BEING MIGRANT AND BEING VULNERABLE: AN OVERVIEW OF THE COVID-19 SITUATION IN KUALA LUMPUR

Johari SN[1], Azmi A[2], and Monteil C[3].
[1]Pejabat Kesihatan Daerah Titiwangsa, Jalan Cenderasari, 50408 Kuala Lumpur, Malaysia
[2]Centre of Environmental Health and Safety, Faculty of Health Sciences, Universiti Teknologi MARA, Puncak Alam Campus, 42300, Selangor, Malaysia
[3] Faculté D'éducation, Université de Montpellier, 163 rue Auguste Broussonnet, 34090, Montpellier, France

Correspondence:
Alia Azmi,
Centre of Environmental Health and Safety,
Faculty of Health Sciences,
Universiti Teknologi MARA,
Puncak Alam Campus, 42300,
Selangor, Malaysia
Email: aliaazmi@uitm.edu.my

Abstract

COVID-19 can cause single or sporadic cases, leading to a limited or widespread outbreak or pandemic, requiring public health intervention. This disease is a global pandemic that requires extreme strategies from both local and global public health agencies. It has also caused havoc among public health practitioners and increases the risk among the vulnerable population. This research aims to provide an overview of the trend and demographic of COVID-19 cases in Kuala Lumpur, Malaysia. A total of 12,731 confirmed COVID-19 cases from January to December of 2020 are included, subjected to inclusion and exclusion criteria. Data only focuses on the cumulative features for COVID-19 cases based on the demographic. The analysis that had been carried out in this study are descriptive analysis for the demographic and Chi-Square test to determine the association between age and nationality. Result from the descriptive analysis shows that males (88.0%) recorded the highest number of COVID-19 cases with majority among those aged 31-50 years old (54.2%). In terms of case outcome, the majority of those infected were discharged from the hospital (99.8%). Immigrants represent the largest percentage of COVID-19 cases at 79.9% in total, with most coming from low-income countries. Chi-square between age and nationality indicates a significant association with p-value 0.000, highlighting a higher risk of transmission among the immigrants. This paper highlights the potential risk of COVID-19 among the immigrants in Kuala Lumpur at the start of the pandemic. As part of the vulnerable population, targeted efforts need to be made for immigrants to allow them equal access to healthcare and to reduce the burden of disease among public health practitioners.

Keywords: COVID-19, Vulnerable, Pandemic, Immigrant, Malaysia

Introduction

Depending on its potential to spread among humans, an emerging virus might cause single or sporadic cases, culminating in a limited outbreak or, in the worst-case scenario, a widespread epidemic or worldwide pandemic that requires a major public health intervention (1). COVID-19 is an example of one such virus that not only spreads fast but widely, causing a global pandemic that requires extreme strategies from both local and global public health agencies. Although cases and deaths have slowed since the initial waves, COVID-19 is not expected to disappear anytime soon, and climate change will further increase the risk of other pandemics or epidemics.

Additionally, within the first few months of 2020, the global community introduced travel bans, home isolation, and strict lockdowns to halt the spread of the virus including Malaysia. Even in Malaysia, a Movement Control Order (MCO) was enforced in March 2020, forcing the entire population to be under strict lockdown. While deemed helpful in slowing down the transmission, both COVID-19 and the lockdowns imposed across the world brought stark light to existing social inequality and the already burdened healthcare system. In fact, evidence had shown that increasing COVID-19 cases not only caused havoc among public health practitioners, but it also raises concern on the future of the global public health system (2).

The COVID-19 pandemic brought attention to inequality in population, work, education, income, and health. Additionally, it created new gaps along previously insignificant dimensions, such as the capacity to work from home and digital access. Vulnerable populations, such as low-income people, children, women, and migrant workers, have faced particularly severe job and income losses and this issue is faced by most countries, regardless of their development status. Unemployment rates will significantly rise because of the pandemic's persistence in the economic crisis and weakened welfare safety nets will further put health and social insecurity in jeopardy. In fact, research conducted by Yonzan et al. (3) also indicates that the pandemic was particularly hard on poor urban households and may have increased inequality in urban areas.

2022 report from the Organisation for Economic Co-operation and Development (OECD) (4) highlights that migrant workers were much more likely to catch the disease, develop severe symptoms, and face higher mortality risks. In Malaysia, the number of migrant workers is estimated to be as high as 3 million although the real numbers could be much higher than that (5). For decades, Malaysia has played host to a varied number of migrants across Asia, particularly, Indonesia, Bangladesh, Philippines, and Vietnam; and most of the migrant workers are low-skilled or uneducated but collectively, are contributing significantly to the economy (6). In fact, refugees, asylum-seekers, and migrant workers see Malaysia as a significant host for a safe harbor. Unfortunately, low-skilled migrant workers in Malaysia are considered a vulnerable population due to poor housing conditions, dependency on public transport, and high population density. Not only that, access to healthcare even outside of the pandemic has always been difficult for them, causing several knock-down effects that were further exacerbated by the pandemic (7).

