ANALYZING THE SOCIETAL AND ECONOMIC IMPACT OF DRUG USE IN THE U.S.

A Project By:

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MY WHY

While the individual consequences of drug abuse, such as health deterioration, psychological distress, and social isolation, are well-documented, its broader implications are often overlooked.

The idea of this project is to analyze effect of drug abuse on a larger scale:
What is the true societal and economic impact of substance abuse in the United States?
This project is created to serve both as an awareness and a way to potray my insights into the effect of drug abuse beyond the individual level

INTRODUCTION

Objective: Understand how drug abuse impacts society and the economy in the U.S.

Focus Areas:
- Drug and alcohol-related deaths
- Unemployment trends
- Gross Domestic Product (GDP)
- Cross-analysis of relationships
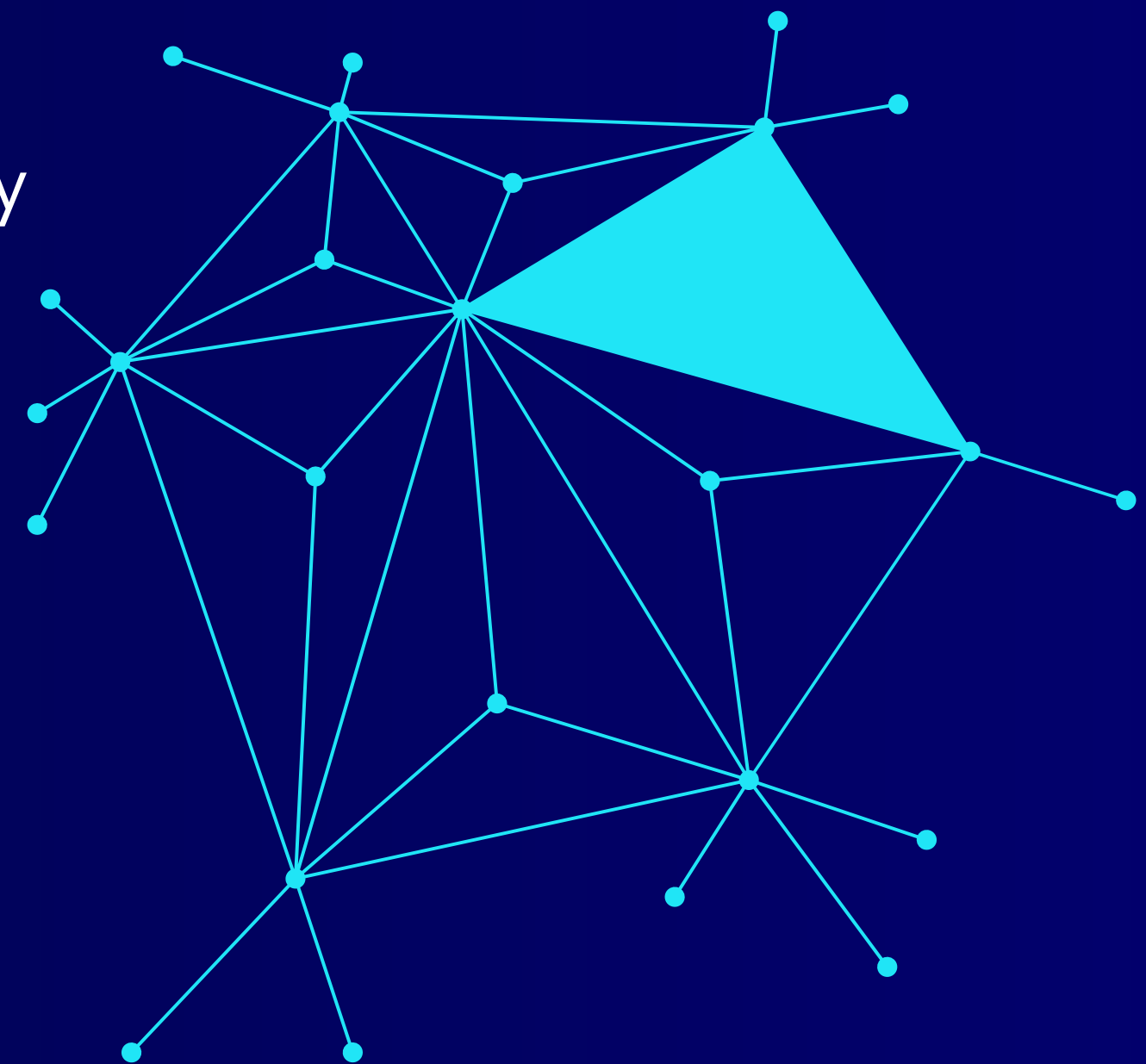
DATA SOURCES

Datasets Utilized:

- Center for Disease Control – Multiple Cause of Deaths Dataset
- ERS U.S. Department of Agriculture – Unemployment & Median Household Income
- BEA U.S. Department of Commerce – GDP and Personal Income Dataset

Supporting Literature:

