

THE SOCIAL MEDIA ANALYTICS OF BOOSTER VACCINE COVID-19 DISCOURSES ON TWITTER

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ABSTRACT

People around the world are currently carrying out booster vaccinations in the midst of the outbreak of the Omicron variant of the COVID-19 virus. Twitter as one of the social media that is widely used in Indonesia is also enlivened with discussions about vaccine boosters. The objective of this research is to see how the vaccine booster issue is discussed on Twitter. By using the concept of Social Media Analytics (SMA), this study explores tweet data and analyzes it based on the hashtags that appear, the accounts that post a lot and get re-tweets, and the accounts that are mentioned the most (mentioned) in the discussion of the vaccine booster issue. The method of this research is descriptive qualitative using NVivo software. The result of this study indicated that the accounts of government officials and institutions are not retweeted much by Twitter users. Instead, the individual accounts that posted the most tweets and were retweeted. The Twitter user community is trying to provide information or responses to the accounts of state officials in the context of the booster vaccine issue.

Keywords: social media analytics, discourse, vaccine booster, Twitter, Indonesia

INTRODUCTION

Vaccination activities as an effort to fight the COVID-19 pandemic have been carried out by various countries since the beginning of 2021. In Indonesia, in 2022, vaccination activities have entered the booster vaccines or the third dose of vaccines. The government through the Ministry of Health has started to provide booster vaccines for the public since January 12, 2022. The requirements for receiving this vaccine are those who have received dose 2 of the vaccine at least 6 months ago. This booster vaccine is prioritized for the elderly group, because this group is considered vulnerable to being exposed to COVID-19 (Dewi, 2022).

Based on data released by the task force for handling COVID-19, as of March 16, 2022, 15,222,442 people have received booster vaccines (Rahmadi, 2022). This number will certainly continue to grow as the government and people actively campaign for the importance of vaccines. Moreover, booster vaccine then used as a travel requirement. Discussions about the importance of vaccines are also taking place

on social media. One of the social media that discusses vaccination discourse is Twitter. From January to March, the discussion of booster vaccination was buzzing on Twitter. This of course can influence public opinion because Twitter users in Indonesia are not small. Based on Tempo.co news which describes Newsweek data on world Twitter users, Indonesia is the eighth country with the most Twitter users in 2021, with a total of 10.65 million users (Nurhadi, 2021)

This study attempts to describe how the discourse on booster vaccination issues is on Twitter. By using the Social Media Analytics (SMA) method, this study seeks to identify which accounts are most discussing the issue of booster vaccination. Including the account with the most posts and retweets. Then what hashtags appear the most, as well as the accounts that are most mentioned by Twitter users. By looking at these accounts and hashtags, the researcher analyzed how the accounts that actively shared their opinions got the attention of Twitter users. This can be seen not only from the concept of Social Media Analytics (SMA) but also the concept of online opinion leaders. This study would identify the person and institution that have most tweets at the booster vaccines issue. They could influence other Twitter users' opinion related to the issue. Therefore, the concept of opinion leaders would relate to this study.

According to previous research, the discourse on the pandemic is not only about vaccination activities, but also about government policies. Research of Alkatiri, Nadiah, and Nasution (2020) which describes public opinion on the implementation of the new normal on Twitter social media. Research results show that 50.17% have a negative opinion regarding the hashtag #newnormalindonesia, and only 28.01% have a positive opinion. An analysis of opinion sentiment on Twitter was also carried out by Kurniawan and Apriliani (2020). They researched public opinion about the corona virus. Their findings showed that 79% had a negative opinion, 11% was neutral and 10% had a positive opinion.

Meanwhile, Salahudin, Nurmandi, Sulistyaningsih, et al (2020) from the University of Muhammadiyah Malang researched the official Twitter account of President Joko Widodo and several local governments in addressing information about COVID-19. The results stated that President Joko Widodo actively used Twitter social media to publish information and persuade the public to be disciplined in implementing health protocols. This was followed by several governors' Twitter accounts in several regions such as the governors of North Sumatra, South Sulawesi, East Java, Central Java, West Java, and West Nusa Tenggara.

