

Epidemiological Characteristics and Factors Associated with Deaths due to COVID-19 Epidemic during April-May 2021 in Thailand

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Abstract

Thailand experienced the first Covid-19 epidemic in January 2020, then the second wave of outbreaks occurred during December, and recently there has been a new wave of outbreaks in April. The researcher is interested in gathering data and make conclusion about the risky factors of both the infected and dead people from the third wave of Covid-19 in Thailand. The research consists of study data collection, records and data analysis. It was observed in the first outbreak, which infected 4,237 cases, the second outbreak was 24,624 cases, and the outbreak during April to May had the fastest epidemic rate 130,929 cases. The result showed that provinces which seem to be the main cities of each region which have big communities, business areas, and many populations, were the highest risk factors, as it could see that in the area where it was crowded with people are easily infected COVID-19. People between ages 20 - 29 had the most infected people and death about 40% from overall. The Underlying Diseases of the infected person are involved in death including Hypertension, Diabetes, Obesity, and heart diseases. And Epidemiological characteristics are all involved in people who are infected and pass away. The dead persons mainly had same risky factor (contacted with confirmed patient) in both April and May.

Keywords: COVID-19, Epidemiological characteristics, Risky Factors, Hypertension, Diabetes, Obesity and Heart Diseases

INTRODUCTION

Many countries around the world are facing the crisis of Covid-19 epidemic at the present time. WHO (World Health Organization) has announced the Covid-19 is the worldwide epidemic on 11 March, 2020? (The journal of Bamrasnaradura Infectious Diseases Institute). Thailand had found the first infected person who was the Chinese tourist in January, 2020. Later on, the country encountered with the epidemic in April causing from the gathering of people to do various activities. The activities included boxing stadium, religious places, places of entertainment, etc. The first wave of epidemic had

been successfully controlled within 2 months and none was infected over 100 days.

However, there was a new wave occurred during December, 2020 derived from the group of foreign labors at the shrimp markets in Samut Sakorn province. This second wave disease spread highly especially in the East of Thailand. (PPTV Online Press, 2021). Referring to the information on January 1, 2021, people learned that there were 7,163 collective infected persons in Thailand and 63 dead people. (Department of Disease Control and National

Research Council of Thailand, 2021). The situation inclined to improve during February-March 2021.

During the first quarter of the year, though the situation inclined to improve but the country encountered again the new wave of epidemic in April, 2021. The third wave has been called “Entertainment Cluster”. There are many infected people in Bangkok (Nakarin Wongpaiboon, 2021). The anticipated numbers of infected people this year will be much higher than last year owing to the new species of the virus that easily spread. (Yong Puwarawan, 2021). The expansion is mainly among young people ages 20-23. The investigation shows the epidemic spreads over 60 provinces relating to the entertainment clusters, particularly, those provinces with big entertainment places like Chiang Mai, Krabi, Phuket, etc. (Opas Karnwainpong, 2021). Moreover, Thailand had a national festival “Songkran” during 13 to 15, April and people travelled to their homes. This led to the infection among family members and local communities.

The report from Bangkok Business Press on 22 April, 2021 mentioned about the risk factors of infection and death. The factors are similar to the previous spreading including entertainment, gambling, boxing stadium, fresh markets, communities and families. The April 2021 wave causes a lot of dead people and 50% of them are elderly over 60 with congenital diseases, such as Diabetes, Hypertension, Obesity, Lung disease, Coronary Artery Stenosis, Thyroid, Kidney failure, and bed ridden. Many of the infected persons do not show any symptoms, therefore, they go to crowded places like the public buses without social distancing awareness. The normal people are at higher risk to get infected from those who do not show symptoms. (Teerawat Hemajutha, 2021). However, The Public Health Ministry described the symptoms conjunctivitis, Covid rash, nasal discharge and no fever. The infected patients get plenty of throat diseases to the British virus specie yet. (Opas Karnwainpong, 2021)

According to the situation, the Thai government and other provincial governors have issued different policies in order to carefully monitor and prevent the expansion of Covid-19. One of the policy is 25th. Announcement of Bangkok Metropolitan Administration (BMA) stating about the order to shut down the places where people gather to act different

activities. The places are, for examples, tutoring institutes, entertainment business, cinema or theater, museum, sporting stadium, etc. The consequences of the policies bring the economic crisis to the country. The problems of closing the business, unemployment, and insufficient support from the government. (Vachiradep Koontaveedeb, 2021). All Thai people are facing the problems in their lives.

