

An Analysis Of Current Scenario Of COVID-19 In Malaysia

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Abstract—The advent of Coronavirus-19 (COVID-19) has created a new threat in terms of economy and life. Frankly, the adverse effects of COVID-19 can put our life at risk if we are contaminated. The recent promising cases in Malaysia have certainly intensified from day to day, going from bad to worse. The primary factor that causes the raising problem of COVID cases is the absence of cooperation between Malaysian and government. This research aims at visualizing the current situation of COVID-19 and thus raising consciousness among Malaysians to solve this dilemma. To fulfill the objectives, there are two stages of processes need to be performed. Using the dataset from Internet, the first section would use Microsoft Excel to create visualization tools such as a pie chart and a line chart. Next, the second part will scrap the Twitter data to explore how Malaysians are aware of COVID by using “Twint” function in Python software. The finding reveals that current COVID situation in Malaysia is in a severe stage since the chart shows that it has an exponential growth. Moreover, the Twitter activity has indicated that the people are not paying attention to the COVID topic shared by Malaysia Ministry of Healthy (MOH) Consequently, the new positive cases increase dramatically after September 2020 in Malaysia. In conclusion, the people are more concern to the COVID news from MOH during the implementation of MCO and CMCO. The people lose concern when the number of cases dropped or the MCO and CMCO is ended.

Keywords—COVID-19; Awareness; Visualization; Statistics

I. INTRODUCTION

Our current world is now experiencing a pandemic caused by a new infectious strain of virus outbreak which known as Coronavirus Disease 2019 (COVID-19). By 20 January 2021, it has already hit on 96.1 million of people’s life and lead to 2.05 million of death in the whole world. COVID-19 is a virus that attack to the human respiratory system and make the victim suffered from breathing in the fresh air. According to World Health Organization (WHO), COVID-19 has the same family as virus of Severe Acute Respiratory Syndrome (SARS).

Patients who get infected from COVID might experiencing mild to moderate symptoms such as fever, flu, cough, dizzy, loss of taste and difficulties in breathing. In some severe cases especially for the older adults, they have a higher mortality rate compared to the younger people [1]. Researchers claims that a healthy adult has a mortality rate of 2 to 3% whereas the risk of elderly is three times higher [2]. Moreover, diabetics people are found to be more vulnerable in becoming critical with the virus [3].

Typically, the virus is spread from infected patient to healthy person by the respiratory droplets (saliva and nasal mucus). This can be happened when the patient cough and sneeze in the public, causing all the droplets to be transmitted in the air. Moreover, touching the virus-contaminated surface increase the chance of healthy person to get COVID when they touch their face before

sanitizing their hands. In order to prevent transmitted from COVID, it is compulsory to wear a surgical face mask, practicing a good personal hygiene and social distance between people. Moreover, usage of sanitizer with 75% of alcohol is strongly encouraged to destroy the virus [4][5][6]. The figure below shows the poster by Ministry of Health Malaysia on several measures to prevent transmitting virus to other people.



Fig 1. Simple ways to prevent transmitting virus to others (MOH,2020)

To date, [7] discussed that there are only two countries are reported free of Coronavirus in the world, namely Turkmenistan and North Korea. Figure 2 shows the map of COVID-infected areas.

