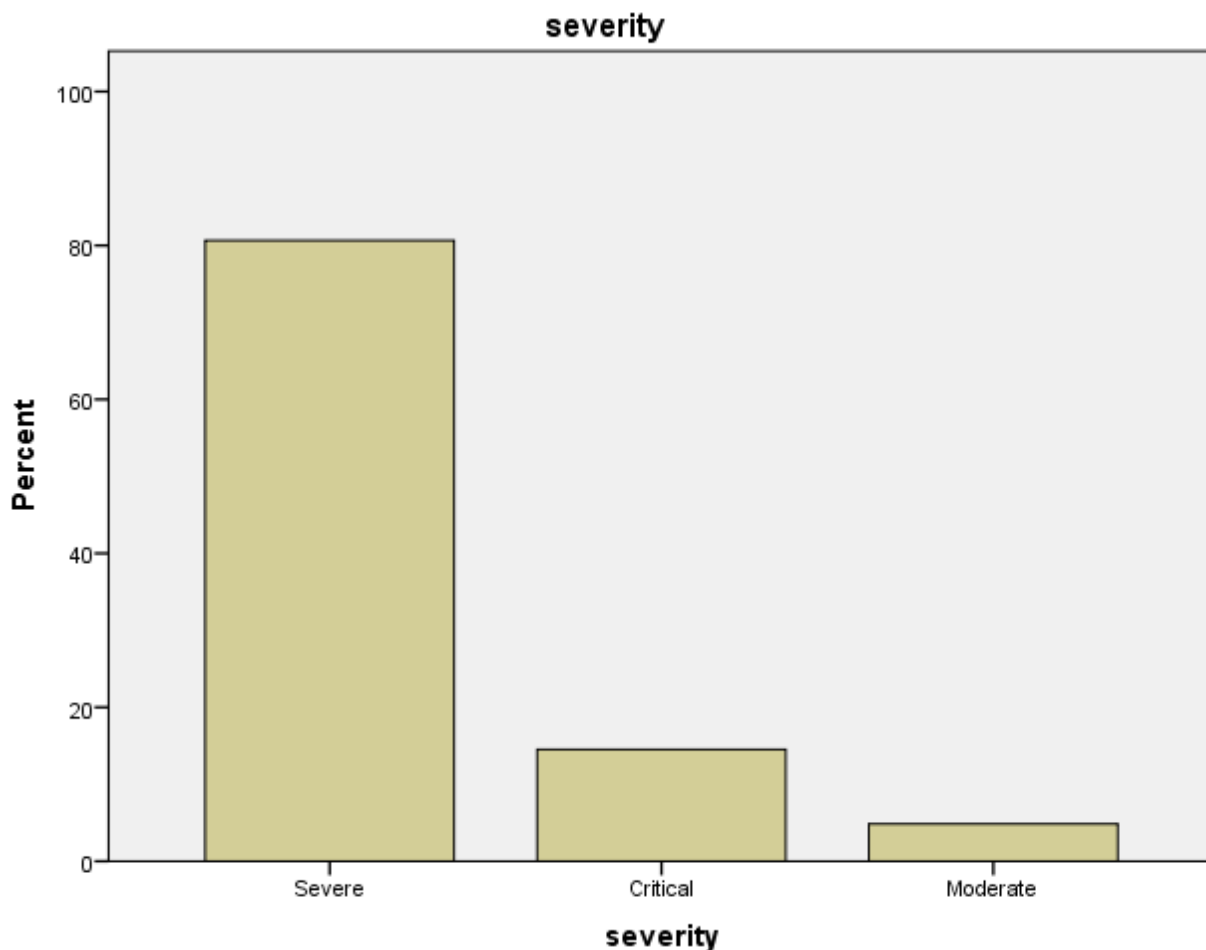
Job

	Frequency	Percent	Valid Percent	Cumulative Percent
Jobless	70	56.5	56.5	56.5
Shopkeeper	2	1.6	1.6	58.1
Farmer	5	3.2	3.2	61.3
Employee	14	11.3	11.3	72.6
Valid Free worker	4	3.2	3.2	75.8
Housewife	8	6.5	6.5	82.3
worker	112	8.1	8.1	90.3
Cook	9	6.5	6.5	96.8
Total	124	100.0	100.0	

As it can be seen in the above table, the majority of the COVID-19 cases occurred among jobless people (56.5%)

Table 4: COVID-19 cases in terms of severity of the disease

Severity				
	Frequency	Percent	Valid Percent	Cumulative Percent
Severe	100	80.6	80.6	80.6
Critical	18	14.5	14.5	95.2
Valid Moderate	6	4.8	4.8	100.0
Total	124	100.0	100.0	



According to the above table, the majority of the COVID-19 cases were in severe form (80.6%)

Table 5: symptoms and signs of covid-19 patients

Variables	Total patients(n = 124)	Variables	Total patients(n = 124)
Shortness of breathing	116(93.5%)	Tachycardia	6(4.8%)
Cough	98(79%)	Vomiting	6(4.8%)
Fever	70(56.5%)	Weakness	6(4.8%)
Body pain	52(41.9%)	Anorexia	4(3.2%)
Tachypnea	40(32.3%)	Chest tightness	4(3.2%)
Crepitation	38(30.6%)	Cyanosis	4(3.2%)