MATERIALS AND METHODS:

This is secondary research with the purpose to study the risky factors causing the spreading of COVID-19 since April in Thailand. During April to May, 2021 there were many infected and dead people in a great and rapid extent in comparison with previous spreading. The research, directly therefore, is expected to be beneficial to prevent and solve problems in order to reduce the numbers of infected and dead people. The research consists of study tools, data collection, records and data analysis.

• Research Design and Data Collection

The purpose of this study was to understand the risks that are the cause of the third epidemic of COVID-19 in Thailand. The data was collected from some articles, interviews, public organization’s statistic and research, relating to principle of Epidemiology, risks and medical condition. The topics that are used for determination are

- 1) Statistics of COVID-19 cases in Thailand
- 2) Statistics of deaths from COVID-19 in Thailand
- 3) Features of epidemiology of the infected COVID-19 in Thailand during April - May, 2021
- 4) Death during April-May, 2021

• Research Instrument and Data Analysis

- Use the descriptive statistics to explain features of epidemiology by Microsoft Excel.
- The results indicated percentages and sum of each type of risky factors, disease and gender. The information are illustrated in bar charts and pie charts.

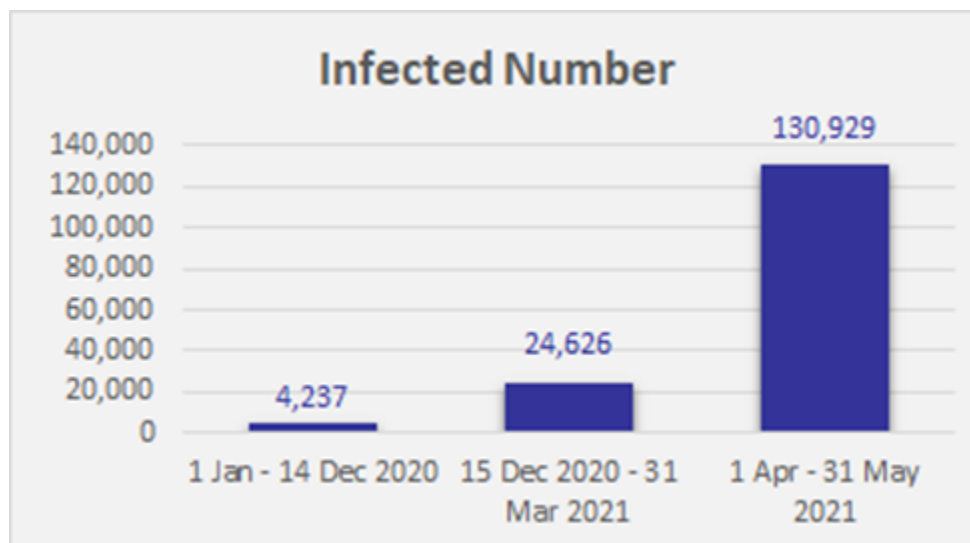
RESULTS

1. Statistics of COVID-19 cases in Thailand

Since COVID-19 has been spreading in Thailand. There were 3 phases of the epidemic include the first wave (during 1 Jan - 14 Dec 2020), the second wave

(during 15 Dec 2020 - 31 Mar 2021), and the 1 Apr - 31 May 2021 wave.

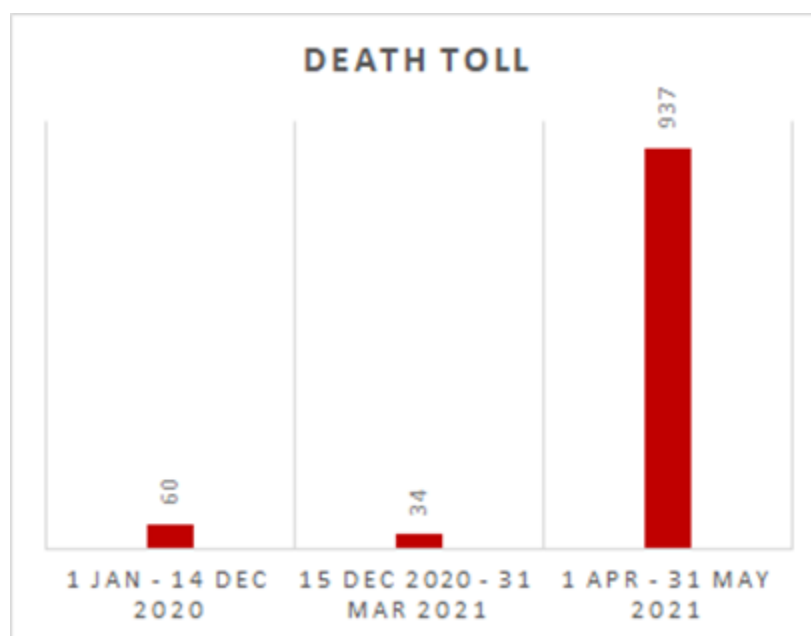
Figure 1: The infected number of each phase.