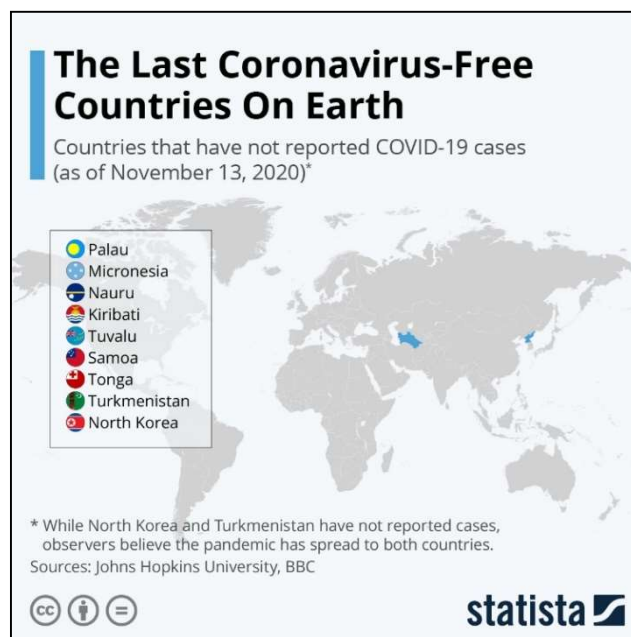


Fig 2. World map showing COVID-19 infected areas

The top five countries which mark the highest number of deaths are United States, India, Brazil, Russia, and United Kingdom. Whereas for Malaysia, the country is now entering the 4th wave of COVID-19 outbreak in consequences of the celebrations and

mass gatherings in the past two weeks. By 20 January 2021, COVID-19 has already infected 162,000 of people and cause 605 deaths in Malaysia. From Ministry of Health (MOH) Malaysia, the rapid increasing in the number of COVID-19 cases follow a R_0 value of 1.1. R_0 value is a measurement to determine how widespread the infectious virus can be [8]. Figure 3 shows the Susceptible-Exposed-Infectious-Removed (SEIR) model which is very useful in forecasting the COVID cases in the months later.

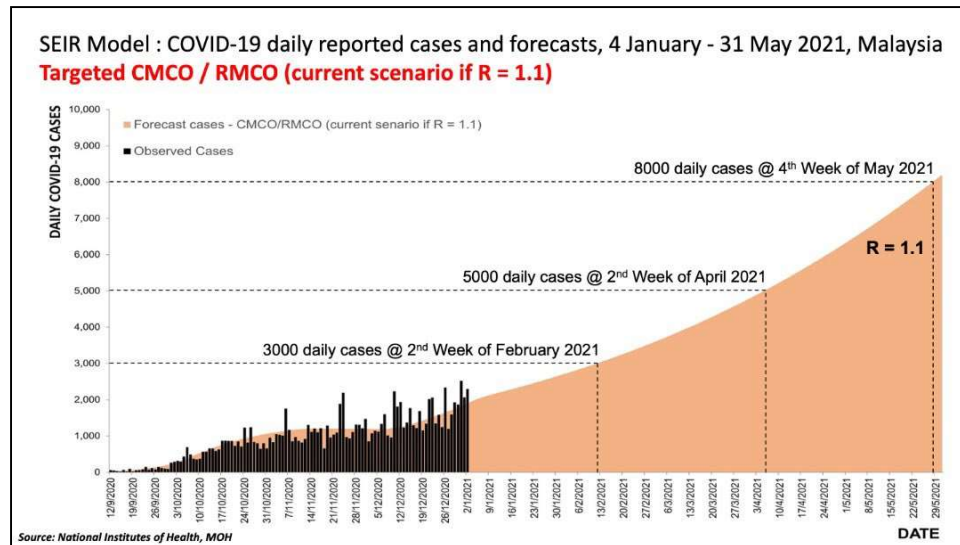


Fig 3. SEIR Model (MOH,2020)

From Fig 3, it is observed that the estimated infected cases on February 2021 is around 3000 cases daily, 5000 cases daily in the second week of April 2021 and 8000 cases daily in the fourth week of May 2021. If the trend of infected cases is still following the R_0 value, the number of patients will increase rapidly as stated in the developed model.

In order to slow down the rate of transmission, preventive measures are vital to be the current strategies. Malaysia government have been implemented a lock down referred as Movement Control Order (MCO), Conditional Movement Control Order (CMCO), and Recovery Movement Control Order (RMCO). During this duration, people are restricted to travel more than 10 km from their house and most sectors except essentials sectors are forced to close. However, it was observed that the execution cannot stabilize the number of COVID cases happened in Malaysia due to lack of cooperation from people [9][10]. Therefore, this study aims to visualize the current scenario of COVID cases in Malaysia and hence raise the awareness among Malaysian.

