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**A Statistical Study of Causes and Precautions  
with reference to COVID-19 in Gujarat**

**Dr. Mohanbhai Namdev Mane**

(M.Com. M.Phil., Ph.D. NET)

Sir. K.P. College of Commerce, Surat, Gujarat

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## Abstract

COVID-19 was initially thought to be a virus with mainly animal to human transmission. This was proven to be untrue when the number of cases surged over the weekend of January 18 and 19, 2020, and reports surfaced of healthcare workers being infected (Seah et al., 2020). COVID-19 is a beta Corona virus, like MERS and SARs, both of which have their origins in bats. The virus has since spread beyond Wuhan to other Chinese cities and to multiple countries, including the India. Gujarat now second after Maharashtra with 95191 cases tested, 6625 confirmed positive cases, 1500 patients recovered, 58063 people under quarantine, 396 total deaths in 30 districts of Gujarat. The number of positive cases and deaths of COVID-19 were rapidly increased. In this research paper, the investigator has studied the Statistical status of corona disease in Gujarat, its infection, its symptoms, causes, and the steps and precautions to be taken to prevent that disease. Study included the data of Gujarat from 19-03-2020 to 07-05-2020. Study had focused mainly on data of Gujarat. Study had systemically searched the data and relevant information from internet, Study results show that if there is no change in current situation or more actions are not taken, spread of COVID-19 will continuously Increase. Precautions and measures have to be taken in this regard.

**Keywords:** Covid-19, Disease, Infection, Precautions, Prevent, Symptoms

### ➤ Introduction

The latest coronavirus to emerge is COVID-19, also known as severe acute respiratory syndrome corona virus 2. On December 31, 2019, WHO was alerted by Chinese authorities to a series of pneumonia-like cases in Wuhan, a city the size of London with about 11 million people. It was quickly discovered that the first human infections likely originated from Hunan Seafood there. Two weeks later, a group of Chinese scientists, along with WHO, announced that a new coronavirus, identified through genomic sequencing, was the cause of the pneumonia (Seah et al., 2020).

COVID-19 was initially thought to be a virus with mainly animal to human transmission. This was proven to be untrue when the number of cases surged over the weekend of January 18 and 19, 2020, and reports surfaced of healthcare workers being infected (Seah et al., 2020). COVID-19 is a beta coronavirus, like MERS and SARs, both of which have their origins in bats. The genetic sequences from U.S. patients are similar to the one that China initially posted, suggesting a likely single, recent emergence of this virus from an animal reservoir (CDC, 2020e). The virus has since spread beyond Wuhan to other Chinese cities and to multiple countries, including the India.

In this situation it becomes very essential to know whether the future trend of positive cases and number of deaths of COVID-19 disease of Gujarat increase or decrease. For this, Investigator want to study of Causes and Precautions with reference to COVID -19 in Gujarat.

#### ➤ **Objectives of the study**

Following were the main objectives of the present study:

1. To Learn about COVID-19 and the effects it has on Patients
2. To Learn to pick up on the early signs & symptoms of COVID-19.
3. To Learn what you can do to help prevent the spread of COVID-19.
4. To Learn the Proper Use of PPE.
5. To Learn Proper documentation and reporting.
6. To Learn Proper Post COVID-19 care.
7. To study the spread of COVID-19 in Gujarat.

#### ➤ **Research Methodology**

This secondary data analysis study was conducted during May 2020 and included the latest data of COVID-19. Study had focused mainly on data of Gujarat.

#### ➤ **Data Sources**

Study had systemically searched the data and relevant information from internet. Study analyzed the secondary data of Gujarat Government Publication, COVID-19 from 19-03-2020 to 07-05-2020.

Investigator obtained relevant data of COVID-19, from published by government of Gujarat. The investigator thought that the study of the following will give a detail idea of the causes of the disease and the precautions for it.

➤ **What is COVID-19?**

Coronavirus disease 2019 (COVID-19) is a respiratory illness that can spread from person to person. The virus that causes COVID-19 is a novel (New) coronavirus that was first identified during an investigation into an outbreak in Wuhan, China.

