

Study on Public Awareness and Perception on the Spreading of COVID-19 in Johor, Malaysia

Vilosha S.K¹, Asrah, N.M^{1*}

¹Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia, UTHM Pagoh, 84600 Muar, Johor, MALAYSIA

*Corresponding Author Designation

DOI: <https://doi.org/10.30880/ekst.2021.01.02.022>

Received 12 June 2021; Accepted 07 July 2021; Available online 29 July 2021

Abstract: Coronavirus 2019 which also known as COVID-19, is a disease that has spread around the world since 2019. The number of death cases keeps rising day by day. In Malaysia, the number of new cases keeps increasing. This has caused a significant effect on the community in Malaysia and Johor is one of the states that is badly affected. This study is concerned with the public awareness and perception of the spreading of COVID-19 in Johor. A survey was conducted using online survey forms and has been distributed through WhatsApp, Facebook, and Instagram. The methods applied in this study are descriptive, Pareto, Chi-squared, Cramer's V, and attribute analyses. Cramer's V analysis was used to determine the level of association between two variables. It was found that there was an association between gender and marital status with the level of satisfaction of the public from the actions taken by the government. The results of the attribute analysis show that the public agrees with the prevention taken for COVID-19 and the action taken by the government. Overall, the public in Johor is aware of COVID-19 and satisfied with the measures taken by the Government.

Keywords: COVID-19, Awareness, Satisfaction, Pareto.

1. Introduction

Human coronavirus first was discovered in the 1960s (Kahn, Jeffrey & McIntosh, 2005). Two viruses, human coronavirus 229E, and human coronavirus OC43 which found from nasal cavities of human patients with the cold (Geller, Varbanov & Duval, 2012). According to Merriam-Webster (2020), the name "coronavirus" comes from the Latin corona and the Greek κορώνη (korónē) also known as "garland" or "wreath" which means crown or halo. Coronavirus disease 2019 also known as COVID-19, causes about 10% to 30% of all kinds of common colds among adults and children (Aylward *et al.*, 2020). The respiratory symptoms, fever, cough, shortness of breath, and breathing difficulties are common signs of infections (Centers for Disease Control and Prevention (CDC), 2020). The COVID-19 was first identified in 2019 in the Chinese city of Wuhan. These viruses can transfer between contaminated hosts through surfaces such as hands which shows their environmental resistance.

*Corresponding Email: norhaida@uthm.edu.my

2021 UTHM Publisher. All rights reserved.

publisher.uthm.edu.my/periodicals/index.php/ekst

On 25 January 2020, Malaysia was listed as one of the nations with COVID-19. On 28 February 2020, Malaysia has confirmed a total number of 25 COVID-19 positive cases. After discovered around 14 cases of COVID-19 in Malaysia, the government started to put strict control orders to control the spreading of COVID-19 since the virus spread through human-to-human transmission. On 15 March 2020, there was a sharp rise in the number of cases. 190 cases were recorded and 125 more cases on 16 March 2020. Overall the entire number of cases on 16 March 2020 is 553 cases.

Malaysia’s government has decided to implement a nationwide Restriction of Movement Control Order (RMCO) beginning 18 March 2020 until 31 March 2020. This order is enforced under the Control and Prevention of Infectious Diseases Act 1988 and the Police Act 1967. The prime minister, Tan Sri Muhyiddin bin Haji Muhammad Yasin announced a primary extension of the MCO that will end until 14 April 2020 in a live broadcast on 25 March 2020 (Tee & Kenneth, 2020). Another extension of MCO that ends on 28 April 2020 was announced by Prime Minister on 10 April 2020. This is to provide more spaces for healthcare and more frontline to battle the COVID-19 outbreak apart from preventing the virus from spreading more. Later, the prime minister announced a 3rd extension of the MCO on 23 April 2020 that ends on 12 May 2020 (Bernama, 2020).

The objectives of this study are to identify the level of awareness among the public in Johor on the spreading of COVID-19 and to determine the actions taken by the public from being infected by the COVID-19.

2. Materials and Methods

2.1 Materials

In this study, a questionnaire was used to collect the data from the respondents. There are two main sections in the questionnaire, which are sections A and B. In Section A, the details are referring to the demographic profile, which is the personal information of the respondents. The information such as gender, age, race, educational level, marital status, income level, working status, and the respondents comes from which state in Johor. Meanwhile, in Section B, the respondents were asked about the level of awareness on COVID-19, the actions taken by the public from being infected by COVID-19, and the satisfaction level of the public from the actions taken by the government.

