How does chronic depression affect various aspects of physical health, and are there specific lifestyle changes or interventions that can help mitigate these effects?

Ishita, William, Edward

Background

- Depression: A mental health disorder characterized by persistently depressed mood or loss of interest in activities, causing significant impairment in daily life
    - Neurotransmitter Imbalance: imbalance in serotonin or norepinephrine.
    - Inflammation can occur in the body (potential link between depression and inflammation in the body)
    - Less Sleep → Weaken Immune System
    - Unhealthy lifestyle
    - Social Isolation
- According to the World Health Organization (WHO), over 264 million people globally were estimated to suffer from depression in 2020.
- Depression is a leading cause of disability worldwide. In terms of disability-adjusted life years (DALYs), it ranked as the third-leading contributor to the global burden of disease in 2019.
- Gender and Population Disparities

Data Explanation American Economic Review (AER)

Braghieri, Luca, Levy, Ro'ee, and Makarin, Alexey. Data and Code for: Social Media and Mental Health: Data. Nashville, TN: American Economic Association [publisher], 2022. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2022-10-19. https://doi.org/10.3886/E175582V1-132460

- National College Health Assessment (NCHA), comprehensive survey about student mental and physical health
  - Within the last 12 months how many times have you: - Felt overwhelmed by all you had to do?
  - Over the last two weeks, how often have you been bothered by the following problems? - Worrying too much about different things?
  - Accounts for gender, race, fake participants
- Taken from 775 colleges/universities around the United States ranging from academically demanding colleges to non-academically demanding colleges
  - Almost everyone in this survey was ages 18 - 22
- This survey was done early 2010's

Data Explanation Rogers

The Rogers dataset represents data collected at Rogers Memorial Hospital, focusing on individuals diagnosed with Depression. The study utilized the Quick Inventory of Depressive Symptomatology - self-report version to assess the severity of depressive symptoms.

The dataset consists of 408 individuals, each characterized by 26 variables. The first 16 variables correspond to items measuring depressive symptoms, including aspects such as sleep patterns (onset, middle, late), appetite changes (decreased and increased), weight changes (loss and gain), concentration impairment, guilt, suicidal thoughts, anhedonia, fatigue, psychomotor retardation, and agitation.

These variables provide a detailed profile of each individual's symptoms, offering valuable insights into the occurrence of Depression. The dataset is sourced from a study conducted by McNally et al. (2017), employing a Bayesian network approach to analyze the complex relationship between physical and depressive features.

Patrick M (2022) Package "MPsychoR" Type Package Title Modern Psychometrics with R

Metrics Used

- Two datasets to account for differences in time (economic or social effects that could’ve affected overall happiness index of society)
- Separated into Mental and Physical Effects
- Separated into Male vs Female