II. METHODS

In this study, we will divide the work into two phrases in order to make readers more understand with the actual situation of COVID pandemic in Malaysia.

1. First Phase

The first phase of this project is to visualize the current statistic of COVID cases. There are four main steps in achieving the goals namely data collection, data transformation, data visualizing and interpretation and analysis. Figure below shows the steps in first phrase.



Fig 4. Steps in First Phrase

(a) Data collection

An online dataset [11] is extracted to be used for the first phrase in this study. The dataset covers data starts from 25 January 2020 until 24 January 2021.

(b) Data transformation

The attributes found in the dataset are “Date”, “Total cases”. “Total discharged”, “Total death”, and “ICU”. Table I shows the attributes and description found in dataset.

TABLE I. ATTRIBUTE AND DESCRIPTION OF DATASET

Attribute	Description
Date	Date of the data published by MOH
Total Cases	Total positive cases at the date
Total Discharged	Total discharged at the date
Total Death	Total death at the date
ICU	Current number of cases ICU at the date

Based on the existing attributes, there are another four attributes have been derived for further analysis. Table II shows the derived attributes and description from the existing attributes.

TABLE II. DERIVED ATTRIBUTES FROM COVID CASES DATASET ATTRIBUTES

Attribute	Description
New Cases	New positive cases at the date
New Discharged	New discharged at the date
New Death	New death at the date
Differences	Active Cases = Total Cases – Total Discharged

(c) Data visualization

The main core of the study is the visualization of the data obtained. In presenting the data, Microsoft Excel is used to explore the data pattern and trend by developing the line charts.

(d) Interpretation and explanation

After undergoing the three main steps, the last step is interpretation and explanation of the result obtained. Hence, a detailed discussion will be reviewed for each result.

2. Second Phrase

Next, the second phase in this project aims to visualize the reaction of Malaysian towards Twitter tweets by MOH during the one-year period since the first positive COVID case has been discovered in Malaysia. There are four main steps in achieving the goals namely data collection, data cleaning, data visualizing and interpretation and analysis. Figure below shows the steps in second phrase.



Fig 5. Steps in second phrase

(a) Data collection

The data is collected from Malaysia Ministry of Health (MOH)'s official Twitter. The data will be linked together with Malaysian's awareness towards COVID-19 in Malaysia. Previously, there are researchers link the Twitter user's response to study the emotions faced together with the virus outbreak [12]. Moreover, the researchers also used Twitter data in investigating the people's top concern during COVID pandemic [13].

(b) Data cleaning

Since the data in Twitter is massive, Python software is used to extract the useful information. The Tweets are scraped by using the "Twint" library in Python. Next, the selected attributes used are "date of tweets posted", "replies_count", "retweet_count" and "likes_count" only. The data is grouped by monthly, quarterly, and yearly. Table below shows the attribute name and description for the attribute.

TABLE III. DESCRIPTION FOR EACH ATTRIBUTE

Attribute Name	Description
Date	Date of tweets posted
Tweet	Tweet contents
Replies_count	Number of replies to the tweet
Retweets_count	Number of retweets of the tweet made by MOH
Likes_count	Number of likes to the tweet

(c) Data visualization

This section is similar with the previous section in first phrase. To present the data, Microsoft Excel is used to explore the data pattern and trend by developing the pie-chart and histogram.

(d) Interpretation and explanation

After undergoing the three main steps, the last step is interpretation and explanation of the result obtained. Hence, a detailed discussion will be reviewed for each result.

III. RESULT AND DISCUSSION

This section discusses about the result and discussion for phrase 1 and phrase 2.

1. Phrase 1

Malaysia currently has discovered 183801 total positive cases and 678 total death until 24 January 2021. The data shows that the COVID-19 death rate is only 0.04%. The virus mainly has severely attack on the old people, and those who having the chronic disease. In contrary, the total number of recovered patients who discharge from hospital is 141446 people which occupies 76.96% of total positive cases. Hence, those daily data are transformed into a line plot which shows the relationship between positive cases, discharged cases, death cases and ICU cases. Figure 6 shows the line charts for the positive cases, death cases and ICU cases.

