Epidemiologic and Clinical Characteristics of Patients with Covid-19 in Central Java, Indonesia

by Dwi Sutiningsih

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Abstract. 1,533 confirmed cases of Covid-19 were recorded in Central Java until June 3, 2020. It is estimated to increase every day. However, reports on the epidemiological characteristics of confirmed cases of Covid-19 are still limited. The purpose of this study is to describe the confirmed case of COVID-19 in Central Java. This study uses descriptive quantitative design, in which we describe 1,533 cases based on patient characteristics, history of comorbidities, travel history and symptoms. The data of patients processed with descriptive statistical analysis from the Department of Health of Central Java. The results of the study showed that of 1,533 confirmed cases, 64.05 % were male patients and 46.7% aged 19-44 years. From 102 death cases, it is dominated by men (64.7 %) and the elderly ≥60 years (50 %). The highest IR is the City of Semarang with IR of 17.9 / 100,000 population. The most common history of comorbidities is hypertension and diabetes mellitus with a total of 5 cases each. Cases with a domestic travel history had the highest number of 34.1% while those without a travel history amounted to 65%. The symptoms experienced by most confirmed patients are Cough, Fever with 10.8%. Thus, it was concluded that confirmed cases in Central Java were spread in 35 cities / regencies with high number. It is necessary to conduct a detailed confirmed case reports to control the policy on Covid-19 prevention and countermeasures in Central Java.

Keywords. COVID-19, Confirmed Patient, Central Java, Descriptive

1 Introduction

In early 2020 the World Health Organization (WHO) declared a new type of pneumonia called covid-19 as a global pandemic. This disease is known to first spread in Wuhan, Hubei Province, China in early December 2019 [1, 2]. Based on research on viruses it is

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figured that the virus is a type 2 coronavirus or SARS-CoV-2 and was named Covid-19 [2]. This disease affects the respiratory tract and originally transmitted from animals to humans and then between humans. This epidemic spreads very quickly due to human travel across countries that resulted in almost the majority of countries infected [3, 4]. As of July 16, 2020, there are 188 countries with a total infection of 13,554,477 cases [5, 6].

Indonesia ranks 26th out of 188 countries and is number 1 of ASEAN countries facing this pandemic [10]. The Indonesian Ministry of Health stated that up to July 15, 2020, 80,094 people had been confirmed of covid-19, of which 37,247 people were being treated, 39,050 had been declared cured and 3,797 people had died. Based on data up to July 13, 2020, Indonesia also has a quite high CFR (case fatality rate) at 4.76% and ranks 37th in the world. Meanwhile, Indonesia occupies the first position as the country with the highest CFR Covid-19 among ASEAN countries [14, 15].

Based on KMK-RI No. HK.01.07/MENKES/413/2020, the confirmed patient is someone who tested positive for Covid-19 virus proven by RT-PCR laboratory examination. Confirmed cases are divided into 2 namely confirmed cases with symptoms (symptomatic) and confirmed cases without symptoms (asymptomatic) while Covid-19 deaths for surveillance purposes are confirmations / *probable* Covid-19 deaths. The most common symptoms of Covid-19 are fever, fatigue, and dry cough. Some patients may experience aches and pains, nasal congestion, colds, headaches, conjunctivitis, sore throat, diarrhea, loss of smell or skin rashes [25].

The number of confirmed cases of Covid-19 has spread across 34 provinces in Indonesia, Central Java ranked 4th with the total number of confirmed patients of Covid-19 being 5,653 or 7.2% of the total cases in Indonesia [11, 13]. As many as 1,533 patients reported from March 3, 2020 to June 3, 2020 where cases were spread in various covid-19 referral hospitals in Central Java. Reports on the epidemiological characteristics of confirmed cases are still limited. The purpose of this study is to describe the characteristics, history of comorbidities and the history of COVID-19 confirmed patients in Central Java. Hopefully that the results of this study will provide information to the public regarding the COVID-19 case in Central Java.

