

# Beyond the Virus: The Impact of the COVID-19 Pandemic on Mental Health

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# INTRODUCTION

The restrictive policies during COVID-19 pandemic could make us feel isolated and lonely, leading to anxiety and depression.

## **PROPOSED HYPOTHESES:**

1. The COVID-19 pandemic has contributed to an increase in mental health issues.
2. There is a correlation between this increase and the increase in the associated consequences (suicide and substance abuse).

# METHODOLOGY

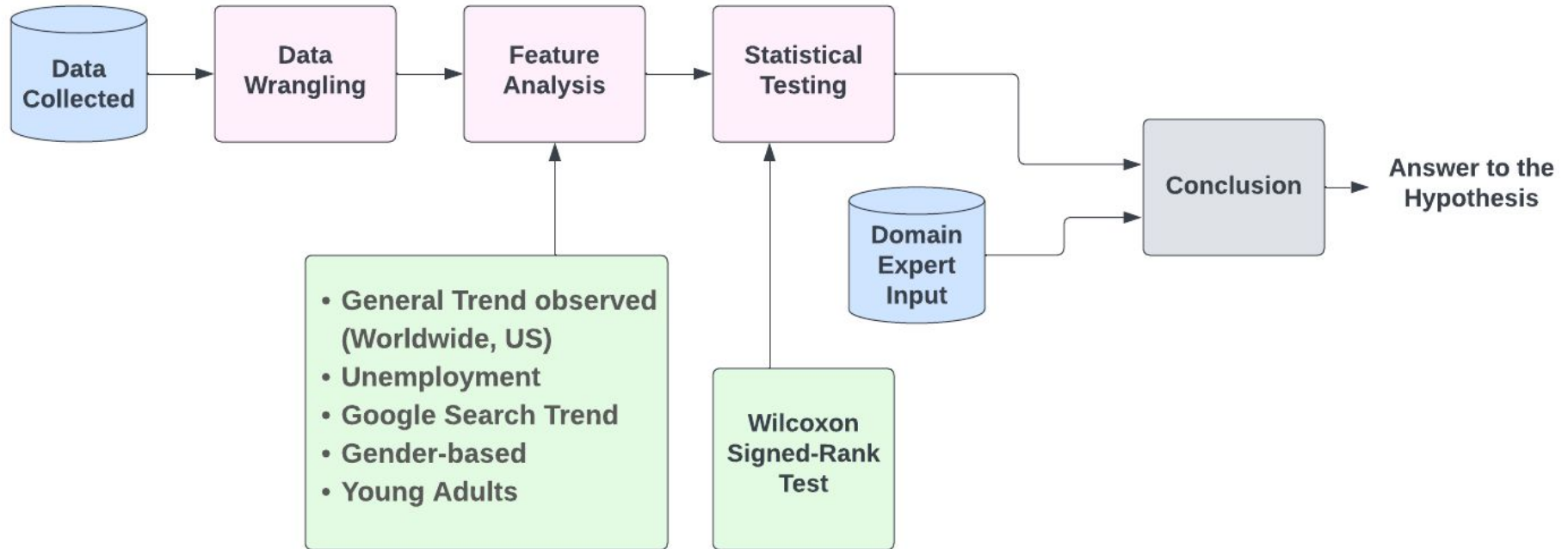
## DATA COLLECTION:

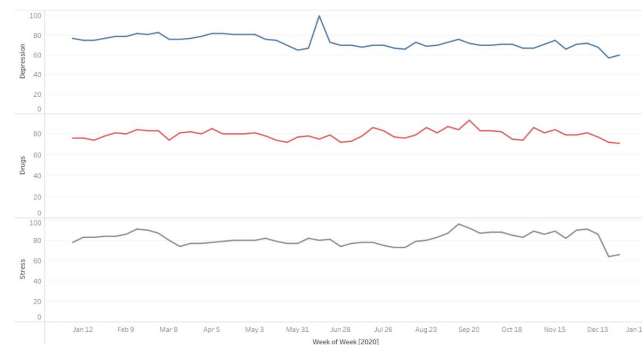
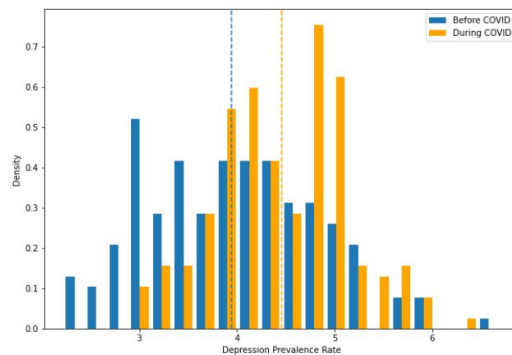
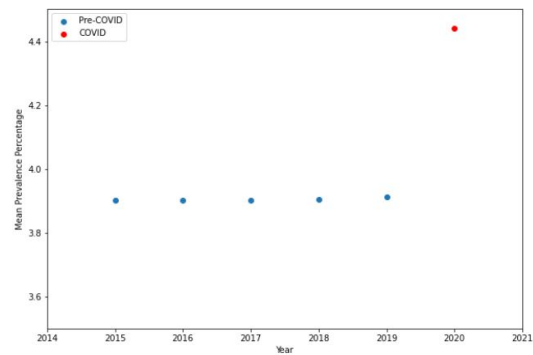
- Official Websites - [CDC](#), [WHO](#)
- Data Sites - [World Population Review](#), [Our World in Data](#)
- Public Polls - [KFF](#)
- Text search data - [Google Trends](#)