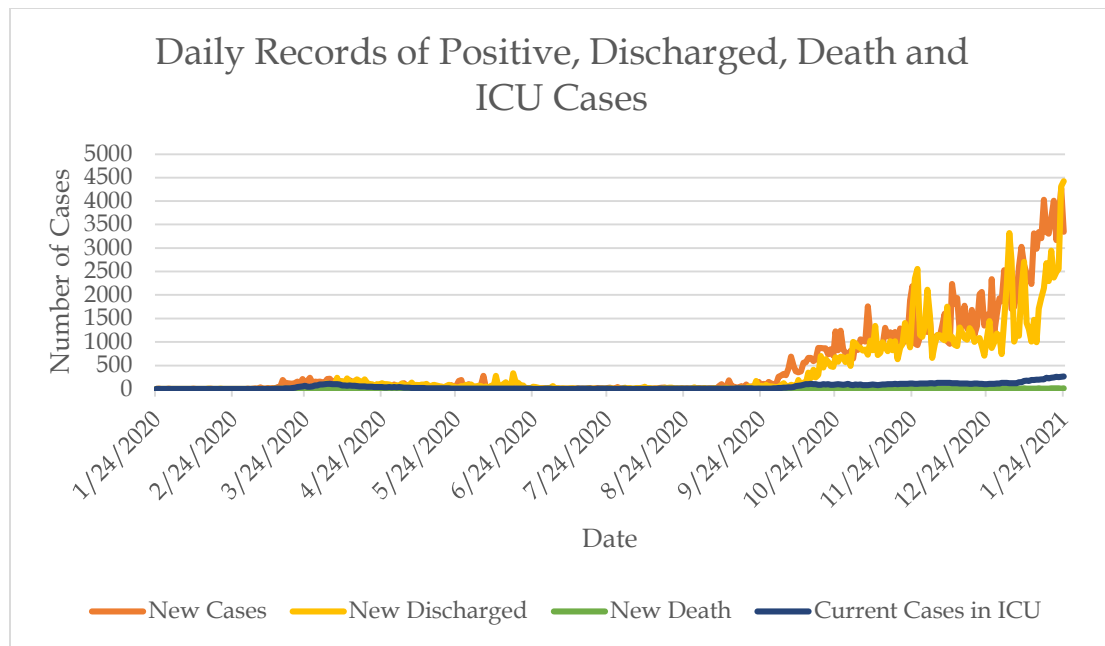


Fig 6. Daily Records of Positive, Discharged, Death and ICU Cases

From Figure 6, it shows that the total number of new cases at the beginning of year 2020 are just below 500 cases. The new positive cases and current cases in ICU has been showing an increasing trend since September 2020. The highest number of new cases is 4427 on 24 January 2021. The reason of having this trend is due to the new clusters formed by crowd gathering. At the same time when the new positive cases and new discharged cases increase, it is observed that the new positive cases are slightly higher than new discharged cases. The situation can be shown in the figure below.