2 Materials and methods

This research uses descriptive research design. The data used in the analysis are secondary data from the recording of Covid-19 patients reported to the Department of Health of Central Java. The data analyzed were data from Covid-19 patients from March 3, 2020 to June 3, 2020. The number of recorded data from Covid-19 patients was 1,533. Data analysis was performed using univariate analysis. After the data is displayed in a table or graph, a discussion about the proportion in the frequency distribution will then be conducted. The variables described are Regency, Age, Gender, comorbidities, Travel History, Symptoms and Development of Daily Cases.

3 Results

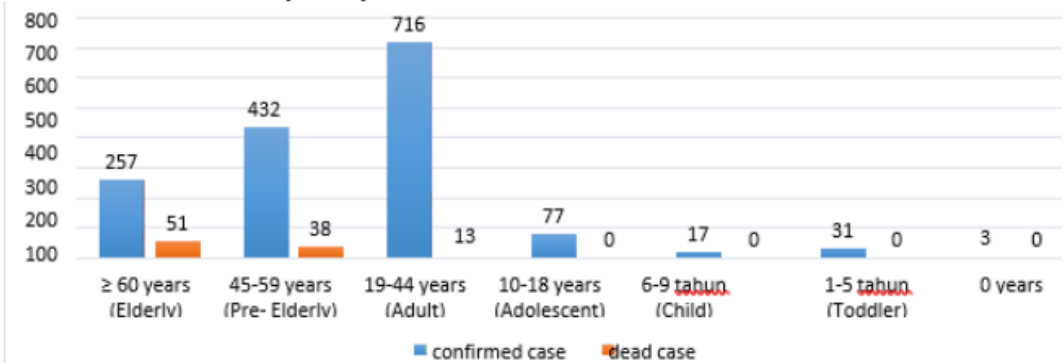### 3.1. Distribution of Confirmed Covid-19 Cases by Gender

The number of confirmed cases of COVID-19 in Central Java is presented in Graph 1. The graph shows that there are more cases in male patients than in women. Male patients with confirmed status were 982 patients while in female were 551 patients. Similar with the incidence of dead confirmed cases of Covid-19 patients, the number of males were 66 cases while in females were 36 cases.
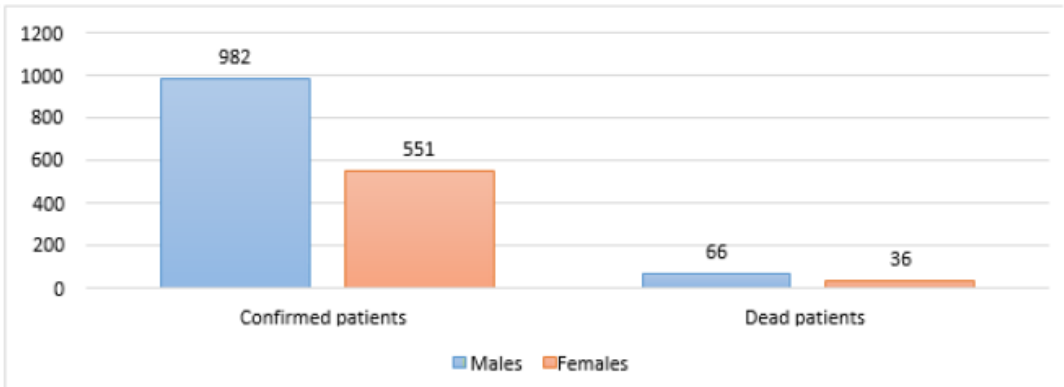
Fig. 1. Distribution of Confirmed Covid-19 Cases and Deaths by Gender

3.2. Distribution of Confirmed Covid-19 Cases by Age

Confirmed cases of Covid-19 occurs at all age levels. The distribution of confirmed cases and confirmed dead cases by age is presented in graph 2 below. The graph shows that the most confirmed cases of Covid-19 patients occur in reproductive age, that is the age of 19-44 years (adults) with a total of 716 cases while in the confirmed cases the most common deaths occur in the elderly ≥60 years with 51 cases.

Fig. 2. Distribution of Confirmed Covid-19 Cases and Deaths by Age

According to the graph above, the lowest confirmed cases occur at the age of infants (0 years) ie as many as 3 cases and the least number of deaths occur at age ≤18 years with zero case.