## METHODS:

- COVID-19 and Mental Health
- COVID-19 and Suicide Rates
- COVID-19 and Substance Abuse

# METHODOLOGY (CONTD.)

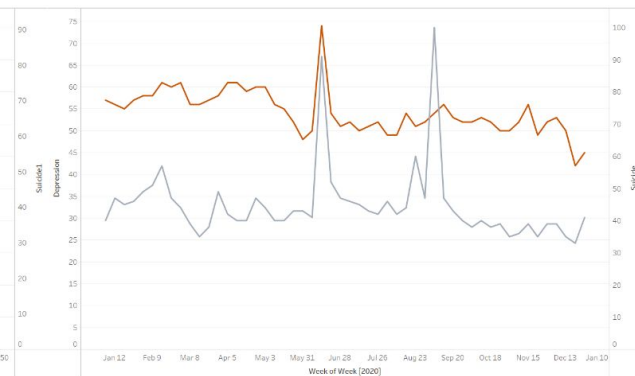
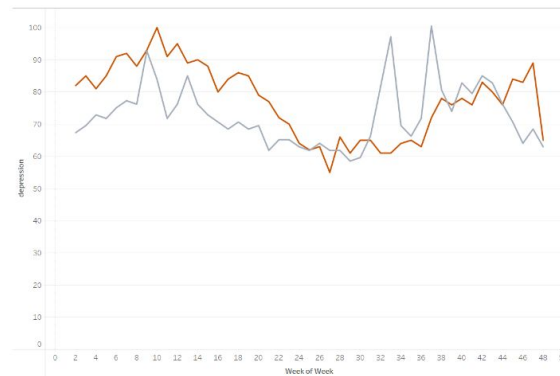




(a) Mean Depression Prevalence Rate worldwide from 2015 to 2020

(b) Histogram Plot of Depression Prevalence Rates before and during the pandemic

6. Google Search Trends for the terms 'Drugs', 'Depression' and 'Stress' during the pandemic



(a) Comparison of trends of Google Search of the terms 'Suicide' (grey) and 'Depression' (red) in 2019

(b) Comparison of trends of Google Search of the terms 'Suicide' (grey) and 'Depression' (red) in 2020

# RESULTS - STATISTICAL TESTING

Comparison Topic	Test Statistic	p-value
Depression rates before and during pandemic	-5.771771	7.844266e-09
Depression search text before and during pandemic	-0.495984	0.619906
Suicide rate and drug overdose during pandemic	0.0	1.0
Depression rates between males and females before pandemic	-15.44078	8.704091e-54
Depression rates between males and females during pandemic (2020)	-7.612955	2.678999e-14
Depression rates between males and females during pandemic (2021)	-7.067499	1.577509e-12
Depression rates for males between 2020 and 2021	-4.962642	6.954051e-07
Depression rates for females between 2020 and 2021	-3.466822	0.000527

Table 9. Wilcoxon results for comparison data

COVID-19 PANDEMIC VS MENTAL HEALTH	COVID-19 PANDEMIC VS SUICIDE RATES	COVID-19 PANDEMIC VS SUBSTANCE ABUSE	POINTERS FROM DOMAIN EXPERT
<ul style="list-style-type: none"> <li>13% higher mean depression prevalence rate</li> <li>Histogram plot - right skewed (2019) vs left skewed (2020)</li> <li>Increase in depression rate in US from 2020 to 2021 by 9%</li> <li>Unemployment - positive weak, statistically insignificant</li> <li>Females more affected than males by 30% in 2020 and 23.5% in 2021</li> <li>Young adults - negative weak, statistically significant - online class and sleep duration</li> </ul>	<ul style="list-style-type: none"> <li>Suicide rates in US - 8-29.3%</li> <li>Unemployment - positive weak, statistically insignificant</li> <li>'Suicide' and 'Lonely' - search increased by 64.5% in 2020</li> <li>'Suicide' and 'Depression' - search increased by 42.5% in 2020</li> </ul>	<ul style="list-style-type: none"> <li>Drug overdose deaths in US - 0.007-0.1%</li> <li>Suicide rates - positive strong, statistically significant</li> <li>Unemployment - positive moderate, statistically insignificant</li> <li>'Drugs', 'Stress' - 0.5 and 'Drugs', 'Depression' - 0.2</li> </ul>	<ul style="list-style-type: none"> <li>Significant increase in request for help</li> <li>Young adults - excessive use of digital platforms and irregular sleep patterns led to anxiety</li> <li>Suicidal thoughts among people who were already depressed</li> <li>Increased use of soft drugs, alcohol and tobacco</li> <li>Females - higher levels of anxiety</li> <li>Word of advice - balanced daily routines, new activities, physical exercise</li> </ul>

# CONCLUSION

- There has been a significant increase in the depression prevalence rate during the pandemic, with females being affected more than males.
- Analysis on Google Search Data revealed that there exists a noticeable similarity between the search trends of keywords like 'depression', 'stress', 'suicide', 'drugs', etc. during the pandemic.
- Overall, both the proposed hypotheses were not rejected.
- One of the main limitations was that Google search data is particularly prone to selection bias as access to and inclination to use search engines likely differ substantially between different demographics.



# REFERENCES

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- [5] Max Roser Hannah Ritchie and Esteban Ortiz-Ospina. 2015. Suicide. *Our World in Data* (2015). <https://ourworldindata.org/suicide>.