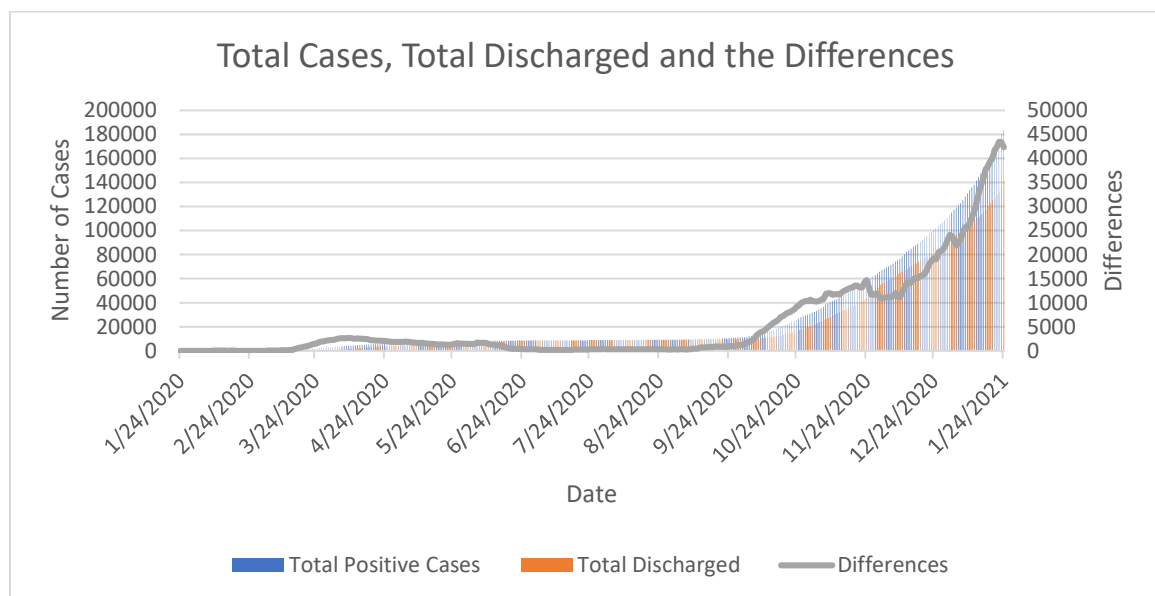


Fig 7. Graph of differences between total cases and total discharged

Based on the figure above, it has shown that the differences between total positive cases and total discharged are increasing since the end of September. However, the number of new positive cases are more than the number of patients discharged. The highest difference is 43474 on 22 January 2021.

2. Phrase 2

The result for second phrase is focusing on the Twitter users' responses towards the Malaysia MOH's COVID-19 posts. The Tweets activities includes retweets (repost of forward the post), replies (comment on the post) and like by users. Figure 5 shows the chart for total number of replies, retweet and likes. Figure 5 below shows the chart for sum of replies, retweets, and likes in one year.

