

# Mapping COVID-19 Information Influence & Claims Online

*Keywords: public health, public discourse, misinformation, information influencers*

## Extended Abstract

The Aspen Institute’s Commission on Information Disorder [2] recommended in its final report that “Congress should implement protections for researchers and journalists who violate platform terms of service by responsibly conducting research on public data of civic interest.” Our project aims to show who the “super spreaders” of COVID discourse were beyond the “Disinformation Dozen,” [1] and demonstrate what insights around misinformation and public health discourse are possible when we can transparently characterize messages that are “too loud to ignore.” Simultaneously, the best scientific understanding of COVID-19 science, and thus the public health recommendations created as a result, changed over the course of the pandemic. Characterizing shifts in pandemic claims in popular discourse online can help us better understand moments of shifting trust in health communication.

We analyze Twitter, Facebook, and Instagram dialogue about the pandemic from Jan 2020-Jan 2022, tracking the most influential actors in English with a focus on the US, their most prominent claims, and the evolution in their popularity through time. The project goals are to create and publish a “leaderboard” of influential Twitter, Facebook, and Instagram commentators on COVID-19 in the US, ranked by different metrics of influence (primary/secondary influence of retweets, influence relative to follower count, etc). We quantify and characterize this influence by annotating the emotional valences, speech acts, parties who are blamed and praised using crowd workers, and the claims related to COVID or its response present in the tweets using expert annotators including renowned public health experts. Lastly, we identify how the claims made by (i) credentialed public health experts and organizations, (ii) government officials and (iii) key influencers on the leaderboard are congruent or conflicting over time. We show the distribution of partial annotations from an initial pilot study of annotations of 1000+ tweets from January to June of 2021 in attached figures. Ongoing annotation work, planned methods, and descriptive results for the entire time period, as well as our ongoing follow-up work to this initial pilot study are described below.

We source our data from a Twitter Decahose, yielding 10% of all retweet actions and thus giving us a representative view of public platform dialogue, and the Crowdtangle search endpoint for Instagram and Facebook. To filter content related to the pandemic we compiled a list key pandemic terms in consultation with public health partners, and use co-occurrence analysis to select for more key terms through time. Our preliminary analysis shows this method captures 98% of pandemic-related content within a sample on Twitter. Filtering for the most popular posts on each platform by engagement metrics, we are able to quantify the influence of each actor. We involve human annotators to annotate a sample of each ranked influencer’s posts with emotional valences, types of speech act, identified blamed and praised parties. We engage expert annotators and public health experts to annotate the claims regarding the pandemic science and government response to it according to a vetted annotation scheme. The annotation

scheme will help characterize how the common knowledge (or set of popular claims) evolved over time, even from the trusted organizations like the CDC and WHO.

To rank the influence of accounts, we create and analyze multiple rankings of influence: primary (average retweet count for an original authored tweet), secondary (average retweet count for a retweeted tweet) and a metric we call “punching-above-their-weight” (PAW) Primary influence is measured by the total number of post shares from an account. Secondary influence quantifies the influence of highly-connected actors who share/distribute content that is not their own, and is computed as a function of their followers and the number of shares on the posts they share. The “punching-above-their-weight” (PAW) account ranking (defined as average retweet count for an original authored tweet divided by the author’s follower count) identifies influencers with a disproportionate number of post shares given their follower base at the start of the pandemic.

The most popular primary influencers are largely politicians and partisan political commentators. The most popular influencers ranked by secondary influence are largely media sources, both left and right. The highest ranking PAW influencers are often medical personalities and doctors from various fields, *not* always related to epidemiology, or COVID-19 related fields of study. A careful categorization of these account profiles into types (like political, news-oriented, or anonymous account) is underway in partnership with a public health organization, which is providing guidance on labeling medical credentials.

We will release and analyze the full results of the multi-year annotation we describe above at IC2S2, characterizing not just the influencers across social media, but their congruent and conflicting claims through time.

Already, our analysis of the main pandemic influencers shows accounts that are not widely known in the mainstream but were prominent influencers in COVID-19 discourse. An analysis of the most prominent influencers in the data set of all pandemic-related tweets shows American politicians and political commentators largely dominating the top 10, but the 10th actor is an anonymous right-wing account called “Catturd” which regularly downplayed pandemic science and made light of government responses to the pandemic. The existence of an anonymous account in the top 10 is an important signal regarding the influence of non-mainstream sources on platforms like Twitter that protect anonymity. The full annotation of 6000+ tweets, plus Instagram and Facebook posts, for dimensions including pandemic stance, then compared by influencer ranking, will provide a timely and comprehensive retrospective on sources of pandemic information between 2020-2022.

## References

- [1] CCDH. “The Disinformation Dozen, Why Platforms Must Act on Twelve Leading Online Anti-Vaxxers”. In: (2021). URL: <https://counterhate.com/wp-content/uploads/2022/05/210324-The-Disinformation-Dozen.pdf>.
- [2] Katie Couric, Chris Krebs, and Rashad Robinson. “Commission on Information Disorder Final Report”. In: (2021). URL: <https://www.aspeninstitute.org/publications/commission-on-information-disorder-final-report/>.

