MENTAL HEALTH IN CRISIS: ANALYZING ANXIETY AND DEPRESSION TRENDS DURING THE COVID-19 PANDEMIC

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Problem Statement

This investigation seeks to address the impact of the COVID-19 pandemic on mental health, specifically the rising levels of anxiety and depression across various U.S. demographics.

By analyzing this dataset, we aim to answer critical questions about how symptoms of anxiety and depression vary by state, age group, and gender identity, and to uncover trends that can guide targeted mental health interventions.

Understanding these patterns is crucial for improving public health strategies and ensuring better mental health support for vulnerable populations during future crises.

Investigative Questions

1. What are the average values of symptoms of anxiety/depression/either over the entire study period for:
   a. Each of the 50 states?
   b. Arizona?
   c. The United States overall?
2. What are the average, maximum, and minimum values for symptoms of anxiety/depression/either by gender identity in the United States?
3. What were the general trends seen across various age groups by symptoms of anxiety/depression/either during the study period?

Pseudocode

Question 1

Part A:

1. Load the dataset from the "By State" sheet into df1.
2. Group df1 by Indicator and State, calculate the mean of the "Value" column for each state.
3. Filter for 'Symptoms of Anxiety Disorder', 'Symptoms of Depressive Disorder', and 'Symptoms of Anxiety or Depressive Disorder'. Store results as state_anxiety_disorder, state_depressive_disorder, and state_either respectively.
4. Create a pivot table combining data from the filtered results, with rows as states and columns as Indicators. Store as pivot_table.

Part B:

1. Filter df1 for Arizona, store it as arizona_data.
2. Remove the State column from arizona_data and display the result.

Part C:

1. Create a pivot table from df1 with Indicator as columns and average values as data.
2. Calculate mean of each column and store as average_values.
3. Stylize the table by organizing and renaming columns to 'Indicator' and 'Average Value'.

Question 2

1. Load dataset from the "Gender Identity" sheet into df2.
2. Filter df2 for rows where Subgroup is 'Cis-gender female', 'Cis-gender male', or 'Transgender'. Store as gender_data.
3. Group gender_data by Subgroup, calculate the mean, max, and min for the Value column.
4. Transpose the result, format for legibility, and store as gender_stats.

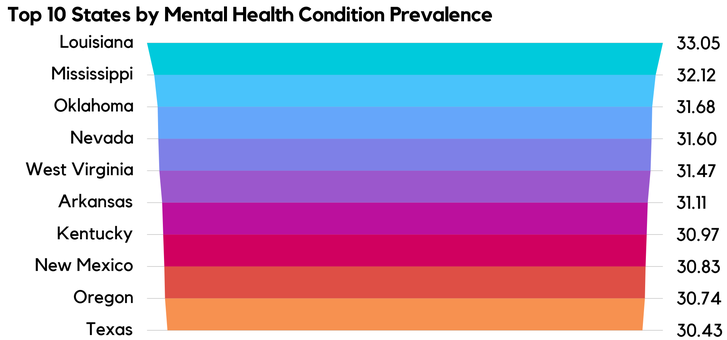
Question 3

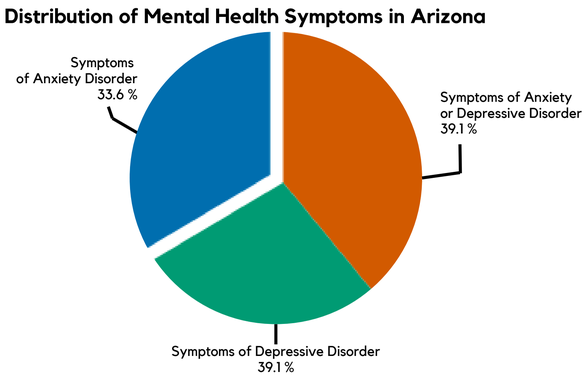
1. Load dataset from the "Age" sheet into df3.
2. Filter df3 for rows where Subgroup contains 'years'. Store as age_groups.
3. Use describe() to calculate descriptive statistics for each indicator in age_groups.
4. Group by Subgroup and store the result as age_group_description.