- National Library of Medicine
- BMC Psychiatry
- Evoke Wellness

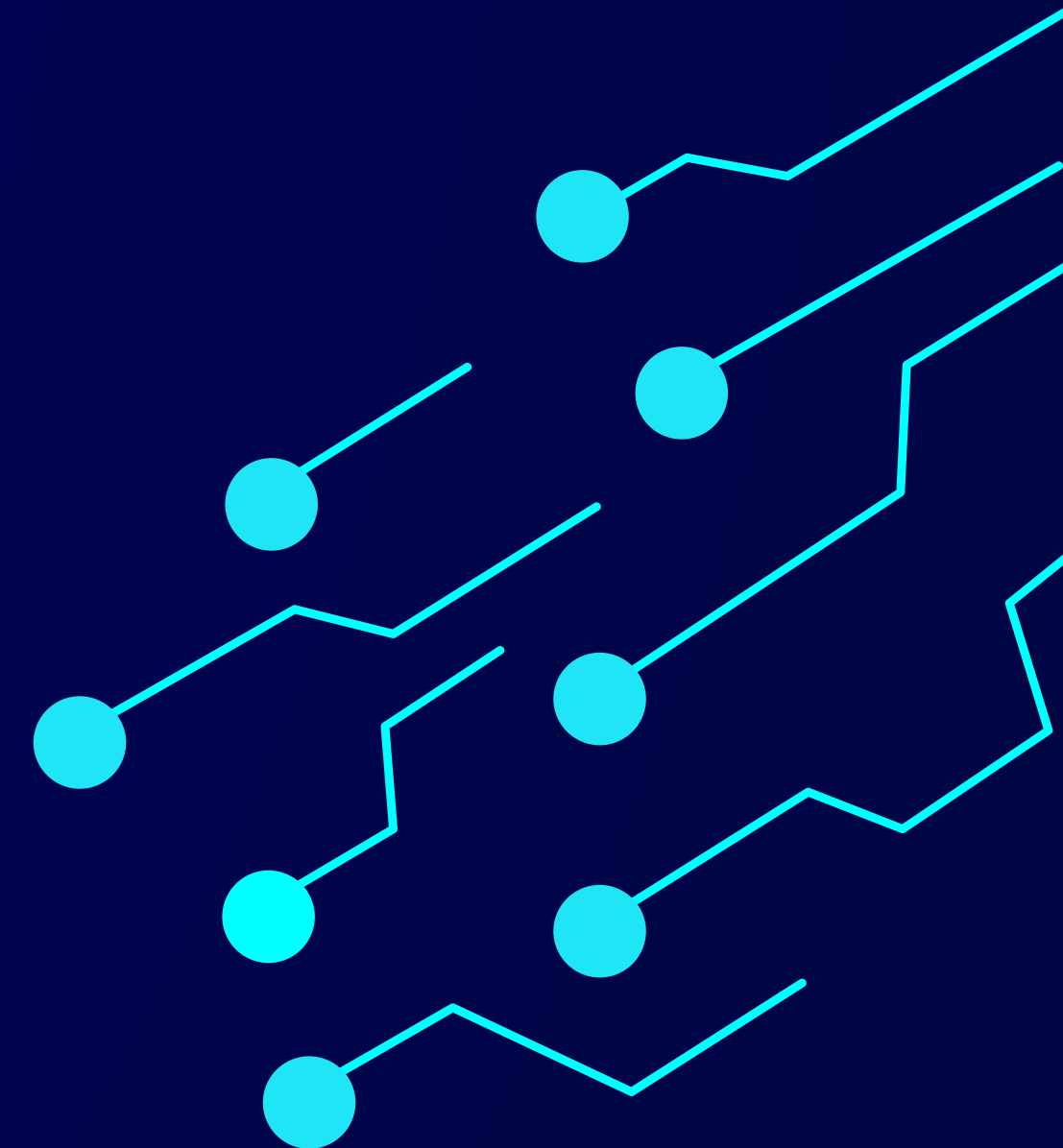# TOOLS & APPROACH

Tool Used:

- Google Colab

Libraries Utilized:

- Pandas
- Matplot lib
- Plotly

Approach:

- Clean & preprocess data
- Visualize trends by year, state, and cause
- Correlate datasets using interactive and comparative charts

KEY QUESTIONS EXPLORED

1. How do Drug-Induced Deaths Compare to Alcohol and Other Causes?

2. Is There a Pattern Between Drug Deaths and Unemployment?

3. Does Drug Use Affect the Economy (GDP)?

DRUG-RELATED DEATHS
EXPLORATORY DATA ANALYSIS

While performing exploratory data analysis on the Multiple Cause of Deaths dataset we were able to get the following information:

- Drug related deaths can be one of many causes that could've led to the death of an individuals
- Drug related deaths can be majorly observed between the categories of young adults and adults (Age Groups between 25 and 49)
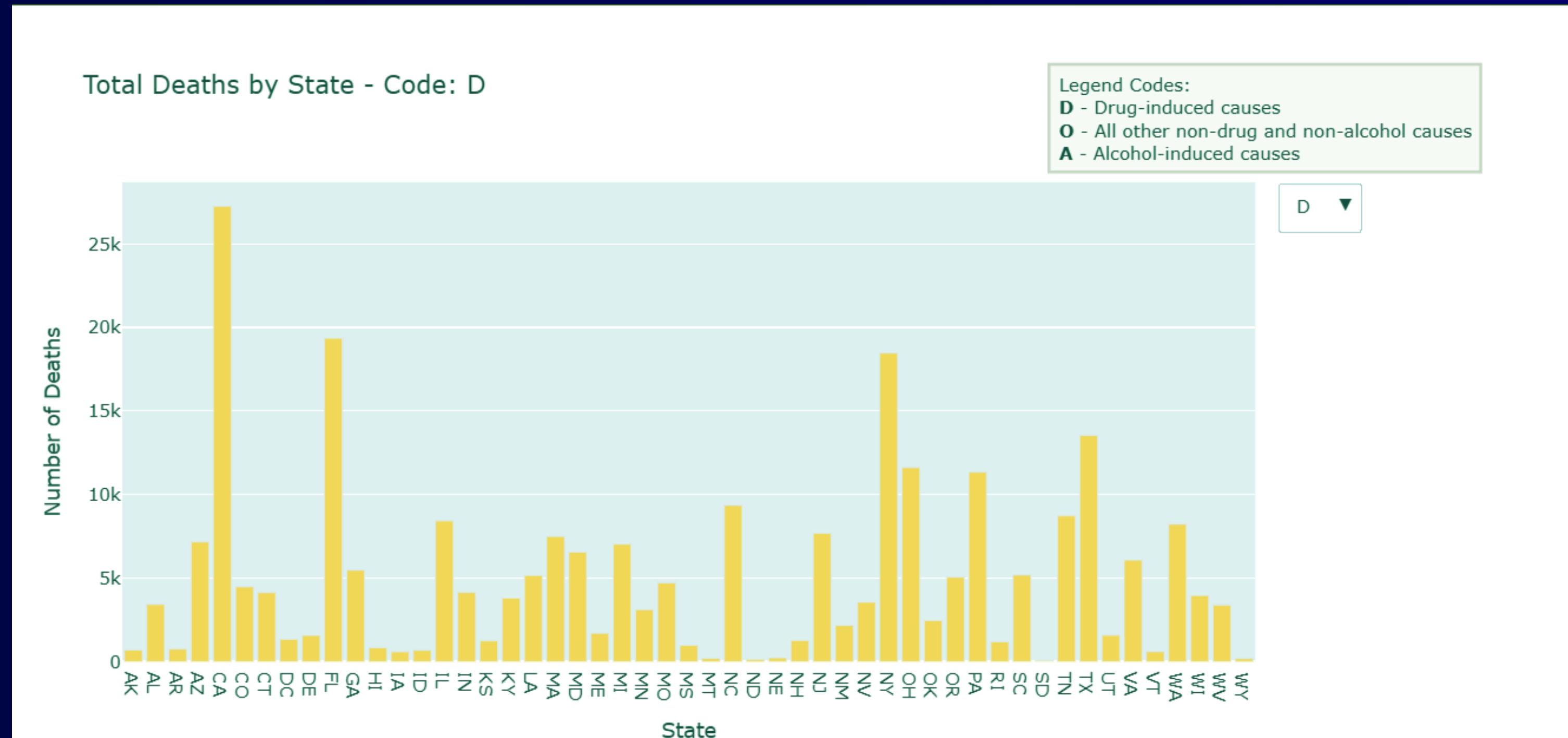
DRUG-RELATED DEATHS