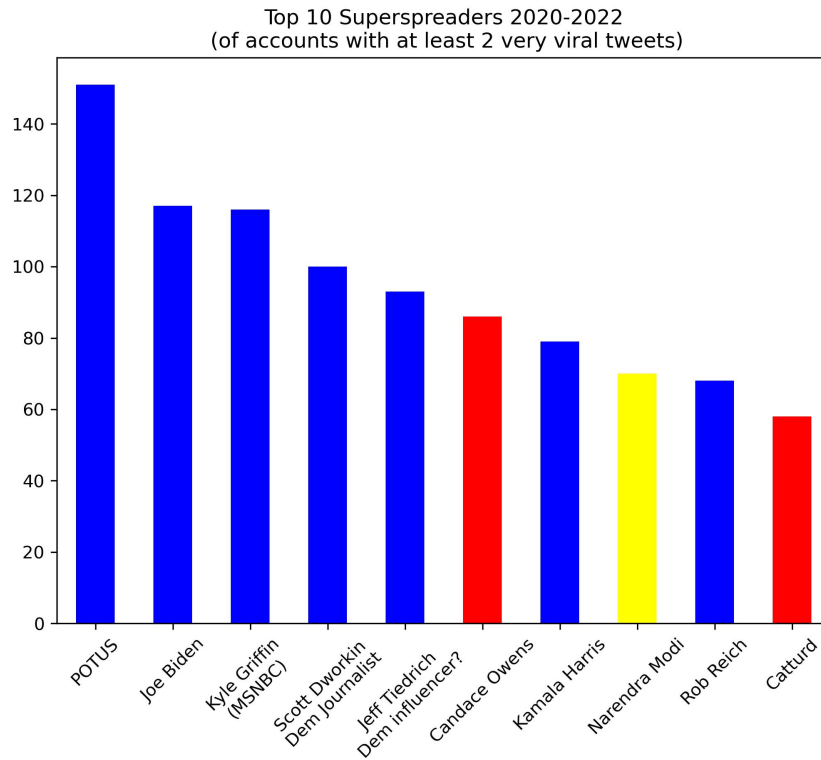


Figure 1: Top superspreaders

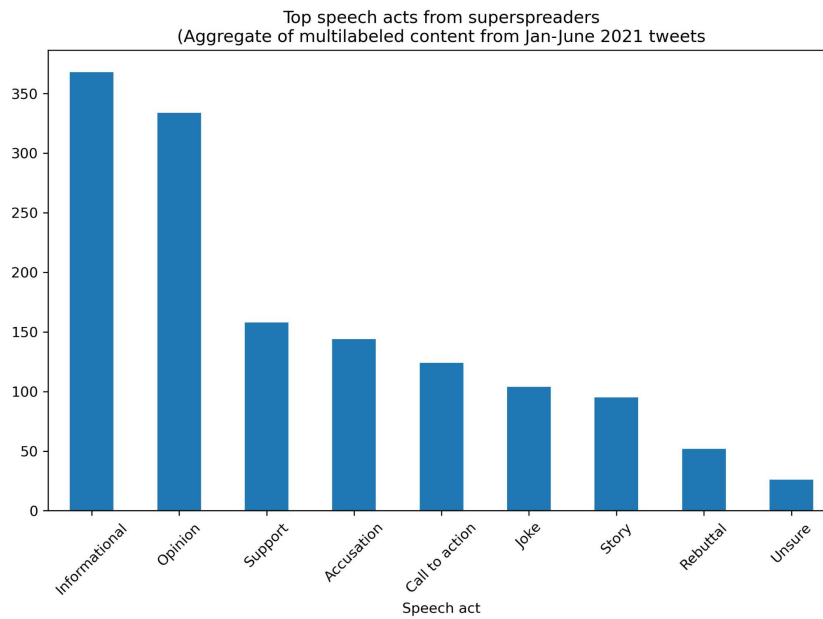


Figure 2: Distribution of speech acts

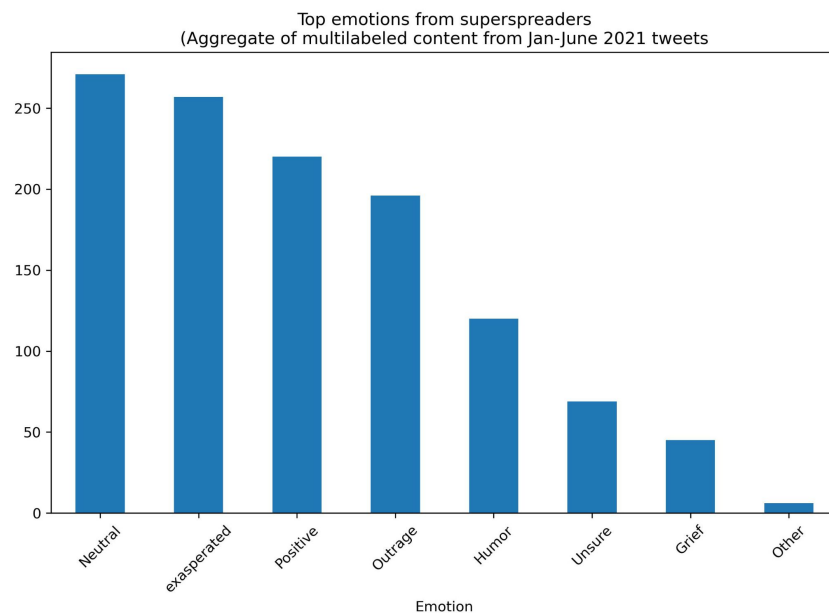


Figure 3: Distribution of emotions