3.3. Distribution of Confirmed Covid-19 Cases by Origin

Confirmed Covid-19 Cases spread in 35 Cities / Regencies in Central Java Province. The distribution of cases by region is presented in table 1. It is seen from the table, the highest confirmed cases are in the area of Semarang with 275 cases (17.9 %). The Incidence Rate (IR) of Salatiga is the highest IR in Central Java with 21.12 / 100,000 population, which means that every 100,000 population there are at least 21 confirmed cases in the Salatiga until April 14, 2020. Furthermore, the other highest IR is occupied by Magelang with 19.65 / 100,000 population. The region with the least number of confirmed cases is Tegal with 3 cases and IR of 1.20 / 100,000 population. However, the lowest IR was in Rembang District with IR of 0.94 / 100,000 population with 6 patients of confirmed cases.

Table 1. Distribution of Confirmed Cases of covid-19 by Origin (Central Java BPS data for 2019)

Regency of Origin	Number of cases	%	Population*	IR/100000
Banjarnegara	49	3.2	923,192	5.31
Banyumas	60	3.9	1,693,006	3.54
Batang	35	2.3	768,583	4.55
Blora	24	1.6	865,013	2.77
Boyolali	27	1.8	984,807	2.74
Brebes	31	2	1,809,096	1.71
Cilacap	46	3	1,727,098	2.66
Demak	49	3.2	1,162,805	4.21
Grobogan	20	1.3	1,377,788	1.45
Jepara	25	1.6	1,257,912	1.99
Karanganyar	31	2	886,519	3.50
Kebumen	28	1.8	1,197,982	2.34
Kendal	10	0.7	971,086	1.03
Klaten	26	1.7	1,174,986	2.21
Kota Magelang	24	1.6	122,111	**19.65**
Kota Pekalongan	12	0.8	307,097	3.91
Kota Salatiga	41	2.7	194,084	**21.12**
Kota Semarang	**275**	**17.9**	1,814,110	15.16
Kota Surakarta	37	2.4	519,587	7.12
Kota Tegal	3	0.2	249,905	1.20
Kudus	37	2.4	871,311	4.25
Magelang	106	6.9	1,290,591	8.21
Pati	23	1.5	1,259,590	1.83
Pekalongan	14	0.9	897,711	1.56
Pemalang	29	1.9	1,302,813	2.23
Purbalingga	59	3.8	933,989	6.32
Purworejo	77	5	718,316	10.72
Rembang	6	0.4	638,188	0.94
Semarang	25	1.6	1,053,786	2.37
Sragen	32	2.1	890,518	3.59
Sukoharjo	43	2.8	891,912	4.82
Tegal	18	1.2	1,440,698	1.25
Temanggung	55	3.6	772,018	7.12
Wonogiri	11	0.7	959,492	1.15
Wonosobo	78	5.1	790,504	9.87
Jawa Tengah	67	4.4	-	-
Total	**1533**	**100**	-	-

3.4. Distribution of comorbidities in Confirmed Covid-19 patients

The table below shows the distribution of comorbidities in confirmed and deceased patients with Covid-19 in Central Java up to 14 April 2020. Confirmed patients that had history of comorbidities mostly hypertension and diabetes mellitus with the same amount that is 5 cases (1.1%). Even so, in dead patients mostly are characterized with diabetes mellitus that are 3 patients (2.9%).

Table 2. distribution of covid-19 patients with comorbidities in Central Java (n=1533)