➤ **Risk Factors for COVID-19**

COVID-19 is a new disease and there is limited information regarding risk factors for severe illness. Based on currently available information and clinical expertise, older adults and people of any age who have serious underlying medical conditions might be at higher risk for severe illness from COVID-19. We are learning more about COVID-19 every day; Centers for Disease Control and Prevent (CDC) updated the advice below as new information becomes available.

• **Steps you can take:**

If you are at higher risk for serious illness from COVID-19 because of your age or because you have a serious long-term health problem, it is extra important for you to take actions to reduce your risk of getting sick with the disease.

- Stay home if possible.
- Wash your hands often.
- Take everyday precautions to keep space between yourself and others (stay 6 feet away, which is about two arm lengths).
- Keep away from people who are sick.
- Stock up on supplies.
- Clean and disinfect frequently touched services.
- Avoid all cruise travel and non-essential air travel.

- Call your healthcare professional if you have concerns about COVID-19 and your underlying condition or if you are sick.

➤ **How does COVID-19 Spread?**

The virus that causes COVID-19 probably emerged from an animal source, but is now spreading from person to person. The virus is thought to spread mainly between people who are in close contact with one another (within about 6 feet) through respiratory droplets produced when an infected person coughs or sneezes. It also may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the main way the virus spreads.

➤ **Symptoms of COVID-19**

Patients with COVID-19 have had mild to severe respiratory illness with symptoms of:

- Fever
- Cough
- Tiredness
- Shortness of breath
- Difficulty Breathing (Severe Cases)



These symptoms may appear **2-14 days after exposure** (based on the incubation period of MERS-CoV viruses).

➤ **What should I do if my client begins to show symptoms of COVID-19?**

- Client and Caregiver need to immediately put on a mask and isolate in separate rooms.
- Contact the office immediately.
- Contact Primary Care Physician to get a test scheduled.
- Masks & gloves need to be worn at all times when within 6 feet of each other.
- If possible, management will deliver a face shield and gown, or other appropriate PPE equipment.

➤ **When to Seek Medical Attention ?**

If you develop any of these emergency warning signs for COVID-19 get medical attention immediately:

- Trouble breathing
- Persistent pain or pressure in the chest
- New confusion or inability to arouse
- Bluish lips or face

\*This list is not all inclusive. Please consult your medical provider for any other symptoms that are severe or concerning to you.

**Call 911 if you have a medical emergency:** Notify the operator that you have, or think you might have, COVID-19. If possible, put on a cloth face covering before medical help arrives.

➤ **How Can I Prevent spread?**

People can help protect themselves from respiratory illness with everyday preventive actions.

- Avoid close contact with people who are sick.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Wash your hands often with soap and water for at least 20 seconds.

Use an alcohol-based hand sanitizer that contains at least 60% alcohol if soap and water are not available.

- Wear a facemask when 6' or closer. Client should also wear a facemask if at risk or showing any symptoms
- Use gloves for any personal care and dispose of immediately before touching surfaces

➤ **Hand Washing**

- A. Rub palms of both hands:
- B. Interlace fingers of one hand over palm of other hand; then switch hands:
- C. Rub palms of both hands together:
- D. Place back of fingers of one hand to palm of other hand, interlacing hands; then switch hands:
- E. Rotate thumb of one hand in palm of other hand; then switch hands:
- F. Rotate fingertips of one hand into palm of other hand; then switch hands:

➤ **How to clean and disinfect**

- **Clean surfaces using soap and water.** Practice routine cleaning of frequently touched surfaces. High touch surfaces include: Tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, sinks, etc.
- **Follow the instructions on the label to ensure safe and effective use of the product.** Many products recommend:
  - Keeping surface wet for a period of time (see product label)
  - Precautions such as wearing gloves and making sure you have good ventilation during use of the product.
- **Alcohol solutions with at least 70% alcohol may also be used**

➤ **Personal Protective Equipment**

The following information is on the proper use of PPE equipment for all clients that are not active for COVID-19.

