Measurement of Public Opinion based on Social Media Big Data (Indonesia and Malaysia)

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Abstract. To suppress the spread of the coronavirus, two countries (Malaysia and Indonesia) have imposed a lockdown policy. Lockdown Policy or Movement Control Order (PKP) in Malaysia. The lockdown policy in Indonesia will continue until 2021 by changing to a policy of Enforcement of Community Activity Restrictions (PPKM). The focus of this study is to compare public opinion about the lockdown policy based on the data stored on Twitter social media. The measurement of public opinion on policies tends to be done using a survey method (traditional), but in this research, it is done by measuring public opinion based on social media big data. Big data-based public opinion research methods are still relatively new and exploratory. The measurement of public opinion is not only counting the number of Twitter users, top tweets, top influencers, but also the communication network between Twitter users in discussing the lockdown policy. The results showed that the Lockdown policy in Malaysia and Indonesia gave rise to various public opinions. Sentiment analysis shows that most tweets in Indonesia and Malaysia fall into the positive category, but the negative opinion category is almost the same as the positive opinion. In situations of uncertainty, Indonesians are more likely to trust personal sources of information. Unlike the Malaysian people, they believe more in online media information sources. Information in online media is more reliable than personal sources. As a result, there is more fake news or hoaxes than in Malaysia.

Keywords: Public Opinion; Lockdown; Social Media; PSBB; Big Data; Covid-19; PPKM; PKP

1 Introduction

The coronavirus or covid-19 began to enter Malaysia on January 23, 2020. The Malaysian Ministry of Health (KMK) has received reports that the coronavirus was carried by three foreign tourists (two from Sabah and one from Selangor). Meanwhile, the case in Indonesia began when Indonesian President Joko Widodo announced that the coronavirus had started to infect two Indonesian citizens in Depok, West Java on March 2, 2020. The two Indonesian citizens were infected by Japanese citizens who live in Malaysia.

To suppress the spread of the coronavirus, two countries (Malaysia and Indonesia) have imposed a lockdown policy. The Lockdown Policy or Movement Control Order (PKP) in Malaysia began on March 18, 2020, and has been extended until now. The lockdown or PKP policy in Malaysia was terminated on June 12, 2020. However, because a new cluster appeared in April 2021, the PKP policy was extended until now. Based on a report from the Malaysian Ministry of Health, Malaysian citizens who were exposed to the coronavirus until July 2021 were 1,880,000 cases and 18,802 people had died. The Lockdown Policy in Indonesia is known as "Large-Scale Social Restrictions (PSBB)" starting from April 10, 2020. The lockdown policy in Indonesia will continue until 2021 by changing to the Policy for Enforcement of Community Activity Restrictions (PPKM). The PPKM policy in Indonesia has been in effect until now because the reason for the increase in the number of victims of COVID-19 is until July 2021. As of July 202, there have been 3,409,658 confirmed cases of Covid-19. Of these, 94,000 people died. The focus of this study is not just comparing the socialization of the lockdown policy, but how the comparison of public opinion about the lockdown policy can be observed and understood based on the big data of Twitter social media.

2   Methodology

Polling measurement has shifted, community members no longer express their opinions through surveys but can also express their opinions through various social media (Suratnoaji, 2018). Every individual who expresses his opinion on social media indirectly leaves a digital imprint on certain issues. This digital footprint is what we optimize as a data source in public opinion research analysis. The utilization of research data on Twitter social media cannot be done using a survey method but using social media data-based methods with the help of software (Mohan, 2016). The survey method is not compatible with the big data characteristics of social media related to volume, velocity, and variety (Oussous et al., 2018). Big data is a "big growth data set that includes heterogeneous formats: structured, unstructured, and semi-structured data. -structured" will complicate traditional methods (Manyika et al., 2011). In an effort to download, process, analyze, and visualize research data, researchers use software tools to download social media data.

3   Results and Discussion

3.1   Public Opinion Volume

The size of public opinion on social media is measured by the volume or number of social media users who are involved in discussing the issues of Indonesia (PKKM) and Malaysia (PKP). The public opinion formed by the small number of Twitter users indicates that the issue is not so important. On the other hand, if the volume of users is large, it shows that the issues discussed are very important. The Policy for the Implementation of Restrictions on Community Activities or PPKM (Indonesia) from April 1, 2021, to July 31, 2021, received a response of 88,497 Twitter users or 0.052% of the total Indonesian population who use the internet. Meanwhile, the Movement Control Order or PKP (Malaysia) policy received a public response of 36,300 Twitter users who discussed the issue of "PKP" or 0.12% of the total internet users in Malaysia.