Comorbidities	Infected		Dead	
	f	**%**	**f**	**%**
Asthma	1	0.2	0	0.0
Diabetes mellitus	**5**	**1.1**	**3**	**2.9**
Diabetes mellitus, hypertension	1	0.2	0	0.0
Diabetes Mellitus, Others	1	0.2	0	0.0
Diabetes Mellitus, COPD	0	0.0	0	0.0
Heart failure	1	0.2	2	2.0
Chronic Kidney	1	0.2	0	0.0
Chronic Kidney, Hypertension	0	0	1	1.0
Hypertension	**5**	**1.1**	**2**	**2.0**
Hypertension, Diabetes Mellitus	0	0.0	1	1.0
Hypertension, Diabetes Mellitus, Chronic Kidney	0	0.0	1	1.0
Hypertension, stroke	0	0.0	0	0.0
Coronary heart	0	0.0	1	1.0
COPD	0	0.0	1	1.0
Rheumatoid Arthritis	0	0.0	0	0.0
Others	2	0.4	0	0,0
No history / no record	433	96.2	90	88.2
Total	**450**	**100,0**	**102**	**100,0**

3.5. Distribution of Confirmed Cases Based on Travel History

The table below shows that from 997 or 65% of cases, there were no travel history recorded. Of the patients who had a travel history, the majority had a domestic travel history, which were 522 cases (34.1%).

Table 3. Distribution of Confirmed Cases Based on Travel History

Travel History	Frequency	%
Domestic Travel history	522	34.1
Overseas Travel history	14	0.9
Domestic and Overseas Travel history	0	0
No travel history/ Not recorded	997	65.0
Total	**1533**	**100**

3.6. Distribution of Symptoms in Confirmed Patients

The table below shows that half of the total cases have no symptoms or are not recorded (54.9%). In patients who arrived with symptoms, it is known that mostly had the symptoms of cough and fever were 165 cases (10.8%) and with only fever symptoms as much as 146 (9.5%). Even so, the symptoms experienced by patients with positive Covid-19 are quite varied but the majority experience cough and fever.

Table 4. Distribution of Symptoms in Confirmed Covid-19 Patients

Symptoms experienced	Frequency	%
Cough	124	8,1
Cough, fever	**165**	**10,8**
Cough, Fever, diarrhea	1	0,1
Cough, Fever, Diarrhea	3	0,2
Cough, Fever, Diarrhea, Shivering	1	0,1
Cough, Fever, Diarrhea, Nausea, Headache, asphyxiate	1	0,1
Cough, Fever, Diarrhea, Colds	1	0,1
Cough, Fever, Diarrhea, Colds, Nausea	1	0,1
Cough, Fever, Diarrhea, asphyxiate	1	0,1
Cough, Fever, Fatigue	2	0,1
Cough, Fever, Fatigue, Nausea	1	0,1
Cough, Fever, Fatigue, Nausea, Headache	1	0,1
Cough, Fever, Fatigue, Colds	3	0,2
Cough, Fever, Shivering	1	0,1
Cough, Fever, Shivering, Nausea	1	0,1
Cough, Fever, Shivering, Colds	1	0,1
Cough, Fever, Shivering, asphyxiate	1	0,1
Cough, Fever, Nausea	6	0,4
Cough, Fever, Nausea, Colds	1	0,1
Cough, Fever, Nausea, Stomach Pain, asphyxiate	1	0,1
Cough, Fever, Nausea, asphyxiate	1	0,1
Cough, Fever, Colds	40	2,6
Cough, Fever, Colds, Nausea	3	0,2
Cough, Fever, Colds, Headaches, Sore Throat	1	0,1
Cough, Fever, Colds, Sore Throat	1	0,1
Cough, Fever, Colds, asphyxiate	2	0,1