2. Statistics of deaths from COVID-19 in Thailand

The actual cumulative number of COVID-19 deaths has passed 1,031 since 2020. There were 60 cases in the first wave (during 1 Jan - 14 Dec 2020), 34 cases in the second wave (during 15 Dec 2020 - 31 Mar 2021), and 937 cases during the 1 Apr - 31 May 2021 wave.

Figure 2: The death toll of each phase.



3. Features of epidemiology of the infected COVID-19 in Thailand April - May, 2021

Thailand encountered the rapid outbreak of Covid-19 during last April with 36,920 collected patients. There were 28,269 patients under medical treatment. The

numbers of 21,407 patients were in the hospital, 7,289 people were in the field hospitals, and 871 were serious cases. There were 250 serious patients needed ventilators to save their lives. Based on the April report, we learned that this statistical numbers had

implying relation with the increasing dead people significantly.

3.1 The outbreak of Covid-19 in various parts of the country

Referring to the CCSA (Center of Covid-19 Situation Administration) information, Bangkok and Nonthaburi had confirmed 13,684 cases, 11,012 cases of the central part, 5,664 cases of the north, 2,694 cases of the northeast, and 3,236 cases of the south, respectively. The highest top ten areas were mostly the big cities where many touring laces. The cities included Bangkok (central) 12,005 cases, Chiang Mai (north) 3,502 cases, Prachuap Khiri Khan (west) 1,075 cases. In addition, the boundaries including Samut Prakan 1,719 cases, Nonthaburi 1,544 cases, Samut Sakhon 916 cases, Pathum Thani 77 cases, respectively. In the south, Surat Thani and Songkhla had 653 and 629 cases respectively.

On 31st May, 2021, the report showed the collected numbers of infected people during 1st April – 31st May at 130,140 cases. Bangkok had the highest infected cases at 41,573. The five boundaries had 21,321 cases, and the other 71 provinces had 40,993 cases. The top ten infected provinces were the same as the report in April. However, Petchaburi (west) had increasing number of 5,746 cases that led it to the fourth in rank. Songkhla (south) had decreased to the twelfth of the rank.

This May report also showed an interesting information that the increasing numbers of infected patients derived from the prisons across the country. There were 26,253 collected cases from these prisons. Besides, the outbreak of Covid-19 were caused by smuggling and transferring of labors from various construction sites. These caused the numbers of infected people in the boundary provinces become very high.

3.2 Age groups

The data base of 24th April, 2021 specified that the age infected patients were mainly between 20-29 years old (working persons) or 40%, and 30-39 (24.2%). The other age phases included 0-9 years (2.6%), 10-19 years (5.0%), 40-49 years (11.7%), 50-59 years (6.3%), 60-69 years (3.1%), and over 70 (1.5%), respectively.

The report of May concluded that people with old ages tend to be more risky and easily get infected. However, cases were found and could become a risky group as well.

4. Death during April-May, 2021

4.1 Gender

In April, there were totally 109 dead people consisting of 73 males and 36 females. The calculated ratio between male and female was 2.03:1. In May, there were totally 828 dead people consisting of 464 males and 357 females. The calculated ratio between male and female was 1.3:1.

4.2 Age

In April, the rates of dead people varied at different ages. They can be categorized as follows: 20-39 = 0.09%, 40-59 = 0.41%, and over 60 = 2.28%

In May, the ages varied 15-39 = 0.10%, 40-59 = 0.81%, and over 60 = 6.30%. However, the least age of 2 months dead patient was found.