METHOD

Data collection was carried out using the NVivo 12 Plus data analysis software to extract data (data mining) related to the discussion of the Covid-19 vaccination issue. After extracting the data, the data is analyzed. Then modeling is made based on the classification of topics, individuals, and the distribution of the area. The data extracted is a tweet that contains the words "vaksin booster Indonesia". The data taken is data

from January 1 to March 10, 2022. Withdrawal of data uses the NCapture feature contained in the NVivo software.

The results obtained from data mining are then categorized and classified based on what topics are being discussed a lot. Also, which individuals are mentioned the most, including the hashtags that appear the most. After that the data is then presented in the form of tables and graphs. These data are presented and analyzed based on the stages of Social Media Analytics described by Fan & Gordon (2014), the stages of Capture, Understand, and Present.

SOCIAL MEDIA ANALYTICS AS FRAMEWORK

Social Media Analytics (SMA) is a method to discover, process, and thus visualize the data that is gained by one. The purpose of SMA is to analyze and compose data found on social media platforms which contain a proven to be useful and can be utilized thus benefitting an individual or an organization which has worked on it (Andryani, 2019). SMA can be modestly described as an understanding process of which amounts of contents that generated by its social media users and found on its platform that therefore leads to an identification of risks and chances to draw a particular visualization of what is currently happening, e.g., trends, issues (Stieglitz, Mirbabaie, Ross, & Neuberger, 2018).

Since the data itself is notable to be a key point of the SMA process, therefore one needs to clarify what kind of goals of the SMA one is working. SMA can be used for several purposes, such as business (Kleindienst, 2015), trends or issues detection, or even a bad publication – to some extent (Bi, 2014). SMA also can be utilized to determine a specific region which undergoes a crisis through an analysis either of GPS data, if involved (Bendler, Antal, & Neumann, 2014).

The methods of SMA are varied, however the disparity of the methods does not hinder the purpose of SMA: to present or visualize the data. Fan & Gordon (2014) stated the steps of SMA consists of a process of capture, understand, and present. Capturing, as the beginning of the stage of SMA is a means to obtain any data deemed relevant from various social media platforms. However, it is important to note that there will be a sorting process of data collected, the second one, understand, is a manner to select the data which is already obtained in the previous stage. Modestly, the means of understanding within this context is to select and analyze all the data that is gained. The selection process of the data is to prove whether the data is proven to be highly relevant or useful, or the opposite. Thereby, the analysis of the data is ergo to derive information from the data. Last, the present stage entangles its portrayal of obtained and selected information which proven to be relevant to represent.

The three steps mentioned above are supposedly to complement each other. Exhibit one, if however, the last process as in the present step derives dull presented data or raises doubt whether the data is yet to be highly prognostic. Thus, it is highly suggested to retrack the previous stages of the work, either the capture or the understand step, to resolve the data or to adjust the parameters used in the analytics

(Fan & Gordon, 2014). Stieglitz et al., (2018) has developed additional steps in the SMA framework to have had a more in-depth analysis. Which involves discovery as a process to find concealed structures and samples, tracking to have a further discussion regarding the data source (Stieglitz & Neuberger, 2014), preparation which the previous framework did not include. Meaning, preparation in this manner is the work of preparing the obtained data to present afterwards. Last, an analysis which has a few meanings at hand, e.g., opinion mining and social network analysis.

Opinion mining works in a process of surveillance manner to see the current trends that occur, or to ‘listen’ to the people – for politicians, based on the users’ opinions which intertwined with their own behaviour and a particular sentiment within through social media platforms (Assenmacher, 2021). Also, the very own opinion itself also can be used by the user per se in their decision-making process to have themselves further informed (Stieglitz & Neuberger, 2014). As for another method, social network analysis comprehends the relationship amongst the person, interest of groups, and etc, by seeking an in-depth insight of a foundation which builds a connection to each other (Carrington, 2011).