Fig 1.1 Total Deaths by State – Code: Drug Induced Deaths
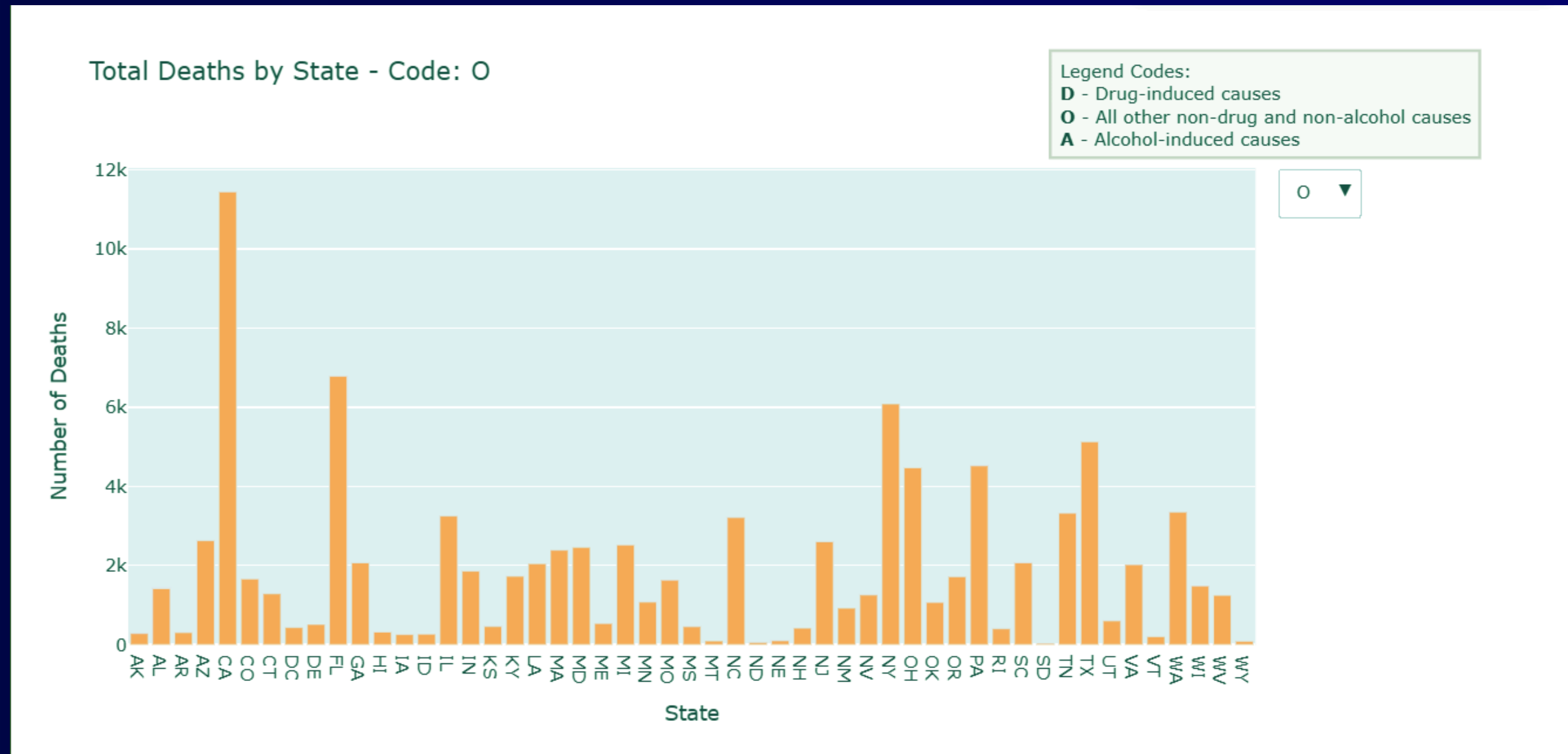
DRUG-RELATED DEATHS

Fig 1.2 Total Deaths by State – Code: Other Non Drug related and Non Alcohol related Deaths
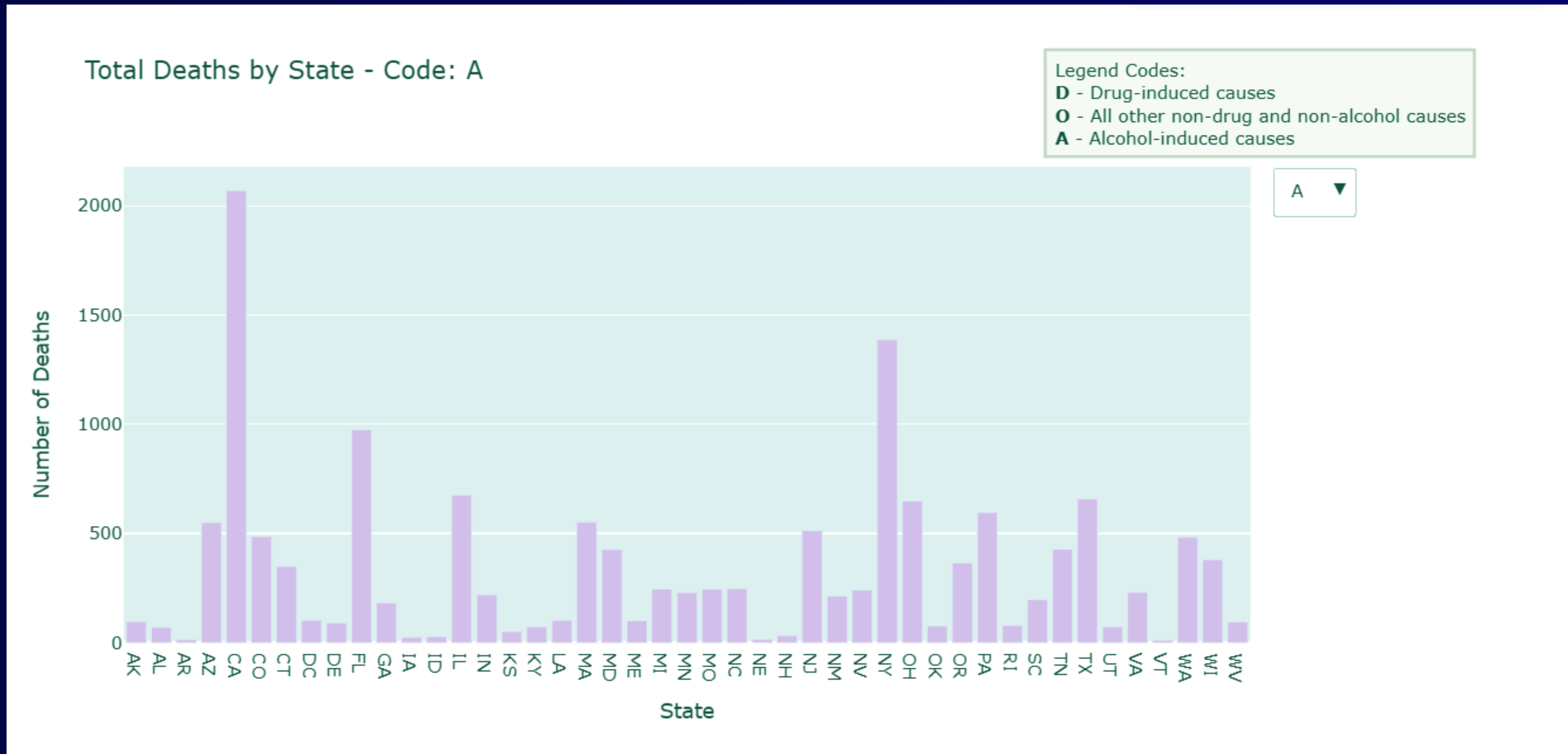
DRUG-RELATED DEATHS

