# COVID-19 RESEARCH STUDIES FACT SHEET

ACADEMY OF SCIENCES MALAYSIA (ASM)

ASM is a statutory body of eminent Malaysian scientists elected for their contributions to science. At this period of unprecedented uncertainty due to the Covid-19 pandemic, ASM has established a Special Interest Group (SIG) on COVID-19 comprising Fellows of the Academy, Young Scientists Network (YSN-ASM) and Top Research Scientists Malaysia (TRSM) who are the expert network of ASM to review key research findings around the world and issue fact sheets to help the public understand the implications (and limitations) of the research studies. This factsheet describes the characteristics of COVID-19 patients. It provides an overview of the age, sex, pre-existing medical conditions, race/ethnicity/nationality/religion, as well as signs and symptoms of the patients based on the available data.
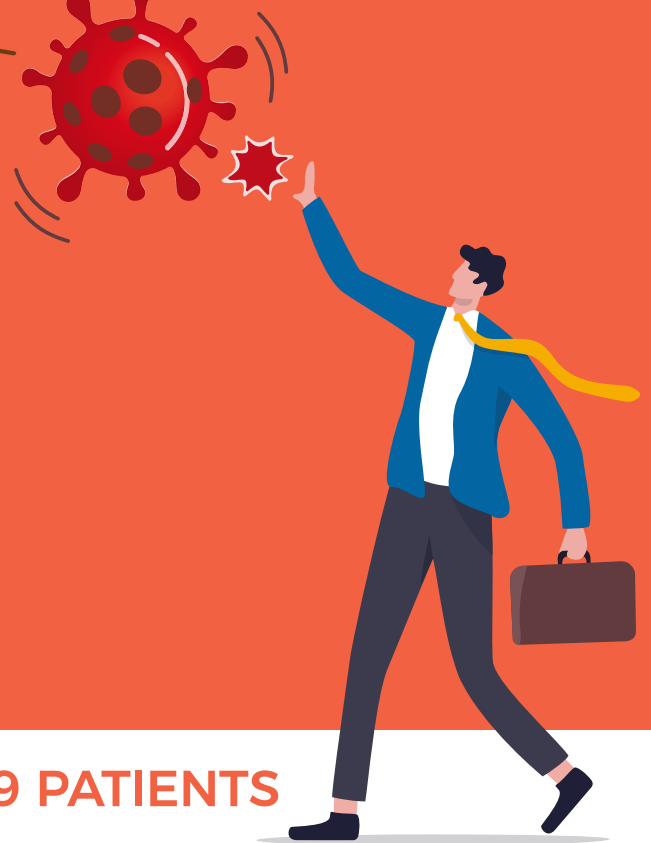
CHARACTERISTICS OF COVID-19 PATIENTS

COVID-19 is an ongoing pandemic affecting the world. The disease was first reported in Wuhan, the capital of Hubei, China and caused serious respiratory illness such as pneumonia and lung failure. The etiological agent of COVID-19 is a novel coronavirus, known as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). COVID-19 has triggered enormous human casualties and serious economic loss posing global threat. The number of cases has soared dramatically ever since the outbreak in China. As of 24 April 2020, the disease has affected more than 2.6 million individuals and resulted in more than 180,000 deaths worldwide.

Understanding the characteristics of COVID-19 patients is important for informing public health decision-making. For example, when public health experts learned that fever is one of the most common symptoms of COVID-19, they could recommend the implementation of temperature screening measures in high risk areas such as the airport. For this reason, a number of scientific reports have described the characteristics of COVID-19 patients in many countries. Some discrepancies were observed in the data presented in these scientific reports, presumably due to the small number of patients included in each of the reports. Recently, one of the authors of this factsheet has carried out a systematic review of the scientific literature and performed a pooled analysis to combine data from all these reports with the aim to get a more complete picture of the characteristics of COVID-19 patients. The complete report of this systematic review and pooled analysis has been deposited in a medical research preprint database, medRxiv, and can be accessed by the public and experts alike (please see Reference 1 of this factsheet). Based on the data presented in this pooled analysis and a few other reliable sources, the following are some of the characteristics known so far.

