

Twitter users' sentiments on COVID-19 vaccination: Malaysian concerns

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During the COVID-19 epidemic, social media became a commonly used platform for individuals to get credible information on COVID-19 (Chen et al. 2021) and for the government to disseminate COVID-19 news. Twitter is one of the most popular means for the government to educate the public on COVID-19 disease, spread and control (Rufai & Bunce 2020). When vaccines were tested and became available to the public, vaccination programmes were set in motion in various countries. COVID-19 vaccine-related concerns have received a lot of attention on the internet (Lyu et al. 2021). The reactions of the public to COVID-19 vaccination ranged from trust in vaccination as a way to be protected against the disease to hesitancy and outright rejection. Much of these negative reactions to COVID-19 vaccination appear in social media, and influence people who are undecided against vaccination. Social media messages are a source of naturally occurring interactions which can be analysed to reveal pro- and anti-vaccination sentiments. At the present time, there is a lack of academic publications about the common topics of conversations on social media, and how the interest and issues change from the time when vaccines are being tested to the time when the vaccine rollout is planned and implemented. The trajectory of topics of conversation on social media provides insights into human reactions to vaccination of a new easily-transmissible infectious disease which has huge and ramifying global impact.

The study examined Malaysian Twitter users' sentiments on COVID-19 vaccination during the different phases of the disease spread and control. The tweets on COVID-19 vaccination were collected from January 1 until December 31, 2021, covering three phases of the disease spread and control, namely, (1) before availability of vaccination (January 1 until February 23, 2021), (2) arrival of first vaccine in Malaysia (February 24 until October 8, 2021), and (3) implementation of booster dose (October 9 until December 31, 2021). The search keywords were Coronavirus, COVID19, vaccine(s), vaccination(s), vaccinate(d), vaccination drive, immunisation, and the names of the vaccines. Altogether 64 tweets written in English and Malay were analysed. The geo-tagged Twitter messages of Malaysian users were extracted using TweetDeck (an app connecting to Twitter API). Antconc software was used in this study to identify the dominant topics talked about in Twitter in each phase, by focussing on the top 50 frequently used words.

The results are described based on the three phases of disease spread and control. The frequency ranking of words is reported based on the phase.

During phase 1 before availability of vaccination (January 1 until February 23, 2021), Malaysian Twitter users talked about travel restrictions, and pro- and anti-vaccination reactions. They debated the likelihood of interstate borders opening after achieving herd immunity, as they were unable to travel or see their parents in the hometowns. The concern about travel restrictions is reflected in the frequent use of the words 'borders' (ranked 16) and 'cross' (ranked 20). Other words like 'my', 'tak' (not), 'nak' (want) and 'not' (ranked 3, 5, 10 and 11 respectively) suggest plans (ranked 29) which could not be carried out due to movement restrictions. In addition, Twitter users talked about vaccine uptake, indicated by high frequency words such as 'ambil' and 'amek' (standard and dialectal Malay spelling, translated as 'take'). There was also worry over false rumours in that there were 'chips' (ranked 18) in the vaccine that could be used to track people and control them. For example, the tweet '*Babi kalau tak nak vaccine tu bagi aku je la cibai*' (Translated as 'Stupid, if you don't want the vaccination, then give it to me, idiot') showed that people were becoming outraged with anti-vaccine groups for disseminating false information. To counteract the bad influence of the anti-vaccine groups, the Twitter users were eager to educate others about the benefits of vaccines in improving antibody levels. This is shown by the use of the words 'antibody' (ranked 41), 'antivac' (ranked 42), 'brain' (ranked 17). There was a mix of positive and negative sentiments in the Twitter conversations on COVID-19 vaccination.

Phase 2 is marked by the arrival of the first vaccine in Malaysia (February 24 until October 8, 2021). There was a trailing off of talk on inability to visit family members in other towns, reflected in the high

frequency of the word '*kampung*' (village, ranked 11) and 'family' (ranked 15). However, the main concern now turned to the vaccination itself. The Twitter users talked about who had registered for the vaccination and who had received appointment dates for the vaccination, indicated by use of words such as 'when' (ranked 19), 'who' (ranked 20), and 'already' (ranked 22). They were 'proud' (ranked 36) of family members who had 'registered' (ranked 37) for the vaccination, despite being less educated and therefore not medically informed. In addition, the Twitter users talked about the effect of the vaccination in reducing COVID-19 spread ('dose', ranked 26) and fatalities ('death', ranked 25; 'live', ranked 32). The first COVID-19 vaccine to arrive in Malaysia was Pfizer–BioNTech COVID19 vaccine on 26 February 2021, which was distributed nationwide over a period of two weeks. Malaysia had also bought Sinovac and AstraZeneca vaccines which were arriving later, giving rise to talk about the 'choice' (ranked 24) of vaccine for the 'jabs' (ranked 30).

Phase 3 of vaccination began in Malaysia after 90% of Malaysian adults had received their first dose of COVID-19 vaccination (October 9 until December 31, 2021). The analysis of frequently used words showed that the Twitter users were returning to work and somewhat normal life, and there were doubts on the usefulness of the COVID-19 vaccination. The word 'work' (ranked 6) frequently appeared in the tweets because by this time, many workplaces already did not allow their employees to work from homes. However, some premises had to 'close' (ranked 21) for the stipulated number of days when their employees tested positive. The tweets showed that Malaysians were coming to terms with the need for the vaccination shown by high frequency words such as 'doctor', 'accept', 'advice', 'public', 'expired', and 'science'. However, there were still doubts on the usefulness of the vaccination, indicated by words such as 'believe', '*benar*' (true), 'infected', and '*tengok*' (see [if it works]). The uncertainty of the situation was manifested in frequent use of words related to contrasts ('but', ranked 8) and hypothetical situations ('if', '*kalau*' (if), 'likely'). The Twitter users also expressed fear of the vaccination ('pain', ranked 19) and the resulting side-effects ('*rasa*' (feel), ranked 37).

The study on the trajectory of topics of Twitter conversations in 2021 among Malaysian showed a transition from living under movement-restriction conditions to the normality of returning to work. On the vaccination-related concerns, the interest of Malaysian Twitter users turned from pro- and anti-vaccination reactions before the arrival of the vaccines to the practical details of registering for the vaccination. During the vaccination implementation from the first to the second shot, the Twitter conversation topics switched from effect of the vaccination on disease spread and fatalities to doubts about the efficacy of the vaccination. The findings may be applicable to other infectious diseases and are useful to authorities in management of vaccination.

References

- Chen, Junhan, & Wang, Yuan. 2021. Social media use for health purposes: Systematic review. *Journal of Medical Internet Research* 23(5), e17917.
- Lyu, Joanne Chen, Han, Eileen Le, & Luli, Garving K. 2021. COVID-19 vaccine-related discussion on Twitter: topic modeling and sentiment analysis. *Journal of Medical Internet Research* 23(6), e24435.
- Rufai, Sohaib R., & Bunce, Catey. 2020. World leaders' usage of Twitter in response to the COVID-19 pandemic: A content analysis. *Journal of Public Health* 42(3), 510-516.