The COVID-19 pandemic has resulted in a dramatic loss of human life around the world. It also poses an unprecedented challenge to public health, food systems, and the workplace. Apart from that, the pandemic also causes devastating economic and social impacts, with tens of millions of people at risk of falling into extreme poverty, while the number of undernourished people is increasing (8). Therefore, this research aims to provide an overview of the trend and demographic of COVID-19 cases in Kuala Lumpur, Malaysia in 2020, to better understand the impact it has on the vulnerable population, particularly the immigrants.

Materials and Methods

Study design

This is retrospective research that relies on secondary data of COVID-19 cases obtained from the Kuala Lumpur Health Department that was recorded in the E-notification system.

Study location

In this study, all confirmed cases for COVID-19 are included between January 2020 to December 2020 in Kuala Lumpur. Several criteria support the choice of this location. The first is its dense population, which means Kuala Lumpur has substantial public health implications when it comes to both COVID-19 and infectious disease control and prevention. The second is the number of COVID-19 cases recorded – since the beginning of the COVID-19 pandemic in early 2020, Kuala Lumpur has registered highest number of this disease and is consistently in the top three in Malaysia. The third is because the first Malaysia outbreak occurs in Lembah Pantai District, known as the Tabligh Cluster which had taken place in Sri Petaling Kuala Lumpur. This outbreak was also the defining cluster that caused the increasing number of COVID-19 cases in Malaysia.

Data collection, data cleaning and data management

Based on the Prevention and Control of Infectious Disease Act 1988 (Act 342), all confirmed and diagnosed cases of infectious diseases must be notified to the District Health Office, and all recorded data is subsequently reported to state and national level for surveillance activities. For the purpose of this research, all confirmed cases of COVID-19 between January 2020 to December 2020 in Kuala Lumpur were included. Confirmed cases refer to COVID-19 cases that were classified as positive using Real-Time Reverse Transcription Polymerase Chain Reaction (RT-PCR). In 2020, the timeline in which the data was obtained, any positive tests identified using Rapid Test Kit (AG) and Saliva Test Kit, were sent for further analysis using PCR test for confirmation. Should the case fail to conduct PCR or if the result was negative, it was not considered a positive case and was not included in the analysis.

Next data cleaning was conducted to clean the data obtained. Data cleaning for 12,371 confirmed cases took approximately one month. The raw data that was obtained from the E-notification system includes sociodemographic details of the COVID-19 cases. Several inclusion and exclusion criteria were used to filter the data obtained via E-notification. For inclusion, all confirmed cases in the E-notification system were downloaded. During data cleaning, cases were excluded if; 1) data is from other infectious diseases such as MERS-CoV and SARS; 2) the case has been notified as negative and 3) the case is a traveler who obtained infection outside of Malaysia.

Additionally, all data were kept secure in a password-protected database. Data is made available only to the researcher team and once no longer needed, after completion the study, will be copied to CDs and the data in the computer will be erased.

Data analysis

The findings from the secondary data were analyzed using IBM SPSS (Statistical Package for the Social Sciences)

Statistics version 28. Normality tests were first carried out to determine the distribution of data – Kolmogorov Smirnoff tests indicate data is normally distributed with a p-value of more than 0.05. Data were then presented in an epidemiological curve to observe the trend of COVID-19 cases in Kuala Lumpur. This curve is used to identify and link the disease outbreak or cluster or a better understanding of COVID-19 trend outbreak over time in Kuala Lumpur. Apart from descriptive analysis, chi-square was carried out to determine the association between some of the critical factors, such as age and nationality. P-value is set at < 0.05.

Results

Epidemiological curve of COVID-19 cases

Figure 1 presents the epidemiological curve for COVID-19 cases from January until December 2020 in Kuala Lumpur. From the curve, the time trend - or the distribution of cases over time - can be easily observed. Based on the figure, between March and October, daily COVID-19 cases in Kuala Lumpur recorded only one or two-digit numbers. However, in November and December, the number of COVID-19 cases increased to three-digit numbers, reaching R0 (R naught) of 1.05 (95% Confidence Interval 1.03-1.07) by the end of December. R0 is an epidemiological metric used to measure the transmissibility of infectious agents. Contact-tracing data can be used to calculate R0, but cumulative incidence data is the most common method. R0 values are estimated using ordinary differential equations when mathematical models are used. The World Health Organization (WHO) initially estimated that COVID-19's R0 ranged from 1.4 to 2.4 (9).