Fig 1.3 Total Deaths by State - Code: Alcohol related Deaths
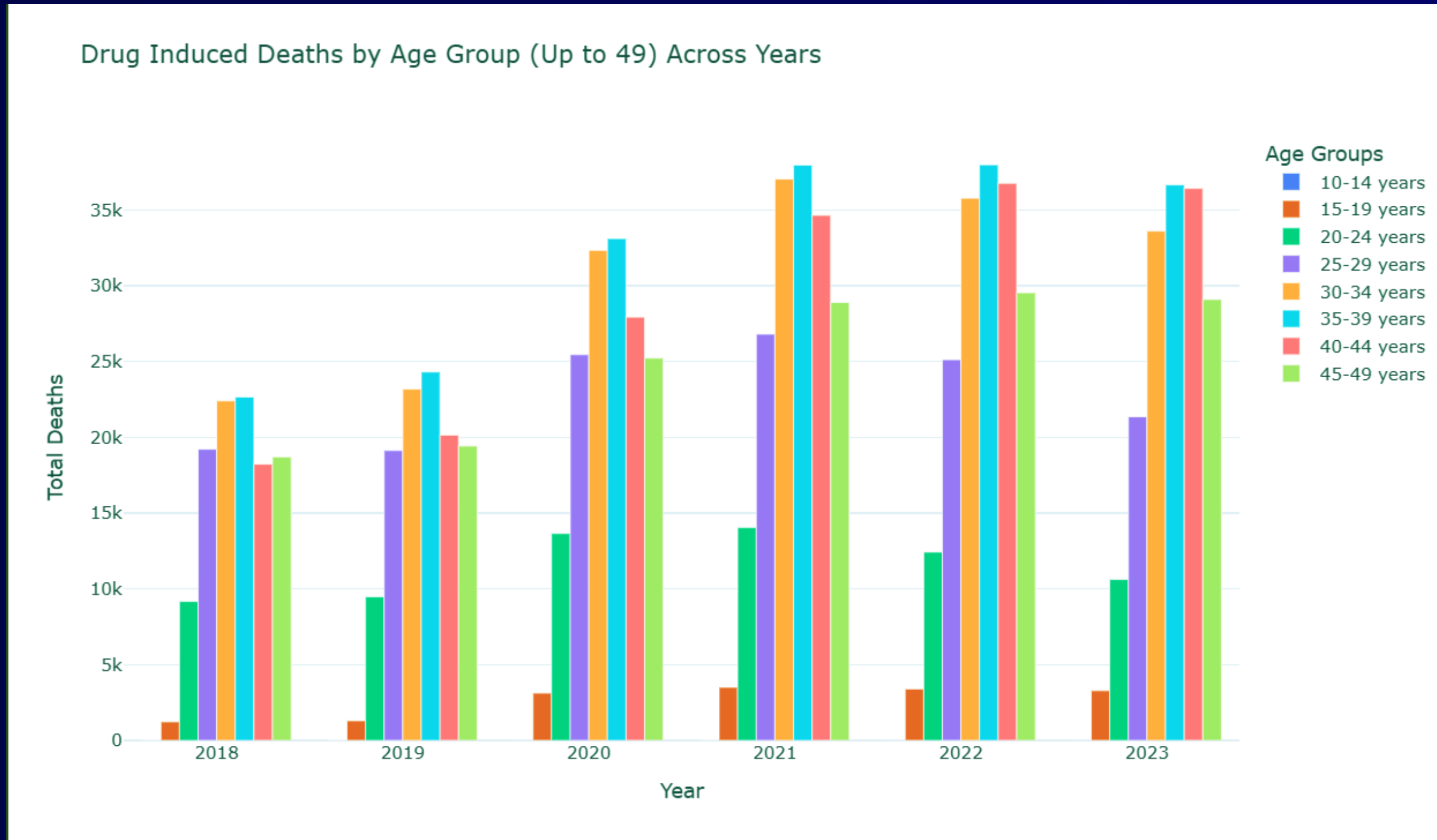
DRUG-RELATED DEATHS

Fig 1.4 Drug Induced Deaths by Age Group (Up to 49) Across Years
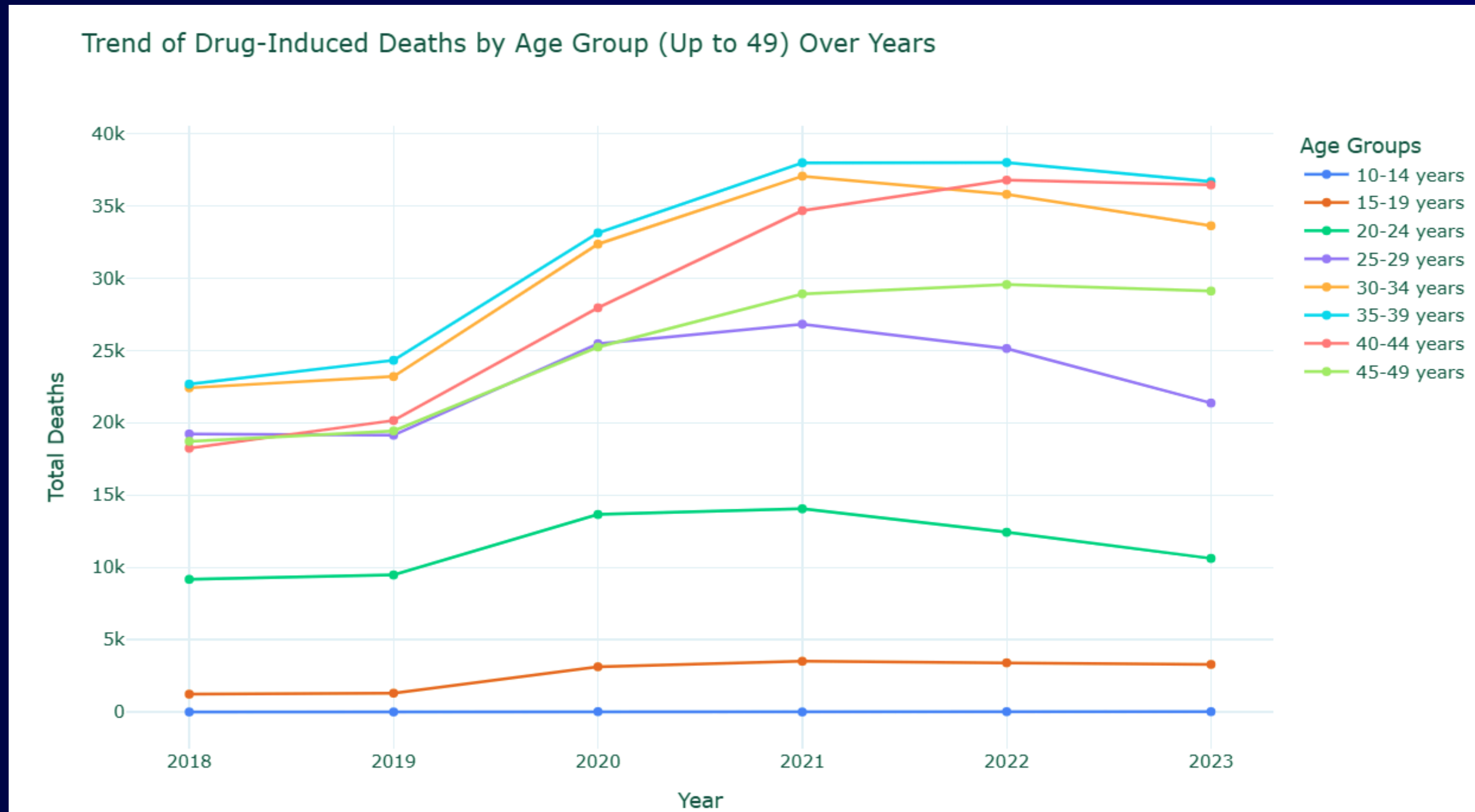
DRUG-RELATED DEATHS

Fig 1.5 Trend of Drug-Induced Deaths by Age Group (Up to 49) Over Years

DRUG-RELATED DEATHS
OBSERVATIONS FROM GRAPH

- Figure 1.1, 1.2 & 1.3:
  - These visualizations clearly highlight that drug-induced deaths consistently outpace alcohol-induced deaths across states. The disparity is evident, suggesting that drug-related issues may be a more pressing public health concern in many regions.

