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Data Visualization Project

Analysis of Depression Prevalence in The
United States from 1990 to 2017

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STAT 450
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Introduction

The impact of poor mental health can go unnoticed and is historically underreported. However, mental health disorders can be disabling and significantly lower quality of life, affecting approximately 15% of people globally. The second most common mental health disorder is depression, affecting an estimated 2% and 6% of the population globally people over 70 years old being the most at risk (Datanni et al., 2021). Depression, a collection of mood disorders that include dysthymic and major depression amongst others, is characterized by loss of interest in activities, feelings of worthlessness, and suicidal ideation (McCarter, 2008). The mode of age of onset globally is 19 with a median of 31 (Datanni et al., 2021).

This analysis will focus mainly on depression; though, mental health data analysis is general is important because it can help determine the allocation of resources as well as give insight into the health of the population. We were particularly interested in the prevalence of mental health within the United States (USA) in recent years. Therefore, the main research question of this data analysis is to look how the prevalence of depression has changed in the USA over time.

Data Description

The data source was from original data set source from Dattani et al. (2021) at ourworldindata.org. The dataset came as an XLSX filetype that contained 6 tables (or sheets), that included multiple countries; however, only the data pertaining to the USA was selected (dimensions and variables in Table 1). The dates chosen were from 1990 to 2017 as this had the most complete data, without any missing values. Additionally, these years were more in line with our research question.

Table 1. Dimensions and Variables of Original and Selected Dataset					
Prevalence of Mental Health Disorders Globally from 1990 to 2017	Depression by Level of Education in 2014	Prevalence of Depression by Age from 1990 to 2017	Prevalence of Depression among Males and Females from 1800 to 2017	Suicide Rate versus Prevalence of Depression from 1800 to 2017	Prevalence of Disorders for all genders and ages from 1990 to 2017
Dimensions of Original Data	26 x 15	6468 x 10	6468 x 13	47807 x 6	47807 x 6
Dimensions of USA only	Excluded, did not contain USA	28 x 10	28 x 13	28 x 6	28 x 6
Variables	Excluded, did not contain USA	Prevalence (%) amongst ages: 10-14, 15-19, 20-24, 25-29, 30-34, 50-69, 70+, all ages	Prevalence (%) amongst males and females as well as population count	Count of number of: suicides, people with depression, population	Prevalence (%) of Schizophrenia, Bipolar Disorder, Eating Disorders, Anxiety disorders, Drug use disorders, depression, and alcohol use disorder

Results

The prevalence of the most common mental health disorders in the USA between 1990 to 2017 was constructed as a time series graph (Figure 1). The graph shows a relatively stable trend for all disorders except for an increase in Drug use disorders from about the year 2000 with a steady increase until 2017. According to Martinez et al. (2020) this is likely related to the opioid-epidemic currently affecting the USA. Moreover, anxiety is the most common disorder, which increases and then decreases, and depression is the second most common, with a slight increase over time. These align with global trends.