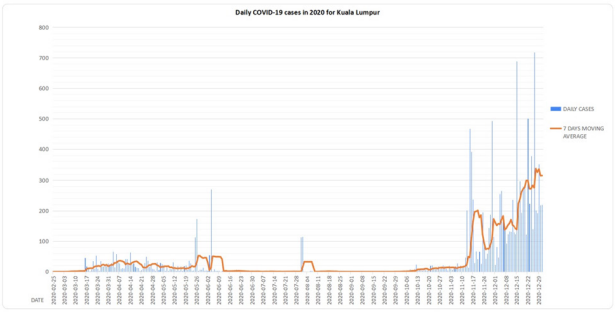


Figure 1: Daily COVID-19 cases in Kuala Lumpur (2020).

Demographic analysis

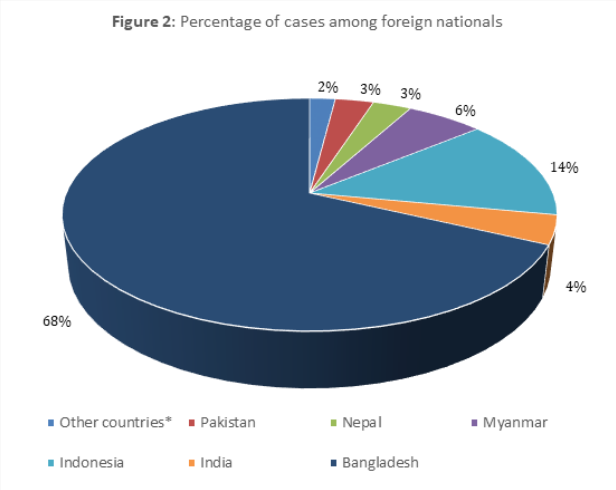
A descriptive presentation of demographic data can be observed in Table 1. Males (88.0%) recorded a higher number of COVID-19 cases than females (12.0%). Mode age falls among middle-aged adults, which is between 31-50 years old, and this is followed by young adults and those older. The age group with the lowest percentage of COVID-19 cases in Kuala Lumpur are infants between 0-2 years old at 0.6%. In terms of case outcome, the majority of those infected were discharged (99.8%) while the remaining deceased (0.2%). Discharged here refers to being discharged from the hospital or quarantine centers. Additionally, other races apart from Malay, Chinese, and Indian make up most of the cases at 78.2%, while in terms of nationality, non-Malaysians represent the largest percentage of cases at 79.9%.

Table 1: Sociodemographic characteristics of the study population (N = 12731)

Characteristic	Total N = 12731, N (%)
Gender	
Male	11204 (88.0)
Female	1527 (12.0)
Age groups, years	
Infant 0-2	71 (0.6)
Children 3-16	321 (2.5)
Young Adult 17-30	4530 (35.6)
Middle Age 31-50	6906 (54.2)
Old Adult >50	903 (7.1)
Races	
Malay	2028 (15.9)
Chinese	531 (4.2)
Indian	222 (1.7)
Others	9950 (78.2)
Nationality	
Malaysian	2841 (22.3)
Non-Malaysian	9888 (77.7)
Status	
Discharged	12701 (99.8)
Deceased	30 (0.2)

Further breakdown of the cases based on the country of origin of the infected (Figure 2) indicates that Bangladesh (68%) recorded the highest percentage of COVID-19 cases among foreigners in Kuala Lumpur. This was followed by Indonesia (14%), Myanmar (6%), India (4%), Nepal (3%) and Pakistan (3%) with the other 2% visualized in the pie chart consisting of those from over 42 other countries.

Following the descriptive demographic analysis, a chi-square analysis (Table 2) was carried out between age groups and nationality for the number of COVID-19 cases in Kuala Lumpur in 2020. Results indicate a significant association between the age group of patients and nationality, with a p-value of 0.000, highlighting a large difference in the age groups of Malaysian and non-Malaysians who were infected with COVID-19.



*Other countries include Angola, Africa, Austria, Azerbaijan, Bhutan, Brunei, Cambodia, Canada, China, Denmark, Egypt, Fiji, Ghana, Iran Ireland, Italy, Japan, Jordan, Korea, Laos, Libya, Maldives, Mongolia, Netherlands, New Zealand, Nigeria, Philippines, Portugal, Saudi Arabia, Singapore, Somalia, Sri Lanka, Syria, Thailand, Tunisia, Ukraine, United Kingdom, USA, Venezuela, Vietnam dan Yemen

Figure 2: Percentage of cases among foreign nationals.