- Figure 1.4:
  - The breakdown by age group reveals that young adults and middle-aged individuals are disproportionately affected by drug-induced deaths. This indicates that intervention strategies may be most effective if targeted toward these age groups.

- Figure 1.5:
  - A time-series trend of drug-induced deaths from 2018 to 2023 shows a steady and concerning increase. This upward trend underscores the growing urgency for policies and programs aimed at drug prevention, treatment, and awareness.

UNEMPLOYMENT RATES
EXPLORATORY DATA ANALYSIS

While performing exploratory data analysis on the Unemployment dataset we were able to get the following information:

- Drastic increase in unemployment during 2008 - 2009 due to the major economic recession.

- Drastic increase in unemployment during the years 2019 - 2020 as a result of the Covid '19 pandemic which resulted in a lot of in-person jobs to be terminated
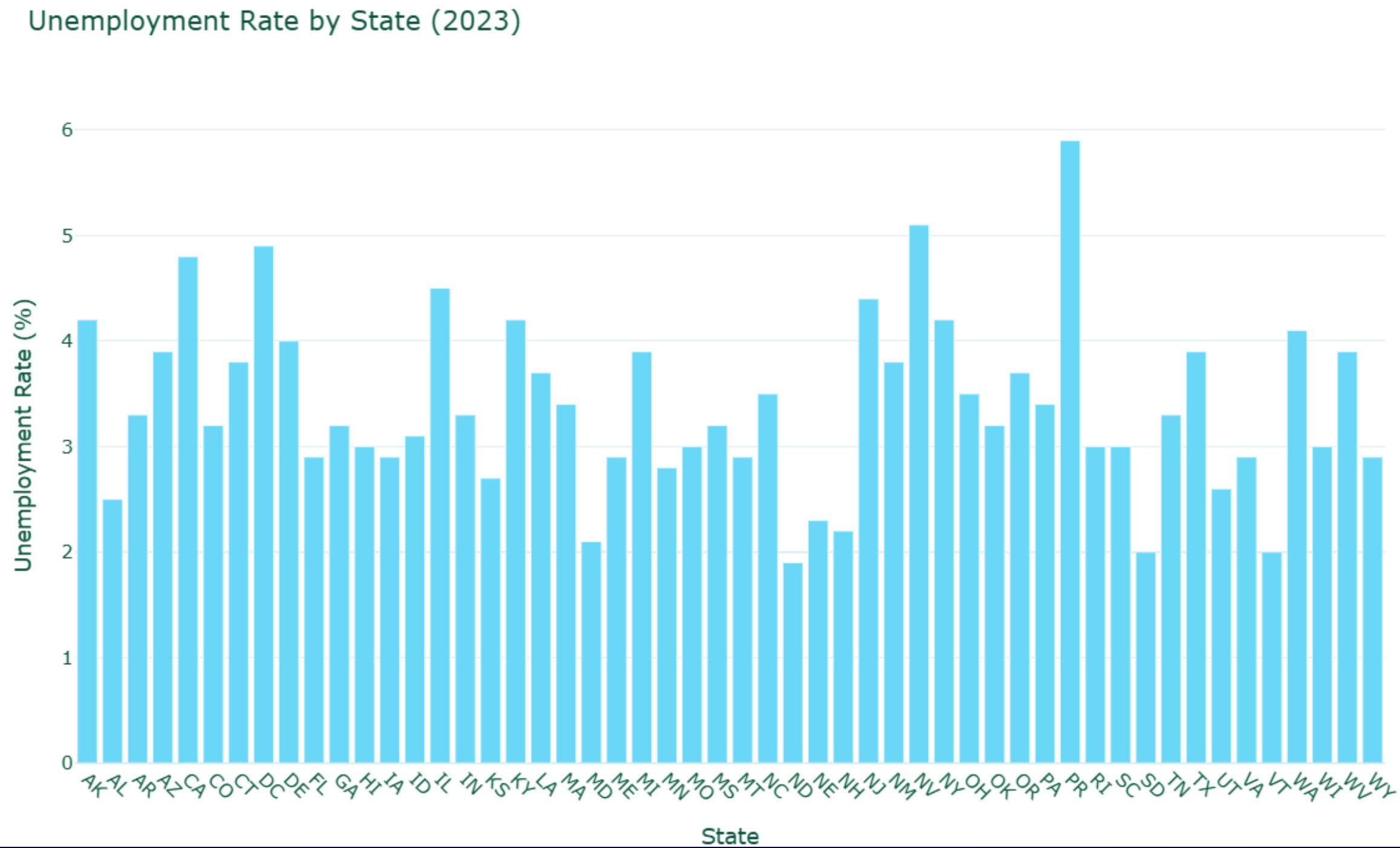
UNEMPLOYMENT RATES

Fig 2.1 Unemployment Rate by State (2023)