• **Gloves**

Employees, who provide personal care to clients shall wear disposable gloves during the performance of, but not limited to, the following duties:

- Providing assistance with toileting, incontinence pads or depends.
- Providing bladder or bowel care.
- Bathing the rectal or groin area.



- Handling dirtied dressings bedding, and clothing.
- Cleaning or caring for urinary catheters.
- Coming into contact with draining wounds, broken skin, secretions, excretions blood, body fluids, or mucous membranes.
- Cleaning up blood or body fluid spills.
- Cleaning/disinfecting areas exposed to blood, stool, urine or body fluids.
- Cleaning toilets, commodes, or soiled equipment.
- Having open skin lesions on their hands.
- Bagging materials soiled with blood or other potentially infectious materials.

#### **Glove Removal**

- A. Grasp glove cuff with opposite gloved hand and peel off.
- B. Hold removed glove in gloved hand. Slide fingers of ungloved hand under remaining glove at wrist.
- C. Peel the glove from wrist to fingertips.
- D Turn the glove inside out leaving the first glove inside the second.
- E. Discard gloves into waste receptacle.

#### • **Face Masks**

The following information on the correct use of masks is derived from practices in health care settings.

- It is company policy that Caregivers wear a mask whenever within 6 feet of a client or providing personal care.
- Place the mask carefully, ensuring it covers the mouth and nose, and tie it securely to minimize any gaps between the face and the mask.
- Avoid touching the mask while wearing it.
- Replace masks as soon as they become damp with a new clean, dry mask.



### Face Mask Removal

- Ensure gloves have been removed and discarded before you take your mask off.
- Carefully untie (or unhook from the ears) and pull away from face without touching the front.
- Dispose of Mask at the end of your shift.
- Perform hand hygiene after removing the facemask .

### • Caring for a client that has tested positive for COVID-19

Before caring for patients with confirmed or suspected COVID-19, healthcare personnel (HCP) must:

- **Receive comprehensive training** on when and what PPE is necessary, how to don (put on) and doff (take off) PPE, limitations of PPE, and proper care, maintenance, and disposal of PPE.
- **Demonstrate competency** in performing appropriate infection control practices and procedures.

### • Putting on PPE

#### Sequence for PUTTING ON PPE: VIDHYAYANA

##### 1. Gown

- Fully cover torso from neck to knees, arms, to end of wrists, and wrap around the back.
- Fasten in back of neck and waist.

##### 2. Mask or Respirator

- Secure ties or elastic bands at middle of head and neck.
- Fit flexible band to nose bridge.
- Fit snug to face and below chin.
- Fit-check respirator.



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### 3. Goggles or Face Shield

- Place over face and eyes and adjust to fit.

### 4. Gloves

- Extend to cover wrist of isolation gown.

## • Removal of PPE

### • Sequence for REMOVAL OF PPE:

#### 1. Gloves

- Outside of gloves are contaminated!
- If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer.
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand.
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over firstglove.



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#### 2. Goggles or Face Shield

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer.
- Remove goggles or face shield from the back by lifting head band or ear pieces.
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container.

### 3. Gown

- Gown front and sleeves are contaminated!
- If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol based hand sanitizer.
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard in a waste container

### 4. Mask or Respirator

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container

**5. wash hands or use an alcohol-based hand sanitizer immediately after removing all ppe.**

#### ➤ Incubation period

The incubation period for COVID-19 is thought to extend to 14 days, with a mediantime of 4-5 days from exposure to symptoms onset. One study reported that 97.5% of persons with COVID-19 who develop symptoms will do so within 11.5 days of SARS-CoV-2 infection.