Nevertheless, the discourse around social media analytics is indeed arising a dispute, especially in ethical field. That, a sense of privacy invasion has become a notable concern, that the users (customers) see the means of gaining their personal data for company uses as a practice of privacy invasion and regard such practice to be unethical (Hajli & Lin, 111-123). Due to ethical challenges encountered in SMA discourse, it begets a new interdisciplinary subject as one to be called Techno ethics (Fan & Ge, 2018). Ethical challenges were engaged in several social media platforms. As for an example is Facebook, which Kumar & Nanda (2019) collected a few of numerous exhibits: Privacy of Personal Information, Freedom of Speech, Data Leakage, Identity Theft, and Fake News.

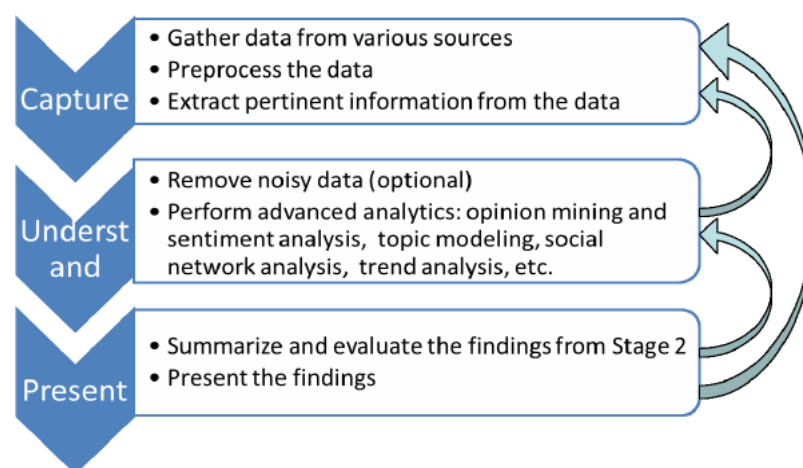


Figure 1. Three Steps of SMA

Source: Fan & Gordon (2014, p.6)

TWITTER: NATURE AND DYNAMICS

Twitter is a microblogging-based social media platform which consists of micro-sharing and micro- updating (Jansen, Zhang, Sobel, & Chowdury, 2009). Twitter users called their activities which refers to its microblogging aspect, as tweeting. There are millions of users of Twitter worldwide, in Indonesia itself there are approximately 17,55 million users, according to statistics provided by Statista (2021). Twitter however still has similarity to other social media platforms. Boyd (quoted through Michele, 2012) gives four shared similarity significances point, these are: Persistence (collecting and archiving content), replicability (duplicates existing content), scalability (wide reach of a content), searchability (access to search or discover content through a search feature).

Twitter also can be used as a quick detector, as for example detecting the current occurrence such as natural disaster (Sakaki et al, 2010), also massive movements or protests such as Iran protests in 2009 (Burns, A. & Eltham B, 2009). This procurable condition to presumably easy obtaining Twitter data is due to the fact that anyone with internet access can reach Twitter API to gain Twitter's data for free, or they can use a Firehose API that is paid, however the search through API will not provide them a more complete set of Twitter's data records, compared to using the Firehose API. (Ahmed, Bath, & Demartini, 2017).

However, this disposition of Twitter's nature is not without a dispute. Such as regarding the fact that a tweet can be perceived as metacontextual, instant, and rather impulsive due to the consequence of real time posting which expected to be given a further clarification in a brief (Benjamin, 2012). Consequentially, the receiver of information has a slim chance to reflect and proceed to make a further judgment regarding its information disseminated to them. That also results to ethical engagement that is proven to be concerning such as a condition of lack of context tweet which authors just stated, this lack of context tweet in result derives an unverified information (Cohen, et al., 2010).

