Persistent anti-vaxxers and pandemic-induced new anti-vaxxers
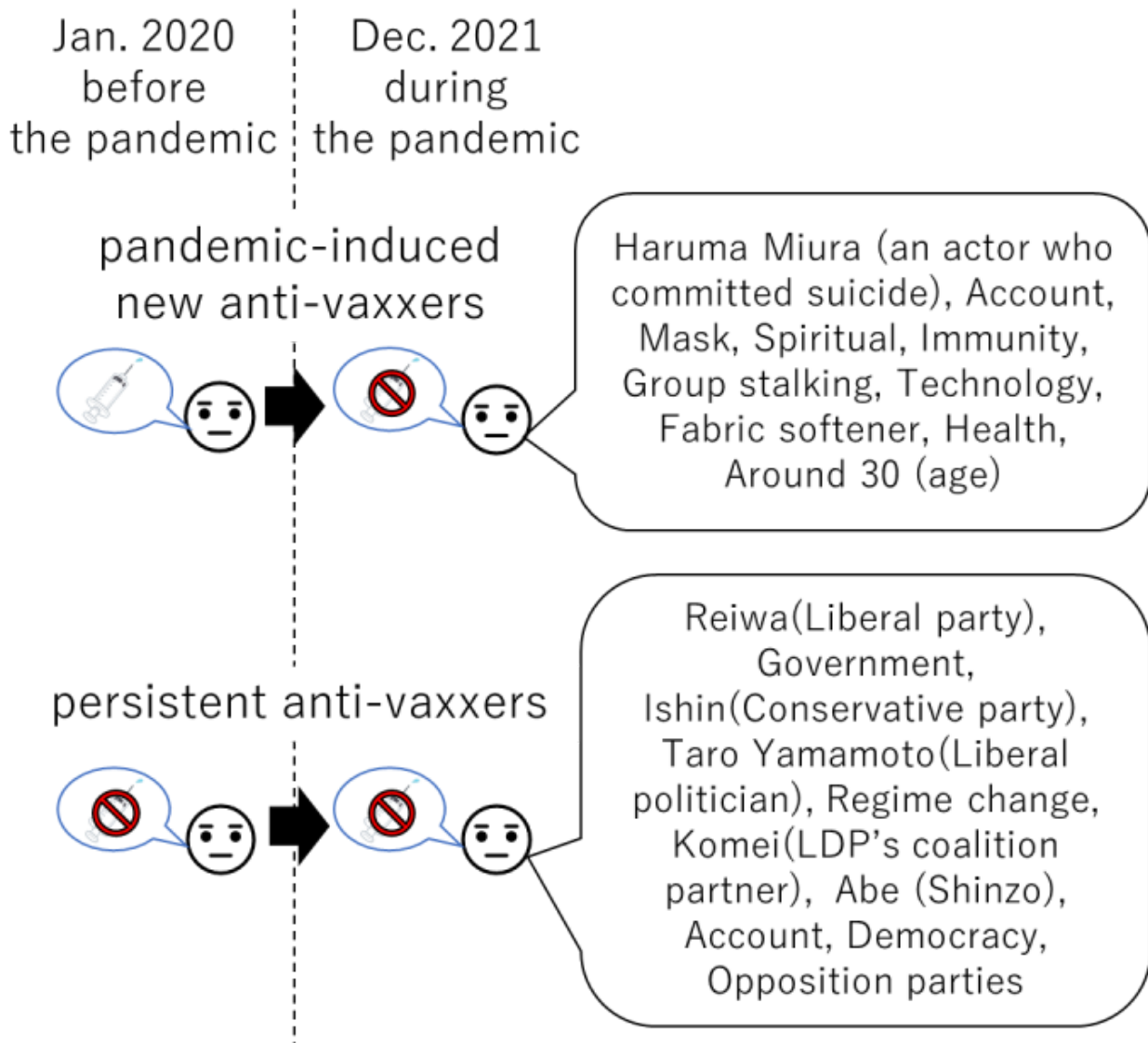
2 September 2024

Figure 1. Profile feature words

Read this analysis of persistent anti-vaxxers and pandemic-induced new anti-vaxxers by Fujio Toriumi, Professor at the University of Tokyo in Japan

During the COVID-19 pandemic caused by the novel coronavirus, anti-vaccine discourses pose a threat to public health by making it challenging to achieve herd immunity. Although studies describing anti-vaxxers' characteristics have been accumulating, a lack of understanding prevails regarding the "triggers" that lead individuals to become anti-vaxxers.