1 Age

COVID-19 is known to affect people of all ages. The youngest patient reported was a 30-hour old newborn, while the oldest was a 104-year old centenarian. A large-scale analysis by the Chinese Center of Disease Control and Prevention revealed that all age groups are susceptible to COVID-19 infection, as shown in the table below:

Age group (years)	Prevalence (%)
0-9	0.9
10-19	1.2
20-29	8.1
30-39	17.0
40-49	19.2
50-59	22.4
60-69	19.2
70-79	8.8
≥80	3.2

It should be noted, however, that the prevalence of each age group may vary among different countries. Moreover, since COVID-19 is an ongoing outbreak, the data may change over time.

From the table above, although it appears that COVID-19 was relatively less common among children, this observation can be attributed to the fewer outdoor activities among children. In addition, although the prevalence of COVID-19 was not particularly high among the elderlies, some studies have suggested that older age, along with several other risk factors (such as male gender and comorbidities described below), are slightly more likely to result in severe form of the disease and poorer clinical outcomes. Data from Malaysia suggest that the median age of patients who died of COVID-19 was 65 years old (range: 23-92 years) as of 25 April 2020.

What does this mean?

- COVID-19 affects people of all ages equally, although older patients are slightly more likely to suffer from the severe form of the disease
- Limiting outdoor activities can reduce the possibility of contracting the virus

2 Sex

Since the beginning of the outbreak, many have suggested that men could be more susceptible to SARS-CoV-2 infection than women. However, the pooled analysis mentioned above found that out of 44,760 COVID-19 patients, 23,032 (51.46%) were males while 21,728 (48.54%) were females. The ratio of males to females was therefore very close to 1:1, suggesting that they are equally prone to the infection. Nonetheless, data from the Global Health 5050 shows that in most countries, the majority of people dying from COVID-19 are men. Data from Malaysia also indicate that as of 25 April 2020, around 77% of patients who died of COVID-19 were males. These observations suggest that male gender is more likely to result in COVID-19-related mortality.

What does this mean?

- Males and females are equally susceptible to COVID-19 infection, although men are more likely to suffer from deaths caused by the disease

3 Pre-existing conditions (comorbidities)

Similar to male gender, it has been suggested that people with pre-existing conditions (comorbidities) are more susceptible to COVID-19. However, the same pooled analysis above revealed that 74.07% of the patients did not have any comorbidity. Among the patients who had, hypertension and diabetes were the most common disorders. It has also been demonstrated that patients with any comorbidity yielded poorer clinical outcomes than those without. In fact, data from Malaysia also showed that the majority of the death cases have comorbidities such as hypertension, diabetes, and heart disease.

What does this mean?

- The presence of comorbidity does not make an individual more susceptible to COVID-19, but patients with comorbidity may have worse clinical outcomes

4 Race/ethnicity/nationality/religion

COVID-19 has been reported in more than 200 regions (countries, territories and areas) in the world. The patients in these countries comprised Asians, Caucasians, Africans, and virtually every race and ethnicity, including isolated indigenous tribes. The disease has also been observed in people of different religions.

What does this mean?

- COVID-19 does not discriminate on the basis of race, ethnicity, nationality, or religion.

5 Signs and symptoms

A wide range of signs and symptoms have been observed in COVID-19 patients. More recent evidence also suggests that a significant proportion of COVID-19 cases are asymptomatic. In some studies, it has been estimated that the proportion of asymptomatic patients could be as high as 78%. Nevertheless, among patients who developed symptoms, fever is the most common symptom observed (occurring in 88.7% of the patients), followed by cough (57.6%). Other less common symptoms observed include muscle ache or fatigue, sputum production, shortness of breath, headache, sore throat, chill, nausea and vomiting, diarrhea, chest tightness, nasal congestion or runny nose, loss of appetite, and many other mild symptoms.

What does this mean?

- COVID-19 symptoms are non-specific and can be very mild (or even asymptomatic)
- If surveillance of the disease relies solely on temperature screening, a significant number of infected patients would be missed

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