2.2 Sampling methods

Convenience sampling was used in this study because it is easy and convenient to gather the knowledge or data required within a limited time. The sample was taken from the population in Johor. There are approximately 3.497 million people in Johor from 10 different districts ranging from Johor Bahru, Batu Pahat, Kluang, Muar, Mersing, Kota Tinggi, Kulai, Pontian, Segamat, and Tangkak (Department of Statistics, 2020 and Johor State Profile, 2018). The sample size was constructed using the formula in equation (3.1) (Krejcie & Morgan, 1970):

$$\text{Sample size, } s = \frac{\lambda^2 NP(1 - p)}{d^2(N - 1) + \lambda^2 P(1 - p)} \tag{Eq. 3.1}$$

where:

λ^2 = the table value of Chi-squared for 1 degree of freedom at the desired confidence level

N = the population size

P = the population proportion (assumed to be 0.5 since this would provide the maximum sample size)

d^2 = the degree of accuracy expressed as a proportion (0.05)

The sample size (s) of 284 respondents calculations are shown below:

$$s = \frac{3.841^2(3497000)(0.5)(1 - 0.5)}{0.05^2(3497000 - 1) + 3.841^2(0.5)(1 - 0.5)} \approx 284$$

The pilot study was conducted as a preliminary study aimed to evaluate the feasibility of some crucial components of the main study. A total of 20 respondents were involved in the pilot study. The Cronbach’s alpha test was used to analyze the pilot test. The value of Cronbach’s alpha is above 0.7 indicates that the question has a good level of internal consistency. The formula for Cronbach’s alpha can be referred to as equation (3.2).

$$\alpha = \frac{N.\bar{c}}{\bar{v}+(N-1).\bar{c}} \quad Eq. 3.2$$

where:

- α = Cronbach’s alpha value
- N = number of items
- \bar{c} = average covariance between item pairs
- \bar{v} = average variance

2.3 Analysis methods

Descriptive statistics explain and summarize the information in the data collected in a meaningful way by presenting the knowledge in a graphical or tabulate way (Loeb *et al.*, 2017). The frequency and percentages for the number of respondents in Sections A and B are analyzed and visualized graphically in descriptive analysis. The questions in Section B are measured using the Likert scale. The scale was used to identify the respondent's satisfaction level.

Pareto analysis is used for decision-making to identify the greatest cause that gives the most impact on a certain problem. This analysis is based on the proven Pareto principle that there is 20% of the sources cause 80% of the problems (Ziarati, 2006). The Pareto analysis is focusing on the vital few problems in the 20% category, rather than on the trivial many to make the most significant improvement in product quality (Leavengood & Reeb, 2002).

The Chi-Squared is used to analyze the cross-tabulation of survey responses. The cross-tabulations show the frequency and percentage of responses in various categories of respondents such as gender, profession, age, and education level. The Chi-Squared test is a statistical method used by researchers to study the differences between categorical variables of the same population such as age, race, and gender.

$$\chi^2 = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \quad Eq. 3.3$$

where:

- χ^2 = Chi-squared goodness of fit test,
- O_{ij} = observed value
- E_{ij} = expected value

3. Results and Discussion

3.1 Pilot test

Before starting the actual survey, a pilot test was done for 20 respondents. The pilot test results were analyzed through Cronbach’s alpha test. The overall value of Cronbach’s alpha for Likert-scale questions in section C is 0.9189. Therefore, these questions had a good consistency and could be used during the next data collection for the main study.

3.2 The demographic analysis

From the survey, a total of 200 respondents answered the questionnaire. This is because, it was hard to obtain feedback from the potential respondents to answer the survey questionnaire. This act as a crucial issue since we only ready to communicate with our friends, classmates and lecturers through the social media platform during the Movement Control Order (MCO). Therefore, the actual sample as planning before the survey cannot be reached because of some limitations such as time and support from public. There are 57% (114) females and 43% (86) male's respondents. The highest respondents are from 21 to 30 years old (140), followed by less than 20 years old (26) and 18 of them are from 31 to 40 years old. Majority of the respondents are single (83%). Indian is the highest respondents with 63.5%, followed by Chinese (20%) and Malay (13.5%). Majority of the respondents are not working (64.5%), 33 of them works in private sectors (16.5%) and 27 of them in government sectors (13.5%). The highest income level for respondents who working is below RM1000 (31) and the second highest is above RM4000 (20). The respondent's distribution according to district can be refer to Figure 1.