4.3 The average duration time from being infected till getting medical treatment (Lowest-Highest)

In April, the lowest was 0 day and 12 days was the highest at the average 2.5 days. In May, the highest was 0 day and 19 days was the highest at the average 1.8 days.

4.4 Congenital Diseases

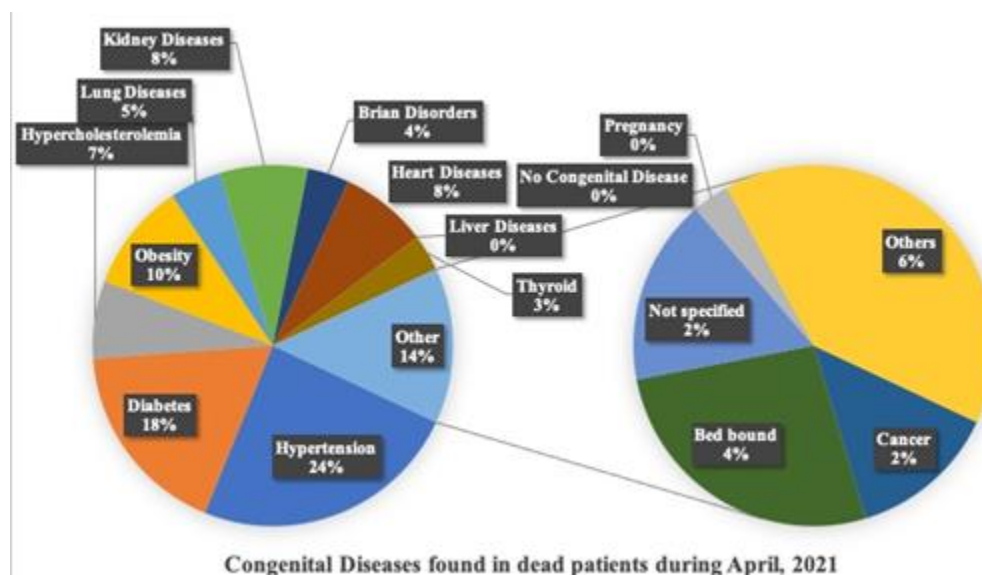
The reports of both April and May stated that 94% and 91% of Covid-19 dead people had different congenital diseases and risky conditions such as Obesity, pregnancy, or elderly persons, respectively.

After studying and gathering information of the dead and infected of COVID-19 during 1 – 30 April, 2021. It showed that hypertension was the first cause of death. There were 56 dead people from the total of 109. The numbers kept on rising respectively. There were other respective diseases causing death to the COVID-19 patients in the following orders : Diabetes 17 people, Obesity 21 people, Kidney diseases 17 people, Heart disease 17 people, Lung Diseases 11 people including Tuberculosis, Asthma, IPF (Idiopathic Pulmonary Fibrosis) and COPD (Chronic Obstructive Pulmonary Disease) , Thyroid Disease 10 people, Cancer 4 people, Bed ridden 8 patients and others like Down syndrome, SLD (Specific Learning Disability) , Rheumatoid, Gout, BPH (Benign

Prostatic Hyperplasia), Lymphoma, HNP (Herniated Nucleus Pulposus), Anemia, Allergy, Parkinson, Thalassemia and pregnancy. However, 5 dead people

did not specify the disease. (The data shown as the Figure 3)

