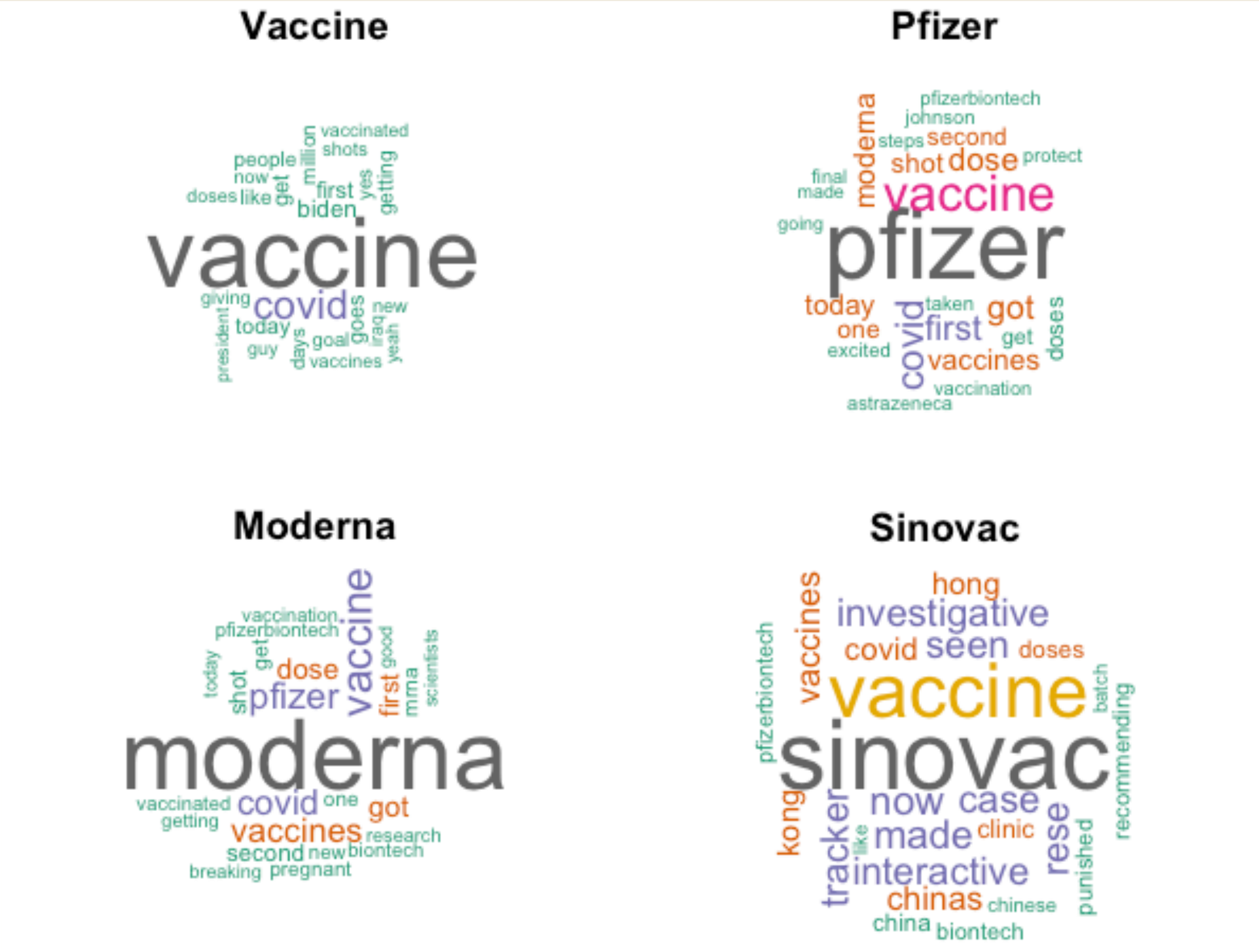
Analysis of Twitter tweets on Covid-19 related vaccines