UNEMPLOYMENT RATES

Fig 2.2 Total Unemployment Over the Years (2018-2023)
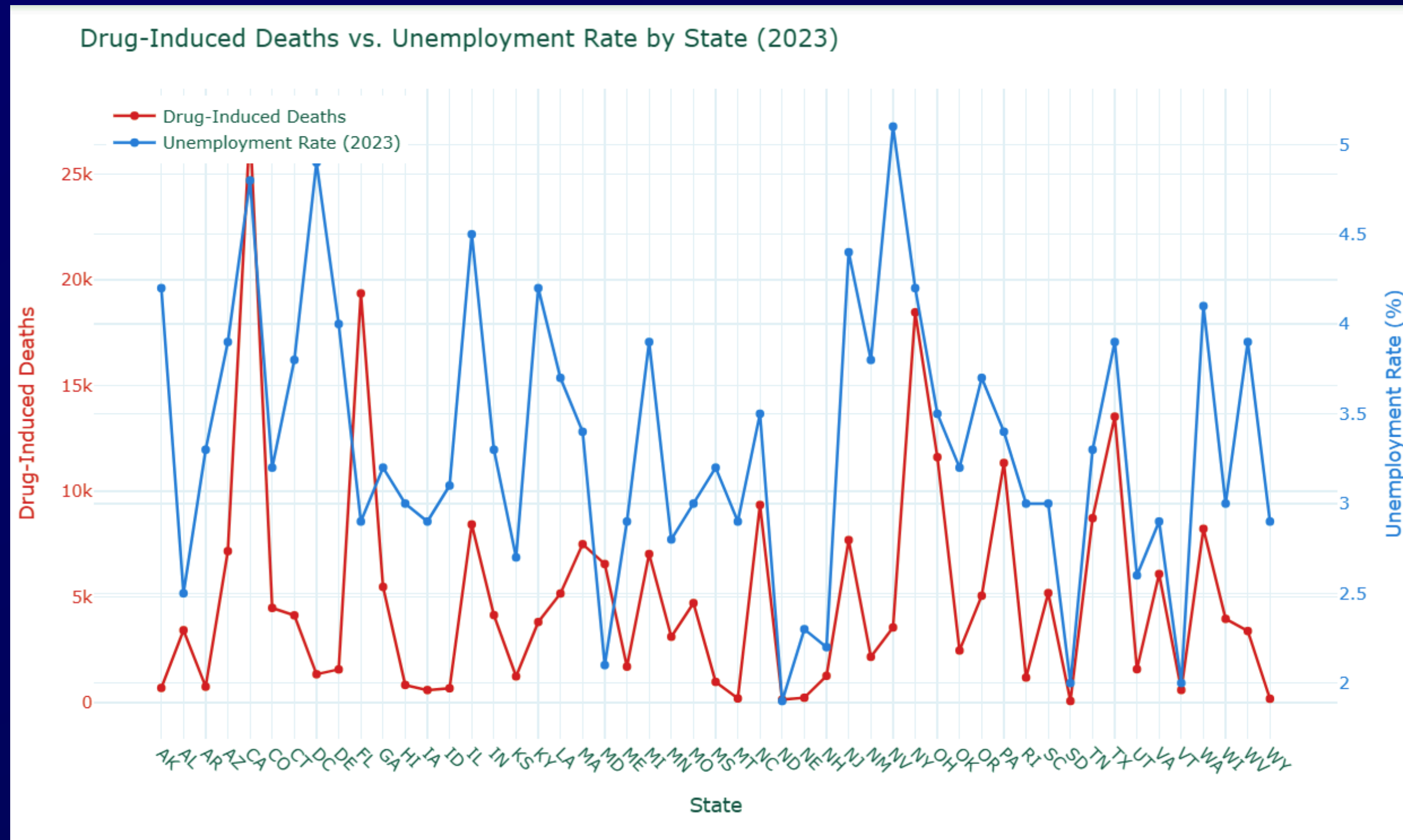
UNEMPLOYMENT RATES

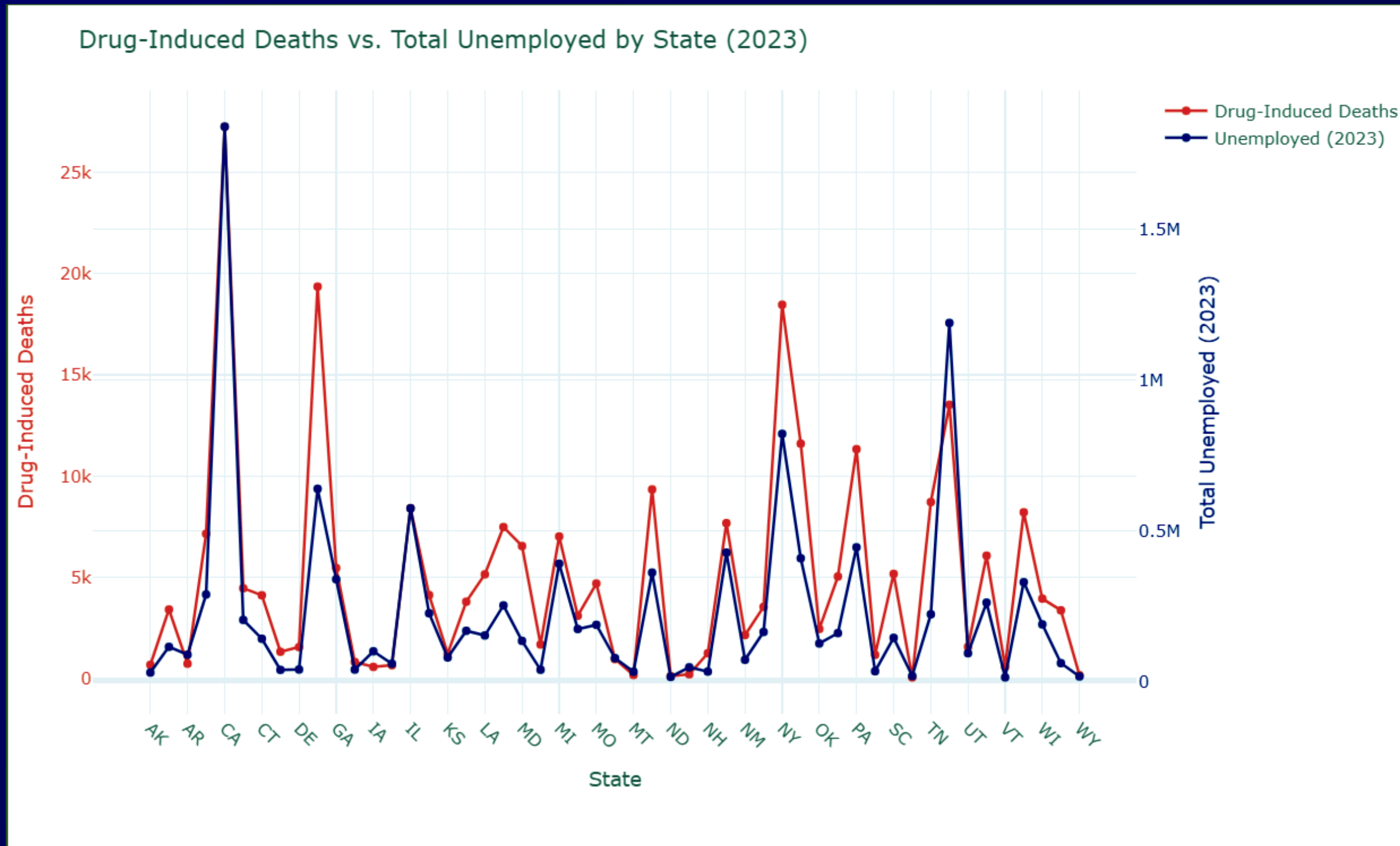Fig 2.3 Drug-Induced Deaths vs. Unemployment Rate by State (2023)

UNEMPLOYMENT RATES

Fig 2.4 Drug-Induced Deaths vs. Total Unemployed by State (2023)

UNEMPLOYMENT RATES
OBSERVATIONS FROM GRAPH

Figure 2.1 & 2.2:
 The graphs display the distribution of unemployment over various statesand unemployment trends over the years 2018 to 2023 over US. While the Fig 2.1 does not have much to infer, fig 2.2 shows the increase in unemployment rates during 2019 - 2020 due to the Covid '19 pandemic.