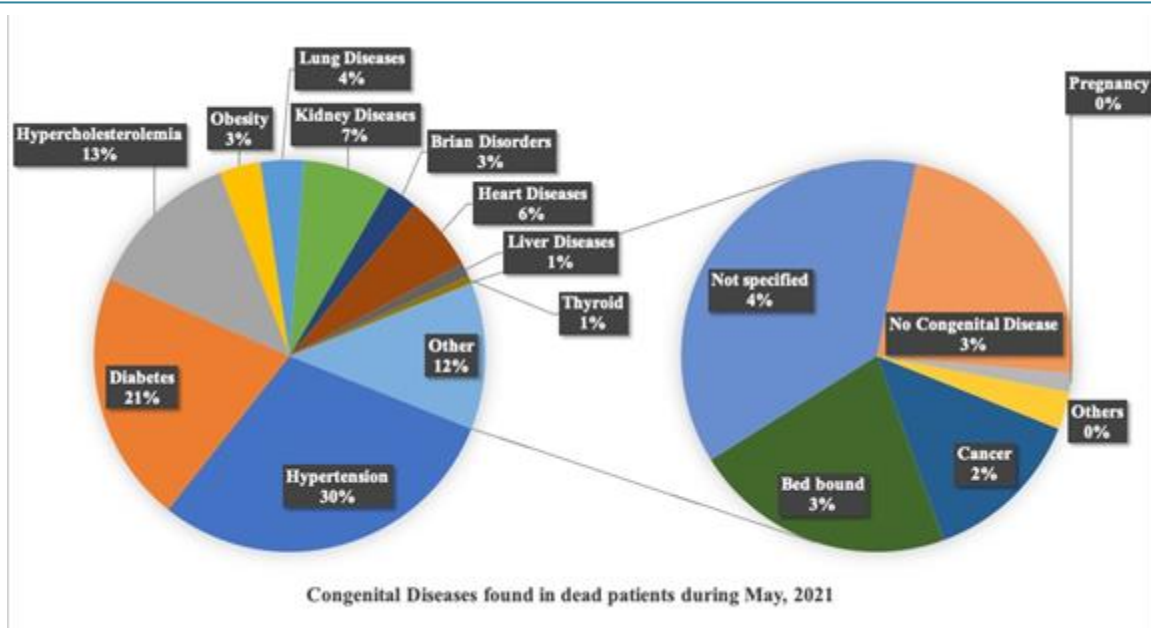
Figure 3: Congenital Diseases found in dead patients during April, 2021



During 1 – 31 May 2021. It showed that hypertension was the first causing death among 474 patients. There were other respective diseases causing death to the COVID-19 patients in the following orders: Diabetes 333 people, Obesity 54 people, Kidney diseases 116 people, Heart disease 99 people, Lung Diseases with COPD (Chronic Obstructive Pulmonary Disease) 58 people, Brain disorders 38 people and almost 99% suffered from Stroke, Thyroid Disease 10 people,

Cancer 16 people, Bedridden 42 patients and others like Autism, SLE (Systemic Lupus Erythematosus), Rheumatoid, Cirrhosis, Scleroderma, Allergy, and pregnancy. And 72 cases that did not specify the disease. Additionally, there was a person who is alcoholic and smoking. A new report found that 72 people do not have the congenital disease (The data shown as the Figure 4).

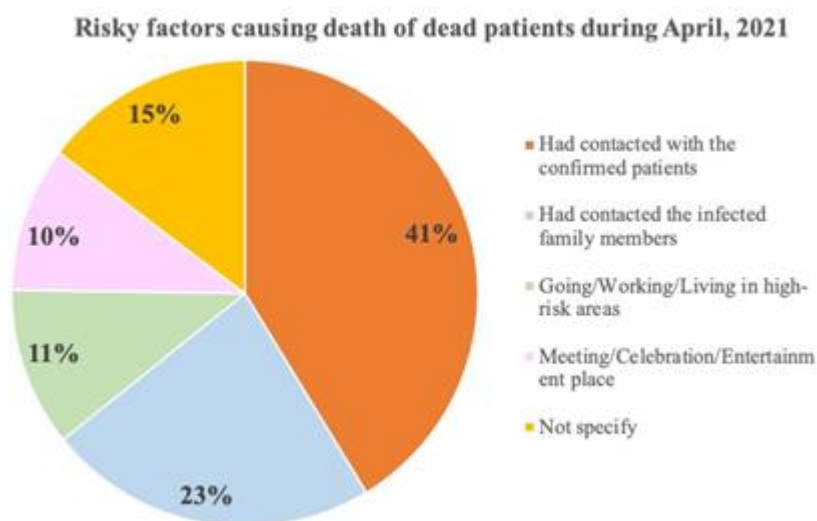
Figure 4: Congenital Diseases found in dead patients during May, 2021