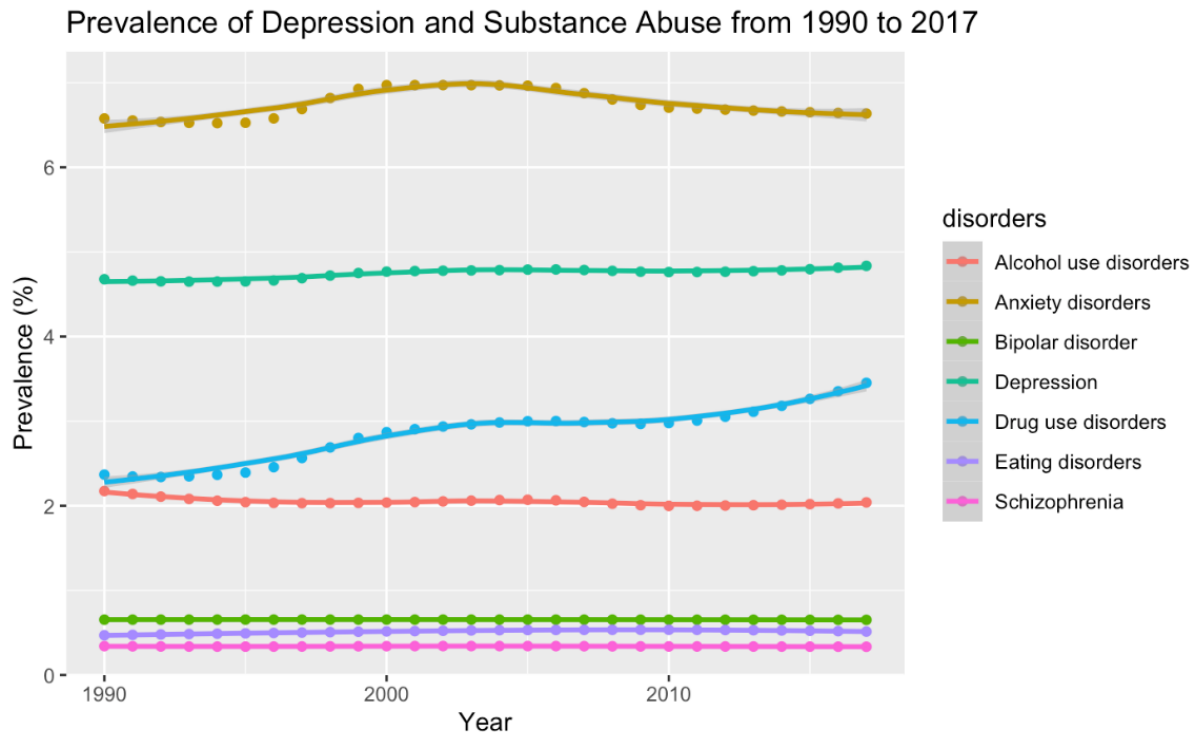


Figure 1. Time series of prevalence of depression amongst difference age groups in the USA from 1990 to 2017 (data obtained from Dattani et al., 2021).

Furthermore, Figure 2 shows that the prevalence of depression remains relatively the same over the years for all age groups, though there is a slight increase. The age group 50-69 closely follows this overall trend. Interestingly, there is a decrease in prevalence for ages 70+, which historically are the most vulnerable age group, and in ages 30-34, which is the median age of onset. Additionally, there is an increase in prevalence in ages 10-14, 15-19, 20-24, which plateaus around year 2004.