		Dec 2021			
		Low	Middle	High	Total
Jan 2020	Low	28,831	5,395	1,921	36,147
	Moderate	1,030	58,025	6,466	65,521
	High	0	668	12,999	13,667
	Total	29,861	64,088	21,386	115,335

Table 1. Changes in anti-vaccine attitudes

Anti-vaccine discourse during the pandemic

We conducted a groundbreaking study analysing the rise of anti-vaccine discourse during the pandemic. Using machine learning and data analysis, with approximately one billion tweets containing the keyword "vaccine" collected from January to December 2021, the team successfully unveiled the characteristics of persistent anti-vaxxers and pandemic-induced new anti-vaxxers.

We first analysed the changes in anti-vaccine and pro-vaccine supporters. Tweets related to vaccines were categorised into pro-vaccine information, policy criticism, and anti-vaccine information, and we collected accounts that disseminated each type of tweet. Among these, the accounts that spread anti-vaccine information were defined as anti-vaccine information spreading accounts. Each account was classified into groups with High, Middle, and Low anti-vaccine attitudes based on the extent to which they followed these anti-vaccine information-spreading accounts.

We calculated these groups for both January 2020 and December 2021 to clarify how anti-vaccine attitudes changed. As a result, it was found that accounts with a high anti-vaccine attitude (H group) in January 2020 were likely to remain in the H group in December 2021 (see Table 1). In other words, it was revealed that once someone becomes anti-vaccine, the likelihood of them reverting to being a vaccine supporter is extremely low.

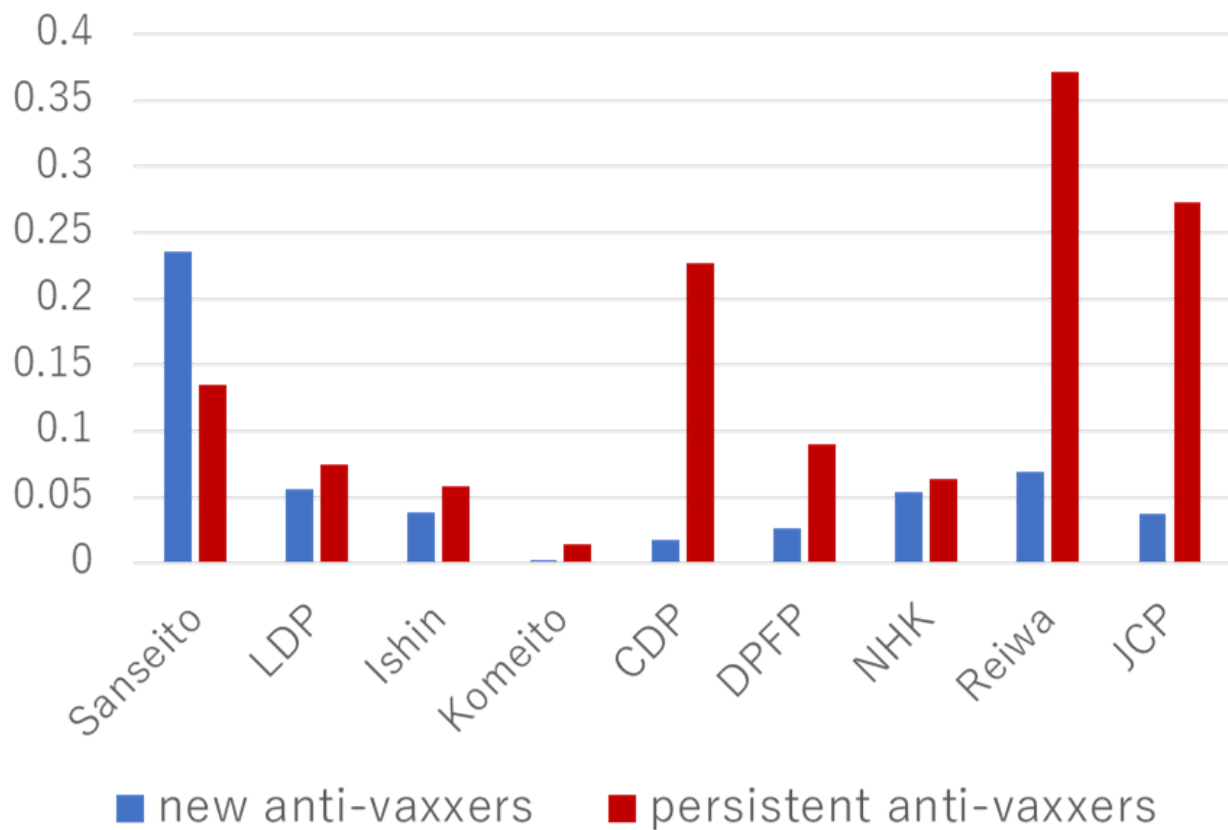Next, we analysed the profiles of accounts in each group.