24 Mar 2021

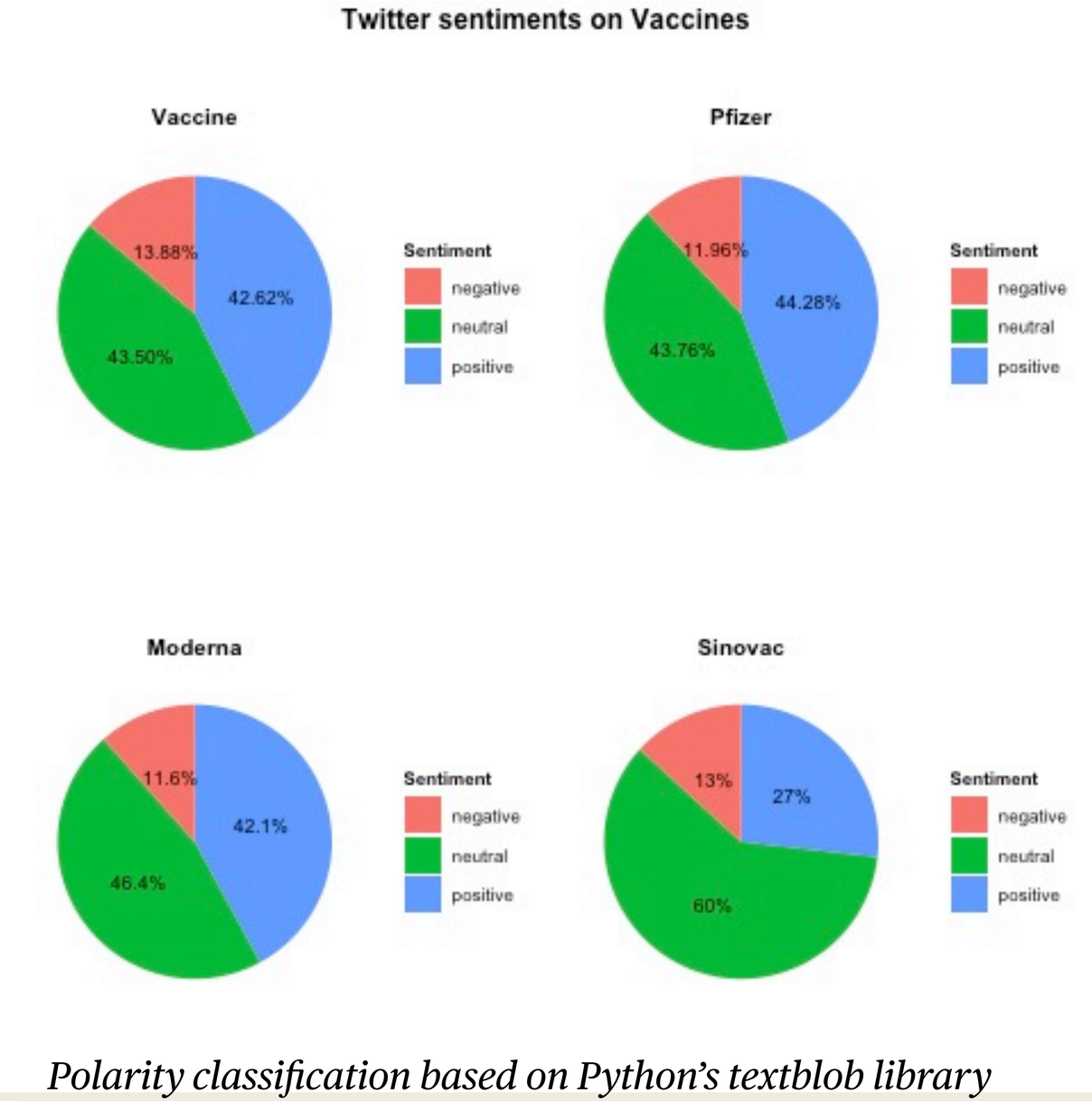
Saw Le En



For each search word, 5000 tweets were scraped for this analysis using Python's tweepy library (on 24 Mar 2021)