3.2 Trends in PPKM and PKP Policy Issues

The discussion on the Lockdown issue in Malaysia and Indonesia is not static but dynamic following the development of other issues. The trend of talking about lockdown policies in Malaysia and Indonesia has never been stable but tends to change over time. This is related to the Lockdown policies implemented in the two countries which are considered by the public to have not resolved the Covid-19 problem. This can be seen in the movement of the discussion trend of the following PPKM and PKP policy issues.se follow the formatting instructions for headings given in figure.
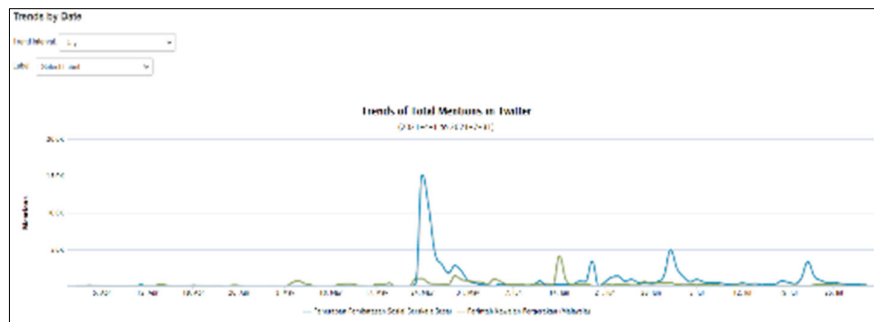

Fig. 1. Trends in PPKM and PKP policy issues

In the period from April 1 to July 31, 2021, public opinion about "PPKM" in Indonesia peaked on May 24, 2021, because it was triggered by a tweet from the http://twitter.com/tnrags account which stated:

@tnrags: "Religious indoctrination must end in schools --, ban. Religion is good. Schools must be the fountainhead of secular education. #PSBB"

While public opinion about the lockdown peaked in Malaysia on June 13, 2021, which was triggered by a tweet from http://twitter.com/sidchan. The user tweeted as follows:

@sidchan: "Goodluck bro, why are things going viral, right? hihi #PKP #COVID19 https://t.co/4uMncCQzLW".

3.3 Public Opinion Sentiment PPKM and PKP Policies

Research on public opinion based on social media data is also able to measure public opinion sentiment towards lockdown policies in Malaysia and Indonesia. The sentiment is understood based on the words in the tweet. Words that give praise, support, or empathy for the lockdown policy are categorized as positive sentiments. On the other hand, words that contain rejection and reproach are categorized as negative sentiments (Hansen et al., 2011). Based on the grouping of words, it shows that public opinion on the lockdown policy has not agreed in both countries. In Malaysia, most or as many as 15700 (43%) of the Twitter user community support the PKP policy or are in positive public opinion. There was 43 percent of people who rejected the lockdown or PKP policy or 15,485 people. In contrast to public opinion in Indonesia, most or as many as 45,302 (51.19%) of the Twitter user community support the lockdown policy or PPKM policy in Indonesia. The group that rejects the lockdown policy (PPKM and PKP), in both countries is still relatively high.
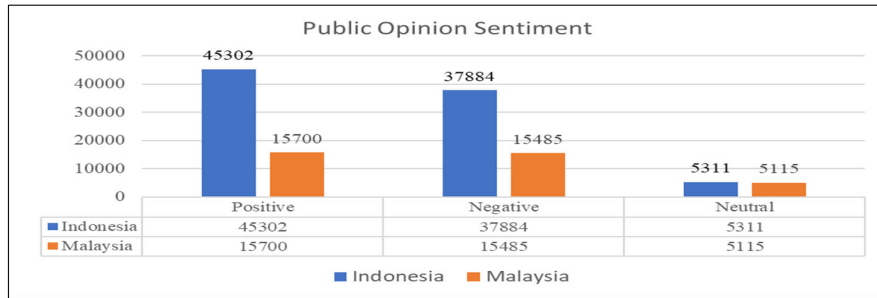
Fig. 2. Public Opinion Sentiment PPKM and PKP Policies

3.4 Top Tweets PPKM and PKP Policies

Top Tweet is an issue that is widely discussed by the public. Top tweets are important information for policy evaluation. Top Tweets about PPKM policies in Indonesia can be seen in the following graph.
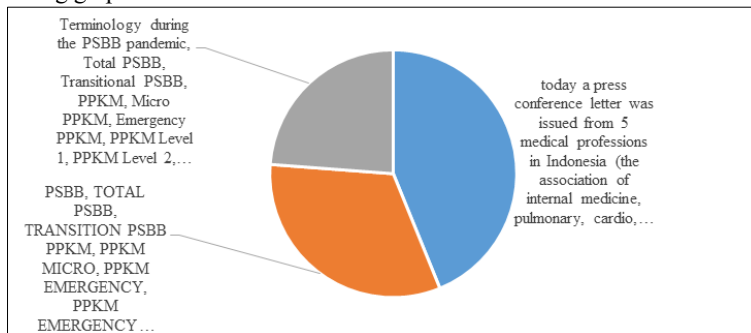