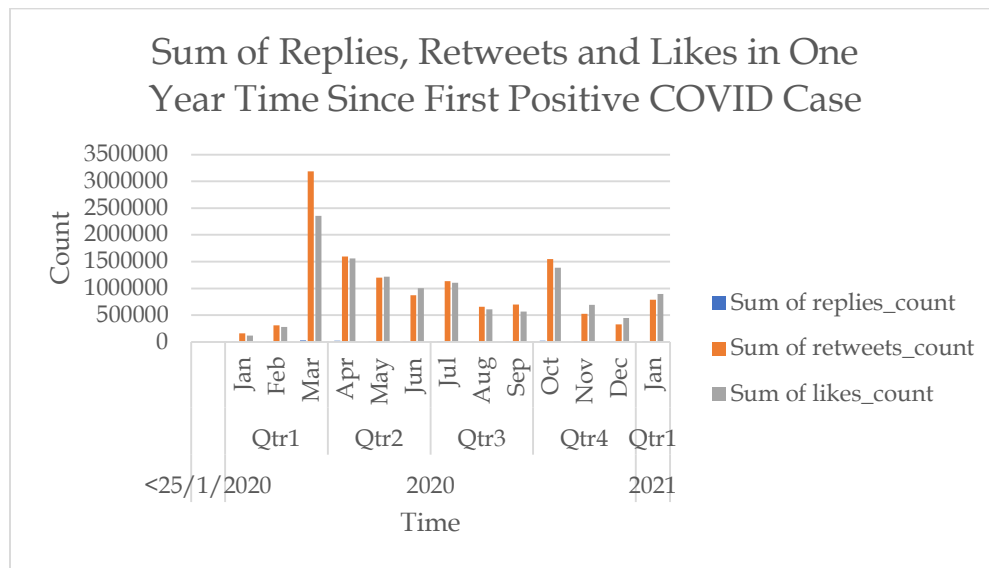


Fig 8. Chart of Replies, Retweet and Likes for Twitter

Fig 8 illustrated that the Tweets reaction is highest during March 2020, where the first MCO is executed. It is mainly caused by the first outbreak of COVID cases in Malaysia. Other than that, it also because of the people feel bored at home and focus on social media site during their whole day, as most of the economy activities are not allowed to operate during the first MCO. We can observe that January and February 2020 have the lowest Tweets activity because that time MCO is not yet implemented. The trend of Tweets is decreasing from March to September 2020. It is caused by the operation of Recovery Movement Control Order (RMCO) which people can travel out of house and spend less time in the social media sites.

Consequently, we can observe that the number of positive cases rise exponentially after September 2020 (as show in Figure 3). When people pay little attention towards COVID-19 post, they are not aware of the danger surrounding them. Therefore, there is a significant relationship between Malaysian's consciousness towards COVID and the number of positive cases happened in Malaysia.

Starting from January 2021, when the MCO 2.0 starts again, the Twitter activity also shows an increasing trend again. Tables below show the highest number for three categories of Tweet activity.

TABLE IV. HIGHEST RETWEETS

Date	Tweet	Replies count	Retweets count	Likes count
18/3/2020	We beg you to stay at home and protect yourself and your family. Please	420	81934	52857
25/3/2020	Tempoh Perintah Kawalan Pergerakan dilanjutkan sehingga 14 April 2020. – YAB PM, Tan Sri @MuhyiddinYassin	594	55495	29270
10/4/2020	Perintah Kawalan Pergerakan (PKP) dilanjut lagi dua minggu bermula 15 April – 28 April 2020. – YAB PM Tan Sri @MuhyiddinYassin	373	51364	32297
26/5/2020	Kita masih dalam Perintah Kawalan Pergerakan Bersyarat (PKPB) sehingga 9 Jun ini. Saja nak ingatkan, 179ungkin ada yang terlupa.	347	49052	40705

18/3/2020	“Kita mempunyai peluang tipis untuk memutuskan rantaian jangkitan COVID-19. “Jika kita gagal, negara kita akan berdepan gelombang ketiga di mana jangkitan tidak lagi terkawal. “Bantulah KKM, Kita 180ungkin-sama menjaga antara satu sama lain.” Spread this video not the virus. https://t.co/hYHqnwibJu	142	48577	22131
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From Table IV, the highest retweet is the post on 18 March 2020 with the title “We beg you to stay at home and protect yourself and your family...”, which achieved 81934 retweets, followed by “Tempoh Perintah Kawalan Pergerakan dilanjutkan sehingga 14 April 2020...” (55495), “Perintah Kawalan Pergerakan (PKP) dilanjut lagi dua minggu bermula 15 April – 28 April 2020...” (51364), “Kita masih dalam Perintah Kawalan Pergerakan Bersyarat (PKPB) sehingga 9 Jun ini....” (49052), and the least retweet is “Kita mempunyai peluang tipis untuk memutuskan rantaian jangkitan COVID-19...” (48577).

TABLE V. HIGHEST LIKES

Date	Tweet	Replies count	Retweets count	Likes count
8/7/2020	Secara rasmi diisytiharkan kluster terbesar di negara kita, Kluster Perhimpunan di Masjid Seri Petaling tamat hari ini.	306	44528	55179
18/3/2020	We beg you to stay at home and protect yourself and your family. Please	420	81934	52857
8/7/2020	Tiada kes tempatan hari ini. https://t.co/8PqaQdjABq	311	31870	45346
26/5/2020	Kita masih dalam Perintah Kawalan Pergerakan Bersyarat (PKPB) sehingga 9 Jun ini. Saja nak ingatkan, mungkin ada yang terlupa.	347	49052	40705
7/6/2020	PKPB tamat 9 Jun ini dan digantikan dengan PKP Pemulihan bermula 10 Jun hingga 31 Ogos. -PM	212	42420	39426

From Table V, the highest like is the post of “Secara rasmi diisytiharkan kluster terbesar di negara kita...” (55179), followed by “We beg you to stay at home and protect yourself and your family...” (52857), “Tiada kes tempatan hari ini...” (45346), “Kita masih dalam Perintah Kawalan Pergerakan Bersyarat (PKPB) sehingga 9 Jun ini...” (40705), and the least one is “PKPB tamat 9 Jun ini dan digantikan dengan PKP Pemulihan...” (39426).