China and Hong Kong were often mentioned in tweets related to Sinovac

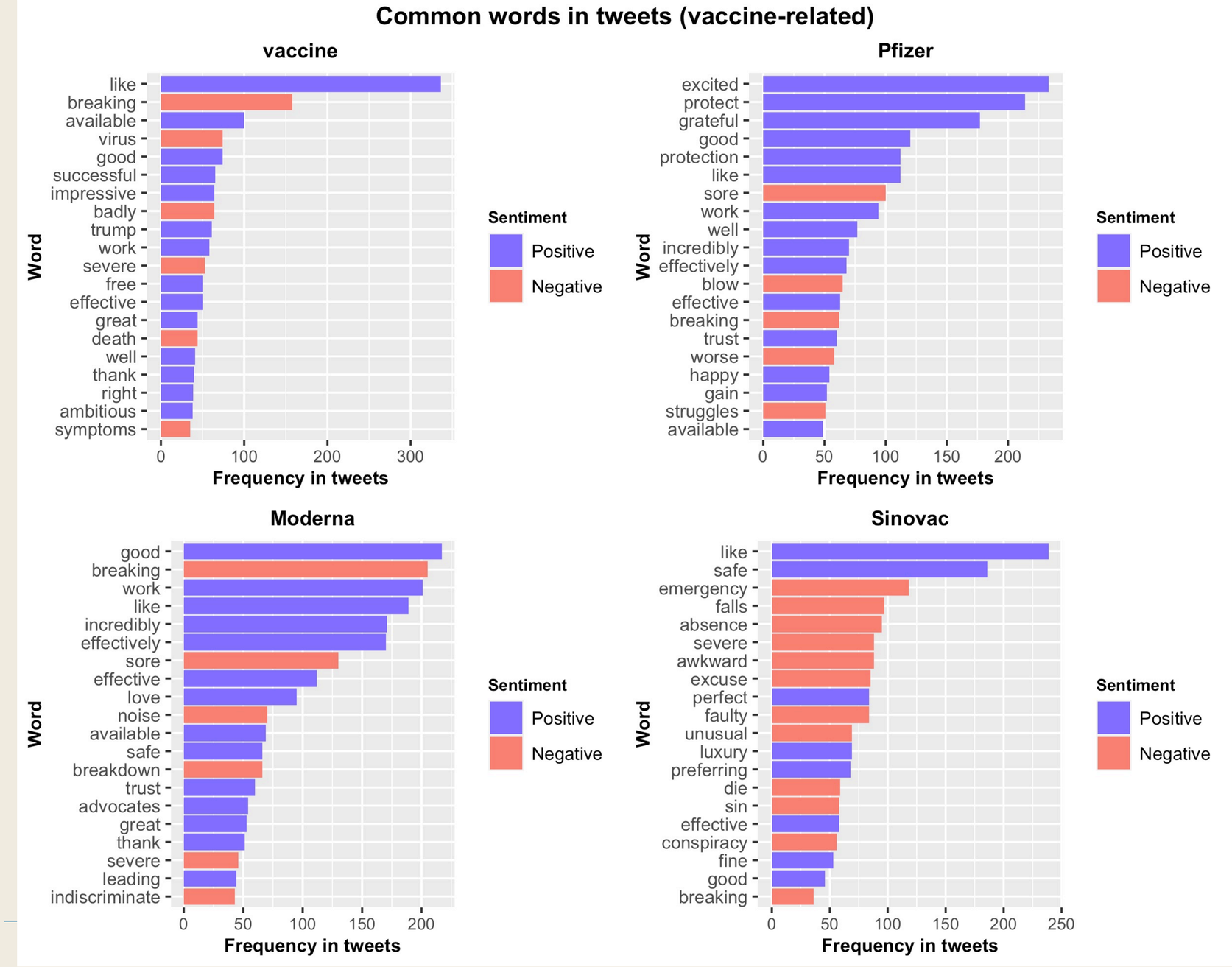
- Word clouds for tweets scraped from Twitter indicate mention of Sinovac's relation to Hong Kong and China



Polarity classification based on Python's textblob library

Majority of sentiments regarding vaccines are positive or neutral. However, sentiments regarding Sinovac are a lot less positive than other vaccines