Another notable issue is data selling which involves users data that is sold to another party, e.g., government or other entity that they may use illegally (Reuters, 2017), this case is also supported with foremost Twitter's terms of services which stated that the users posts which are made public will be available to third parties, and thus by recognizing this terms the users legally consent to this (Williams, Burnap, & Sloan, 2017). Paid tweets that deal with lack of accountability of its paid figures, which they bear an ethical responsibility to reveal their associations with the advertisers behind them (Kumar & Nanda, 2019). Fake account that shares malicious content which possibly do not belong to the original person which identity is used by another individual (Abdel et al., 2016).

TWEETS AND RETWEETS ON VACCINE ISSUE IN INDONESIA: SMA ANALYTICS

Twitter as a social media platform is notably preferred to be utilized as a means to spread information such as public policy, or even a social discourse to some extent. Thus, within a context of booster vaccination issue, Twitter becomes a platform to be proportionally distinct compared to other social media platforms to be researched. This very main aspects of twitter, which is a text-based (microblogging) social media, is ergo fancy to be looked upon.

Regarding booster vaccination issue in Indonesia, researchers analyzed data based on the number of tweets and retweets, the number of accounts that posted the most tweets and were retweeted, the accounts that were mentioned the most, and the hashtags that appeared the most. The following is the data from the findings and processing that has been carried out. A total of 3112 tweets and re-tweets regarding Indonesia's booster vaccine were collected from January 1 to March 10, 2022. The data are in the form of 1449 tweets and 1663 re-tweets. The following is the distribution of the data.

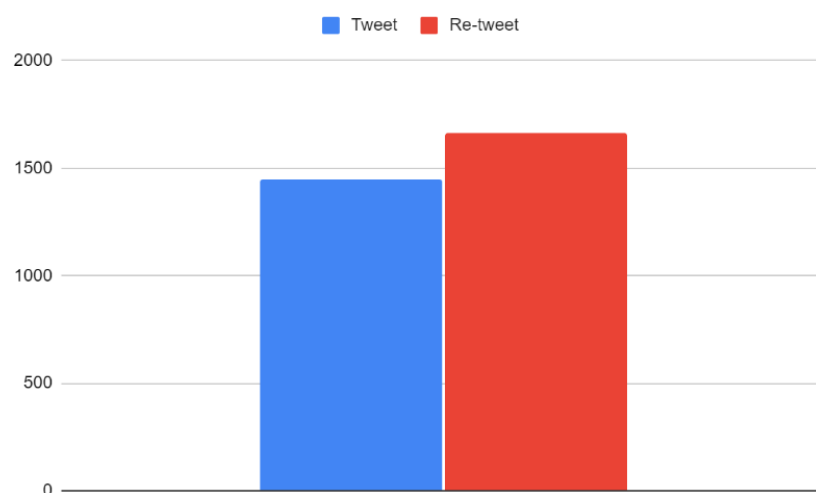


Figure 2. The Number of Tweets and Retweets of Booster Vaccines Issue

Source: Processed by authors

From the number of tweets and re-tweets, there are several accounts that post the most tweets and receive re-tweets from other twitter users. The majority are personal accounts, only one account is a mass media account, namely CNN Indonesia. This shows that the Indonesia mass media on Twitter are not discussing the issue of booster vaccines too much. Based on the findings, the @faheemyounus is the account that posts the most issues about booster vaccines. His tweets have also been retweeted a lot, with a total of 170 tweets and re-tweets. In second place is an online media account, namely @cnnindonesia. The @cnnindonesia account posted 124 tweets and

was retweeted. CNN Indonesia is the only mass media that its posts have received many re-tweets from Twitter users. Meanwhile, 3 other accounts that also post a lot of booster vaccine issues are the @agoesaguss account with 104 tweets, the @adjieravi account with 61 tweets, and the @botdonaldps account with 52 tweets.