Cough, Fever, Headache, Sore Throat	1	0,1
Cough, Fever, Headache, Sore Throat, asphyxiate	1	0,1
Cough, Fever, Stomach Pain	1	0,1
Cough, Fever, Sore Throat, asphyxiate	1	0,1
Cough, Fever, asphyxiate	16	1,0
Cough, diarrhea	2	0,1
Cough, Diarrhea, Fatigue	1	0,1
Cough, Diarrhea, Fatigue, asphyxiate	1	0,1
Cough, Diarrhea, Nausea	1	0,1
Cough, Fatigue	2	0,1
Cough, fatigue, nausea	1	0,1
Cough, nausea	6	0,4
Cough, Nausea, Fatigue	1	0,1
Cough, Nausea, Fatigue, asphyxiate	1	0,1
Cough, Nausea, Colds	1	0,1
Cough, Nausea, Sore Throat	2	0,1
Cough, Nausea, asphyxiate	1	0,1
Cough and cold	22	1,4
Cough, Colds, Fever	1	0,1
Cough, Cold, Sore Throat	1	0,1
Cough, Headache	1	0,1
Cough, Headache, Stomach Pain	1	0,1
Cough, Headache, Sore Throat	1	0,1
Cough, Stomach Pain, asphyxiate	2	0,1
Cough, sore throat	5	0,3
Cough, sore throat, asphyxiate	1	0,1
Cough, asphyxiate	7	0,5
Cough, Fever, Headache	1	0,1
Fever	**146**	**9,5**
Fever, Cough, Colds	1	0,1
Fever, Diarrhea	2	0,1
Fever, Fatigue	1	0,1
Fever, Fatigue, Nausea	1	0,1
Fever, Fatigue, asphyxiate	1	0,1
Fever, Shivering	1	0,1
Fever, Nausea	5	0,3
Fever, colds	2	0,1
Fever, Headache	1	0,1
Fever, Sore Throat	1	0,1
Fever, Sore Throat, asphyxiate	1	0,1
Fever, asphyxiate	2	0,1
Diarrhea	6	0,4
Diarrhea, asphyxiate	1	0,1
Fatigue	6	0,4
Fatigue, Shivering	1	0,1
Fatigue, Nausea, Stomach Pain	2	0,1
Fatigue, headache	1	0,1
Shivering	1	0,1
Nausea	6	0,4
Nausea, Headache, Sore Throat	1	0,1

Nausea, asphyxiate	1	0,1
Cold	4	0,3
Headache	2	0,1
Headache, stomach ache	1	0,1
Headache, sore throat	2	0,1
Stomach ache, sore throat	1	0,1
Sore throat	4	0,3
Hard to breathe	8	0,5
asphyxiate, Colds, Coughs	1	0,1
Etc	30	2,0
There are no symptoms	31	
Unclear / not recorded	810	
Total	1533	100,0

4 Discussion

Central Java Province had recorded that from 3 March 2020 to 3 June 2020, there were 1,533 positive confirmed cases of Covid-19. In the cases based on gender, the number of males were 982 cases or 60.79% while females were 551 cases or 39.21%. Similarly, in the dead case the number of males were 66 cases compared to 36 cases of females. This is the same as the results of research conducted in China, where in 44,672 confirmed cases, 51.4% of were males and 48.6% of female. Whereas in the dead case 63.8% of cases occurred in males and 36.2% of cases in females [17]. However, the results differ from studies conducted in Zhejiang in which 59.34% of cases were females and 40.66% were males [18]. Based on the data above, it is figured that the most confirmed cases occurred in patients aged 19-40 years (adults) as much as 46.7% and 50% of cases died. The similar thing happened in the results of research in Beijing with the highest number of confirmed cases was 42, 7% at the age of 13-44 years [19].

There are 35 regencies / cities in Central Java with Semarang City as the Capital. As the provincial capital, Semarang has the highest case incidence of 275 cases or 17.6% of the total cases. This is due to the fact that the high mobility in the city is also influenced by the number of referral hospitals in Semarang. According to WHO, it is important to know the average influx of patients each day to determine the size of the waiting room and avoid the possibility of excessive patient. As long as the number of daily patients are increased it can increase the risk of nosocomial infection [16]. The number of factory or clustered activities in Semarang is also very high, based on data of Regional Development Agency of Semarang, there are at least 3 industrial areas in Semarang and in the city center there are various government offices which also cause crowds [20]. Tegal has the lowest confirmed cases in Central Java, which is 3 cases or 0.2% of the total cases. Meanwhile, the strict supervision, examinations, closed- contact tracking, treatment and isolation are the main targets in the prevention of covid-19 infections [3].

