CUNY SPS

DATA698: Master’s Research Project

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9/19/20

**Project: The Effects of COVID-19 on Americans’ Behavior shown by Podcast Data**

***Introduction***

The Coronavirus disease 2019 (COVID-19) was declared a global pandemic by the World Health Organization on March 11th, 2020 ([source1](https://www.who.int/news-room/detail/08-04-2020-who-timeline---covid-19)). As a response, the United States declared a national emergency on March 13th, 2020 to slow the spread of COVID-19. The national emergency implications were school closures, nonessential businesses closures, cancellation or large public gatherings such as sporting and entertainment events ([source2](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30743-1/fulltext#seccestitle10)), travel restrictions, quarantines for travelers, and stay-at-home orders implemented by governors and mayors ([source3](https://jamanetwork.com/journals/jama/article-abstract/2764283)).

Due to the global pandemic and US national emergency, the behavior and attitude of US public changed. Surveys from May 5-12, 2020 showed US citizens avoided groups of 10 or more persons and agreed with rules that prohibited dining inside ([source4](https://www.cdc.gov/mmwr/volumes/69/wr/mm6924e1.htm?s_cid=mm6924e1_w#T1_down)). Another study showed behavior change through a drastic decrease in US population movement during March, April and May, 2020 ([source5](https://www.cdc.gov/mmwr/volumes/69/wr/mm6935a2.htm?s_cid=mm6935a2_w)). All of this change led to the US public embracing a “new normal” ([source6](https://www.mdpi.com/1660-4601/17/12/4484/htm))

From research articles, we know that the “new normal” in the US includes increased working from home ([source8](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3568830)), changes in exercise ([source7](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7358585/)), and more Netflix subscriptions ([source9](https://www.researchgate.net/publication/343445075_NETFLIX_FROM_APOLLO_13_TO_THE_CORONAVIRUS_PANDEMIC)). But how can we find greater detail about the changes in American behavior?

From previous research, we’ve learned that podcasts are built upon interest by a population ([source10](https://krex.k-state.edu/dspace/handle/2097/761)) and are sustained by a listener community ([source11](https://www.tandfonline.com/doi/full/10.1080/19376529.2014.891211?scroll=top&needAccess=true&)). With this evidence, changes in podcast data can since the onset of COVID-19 in the US can uncover changes in Americans’ behavior. This project will use changes in podcasts produced as well as podcast responses to extrapolate changes in American behavior.

***Relevant Research/Journal Papers***

A summary of key journal papers relevant to your work.

1. WHO Timeline – COVID-19. *World Health Organization*

<https://www.who.int/news-room/detail/08-04-2020-who-timeline---covid-19>

1. The COVID-19 pandemic in the USA: what might we expect?

<https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30743-1/fulltext#seccestitle10>

1. Governmental Public Health Powers During the COVID-19 Pandemic, Stay-at-home Orders, Business Closures, and Travel Restrictions

<https://jamanetwork.com/journals/jama/article-abstract/2764283>

1. Public Attitudes, Behaviors, and Beliefs Related to COVID-19, Stay-at-Home Orders, Nonessential Business Closures, and Public Health Guidance — United States, New York City, and Los Angeles, May 5–12, 2020

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6924e1.htm?s_cid=mm6924e1_w#T1_down>

1. Timing of State and Territorial COVID-19 Stay-at-Home Orders and Changes in Population Movement — United States, March 1–May 31, 2020

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6935a2.htm?s_cid=mm6935a2_w>

1. Environments, Behaviors, and Inequalities: Reflecting on the Impacts of the Influenza and Coronavirus Pandemics in the United States

<https://www.mdpi.com/1660-4601/17/12/4484/htm>

1. Resistance Training in Face of the Coronavirus Outbreak: Time to Think Outside the Box

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7358585/>

1. Corona Virus (COVID-19) Pandemic and Work from Home: Challenges of Cybercrimes and Cybersecurity

<https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3568830>

1. NETFLIX: FROM APOLLO 13 TO THE CORONAVIRUS PANDEMIC

<https://www.researchgate.net/publication/343445075_NETFLIX_FROM_APOLLO_13_TO_THE_CORONAVIRUS_PANDEMIC>

1. Podcast use motivations and patterns among college students

<https://krex.k-state.edu/dspace/handle/2097/761>

1. Why Pod? Further Explorations of the Motivations for Independent Podcasting

<https://www.tandfonline.com/doi/full/10.1080/19376529.2014.891211?scroll=top&needAccess=true&>

1. Video didn't kill the radio star - she's hosting a podcast

<https://ro.uow.edu.au/cgi/viewcontent.cgi?article=3463&context=lhapapers>

More sources not used yet:

Older episodes of podcasts can still gain traction and relevancy

<https://dl.acm.org/doi/abs/10.1145/1644893.1644919>

Podcasts are replacing radio, other forms of media

<https://ro.uow.edu.au/cgi/viewcontent.cgi?article=3463&context=lhapapers>

Podcasts are effective for learning, shown in college setting

<https://www.sciencedirect.com/science/article/abs/pii/S0360131510000746>

Podcasts show effectiveness for learning

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4384874/>

Podcast listeners central focus is to discuss the show with other listeners

<https://www.tandfonline.com/doi/full/10.1080/19376521003719391?src=recsys>

***Problem Statement***

The main focus of this research is to use data about Podcasts to answer the following questions:

* Is there a statistically significant increase in Podcasts produced since the US declared a national emergency?
* Have Podcast listeners increased since the US declared a national emergency?
* Which genre of Podcasts have seen the largest change in production and listeners in the US since March 2020?
* What are the most statistically significant changes in US behavior since March 2020 based on data about Podcasts?

***Methodology***

* A statement of objectives, proposed methodology, and the evaluation measure for the performance of the proposed methodology.

For this research, Podcast production data will be collected from Spotify (through the Spotify API) which is the world’s most popular audio streaming subscription service. Twitter responses to Podcasts will also be collected via the Twitter API and analyzed. After the data has been collected, statistically significant increases and trends will be evaluated in python.

***Assumptions***

* A conceptual/high-level description includes assumptions, what aspects will be considered in your model/approach, and a study logic.

The two main assumptions for this research are:

1. Enough historical podcast data can be collected from Spotify to compare against current data.
   1. May be able to find this data stored online (personal githubs, Kaggle, etc)
2. The literature suggests a strong enough connection between behavior and podcasts to gain audience trust in this project’s analysis.

***Datasets***

1. Podcast reviews dataset: <https://www.kaggle.com/thoughtvector/podcastreviews/discussion>
2. Spotify API data: <https://developer.spotify.com/>
3. Twitter API data: <https://developer.twitter.com/en>
4. Strava API data: <http://developers.strava.com/>
5. Statista: <https://www.statista.com/statistics/786826/podcast-listeners-in-the-us/>
6. Statista: <https://www.statista.com/statistics/653079/npr-number-podcast-users/>