Mental Health AER

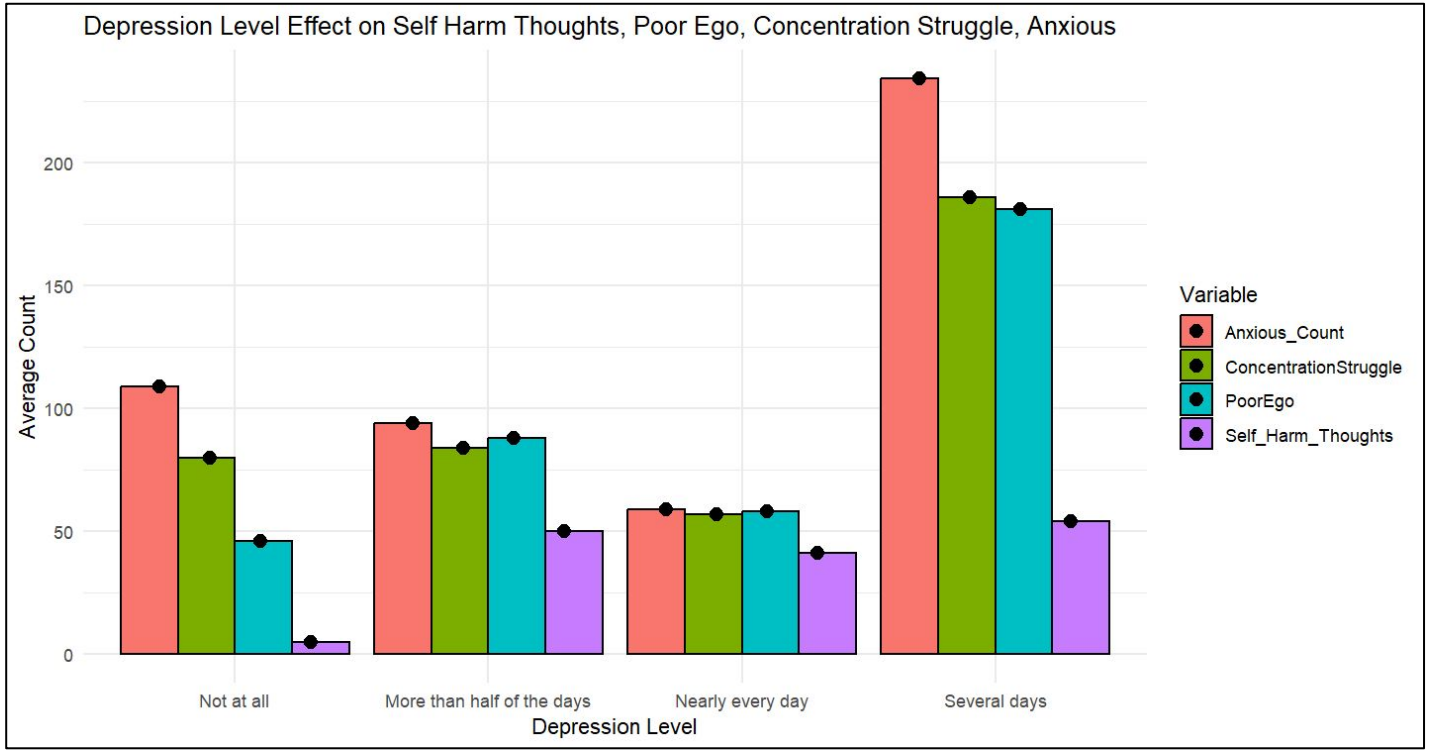


Figure 1: Depression Level vs Mental Health Variables The effect of depression on various other mental health variables by count. The trend shows a large increase in anxiousness and Concentration Struggle from “Not at all” to “Several Days”

Mental Health (Rogers)