The distribution of comorbidities in confirmed Covid-19 cases in Central Java up to April 14, 2020 shows that the confirmed patients mostly had hypertension and diabetes mellitus as comorbidities with the same number of 5 cases each (1.1%). Even so, in dead patients, mostly accompanied by diabetes mellitus that were 3 patients (2.9%). This is similar to studies conducted in China, hypertension (OR: 2.29, P <0.001), diabetes mellitus (OR: 2.47, P <0.001), chronic obstructive pulmonary disease (COPD) (OR: 5.97, P <0.001), heart disease (OR: 2.93, P <0.001), and cerebrovascular disease (OR: 3.89, P = 0.002) (21) researchers in New York also showed the same case where the most comorbid diseases in covid-19 were hypertension (3026; 56.6%), obesity (1737; 41.7%) and diabetes mellitus (1808; 33.8%) [22]. In the dead case in China, hypertension was the most common

disease (58 [30%] patients), followed by diabetes mellitus (36 [19%] patients) and coronary heart disease (15 [8%] patients) [23].

No symptoms or not recorded were symptoms with the highest number experienced by confirmed covid-19 patients with more than half of the total cases (54.9%). In cases that arrived with symptoms, it is known that most have the symptoms of cough and fever as many as 165 cases (10.8%) and who only had fever symptoms were 146 (9.5%). Even so, the symptoms experienced by patients with positive Covid-19 were quite varied but the majority experienced coughing and fever. Other studies suggest that the highest symptoms seen in confirmed cases were fever (91.3%, 95% CI: 86– 97%), followed by cough (67.7%, 95% CI: 59–75%), fatigue (51.0%, 95 % CI: 34–68%) and dyspnea (30.4%, 95% CI: 21– 40%) [24]. Common signs and symptoms of COVID-19 infection include symptoms of acute respiratory disorders such as fever, coughing and asphyxiate. The average incubation period is 5-6 days with the longest incubation period to 14 days. In severe cases of COVID-19, it can cause pneumonia, acute respiratory syndrome, kidney failure, and even death [25].

Coronavirus is a zoonosis (transmitted between animals and humans). Research says that SARS is transmitted from civet cats to humans and MERS from camels to humans. Meanwhile, the animal that is the source of COVID-19 transmission is still unknown. The average incubation period for COVID-19 is 5-6 days, with a range between 1 and 14 days but can reach 14 days. The highest risk of transmission is obtained in the first days of the disease due to high concentration of the virus in the secretions. An infected person can directly transmit it up to 48 hours before the symptom onset (presymptomatic) and up to 14 days after the symptom onset [25]. The results of research in Central Java showed that 997 or 65% of cases were not recorded or had no travel history. Of the patients who had a travel history, the majority had a domestic travel history, which were 522 cases (34.1%). The governor of Central Java in the guidelines for acceleration of community-based covid-19 handling through the formation of the 'jogo tonggo' task force said that the people are dealing directly with the transmission of Covid-19 and therefore, the prevention of Covid-19 transmission must put the community at the forefront against Covid-19 with full support from the government, universities, companies, banking institutions, financial institutions, professional organizations, mass media, social media, non-governmental organizations, sectoral organizations, mass organizations and other stakeholders. Resistance to the spread and transmission of Covid-19 must be carried out in a systematic, structured, comprehensive, continuous and long-term manner, so that effective, neat and strong organization is needed [9].

5 Conclusion

Confirmed Covid-19 cases in Central Java were recorded 1,533 cases with 102 deaths up to 14 April 2020. In this case the most infected were people aged 19-44 years and most died are patients aged above 60 years or the elderly. Confirmed cases are also more common in male patients than in females, as well as the cases of death. The death and infection of a person are also affected by general health because the highest comorbidity factors such as hypertension and diabetes mellitus found in many confirmed and dead cases. The city of Semarang has a high IR due to geographical conditions and its functions as the provincial capital, so the government has set an acceleration program for handling Covid-19 in Semarang. The most transit area is there are no travel history so this adds to the belief that many infections occur in only one area or local. Specific actions or policies regarding contact with confirmed patients are needed, because the easiest transmission is through droplets. It is necessary to conduct a complete and clear documentation of data so that the policies and rules set are appropriate and can be the basis of the policy. This research is also

expected to provide input and valid data regarding the distribution of confirmed cases in Covid-19 in Central Java, considering this case increase day by day.

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