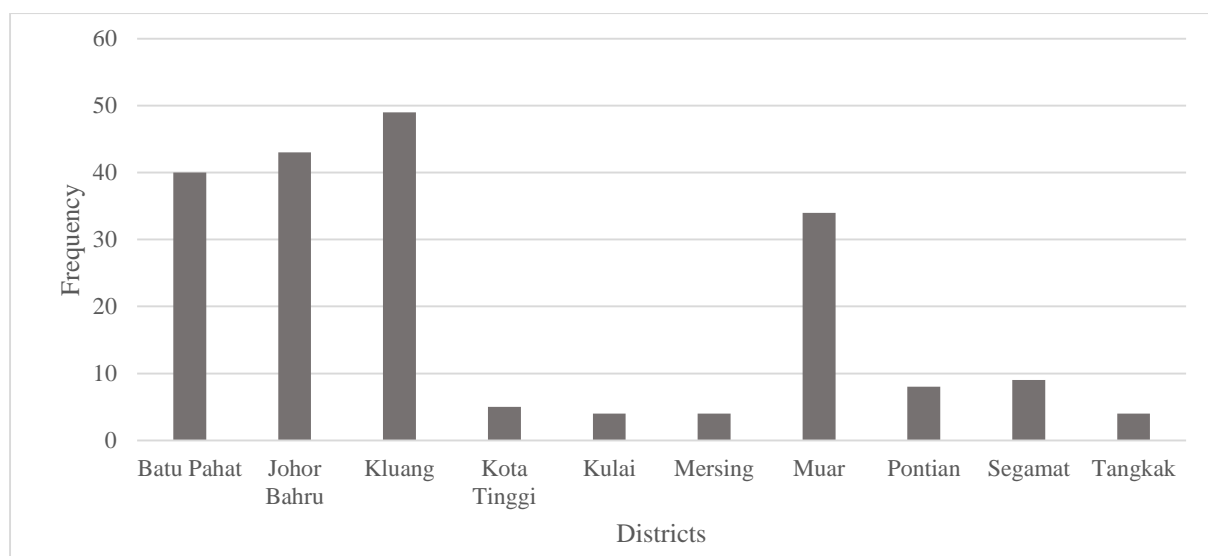


Figure 1: Respondents distribution according to districts

3.3 The Pareto analysis

Figure 2 shows the mains sources used to obtain the information about COVID-19. According to Pareto analysis, the most used source is the social medias with 74% of respondents get latest updates and information of COVID-19. Since the technology advancement is worldwide, most of the people around the world uses their smartphone and social media apps frequently. This made life easier and the social media such as Facebook, WhatsApp, Twitter, Instagram, Snapchat and more have been widely used. Next is 38 (19%) respondents answered they obtain the information through Government Official Website. Government official website do provide latest updates on COVID-19 and people who use social medias are able to access this website.