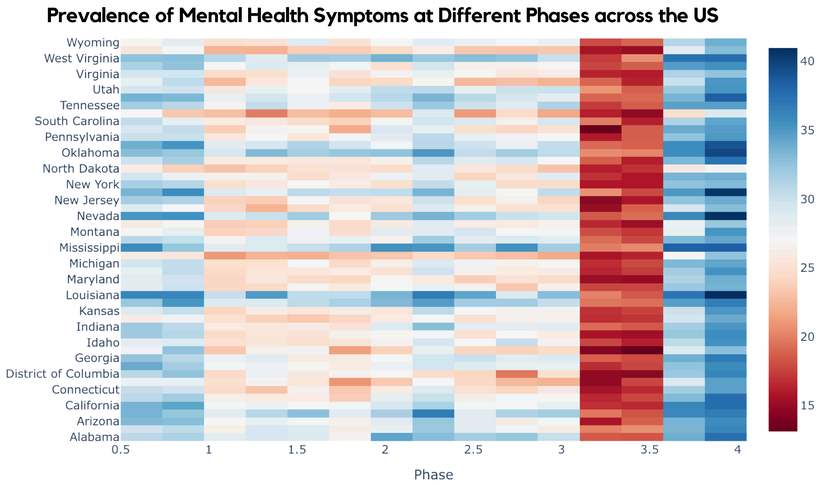
Key Findings & Conclusion

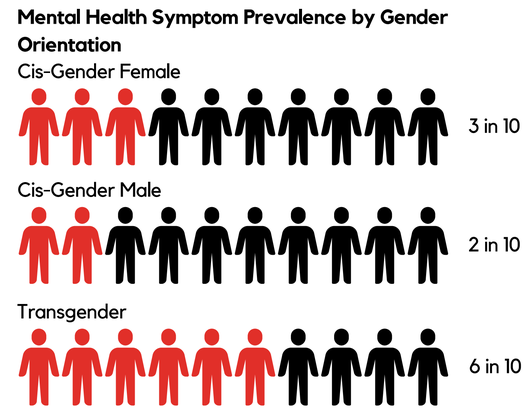
The pandemic revealed widespread mental health challenges, with anxiety more prevalent than depression and 32.87% of individuals nationally reporting symptoms of either. Cisgender females and transgender individuals, as well as younger adults aged 18-29, faced the most severe mental health impacts, highlighting the need for targeted support. Though this analysis focused on key states, gender identity, and age groups, further research is needed to explore deeper factors like socioeconomic disparities and healthcare access.

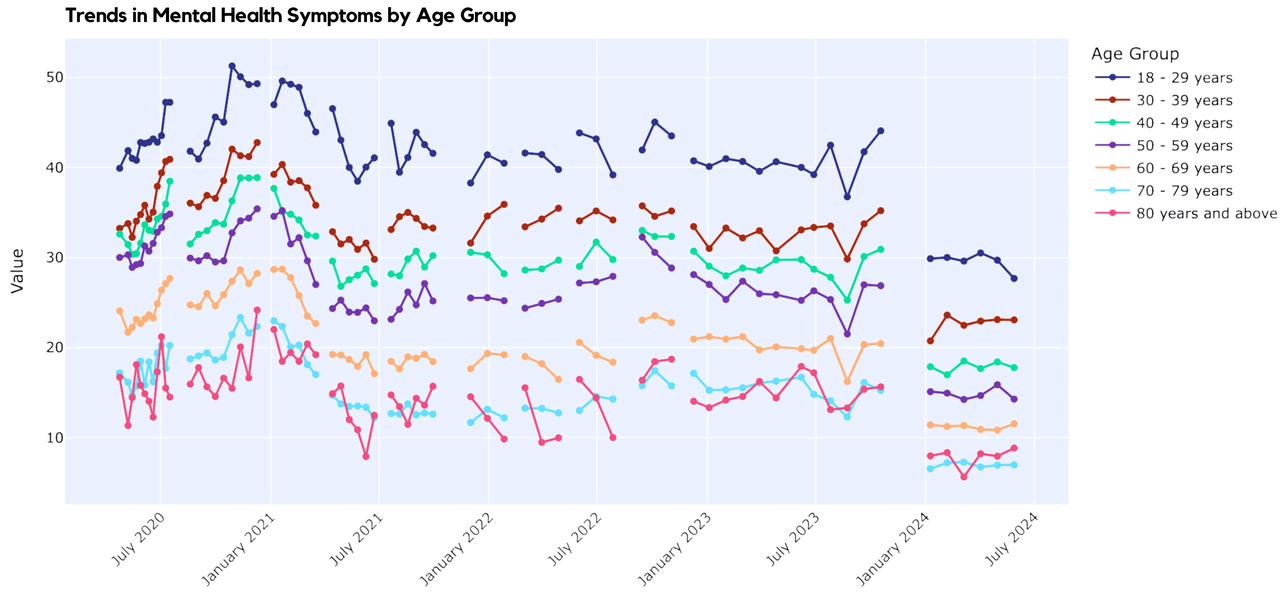
Data Visualization











Reference

Monfared, M. (2021). Indicators of Anxiety or Depression [Data set]. Kaggle. https://www.kaggle.com/datasets/melissamonfared/indicators-of-anxiety-or-depression/