The signs and symptoms of COVID-19 present at illness onset vary, but over the course of the disease, most persons with COVID-19 will experience the following:

- Fever (83–99%)
- Cough (59–82%)
- Fatigue (44–70%)
- Anorexia (40–84%)
- Shortness of breath (31–40%)
- Sputum production (28–33%)
- Myalgias (11–35%)

#### ➤ **Documentation & Reporting**

It is very important that Caregivers take accurate records when monitoring a client's symptoms. The following is a list of proper documentation and recording:

- All caregivers are required to verify at the beginning of their shift that the client does not have any symptoms of COVID-19 or any elevated temperature. A verbal verification from the client will suffice. Please document in the notebook that the client verified with you.
- Notify the office immediately upon discovery of symptoms.
- Record date, time, and symptoms the client is experiencing.
- Continue monitoring temperature every 4 hours and document.
- Record the time the client's PCP was contacted, and the date and time of the scheduled COVID-19 testing.
- Take inventory on PPE currently in the home, and notify the office if additional PPE is needed.
- Monitor your own symptoms and report any concerns to the office.
- (If caring for client who is diagnosed with COVID-19) Record date and time when fever breaks without the use of any medication.



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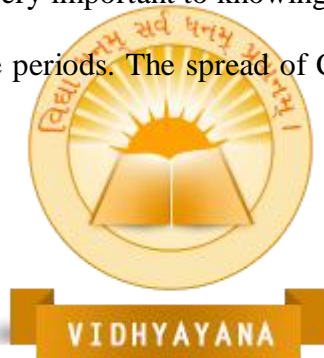
➤ **Post COVID-19 Care**

According to CDC guideline: After 7 days from initial symptoms and 72 hours after fever has broken and the patient has no other symptoms, the patient is no longer contagious and a gown and face shield are not required.

- Continue to monitor clients symptoms.
- Continue to monitor your own symptoms.
- Client & Caregiver will continue to wear a mask
- After the additional 7 days of precaution, care can be resumed as a normal case.

➤ **Spread of the covid-19 in Gujarat: 19-3-2020 to -05-2020**

Spread of COVID-19 is very important to knowing the changing the trend the value during the various time periods. The spread of COVID-19 in Gujarat are as under table 1.1.



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Table -1.1

Spread of COVID-19 in Gujarat (19-3-2020 to 7-5-2020)

☰ Districtwise COVID-19 Statistics					
District	Confirmed Positive Cases	Cases Tested for COVID19	Patients Recovered	People Under Quarantine	Total Deaths
Ahmedabad	↑275 4991	↑1643 40808	↑108 886	23949	↑23 321
Amreli	0	↑117 1288	0	4764	0
Anand	76	↑3 664	↑5 43	347	6
Aravalli	↑25 47	↑77 1016	14	1289	2
Banaskantha	↑3 67	↑18 1130	↑8 22	9358	↑1 2
Bharuch	27	↑53 1108	↑3 25	165	2
Bhavnagar	↑1 83	↑190 2901	21	542	5
Botad	48	↑122 1197	8	386	1
Chhota Udaipur	14	↑27 375	↑1 12	1	0
Dahod	↑4 19	↑124 1141	2	175	0
Dang	2	↑7 337	1	217	0
Devbhoomi Dwarka	↑1 4	↑77 479	0	1537	0
Gandhinagar	↑5 88	↑317 2784	↑5 20	865	5
Gir Somnath	3	↑68 486	3	3082	0
Jamnagar	↑4 9	↑352 2878	0	1096	1
Junagadh	2	↑131 971	0	2643	0
Kutch	7	↑22 778	5	1220	1
Kheda	↑3 20	↑40 1233	3	108	1
Mahisagar	42	↑10 994	7	2963	1
Mehsana	42	↑4 588	8	189	↑1 1
Morbi	1	↑26 273	1	488	0
Narmada	12	↑17 1024	12	622	0
Navsari	8	↑68 1423	4	2442	0
Panchmahal	51	↑188 1275	6	639	3