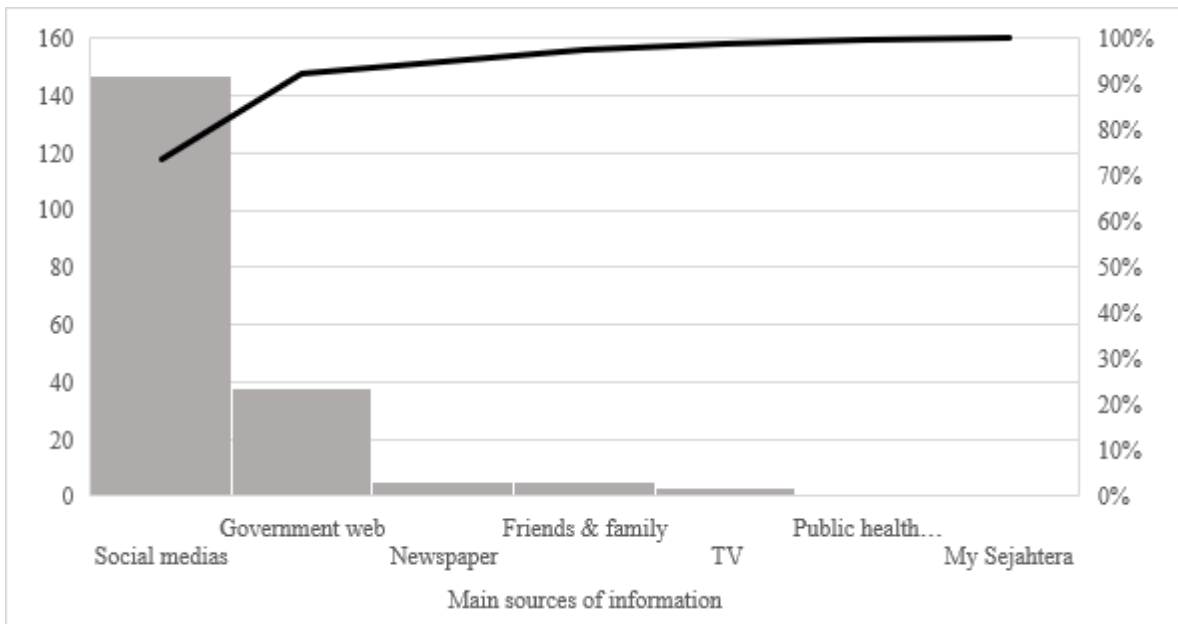


Figure 2: Main sources used to obtain information about COVID-19

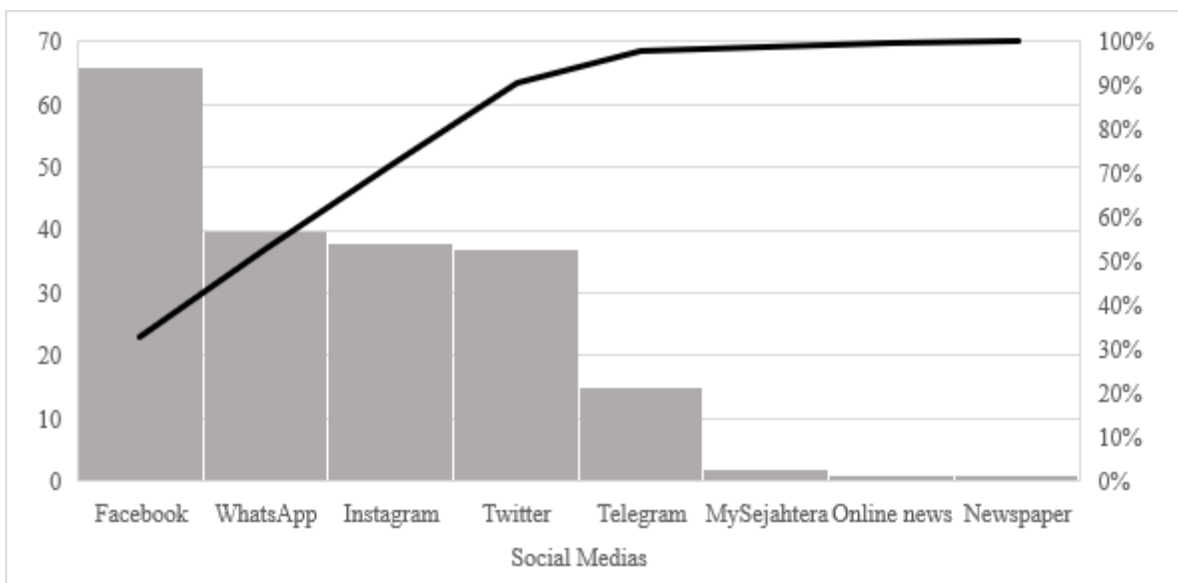


Figure 3: Social medias used the most to obtain updates about COVID-19

Figure 3 shows the social media respondents used to obtain latest updates about COVID-19. According to Pareto analysis, most of the respondents use Facebook (33%) to obtain latest updates on COVID-19. Facebook is the topmost social media used by people all around the world. Apart from Facebook, WhatsApp is the second most used where 20% of them use it for latest updates. WhatsApp is easier to understand and to use. Closest to WhatsApp, there are Instagram and Twitter where 19% of respondents use them to obtain the updates about COVID-19.