Figure 2.3:
 The dual axis chart shows the relationship between Drug Induced Deaths and Unemployment rates (% of population unemployed) which shows a little relation between Drug abuse and Uemployment Rates

Figure 2.4:
 The dual axis chart shows the relationship between Drug Induced Deaths and Total Unemployed which shows a high correlation in the trends hence proving our statement that Drug abuse is one of the major underlying cause of unemployment

Fig 2.4 Drug-Induced Deaths vs. Total Unemployed by State (2023)

GROSS DOMESTIC PRODUCT
EXPLORATORY DATA ANALYSIS

While performing exploratory data analysis on the Unemployment dataset we were able to get the following information:

- During the year 2007 - 2008 there is a drastic decrease in GDP due to the great economic depression that occurred.

- During the years 2019 - 2020 there is a sharp decline in the GDP as a result of the Covid '19 pandemic

- The Dataset had null values for fields like Per Capita and Real GDP, since we do not utilize those fields the dataset is used as it is after being checked for null in required fields

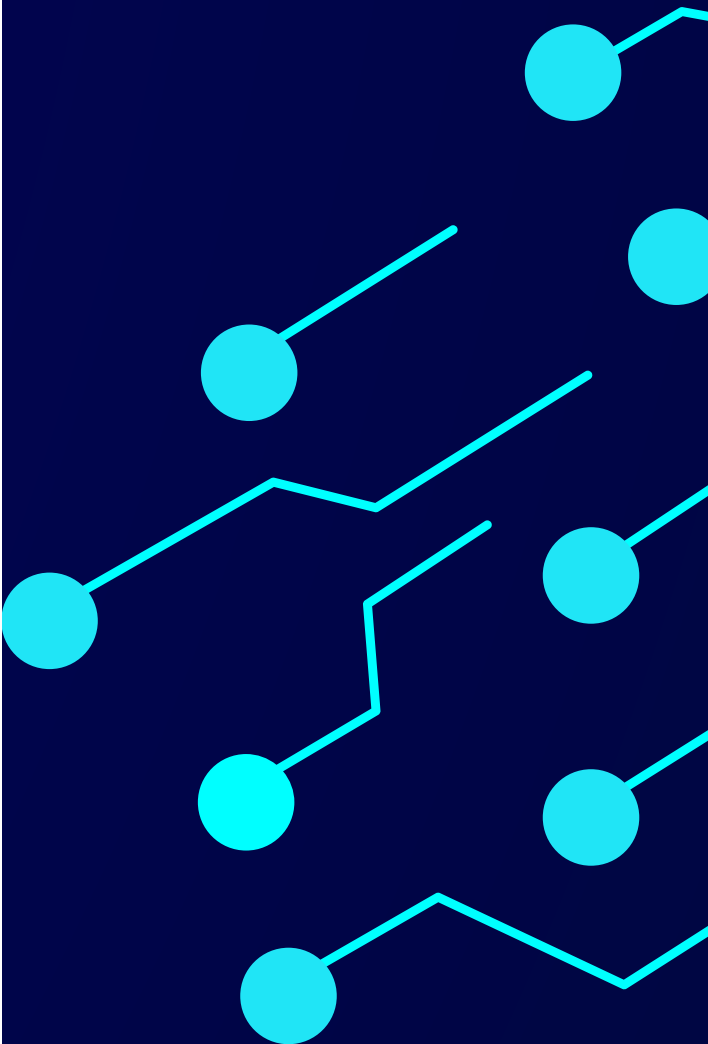# GROSS DOMESTIC PRODUCT

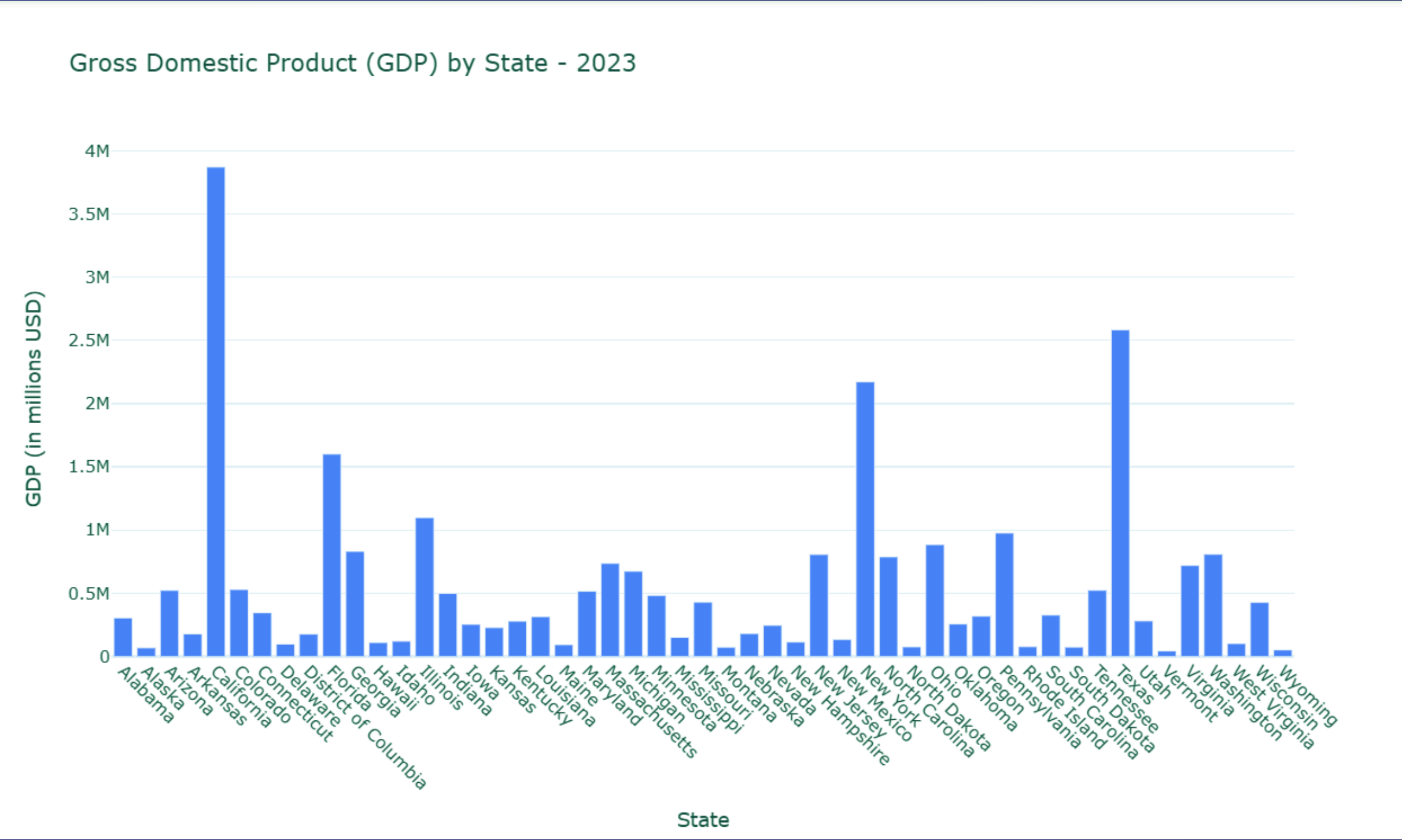Fig 3.1 Gross Domestic Product (GDP) by State – 2023