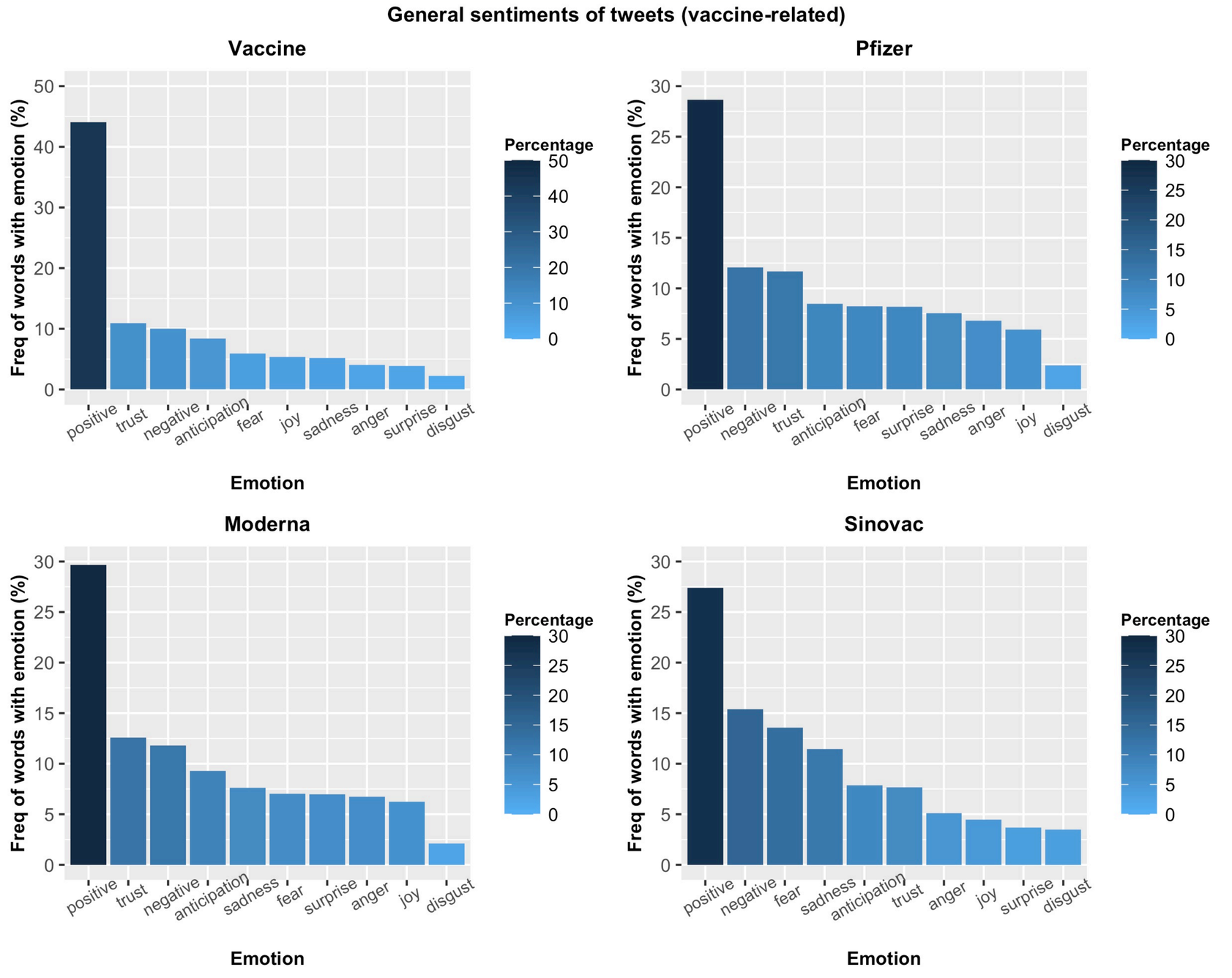
- Around 86% of tweets related to all vaccines had either positive or neutral sentiment
- Proportion of positive sentiments for Pfizer and Moderna were comparable to overall vaccine-related sentiments (42% - 44%)
- However, tweets on Sinovac had drastically less positive sentiment (27%) in comparison



Tweets on Pfizer/ Moderna mentioned being "sore"

- Tweets with the search words "vaccine", "Pfizer" and "Moderna" generally contained positive words
- However, tweets on "Pfizer" and "Moderna" mentioned being "sore"
- Tweets with the word "Sinovac" contained majority negative words

Sentiment classification is based on the "bing" lexicon in R's tidytext library, which assigns words to positive or negative sentiments



Twitter users had lower trust towards Sinovac vaccines than Pfizer/ Moderna

- **Positive emotions (25-45%)** was the top sentiment of words in all tweets regarding various vaccines.
- **Negative emotion,** while also among the top three sentiments **(10-15%)**, ranked lower.
- **Trust (10-15%)** and **anticipation (5-10%)** were among the top four sentiments for **vaccines in overall as well as Pfizer and Moderna vaccines**
- For **Sinovac**, however, **negative emotion, fear and sadness (10-15% each)** were the top second to fourth sentiment. **Trust** was only the sixth top sentiment **(5-10%)**

Emotion classification is based on the NRC emotion lexicon in R's tidytext library, which maps words to ten emotions

Implications

- Twitter tends to be more actively used in the US and Europe, hence the findings indicate that people there may:
  - Be generally receptive towards Covid-19 vaccines (majority ~85%)
  - Be agnostic in terms of preference towards Pfizer or Moderna, although many experienced soreness upon vaccination
  - Have less trust and more negative sentiment towards Sinovac vaccines compared to Pfizer/Moderna

Thank you