Fig. 3. Top Tweets PPKM in Indonesia

Top Tweets from the @myggnius account have received 3094 engagements from the Twitter user community. The top tweets that received the most responses from Twitter media users were positive because they recommended that the lockdown policy be reinstated in Indonesia because the number of COVID-19 victims increased by 500% on 17 June 2021. Top tweets in Malaysia are from @sidcan with 4612 engagements. Profile @sidcan is a media online that has positive tweets because it has a concern for overseeing PKP policies in Malaysia.
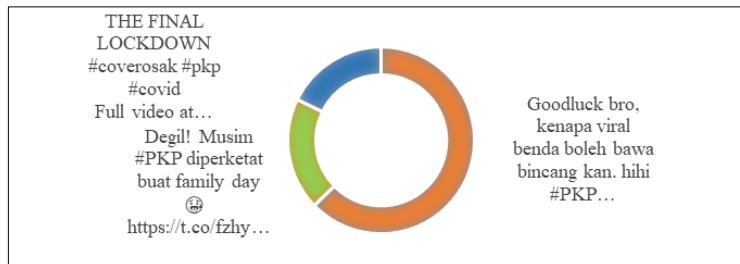

Fig. 4. Top Tweets PKP in Malaysia

3.5 Top influencers in PPKM and PKP Policies

There is a significant difference between the people of Malaysia and Indonesia in responding to the Lockdown policy. Most of the Twitter user community in Malaysia is very dependent on reliable media information sources (online media). While in Indonesia, all information related to PPKM policies mostly refers to personal sources, not from the government or online media. As a result, there is a lot of information that is false or misleading about PPKM in Indonesia. This is triggered by the PPKM policy carried out by the Indonesian government which is sustainable without end.

Malaysia			Indonesia		
Twitter Media Account	**Description**	**Number of Responses**	**Twitter Media Account**	**Description**	**Number of Responses**
@sidcan	Online Media	6306	@myggnius	Personal	3094
@beritartm	Online Media	5912	@makmummasjid	Personal	3026
@SenawangTV	Online Media	2618	@TamizhRatsaschi	Personal	1798
@RTM_Malaysia	Online Media	1488	@ poconghypebest	Personal	1668

The @sidcan account is a top influencer from online media. The online media used as sources include @beritaartm, @SenawangTV, and @RTM_Malaysia. Unlike in Indonesia, tweets are mostly sourced from personal sources such as @myggnius, @makmummasjid, @TamizRatsaschi, and @poconghypebeats.

3.6 PKP and PPKM Communication Network Structure

The movement of top influencers such as @sidcan, @beritaartm, @SenawangTV, and @RTM_Malaysia in disseminating PKP policies can be identified through the communication network structure. Based on this structure, it can be understood with whom these accounts communicate with other Twitter users. Based on the network structure @sidcan occupies a central position in Malaysia's PKP policy talks. The structure of the communication network in Indonesia, @myggnius' position is central in the discussion of PPKM policy. The comparison of communication networks between countries in discussing the Lockdown issue can be seen as follows:
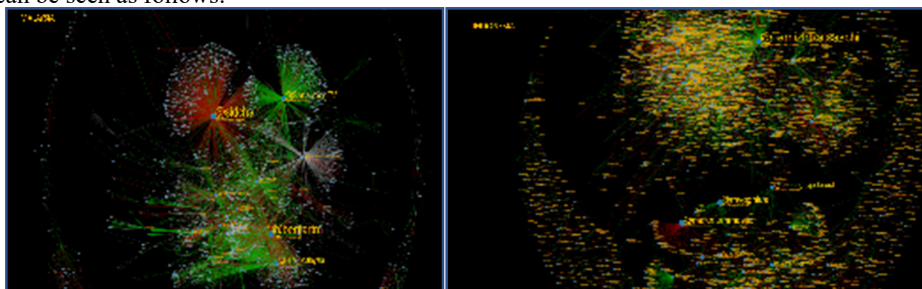

Fig. 5. PKP and PPKM Communication Network Structure

4 Conclusion

Lockdown policies in Malaysia and Indonesia still cause various kinds of public responses. Based on sentiment analysis by referring to the words of the tweet, most of the tweets in Indonesia and Malaysia are in the positive category, but the number of people who have negative opinions about the lockdown policy is almost equal. In situations of uncertainty, Indonesians are more likely to trust personal sources of information. In contrast to Malaysians, they tend to believe more in online sources of information. The quality of information from online media is more reliable than personal sources. As a result, fake news or hoaxes tend to be more prevalent in Indonesia than in Malaysia. There are more sources of personal information than the government or online media, as a result of the PPKM policy being implemented gradually and almost continuously. The big data-based public opinion research method has several opportunities and challenges, including providing research development based on social media big data and no longer based on survey research. While the challenges are related to validity and reliability.

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