

# monselise\_2021\_topics\_and\_sentiments\_of\_public\_concerns\_regarding\_covid\_19\_vaccines\_social\_media\_trend\_analysis

## Year

2021

## Author(s)

Michal Monselise and Chia-Hsuan Chang and Gustavo Ferreira and Rita Yang and Christopher C Yang

## Title

Topics and Sentiments of Public Concerns Regarding COVID-19 Vaccines: Social Media Trend Analysis

## Venue

---

## Topic labeling

Manual

## Focus

Secondary

## Type of contribution

Established approach

## Underlying technique

Manual labeling

# Topic labeling parameters

## Label generation

As listed in Table 1, the remaining 12 topics were then labeled by re

**Table 1.** The most significant 12 vaccine-related topics and the percentage of tweets in each topic (N=7,948,886).

Topic ID	Topic label	Topic totals, n (%)
1	Vaccination of frontline workers	690,357 (8.7)
2	Access to vaccines, signing up online	658,115 (8.3)
3	South African variant	593,425 (6.8)
4	Biden stimulus plan	540,065 (3.7)
5	mRNA vaccines	292,217 (3.2)
6	Complaints about pharmaceutical company profits	250,337 (3.1)
7	Vaccine conspiracy theories online	243,934 (2.9)
8	Trials in non-mRNA vaccines	232,780 (2.5)
9	Vaccine distribution in Canada	202,164 (2.5)
10	Supply and herd immunity	198,967 (2.5)
11	Genetic concerns about vaccines and kids	194,578 (2.2)
12	Low distribution of AstraZeneca vaccine	189,468 (2.1)

viewing the most contributed keywords in each topic.

## Motivation

## Topic modeling

(Online) NMF

## Topic modeling parameters

Nr of topics (K): 50

Batch size (s): 2000

## Nr. of topics

12 (38 insignificant topics by estimating how many tweets belonged to topic  $k$ )

---

## Label

Multi word manually assigned label

## Label selection

\

## Label quality evaluation

\

## Assessors

\

---

## Domain

Paper: Health (COVID-19)

Dataset: Social Media (Twitter)

## Problem statement

The goal of this research was to understand public sentiment toward COVID-19 vaccines by analyzing discussions about the vaccines on social media for a period of 60 days when the vaccines were started in the United States. Using the combination of topic detection and sentiment analysis, we identified different types of concerns regarding vaccines that were expressed by different groups of the public on social media.

## Corpus

Origin: Twitter

Nr. of documents: 7,948,886

Details:

- tweets for exactly 60 days starting from December 16, 2020 that contained hashtags or keywords related to COVID-19 vaccines.

## Document

A single tweet text

## Pre-processing

- Duplicate and retweet removal

---

```
@article{monselse_2021_topics_and_sentiments_of_public_concerns_regarding_covid_19_vaccines_social_media_trend_analysis,
  author = {Michal Monselise and Chia-Hsuan Chang and Gustavo Ferreira and Rita Yang and Christopher C Yang},
  date-added = {2023-04-12 22:56:20 +0200},
  date-modified = {2023-04-12 22:56:20 +0200},
  doi = {10.2196/30765},
  journal = {Journal of Medical Internet Research},
  month = {oct},
  number = {10},
  pages = {e30765},
  publisher = {{JMIR} Publications Inc.},
  title = {Topics and Sentiments of Public Concerns Regarding {COVID}-19 Vaccines: Social Media Trend Analysis},
  url = {https://doi.org/10.2196%2F30765},
  volume = {23},
  year = 2021}
```

#Thesis/Papers/FS