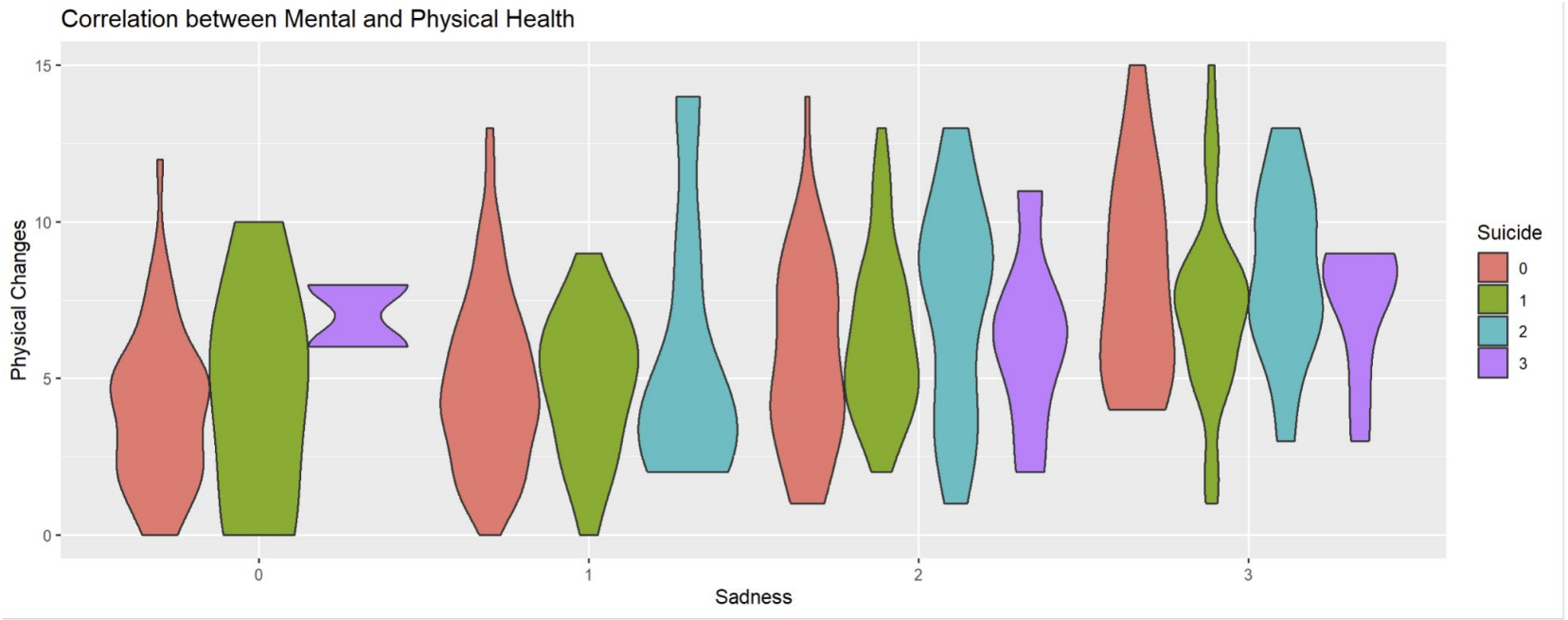


Figure 2: Distribution of Physical Numeric Scores Across Levels of Sadness. The violin plot showcases the distribution of physical numeric scores, derived from the combination of individual variables related to mental health, across different levels of sadness. Each violin represents the density of scores, providing insights into the variability and patterns of physical changes associated with varying degrees of sadness.

Physical Health (Rogers)