4.5 Risky factors causing death

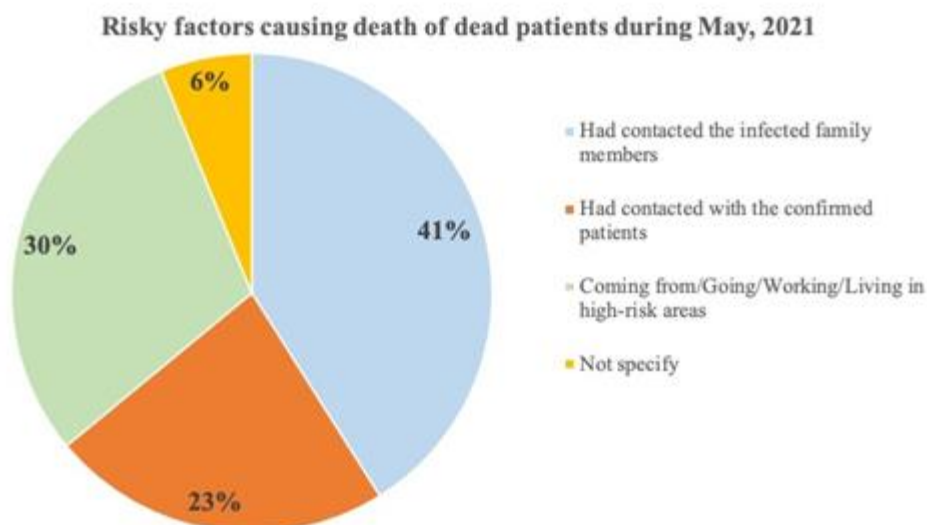
In April, the study stated that 45 of dead people found had contacted with the confirmed patients in various places such as fitness or working areas. There were 25 cases died because of the infected visitors. The study also showed 12 dead people who went around to the risky areas like seminar or parties. There were 11 cases attending the entertainment places and 16 cases were not specified the factor. (The data shown as the Figure 5)

Figure 5: Risky factors causing death of dead patients during April, 2021



In May, the study of this month categorized the numbers of patients in different reasons as follows. 340 cases from infected members in the families or relatives. 190 cases from touch contacting with the confirmed patients like co-workers, bedridden care givers. 247 cases were those who visited the risk areas which had increasing numbers comparing to April. 51 cases were not specified the risky factors. However, the dead persons mainly had congenital diseases and same risky factor in both April and May. (The data shown as the Figure 6)

Figure 6: Risky factors causing death of dead patients during May, 2021



DISCUSSION:

The main purpose of the present study was to discover the risky factors of both the infected and death toll from the April wave of Covid-19 in Thailand. Moreover, the researcher expects that this study will be beneficial to the assessment of the situation, surveillance, and prevention of virus expansion in the future. The data was collected from reliable sources of information including the Department of Disease Control, journal, and news. From the graph of the comparison of the patient and mortality rates of COVID-19, it was seen that the infection rate was increasing very fast. It can be observed from in the first wave (January - 15 December 2020), which infected 4,237 cases, the second wave (15 December 2020 - 31 March 2021) was 24,624 cases, and the wave during April to May had the fastest epidemic rate 130,929 cases (1 April - 31 May 2021). There was a gentle decrease in the number of deaths from 60 cases in the first wave to 34 cases in the second wave and then a rapid increase to 937 cases in April - May wave.

The study was showed that the risk factors for the number of people infected from COVID-19 outbreak (during 1 April - 31 May 2021) in Thailand, there was 10 provinces with the highest number of infected people include Bangkok, Chiang Mai, Chonburi, Prachuap Khiri Khan, Samut Prakan, Nonthaburi, Samut Sakorn, Pathum Thani, Surat Thani, and Phetchaburi. All these provinces are the main cities of each region which have big communities, business areas, and many populations. Epidemiological characteristics of the crisis from the Ministry of Public Health, which gives details of physical data including

gender, age range, location, and region where the infected person lives, showed an infection occurred to people between ages 20 - 29 had the most infected people and death about 40% from overall and followed by age 30 - 39 for 24.2%.

The actual cumulative number of COVID-19 deaths in the April-May wave had 4 main common features of epidemiology. The study showed that males have higher statistics of death than females. In both April and May, people between the ages of 60 years old and upper are the highest cumulative number of COVID-19 deaths. It also showed that hypertension was the first related cause of death. Additionally, the data showed that close-contact with confirmed patients were the main factor that made dead people were infected.

CONCLUSION:

According to the study, All provinces that seem to be the main cities of each region which have big communities, business areas, and many populations, were the highest risk factors. It was easily infected COVID-19 in the area where it was crowded with people. People between the ages of 20 - 29 were more likely to be infected than the other age groups. And for the risk of death from COVID-19 were shown that not only the underlying diseases but other Epidemiological characteristics include gender, age, and the duration of time since the symptom has been begun to the treatment received and the risky factors, are all involved to people who are infected and pass away.

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