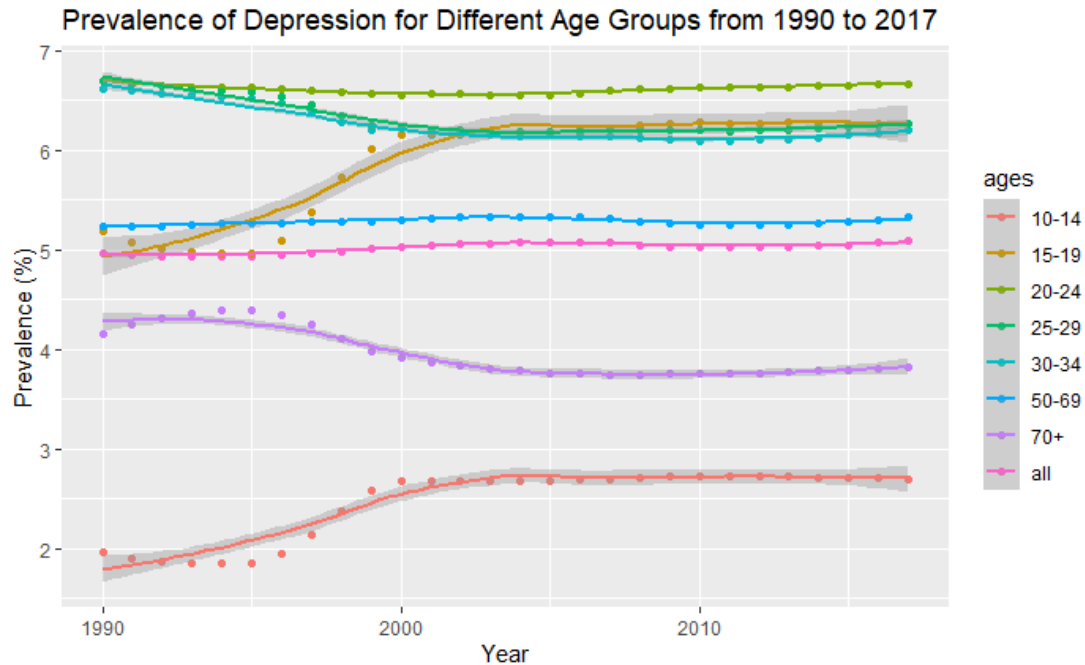


Figure 2. Time series of prevalence of depression amongst difference age groups in the USA from 1990 to 2017 (data obtained from Dattani et al., 2021)

Moreover, the time series graph of suicide rates per 100,000 from 1990 to 2017 (Figure 3) shows a non-linear association. Suicide decreased from 1990 until about 2000 and then it increased again. There are a few factors that may have caused suicide rate increased again since 2001, according to Martinez et al. (2020) are: access to firearms, opioid-related deaths, and economic downturn.

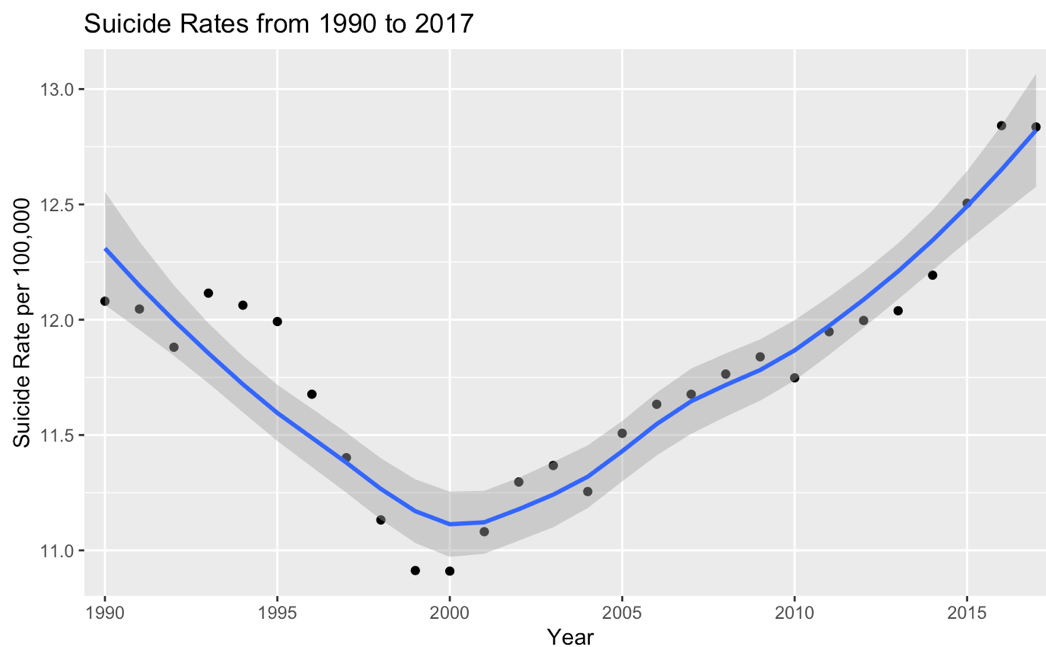


Figure 3. Time series of suicide rates per 100,000 in the USA from 1990 to 2017 (data obtained from Dattani et al., 2021)

References

Dattani, S., Ritchie, H., & Roser, M. (2021). Mental Health. Retrieved November 2022, from <https://ourworldindata.org/mental-health>

Martinez-Ales, G., Hernandez-Calle, D., Khaul, N., & Keyes, K. M. (2020). Why are suicide rates increasing in the United States? Towards a multilevel reimagination of suicide prevention. *Behavioral Neurobiology of Suicide and Self Harm*, 1-23.

McCarter, T. (2008). Depression overview. *American health & drug benefits*, 1(3), 44.