Respiratory distress	24(19.4%)	Epigastric pain	4(3.2%)
Sorethroat	22(17.7%)	Chest indrawing	2(1.6%)
Ronchi	12(9.7%)	Limb pain	2(1.6%)
Chest pain	12(9.7%)	Unconscious state	2(1.6%)
Loose motion	10(8.1%)	Hemoptysis	2(1.6%)
Lethargic	8(6.5%)	Hiccup	2(1.6%)
Myalgia	6(4.8%)	Fatigue	2(1.6%)
Dizziness	6(4.8%)	Sneezing	2(1.6%)
Headach	6(4.8%)		

According to the above table, shortness of breath, cough, and fever were the most common symptoms

TABLE 6: Laboratory Findings of Coronavirus Disease (COVID-19)

Laboratory Test	Normal	Reduced	Elevated
Leucocyte	36(29)	8(6.5)	80(64.5)
Lymphocyte	78(62.9)	42(33.9)	4(3.2)
Hemoglobin	86(69.4)	30(24.2)	8(6.5)
Platelet	76(61.3)	26(21)	22(17.7)
ALT	80(64.5)	0(0)	44(35.5)
AST	84(67.7)	0(0)	40(32.3)
ESR	64(51.6)	0(0)	60(48.4)
CRP	62(50)	4(3.2)	58(46.8)
SPO2	62(50)	62(50)	0(0)
Creatinine	108(87.1)	0(0)	16(12.9)
BUN	108(87.1)	0(0)	16(12.9)

Note—Values in parentheses are percentages.

Discussion

This research work about the clinical and epidemiologic characteristics of the COVID-19 cases in Afghan-Japan communicable diseases hospital was conducted using descriptive-case series retrospective. The data about the COVID-19 cases that were admitted between 20 June to 20 August 2020 were collected using the files of the patients and their laboratory results.

Based on our review of the literature, the following issues were found: according to a study by Zheng et al. about analysis of the clinical and epidemiologic characteristics of the COVID-19 cases conducted in Wuhan city of China between 16 January to 4 February 2020 with 73 participants majority of the were aged 40-49 years. Common symptoms of the patients were fever and cough, respectively. In 30% of the patients, the level of WBC was low, and in 45% there was lymphopenia. ⁽¹⁰⁾

The findings of our study are not compatible with this study in terms of age and sex, which may be because the majority of the cases in Afghanistan are among men compared to women, and this could be explained by the fact that men are mostly working outside the home in Afghanistan compared to women. Their risk of contracting the virus is high.

In terms of age, there is also a difference; our study shows the cases among older ages that are not compatible with other studies in the world. And that why the cases are less in Afghanistan may be due lack of predisposing factors. In laboratory investigations in this study, leukopenia was more common. In contrast, in our study, leukocytosis was more common. Still, the presence of lymphopenia is similar in both studies, and also the main symptoms, which are fever and cough, are similar in both studies.

Another study by Maria Khan et al. titled clinical and epidemiologic characteristics of COVID-19 cases in a tertiary hospital in Peshawar, Pakistan, conducted between 15 March to 21 April 2020, which shows that among 121 patients whose PCR test were positive, the mean age of the patients was 43 years and 70% of them were men. The common symptoms were fever, cough and shortness of breath, respectively. The findings of our study are slightly different from this study in the mean age; the remaining results are similar, and it might be the similarity between the culture and traditions and habits of life and shared geography ⁽¹¹⁾

Another study by Tambe et al. between 31 March to 24 April 2020 in a tertiary hospital in Pune state of India conducted in descriptive cross-sectional method shows that among 197 confirmed cases, the age of the majority of the patients was between 30-61 years and in terms of gender males were more affected. Among them, only one patient had a history of travel abroad. In contrast, 57% had a history of contact with a confirmed case, of which 47 % had contact with family members and 10% were infected in the work environment. Dyspnea was the most common symptom of the patients, followed by fever and cough. Our study is slightly different in the mean age of the patients with this study, and it might be since the men are mostly working outside the home in Afghanistan and are at increased risk of contracting the virus. Also, there is a difference; our study shows higher ages that are compatible with other studies in the world and that why the cases

are less in young aged people may be due to the absence of predisposing factors. Rest of the finding is similar and might be due to the shared culture, tradition and life habits and also shared geography⁽¹²⁾

Based on the other studies that were reviewed, it can be concluded that in different studies, there are different findings which are normal, but it should be mentioned that compared to other countries; in Afghanistan, there are limitations in different levels in research works which affect the result of study hence more studies should be conducted in this regard.

Conclusion

The prevalence of the COVID-19 cases is most common among people aged 65-75 years and sex in males and among jobless people. The most common symptoms of the patients were shortness of breath, cough and fever. The most common laboratory changes were leukocytosis, lymphopenia and thrombocytopenia

Recommendations

1. Establishment of a registration system by the authorities in the Afghan-Japan communicable diseases hospital
2. Establishment of equipped laboratory for bacteriology, virology, biochemistry and serology in the Afghan-Japan communicable diseases hospital
3. Establishment of a computerized database of the patients so that the researchers wouldn't face difficulties.
4. The sample size of this study is limited, so the results may not be representative of the community; hence it's better to conduct more studies
5. Increasing public awareness about the COVID-19 and the ways of transmission and prevention

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