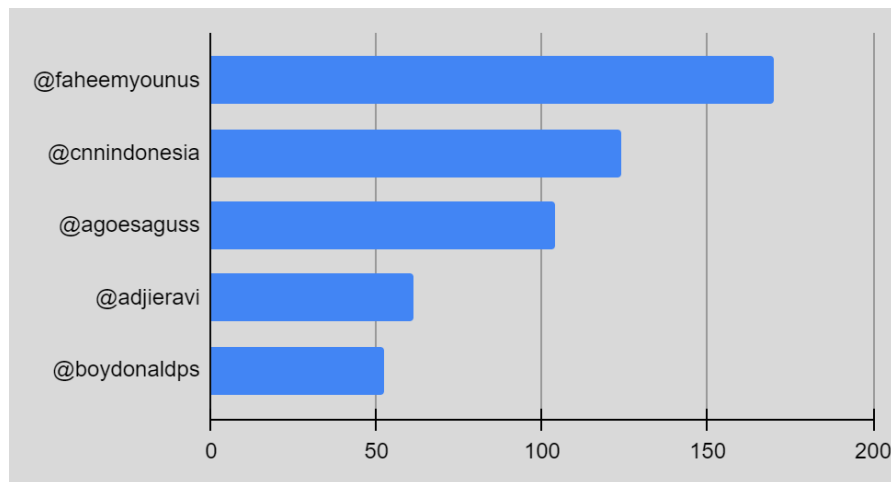


Figure 3. Username With Most Tweet and Re-Tweet

Source: Processed by authors

Meanwhile, differed from accounts that post a lot of tweets and get re-tweeted, the sole focus of this data is to spot accounts that are mentioned the most. Our findings show that government officials' account, as in the account of President Joko Widodo @jokowi, the account of the Minister of SOEs Erick Thohir @erickthohir, and the account of government institutions, such as the account of the Ministry of Health @kemenkesri. The following is a diagram illustrating the accounts on Twitter that are most mentioned (mentioned) by Twitter users on the issue of booster vaccines in Indonesia.

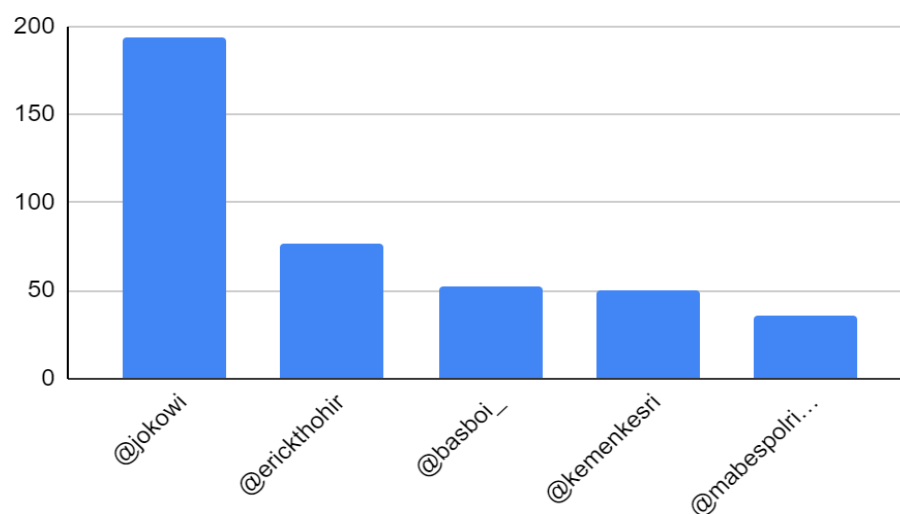


Figure 4. Username With Massive Mentions

Source: Processed by authors

Based on the data in the diagram above, the account of President Joko Widodo @jokowi is the most mentioned Twitter account by Twitter users regarding the booster vaccination discourse. The account was mentioned 194 times. While the second account that is widely mentioned is the account of the Minister of State-Owned Enterprises, Erick Thohir. The @erickthohir account was mentioned by Twitter users 77 times. Then there is 1 account that is not a state official, namely the @basboi_ account which was mentioned 52 times. Meanwhile, the other two accounts that are also frequently mentioned are the accounts of state institutions, namely the Ministry of Health @kemenkesri account and the National Police Headquarters account @mabespolrinews. The two accounts were mentioned 50 and 36 times respectively by Twitter users.