Figure 2. The proportions of anti-vaccine accounts that follow major political parties/leaders

Do anti-vaxxers exhibit more robust political engagement than vaccine supporters?

It became evident that anti-vaxxers exhibit stronger political engagement compared to vaccine supporters. Although some users express right-wing tendencies, a majority lean towards liberalism. Conversely, vaccine supporters, while occasionally engaging with vaccine-related tweets, primarily demonstrate a strong interest in private hobbies such as gaming and anime, with weaker political engagement.

When comparing persistent anti-vaxxers with pandemic-induced new anti-vaxxers, it was evident that persistent anti-vaxxers, those who held anti-vaccine attitudes before the pandemic, showed strong political engagement, often aligning with liberal parties. Contrastingly, pandemic-induced new anti-vaxxers, those who adopted anti-vaccine views during the pandemic, exhibited weaker political interests but a frequent occurrence of terms related to conspiracy theories and spirituality in their Twitter profile descriptions. Examples include "Haruma Miura(1)" "group stalking", "technology crime", "vibrations", "cosmos", "spiritual", and "fabric softener." Therefore, it is suggested that the increased interest in conspiracy theories and spirituality served as a trigger for individuals to adopt anti-vaccine attitudes during the pandemic. (See Figure 1)

Regarding political characteristics, a comparison was made between persistent anti-vaxxers and pandemic-induced new anti-vaxxers. Persistent anti-vaxxers exhibited a higher rate of following political party accounts like the Constitutional Democratic Party,

the Reiwa Shinsengumi Party, and the Japanese Communist Party. However, pandemic-induced new anti-vaxxers displayed a reduced inclination to follow established political parties.

Nevertheless, a notable development emerged as users who embraced anti-vaccine views during the pandemic experienced a substantial surge in their engagement with political party accounts between March and September 2022. This indicates that their fascination with conspiracy theories and spirituality played a pivotal role in propelling their adoption of anti-vaccine perspectives, consequently reinforcing their backing for political parties endorsing anti-vaccine positions. (See Figure 2)

Gateways leading individuals to adopt anti-vaccine attitudes

Although conspiracy theories and spirituality themselves may not always have direct political implications, it has become evident that they can serve as gateways leading individuals to adopt anti-vaccine attitudes. Therefore, methodologies are required to sever the connection among conspiracy theories, spirituality, and the proliferation of anti-vaccine attitudes to maintain public health in future pandemics.

Additionally, it is important to note that this study is based on observational research of tweets and does not establish causation. Therefore, further analysis combining experiments and social surveys will be necessary to delve into causative relationships.

The details of this research are described in the following paper.

Toriumi, F., Sakaki, T., Kobayashi, T. et al. Anti-vaccine rabbit hole leads to political representation: the case of Twitter in Japan. J Comput Soc Sc (2024). https://doi.org/10.1007/s42001-023-00241-8

Reference

1. A Japanese actor who committed suicide in 2020; there is a conspiracy theory that someone murdered him