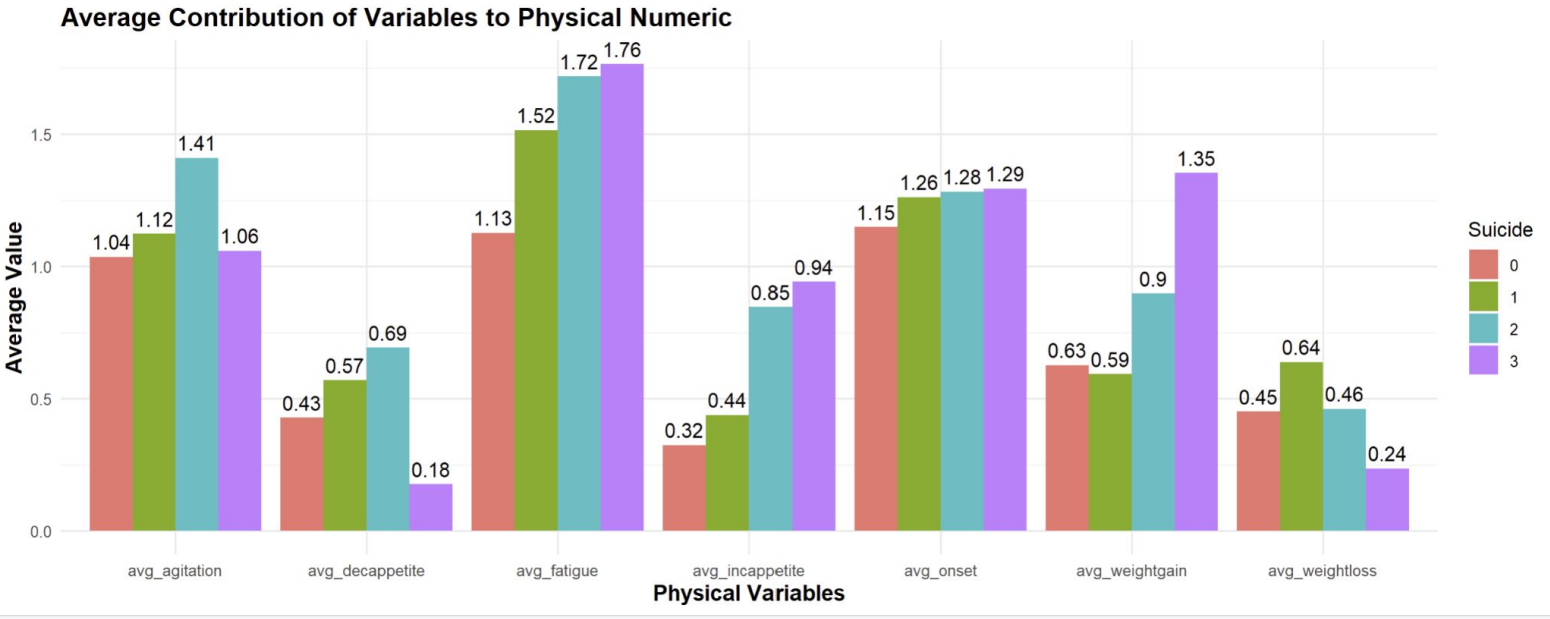


Figure 3: Average Score for Physical Health. The grouped bar chart illustrates the average values of the variables corresponding to physical well-being (onset, weightloss, weightgain, decappetite, incappetite, fatigue, and agitation) for each corresponding suicide category (0-3).

Physical Health AER

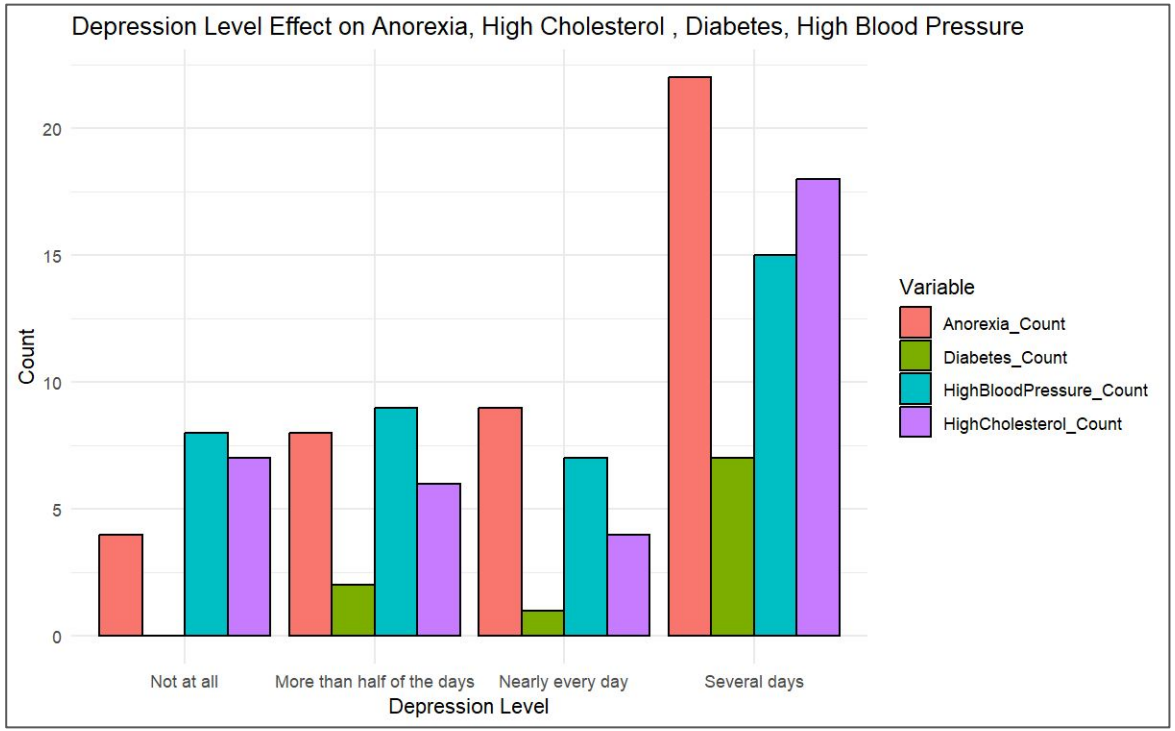


Figure 4: Depression Level vs Physical Health Variables The effect of depression on various other physical health variables by count. The trend shows a large increase in anorexia and high cholesterol from "Not at all" to "Several Days"

Male vs Female (from AER dataset)