Discussion

The epidemiological curve highlights an increase in COVID-19 cases during March and October 2020 and this may be due to the emergence of clusters during that period. Additionally, the burden from COVID-19 cases had affected and is still affecting access to healthcare systems, with reported issues ranging anywhere from reduced response capacities of hospitals (10), to disruptions toward antimicrobial resistance program caused by resource diversions (11), to interruptions to maternal health services (12). In fact, COVID-19 contributes to disease burdens across multiple countries, be it low-income, middle income such as Malaysia, or higher-income ones such as the USA (13). Overall, COVID-19 cases in Malaysia mostly affect the elderly, those between 55-69 years old (14). On the contrary, the demographics of cases in Kuala Lumpur were much younger, with the highest among middle age, between 31-50 years old, and with only a low number of cases among other age groups. Additionally, the low number of cases among the young is consistent with COVID-19 demographics from most countries, as, early in the pandemic, it rarely attacks those aged 2 and younger. To note, the average age in Kuala Lumpur is between 15-64

Table 2: Association between age and nationality

Nationality (N = 12731)	Age (N = 12731)					$X^2(df)$	*p*-value
	Infant (71)	Children (321)	Young Adult (4530)	Middle Age Adult (6906)	Older (903)		
Malaysian (2843)	63	253	1002	867	658	2481.372	<0.001
Non-Malaysian (9888)	8	68	3528	6039	245	2078.911	

years old, and at approximately 1,280.2 million, this age group makes up to approximately 50% of the population in Kuala Lumpur (15).

While the data provides an overview of the COVID cases across several sociodemographic factors – age, race, and nationality – as is indicated in the objective of this paper, the authors would like to highlight the high percentage of cases among foreign nationals in Malaysia that was revealed during descriptive analysis. From the analysis, it was observed that the majority of non-Malaysian cases were from Bangladesh, followed by Indonesia, Myanmar, and India, and these are the group of non-Malaysians more commonly described using the term 'immigrants' or migrant workers. This explains why the chi-square analysis yields a significant result between age groups and nationality, as migrant workers who come to Malaysia, or more specifically Kuala Lumpur, are mainly those who come here to work. This also explains why the age group of COVID-19 patients in Kuala Lumpur is younger compared to the national average.

Additionally, a large number of COVID-19 cases and clusters from the non-Malaysians were reported from the construction site workers (16). Since the majority of migrant workers in Malaysia work in the service and construction industry, it makes sense that these sectors are also at higher risk of disease transmission. In fact, research by Olanrewaju et al. (17) stated that apart from COVID-19, construction sites have various other types of hazards that will expose the workers to many injuries and diseases. Dangerous materials and other components such as unhygienic conditions, population density, and poor health, and safety practice might be the factor for the higher rate of incidence of COVID-19 among migrant workers. A study conducted by the University of Bielefeld (18), for instance, found that the risk of COVID-19 transmission increase among these populations was because of poor housing conditions in which they live in higher density buildings and neighborhoods.

Other than that, language barriers can also affect the number of COVID-19 cases because this population may not be able to fully understand the local or government

rules. Some of them are also undocumented so they will face difficulty in getting access to medical facilities for treatment. While a global call has been made to ensure vulnerable population gets access to healthcare (19, 20), little is known whether this measure has been successful.

It is important to note that this distribution of cases is not unique to Malaysia, as other countries have also reported similar patterns (10), where there exists inequal risk and vulnerability among different levels of population. In fact, various countries had reported that immigrants were much more likely to catch the disease, develop severe symptoms, and face higher mortality risks (14). The implication of this data is clear. Foreign nationals from low-income countries, those who make up the largest low-skilled workforce are the ones most affected by this pandemic. The question remains, what other measures can be taken to ensure the safety and rights of this population?

Conclusion

As with any other diseases, the best way to tackle an infectious disease such as COVID-19 is to start with prevention and control measures. Other than that, preparedness for future pandemics can be investigated and lessons must be learned from current management of COVID-19. Vulnerable populations must be identified, and health infrastructure should be increased to ensure these facilities can better meet the high demands during epidemics or pandemics. Targeted communication strategies appear to be effective in addressing this issue in the future. As for the public, they need to be educated about prevention measures that can be applied so that general treatment can be done by themselves at their house during a pandemic. This measure can prevent health facilities from being overburdened and reduce healthcare worker workload.

Additionally, countries around the world are actively engaging migrant workers and displaced persons, regardless of their legal status, in their COVID-19 immunization programs to address fear, stigma, and resistance to vaccines that have heightened in turbulent times. While Malaysia should strive to do the same, whether or not these efforts are successful remains to be seen. One specific area that needs further investigation is access to health information and prevention efforts for migrant workers and employers. With the spread of new variants of the COVID-19 virus, as well as threats of future climate-related pandemics or epidemics, equal access to healthcare, and support to vulnerable populations, are among important factors to consider. Diseases know no social boundaries, therefore, access to healthcare shouldn't either.

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Competing interests

The authors declare that they have no competing interests.

Ethical clearance

Ethical approval has been received from National Medical Research Register (NMRR) and has received the approval with Ref: (NMRR ID-22-01636-LDY).

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