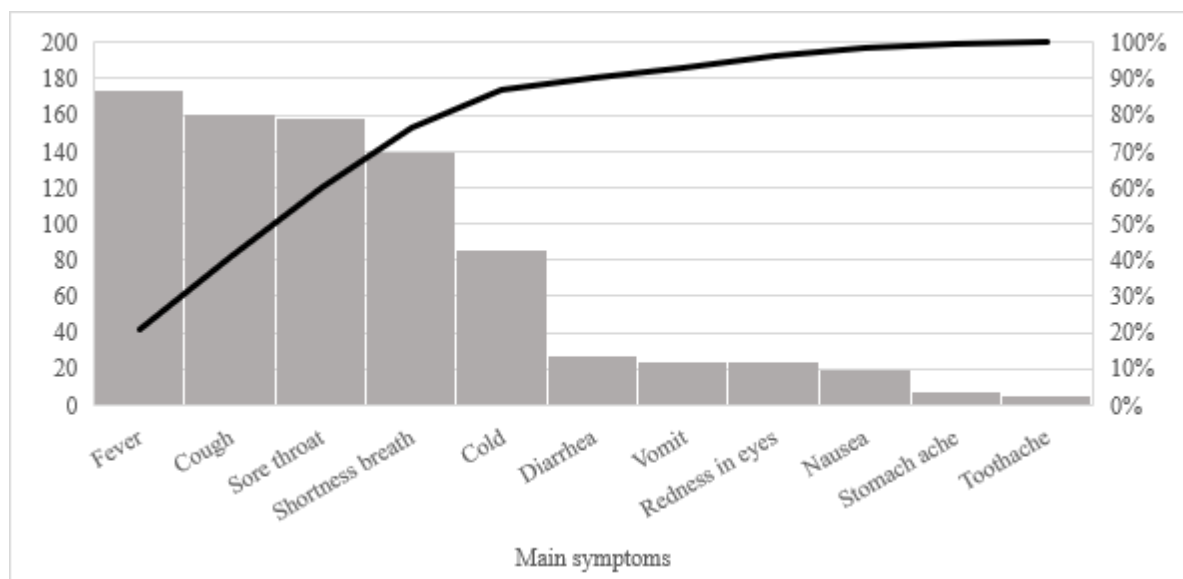


Figure 4: Main symptoms of COVID-19

Figure 4 shows the multiple options questions on the main symptoms of COVID-19 known by respondents. According to Pareto analysis, the most symptoms chosen by respondents are cough, sore throat, shortness of breath and fever. Fever is the primary symptoms of all and 87% of respondents have chosen it. Other symptoms as cough (80.5%), sore throat (79.5%) and shortness of breath (70%). According to the World Health Organization (WHO), common symptoms of COVID-19 include fever, cough, fatigue, breathing difficulties, sore throat and loss of taste and smell. This shows that respondents are aware of the symptoms of COVID-19. Overall, 80% main symptoms of COVID-19 are fever, cough and sore throat that causes 20% of other symptoms.

3.4 The Chi-squared test

The hypotheses testing for the Chi-squared test of independence between gender and level of satisfaction of public from the actions taken by government are:

- H₀: There is no association between gender and level of satisfaction of public from the actions taken by the government.
- H₁: There is an association between gender and level of satisfaction of public from the actions taken by the government.

Table 1: The Chi-squared test between gender and level of satisfaction of public from the actions taken by government

No.	Questions	Chi-squared	DF	p-value	Cramer's V
1	Temporarily suspend all kinds of religious activities that involves mass gathering	17.612	4	0.001	0.0881
2	Violation of control order will be fined RM1,000	9.540	4	0.049	0.0477
3	Complete restriction of movement and assembly nationwide, including religious activities, sports, social and cultural events	10.349	4	0.035	0.0517
4	Complete travel restriction for all Malaysians going overseas	11.122	4	0.025	0.0556
5	Complete restriction of foreign visitors and tourists	11.105	4	0.025	0.0555

Table 1 shows the Chi-squared statistics and Cramer’s V results on association between gender and level of satisfaction of public from the actions taken by government before 4 May. The *p*-values are less than the significance level of 0.05, so the null hypothesis is rejected. Hence, there is an association between gender and level of satisfaction of public from the actions taken by the government. Cramer’s V results show that all values are less than 0.1. This indicates that there is a small association between these variables.

The hypotheses testing for the Chi-squared test of independence between marital status and level of satisfaction of public from the actions taken by government are:

- H₀: There is no association between marital status and level of satisfaction of public from the actions taken by the government.
- H₁: There is an association between marital status and level of satisfaction of public from the actions taken by the government

Table 2: The Chi-squared test between marital status and level of satisfaction of public from the actions taken by government