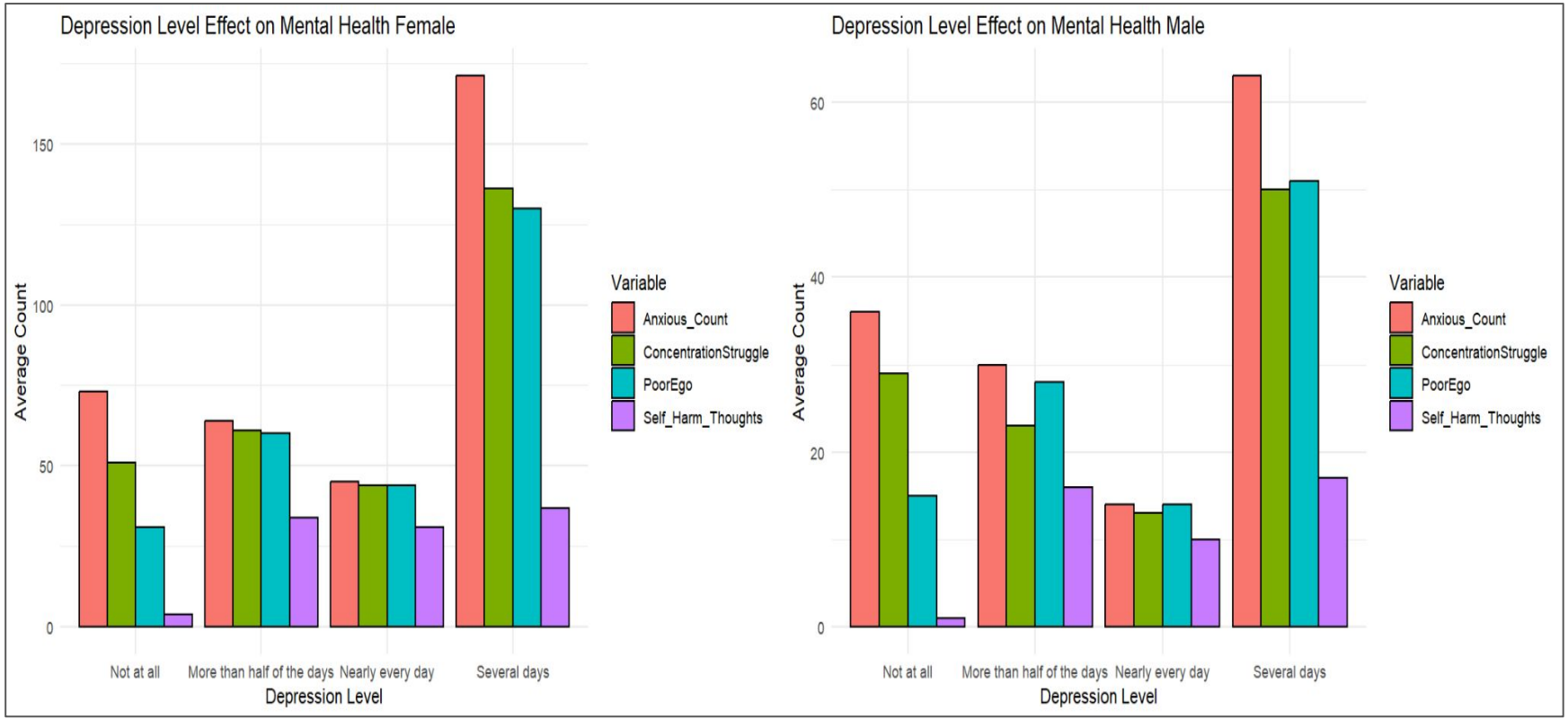
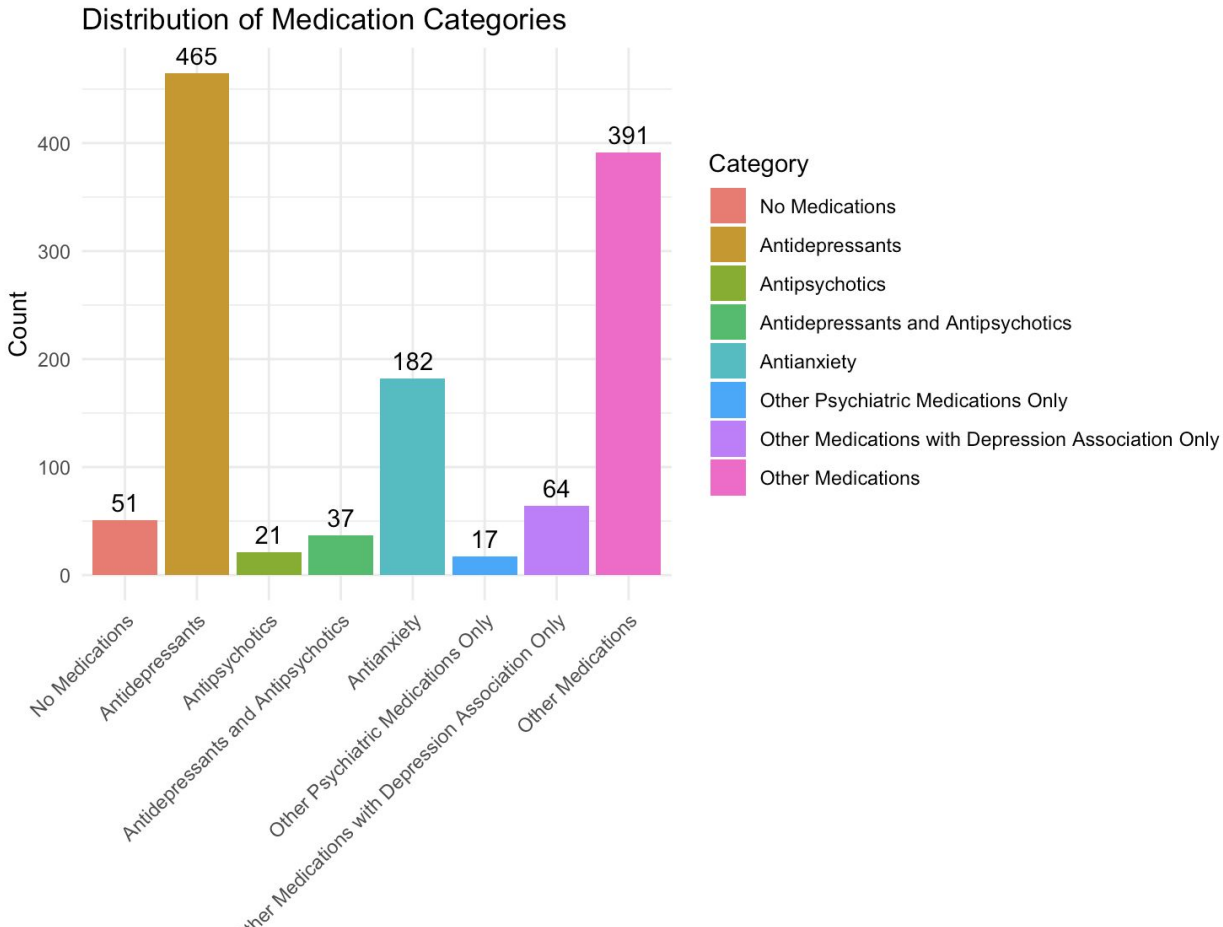


Figure 5: Depression Level vs Mental Health Variables by Race The effect of depression on various other mental health variables by count separated by race. Both show relatively the same trend from “Not at all” to “Several Days”

Treatments


Distribution of Medication Categories
Count
0
100
200
300
400
465
391
182
64
51
37
21
17
No Medications
Antidepressants
Antipsychotics
Antidepressants and Antipsychotics
Antianxiety
Other Psychiatric Medications Only
Other Medications with Depression Association Only
Other Medications
Category
No Medications
Antidepressants
Antipsychotics
Antidepressants and Antipsychotics
Antianxiety
Other Psychiatric Medications Only
Other Medications with Depression Association Only
Other Medications

Next Questions

- Is there an epidemic of “over-diagnosing” and “over-prescribing” when some mental health problems can be treated with something other than medication?
- What is the overall trend of depression levels across different populations and races?
- What are the common risk factors associated with the development of depression?
- Are there genetic factors that contribute to a predisposition for depression?