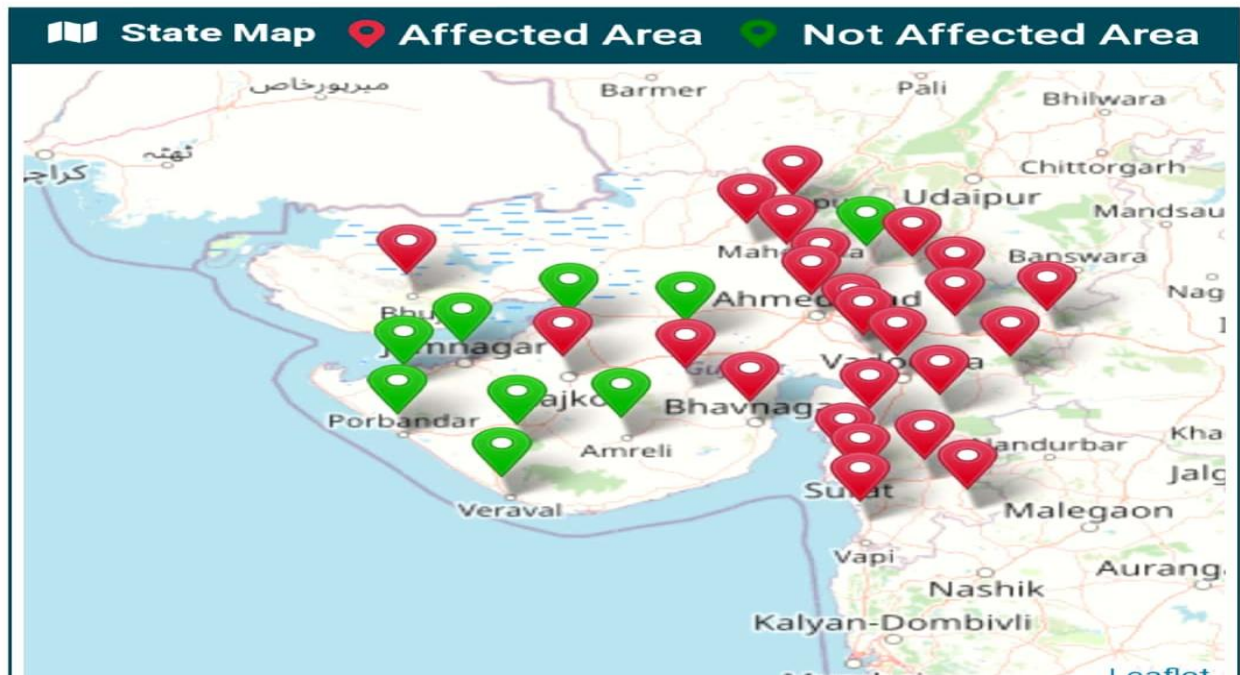


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District	Confirmed Positive Cases	Cases Tested for COVID19	Patients Recovered	People Under Quarantine	Total Deaths
Patan	24	↑64 550	↑1 13	345	1
Porbandar	3	↑26 1004	3	1520	0
Rajkot	↑2 64	↑163 2909	26	561	1
Sabarkantha	10	↑26 810	3	850	2
Surat	↑45 799	↑975 19677	↑51 365	2702	↑4 37
Surendranagar	1	↑40 363	1	191	0
Tapi	2	↑36 597	1	2	0
Vadodara	↑19 440	↑236 5340	↑27 191	1290	31
Valsad	6	↑94 2151	3	313	1
<b>Total</b>	<b>7012</b>	<b>100552</b>	<b>1709</b>	<b>66861</b>	<b>425</b>

Map-1.1





In the above table-1.1, the information of the COVID-19 districts of Gujarat till 7th May 2020 is given. In which 100552 cases tested, 7012 confirmed positive cases, 1709 patients recovered, 66861 people under quarantine, 425 total deaths in 30 districts of Gujarat. The number of positive cases of COVID-19 were rapidly increased. It means that the disease is terrible and people are afraid of infection. The death toll has also risen. People are afraid of death. The Map-1.1 shows the districts of Gujarat are suffering from this disease.

### ➤ Conclusion and Suggestions

Study results shows that if there is no change in current situation or more actions are not taken, spread of COVID-19 will continuously rapidly increase. People have to change their lifestyle to avoid the disease. Health must be taken care of at this time. The suggestions and findings of this investigation are as follows.