No.	Questions	Chi-squared	DF	<i>p</i> -value	Cramer’s V
1	Violation of control order will be fined RM1,000	10.437	4	0.034	0.0521
2	Complete restriction of movement and assembly nationwide, including religious activities, sports, social and cultural events	11.973	4	0.018	0.0599
3	Closure of all government and private premises except those involved in essential services (Water, electricity, energy, telecommunications, post, transportation, irrigation, oil, gas fuel, lubricants, broadcasting, finance, banking, health, pharmacy, fire prevention, prisons, ports, airports, security, defense, cleaning, food supply & retail)	11.235	4	0.024	0.0562
4	Lockdown (MCO) announcement to prevent from the cases to rise	12.459	4	0.014	0.0623
5	Banned all type of gatherings	16.282	4	0.003	0.0814
6	Cancellation of Bazaar Ramadhan	12.926	4	0.012	0.0646
7	People who travel for medical purpose can have a companion	9.794	4	0.044	0.0490
After 4 May					
1	Most economic sectors and activities are allowed to operate while observing the business standard operation procedures such as social distancing	15.155	4	0.004	0.0758

Table 2 shows the Chi-squared statistics results and Cramer’s V results on association between marital status and level of satisfaction of public from the actions taken by government before and after 4 May. The *p*-values are less than the significance level of 0.05, so the null hypothesis is rejected. Hence, there is an association between marital status and level of satisfaction of public from the actions taken by the government. Cramer’s V results show the values are less than 0.1. This indicates that there is a small association between these variables.

4. Conclusion

The COVID-19 pandemic has seriously wounded the world with serious consequences to the public and communities. The most obvious are economic recession and a crisis of global governance. The public in Johor are aware about COVID-19 and the seriousness of this virus. The public know what is meant by COVID-19 and coronavirus. The public are aware about the spreading of the virus. 90% of respondents do aware of daily updates in new cases and the number of death cases every day. This shows that most of the public in Johor are aware about COVID-19 and the spreading of the virus around Johor. The public in Johor take proper actions to prevent from being infected. The public have taken proper and careful actions from getting infected where more than 50% of them stated wearing a mask when going out, washing hands frequently, covering mouth when coughing, avoiding close contacts with others and maintain 1 meter distance from another person are the right and accurate measure should be followed to avoid from getting infected. These shows that the public obey and follow the proper precautions mentioned by the World Health Organization (WHO). Majority of the public in Johor rated 'Good' for Malaysia's Health Government services during the COVID-19 pandemic. This justifies that the public are satisfied with the provision and measures taken by the Ministry of Health (MOH). In the nutshell, the public in Johor are aware about COVID-19 and the seriousness of the virus including their perceptions on the spreading of the virus shows they do take the proper precautions and satisfied with the actions taken by the government.

Acknowledgement

This research was made possible by funding from research grant TIER1 (Vot: H846) provided by Universiti Tun Hussein Onn Malaysia and the Ministry of Higher Education, Malaysia. The authors would like to thank the Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia for the facilities provided that make the research possible.

References

- [1] Kahn, J. S. & McIntosh. (2005). "Discussion." *Pediatric Infectious Disease Journal* 24(11 SUPPL.).
- [2] Geller, C., Varbanov, M., & Duval, R. E. (November 2012). "Human coronaviruses: insights into environmental resistance and its influence on the development of new antiseptic strategies". *Viruses*. Published online 2012 Nov 12. doi: 10.3390/v4113044
- [3] Merriam-Webster. (2020). "Definition of Coronavirus by Merriam-Webster". Merriam-Webster. Archived from the original on 2020-03-23. Retrieved 2020-03-24.
- [4] Aylward, Bruce, Liang & Wannian (PRC). (2020). "Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19)." 2019(February):16–24.)
- [5] Tee & Kenneth. (2020). "PM: Covid-19 shutdown extended to April 14". *The Malay Mail*. Archived from the original on 26 March 2020. Retrieved 26 March 2020
- [6] Bernama. (2020). "MCO extended another two weeks to May 12 - Muhyiddin". (2020). Bernama. Archived from the original on 24 April 2020. Retrieved 24 April 2020.
- [7] Ziarati, R. (2006). "Safety at Sea—Applying Pareto Analysis", *Proc. of World Maritime Technology Conference, Institute of Maritime Studies*.
- [8] Krejcie & Morgan. (1970). "Educational and Psychological Measurement". 30, 607-610. Leavengood, S., & Reeb, J. (2002) "Part 3: Pareto Analysis and Check Sheets", *Statistical Process Control*, pp.1-6.
- [9] Loeb, Susanna, Dynarski, McFarland, Morris, Reardon & Reber. (2017). "Descriptive Analysis in Education: A Guide for Researchers." *U.S. Department of Education, Institute of Education Sciences. National Center for Education Evaluation and Regional Assistance* (March):1–40. Retrieved 5 April 2020.