GROSS DOMESTIC PRODUCT

Fig 3.2 U.S. Gross Domestic Product (2018–2023)

GROSS DOMESTIC PRODUCT
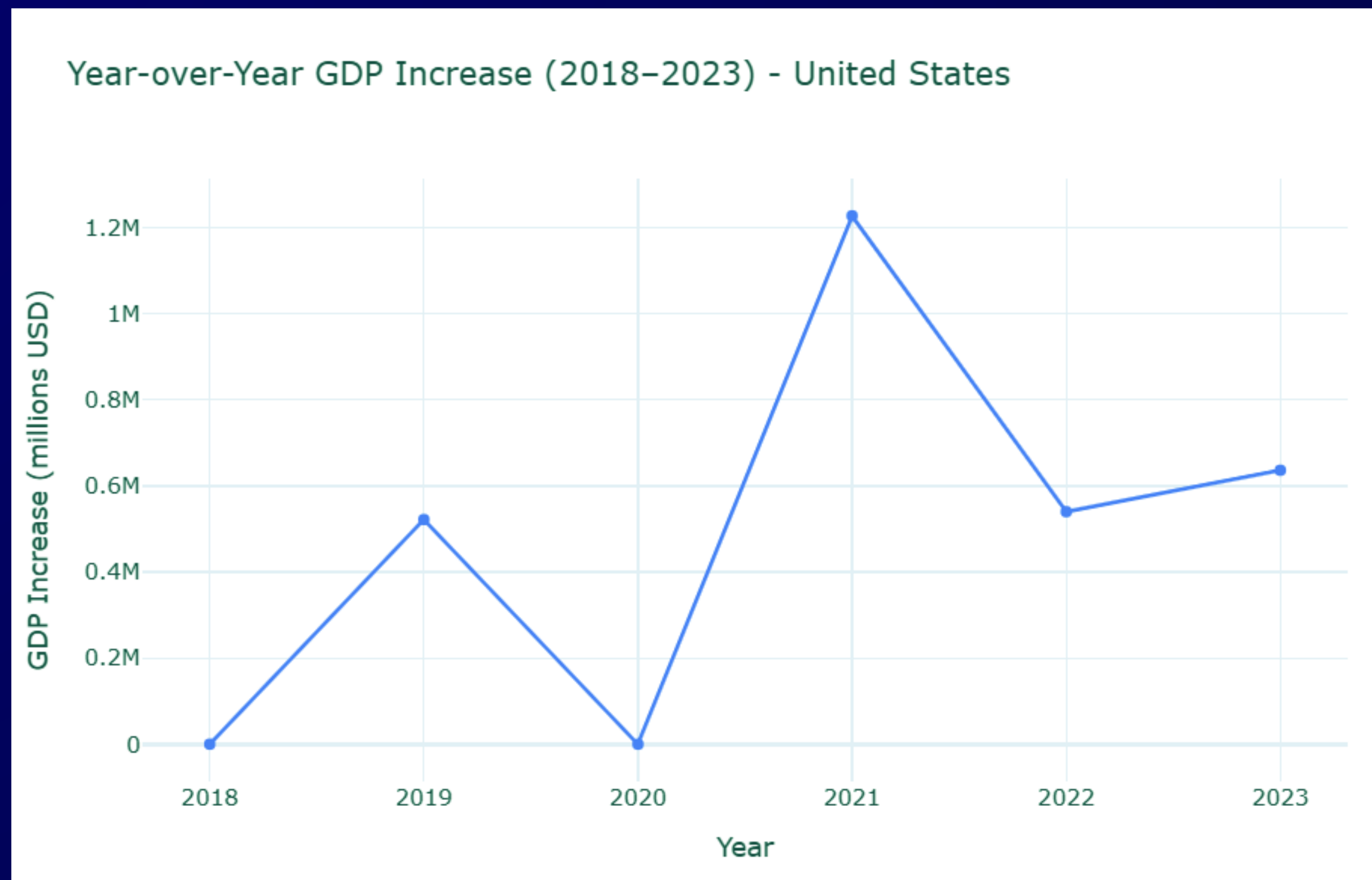

Year-over-Year GDP Increase (2018–2023) - United States

Fig 3.3 Year-over-Year GDP Increase (2018-2023) - United States

GROSS DOMESTIC PRODUCT

GDP Increase vs. Total Unemployment (2018–2023)

Fig 3.4 GDP Increase vs. Total Unemployment (2018–2023)

GROSS DOMESTIC PRODUCT
OBSERVATIONS FROM GRAPHS

Figure 3.1 & Figure 3.2
- Fig 3.1 & 3.2 display the distribution of GDP over various states and across various years (2018 to 2023)

Figure 3.3
- Fig 3.3 plays a crucial role in our findings as it is a chart depicting the GDP increase on year over year basis and this helps us clearly note that the GDP has drastically decreased for the year 2020 as a result of the Covid '19 pandemic

Figure 3.4
- Fig 3.4 is vital to establish the relationship between unemployment rates and GDP, we can see that they are inversely proportional showing with increase in unemployment the GDP decreases

ANSWER TO KEY QUESTIONS EXPLORED

◆ How Do Drug-Induced Deaths Compare to Alcohol and Other Causes?

Utilizing Figures 1.1 and 1.3, we observe a consistent upward trend in drug-induced deaths, surpassing or nearing parity with alcohol-induced deaths across several states. The data suggests that drug-related fatalities may soon overtake alcohol-related deaths, indicating a shifting landscape in substance-related mortality that requires immediate attention.

◆ Is There a Pattern Between Drug Abuse and Unemployment?

Figure 2.4 illustrates a direct relationship between unemployment rates and drug-induced deaths. As drug abuse increases, unemployment appears to rise as well. This correlation highlights how substance misuse can adversely impact an individual's ability to maintain employment and points toward the socioeconomic consequences of drug epidemics.

◆ Does Drug Use Affect the Economy (GDP)?

Through the analysis in Figure 3.4, we identify an inverse relationship between unemployment and GDP—as unemployment rises, GDP declines. Given the earlier correlation between drug abuse and unemployment, this insight strongly implies that increased drug abuse could have a negative impact on the nation's economy, reducing overall productivity and economic growth.

CONCLUSION

What seems like an individual's struggle with drug addiction reveals its broader societal consequences. Our analysis illustrates a compelling narrative: drug abuse contributes to rising unemployment, which in turn impedes GDP growth. These findings echo prior academic studies linking substance abuse and economic output.

REFERENCES

- <u>Unemployment and Substance Use: An Updated Review of Studies from North America and Europe</u> - National Library of Medicine

- <u>Unemployment rate, opioids misuse and other substance abuse: quasi-experimental evidence from treatment admissions data</u> - BMC Psychiatry

- <u>What Is the Link Between Unemployment and Drug Abuse?</u> - Evoke Wellness

- <u>Plotly Documentation</u> - Plotly

- <u>Multiple Cause of Deaths dataset</u> - Center for Disease Control

- <u>Unemployment and median household income for the United States</u> - ERS, US Department of Agriculture

- <u>GDP and Personal Income</u> - BEA, U.S. Department of Commerce