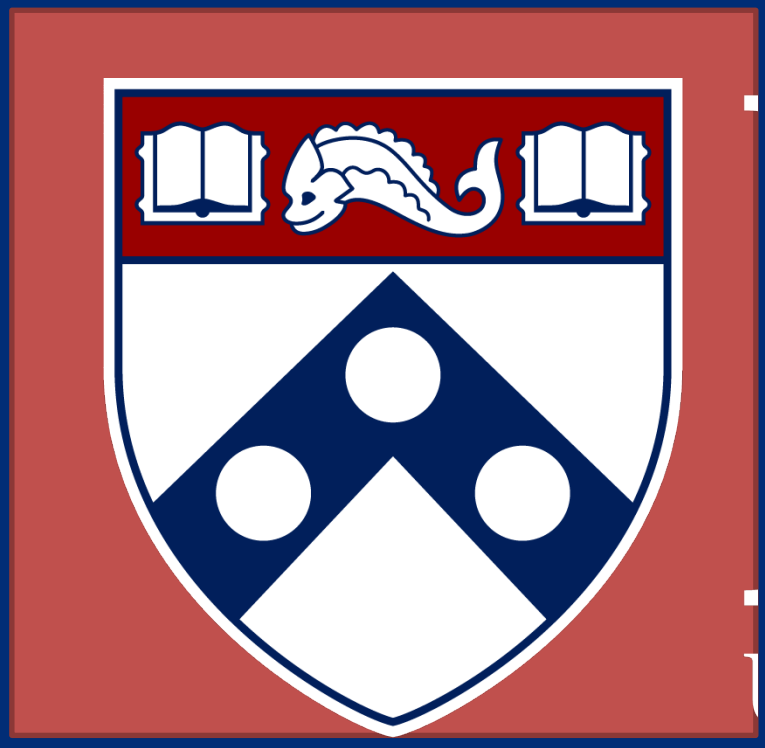


# Misinformation about the COVID-19 Vaccine on Social Media

Melanie Kornides, Franchesca Perez, Michelle Wu, Vereta Gour  
vereta@wharton.upenn.edu



## Background

The background of this research project focuses on the current complex and dangerous COVID-19 situation and efforts to solve the pandemic. The COVID-19 vaccine is undoubtedly the only long-term solution to ending the pandemic, however in the current socio-political environment we are seeing an insurmountable increase in the numbers and vocality of anti vaxxers. Of particular interest are those who are antivax yet also healthcare professionals. In order to understand how to address vaccine-hesitancy, first steps must be made into understanding the reasons said groups are vaccine-hesitant.

## Methods

In order to investigate the reasons for vaccine hesitancy amongst healthcare professionals, we conducted directed content analysis of an extensive sample of tweets. We initially used past literature to come up with a set of potential reasons that we would come across. We then proceeded to conduct analysis on a small sample of tweets to adjust and add to our code book of reasons. After verifying consistency across researchers we continued to apply our coding method to a vast sample of tweets to analyze trends.

## Data

user_id	user_handle	user_desc	message
1016780087847	WuidQ	Learning infectious disease via board-style MCQs & case discussions. Gerome Escota @mddreamchaser & Ige George @IgeGeorgeMD @WashUID	4/16n???? ?? ????? ???????nVaccines are designed to simulate initial "infection" that primes the immune system. Incites both antibody and cellular immune responses, play a role in protection against future infection? @MedTweeterials nhttps://t.co/IEeq1HWfcb https://t.co/UnWIOCstpK
1024340218940	lab_chase	Spatial #Epidemiology, #GIS, health research, data science. http://www.chaselab.net Assistant Professor, Washington State University, College of Medicine.	RT @GovInslee: This is an incredible day. \n\nFor months, these health care heroes have put themselves at risk to take care of sick Washingtonians. \n\nI'm so grateful they will be protected by this vaccine.
1250216070234	JulieFedup	Nurse., #bluewave #ridinwithbiden #resister #BLM. lover of reading anything and everything. Vikings Football fanatic NO DMs. SD transplant to Minneapolis. #MS	RT @GrandpaSnarky: Florida Gov. Ron DeSantis Hangs Out At Mar-a-Lago As He Bungles The State's Vaccine.n#Florida #RonDeSantis #DeSantis n Rollout https://t.co/fAGblEpOLr via @politicususa https://t.co/yMYZdbKMar

An example of a data sample (tweets)

## Data

- Reasons AGAINST vaccines:
- 1. Fear of side effects**  
Fear for health impacts besides those directly intended by the vaccine to increase immunity to the virus
  - 2. Concern about effectiveness**  
Concern that the vaccine does not actually achieve what it is intended to do
  - 3. Reasons of faith**  
Reasons directly concerning the vaccine going against a religious belief (e.g. use of gelatin)
  - 4. Perceived lack of testing**  
Fear stemming from the idea that the vaccines have not been tested enough to be fully understood and to be fully safe
  - 5. Distrust of pharmaceutical companies**  
Distrust of pharmaceutical companies due to perceived financial interest and/or lack of communication of side effects
  - 6. Lack of social endorsement/support from colleagues**  
Concern stemming from external lack of social endorsement and lack of support from other health professionals affecting personal confidence
  - 7. Not directly working with COVID-19 patients**  
Health professionals who do not feel as if they are at risk as they do not work directly with covid-19 patients
  - 8. Waiting until tested by others**  
Hesitancy based on waiting for the vaccine to be tried by other people to gain confidence in safety and efficacy
  - 9. Lack of concern for covid symptoms**  
Belief that the symptoms of covid are not severe enough to warrant getting the vaccine
  - 10. Autonomy and personal freedom**  
Do not want personal health choices to be dictated by external forces
  - 11. Distrust in the government and health organizations**

Sample from codebook

## Data Analysis

This project was heavily focused on coming up with an effective analysis method (creating a good codebook). After creating a system and cross checking it against multiple different data sets to check the efficacy and validity of our coding method we proceeded to analyse large samples of data (>3000). This project will continue to complete a large enough data sample to draw from the findings and see trends in reasons for vaccine hesitancy healthcare professionals.

## Conclusion

At the moment this is still a very ongoing research project with many potential interesting findings. However, a conclusion that we can draw even now is that there is a very finite number of reasons healthcare professionals express for their hesitancy to get the COVID-19 vaccine. This points to the ability and need to address these in particular to move towards the goal of sufficient vaccination to eventually end the pandemic.

## References

Three approaches to qualitative content analysis, Hsiu-Fang Hsieh, Sarah E. Shannon