After knowing the accounts that posted the most tweets, received re-tweets and were the most frequently mentioned in the conversation about booster vaccines, there was also a hashtag that also appeared in this issue. There are 5 hashtags that appear the most are #sinergicegahpandemi, #polisi_indonesia, #langkahcegahpandemi, #denganmerdekaberdaulat, and #indonesiasehatindonesiahebat.

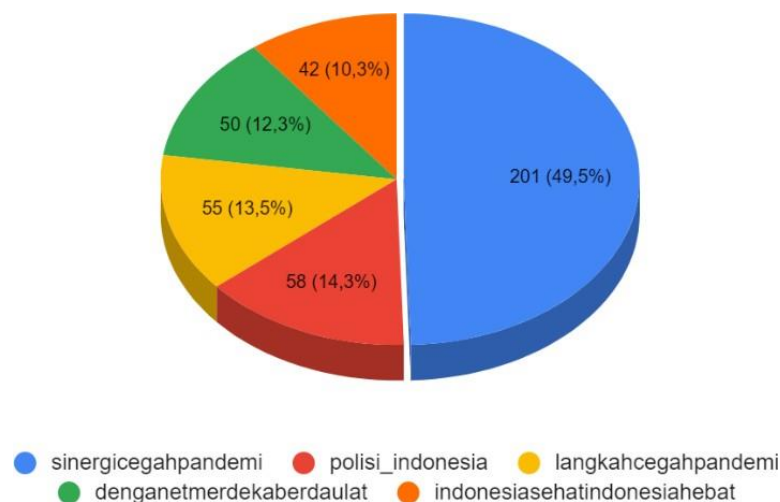


Figure 5. The Most Appear Hashtags on Booster Vaccine Issue

Source: Processed by authors

To discuss the result of this research, we can initially identify the account or person that most actively post the discourse of booster vaccines. On the issue of booster vaccines, the account @faheemyounus became an opinion leader because he actively posted tweets and was retweeted by many Twitter users in Indonesia. His posts about booster vaccines get the most responses. Based on the bio listed on his account, Faheem Younus is a doctor and academician from the University of Maryland, United States. His account is recorded to have more than 520,000 followers and is quite active in providing information and education about Covid-19, including the

importance of vaccine boosters. With such many followers, the average tweet is retweeted by thousands and tens of thousands of Twitter users. In addition to the @faheemyounus account, on the issue of booster vaccines, the second account that posts the most and is also retweeted by users is the mass media account @cnnindonesia. This account is the only media account from the top 10 most active accounts and gets the most responses. Twitter @cnnindonesia account has 2.3 million followers. This shows that, with that large number of audiences, CNN Indonesia Twitter account has gained a lot of attentions and engagements, not to mention their consistency on publishing news regarding vaccination issues compared to other media company. It shows that Twitter users in Indonesia are still believe in mass media to obtain an information about Covid-19.

CONCLUSION

The result of this study indicates that the accounts of government officials and institutions are not retweeted much by Twitter users. The accounts that posted the most tweets and were retweeted were individual accounts. In addition, only one mass media account has received attention in this booster vaccine issue, namely the @cnnindonesia account. However, the accounts of state officials and institutions have become the accounts most mentioned by Twitter users in the issue of booster vaccines. The data shows that the accounts of President Jokowi and Minister of SOEs Erick Thohir are the two most mentioned accounts. Additionally, accounts of state institutions such as the Ministry of Health and the National Police Headquarters are also widely mentioned in the issue of booster vaccines. This shows that the Twitter user community is trying to provide information or responses to the accounts of state officials in the context of the booster vaccine issue. However, the data is also debatable because the nature of Twitter, which allows bot or buzzer accounts to spread messages occasionally involves mentions to the accounts of state officials. For this reason, further research is needed to understand this phenomenon. In addition, the issue that emerged in the vaccines discourse is there are people who still anti-vaccine. It could be considered by further research to identify this issue in Twitter.

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