TABLE VI. HIGHEST REPLY

Date	Tweet	Replies count	Retweets count	Likes count
2/10/2020	Dari awal lagi KKM telah nasihatkan orang ramai elakkan perhimpunan ramai. Jika tidak dapat dielakkan, patuhi SOP. - @DGHisham	1462	12021	19007
3/4/2020	Jika PKP tidak dilanjutkan selepas 14 April, KKM menasihatkan orang ramai tidak menyertai perhimpunan awam antara 6 bulan hingga setahun. Kita juga perlu lakukan penjarakan sosial dan kerap basuh tangan dgn air dan sabun. https://t.co/qgnpSw2Pn8	1206	25704	19826
5/10/2020	Terkini. 5 Okt. Kes baharu #COVID19 hari ini 432 - (429 tempatan, 3 import) tertinggi sejak wabak ini melanda negara kita Malaysia. Malaysia recorded the highest number of new #COVID19 cases today at 432 with 429 local transmissions and 3 imported cases. https://t.co/AA30MRIFe1	813	47669	21623
27/3/2020	TERKINI: Bilangan pesakit #COVID19 yang berjaya disembuhkan di $\frac{2}{3}$ terus meningkat kepada 259. Ini termasuk 44 pesakit terbaru yg telah sembuh dan discaj.	650	28286	28711

	ðŸŽˆKita ulang dan akan terus ulang ucapan terima kasih dan tahniah kpd pasukan perubatan KKM. ðŸŽˆ https://t.co/dgPUIksReP			
2/10/2020	Terkini. 2 Okt. Kes baharu #COVID19 hari ini paling tinggi dalam sejarah iaitu 287 dan semua kes tempatan. Tertinggi, Kedah (129), Sabah (113), Selangor (31). Dua kluster baharu di Selangor, Seri Anggerik (Hulu Selangor) dan Seri Setia (Gombak). Tiada kematian.	639	39214	20713

From Table VI the highest replies post is “Dari awal lagi KKM telah nasihatkan orang ramai elakkan perhimpunan ramai...” (1462), followed by “Jika PKP tidak dilanjutkan selepas 14 April, KKM menasihatkan orang ramai tidak menyertai perhimpunan awam...” (1206), “Terkini. 5 Okt. Kes baharu #COVID19 hari ini 432 - (429 tempatan, 3 import) tertinggi...” (813), “TERKINI: Bilangan pesakit #COVID19 yang berjaya disembuhkan...” (650), and the post with the least replies is “Terkini. 2 Okt. Kes baharu #COVID19 hari ini paling tinggi dalam sejarah iaitu 287...” (639).

Based on the three tables, it is observed most Malaysian are concern on the MCO or CMCO, the new cluster and the advice from MOH which asked the people to stay at home and avoid gathering. It is also noticeable that the highest number of retweets, likes or replies are falls on the date when MCO or CMCO is implemented.

IV. RESULT AND DISCUSSION

In conclusion, the concern of Malaysian is tied with the MCO and followed by number of cases. It is observed that when the COVID cases dropped and MCO or CMCO is end, the Malaysian will lose their awareness towards COVID pandemic. However, the decline in the number of COVID cases or the end of MCO or CMCO does not mean the COVID pandemic has gone, it only implies that the scenario is getting slightly better. Hence, this research is done to urge all Malaysians to stay aware of the COVID pandemic, be cooperated with the government and MOH all the time. The war against this virus requires the help from every Malaysian to win.

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