- (1) There are hundreds of corona viruses, most of which circulate in animals. Only seven of these viruses infect humans and four of them cause symptoms of the common cold. But, three times in the last 20 years, a corona virus has jumped from animals to humans to cause severe disease.

(2) Although there is no vaccine available to prevent COVID-19, you can take steps to reduce your risk of infection. WHO and CDC recommend following these precautions for avoiding COVID-19:

- Regularly and thoroughly clean your hands with an alcohol-based hand rub or wash them with soap and water. Why? Washing your hands with soap and water or using alcohol-based hand rub kills viruses that may be on your hands.
- Maintain at least 1 metre (3 feet) distance between yourself and others. Why? When someone coughs, sneezes, or speaks they spray small liquid droplets from their nose or mouth which may contain virus. If you are too close, you can breathe in the droplets, including the COVID-19 virus if the person has the disease.
- Avoid going to crowded places. Why? Where people come together in crowds, you are more likely to come into close contact with someone that has COVID-19 and it is more difficult to maintain physical distance of 1 metre (3 feet).
- Avoid touching eyes, nose and mouth. Why? Hands touch many surfaces and can pick up viruses. Once contaminated, hands can transfer the virus to your eyes, nose or mouth. From there, the virus can enter your body and infect you.
- Make sure you, and the people around you, follow good respiratory hygiene. This means covering your mouth and nose with your bent elbow or tissue when you cough or sneeze. Then dispose of the used tissue immediately and wash your hands. Why? Droplets spread virus. By following good respiratory hygiene, you protect the people around you from viruses such as cold, flu and COVID-19.
- Stay home and self-isolate even with minor symptoms such as cough, headache, mild fever, until you recover. Have someone bring you supplies. If you need to leave your house, wear a mask to avoid infecting others. Why? Avoiding contact with others will protect them from possible COVID-19 and other viruses.
- If you have a fever, cough and difficulty breathing, seek medical attention, but call by telephone in advance if possible and follow the directions of your local health authority. Why? National and local authorities will have the most up to date information on the situation in your area. Calling in advance will allow your health

care provider to quickly direct you to the right health facility. This will also protect you and help prevent spread of viruses and other infections.

- Keep up to date on the latest information from trusted sources, such as WHO or your local and national health authorities. Why? Local and national authorities are best placed to advise on what people in your area should be doing to protect themselves.

(3) Healthcare personnel (HCP) are on the front lines of caring for patients with confirmed or possible infection with 2019 novel corona virus. They must be prepared to identify and isolate potentially infected patients in order to protect other patients—and themselves—from exposure. HCPs can minimize their risk of exposure when caring for confirmed or possible COVID-19 patients by following CDC infection prevention and control guidelines, including use of recommended personal protective equipment (PPE) (CDC, 2020k).

(4) To protect yourself and others against COVID-19, clean your hands frequently and thoroughly. Use alcohol-based hand sanitizer or wash your hands with soap and water. If you use an alcohol-based hand sanitizer, make sure you use and store it carefully.

(5) The World Health Organization declared the novel corona virus outbreak “a public health emergency of international concern” on January 30. On March 11, 2020 after sustained spread of the disease outside of China, the World Health Organization declared the COVID-19 epidemic a pandemic. Public health measures like ones implemented in China and now around the world, will hopefully blunt the spread of the virus while treatments and a vaccine are developed to stop it.

(6) In 30 districts of Gujarat, 100552 cases tested, 7012 confirmed positive cases, 1709 patients recovered, 66861 people under quarantine, 425 total deaths. The number of positive cases of COVID-19 were rapidly increased. It means that the disease is dangerous and people are afraid of infection. The death toll has also risen. People are afraid of death.



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### ➤ EPILOGUE

Every research helps to increase the level of knowledge in its specific field. This research would also contribute in all field. Investigator would like to conclude with the only feelings that this investigation will help to different parties by different ways.

### ➤ REFERENCES

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