Introduction

Individuals living with mental health issues are overrepresented within the criminal justice system. At the same time, justice-involved individuals repeatedly booked and charged are at a high risk of suicide and drug overdose. Data from Duke Health, the major health care provider in the county, have valuable data about patient encounters from 2013-2021, including the Carolina Community Health Data Center which generates providing health care services to the medically underserved. Using data from the Durham County Department of Corrections, the data center on mental health and substance use disorders and a combination of criminal justice and medical data, we were able to study patterns of incarceration within Durham County without mental health diagnoses. By working alongside county agencies such as the Criminal Justice Resource Center (CJR), our team's data analysis could potentially improve policy plans and contribute to new ways of thinking about mental health within the Durham County justice system.

Methods

Before beginning this project, each team member was required to complete the DBA training and receive an LROI approval. To maintain the privacy of our data, we used an R project instead of SAS, which are protected under the Health Insurance Portability and Accountability Act (HIPAA). Using a matched dataset provided by the Durham County Department of Corrections and the Analytic Center for Student Health (ACS), we conducted descriptive statistical analysis of the population of interest for the project. To prepare our dataset for analysis, our team used the dplyr and tidyr packages to visualize our data and conduct exploratory and descriptive statistical analysis.

This year, our team incorporated new mental health-related variables, or tags, with which to subdivide our data. The Big 3 tags include individuals who were ever diagnosed with at least one of the following at any point in time: cannabis use disorder, alcohol use disorder, or nicotine use disorder. These tags were created to replace the "Mental Health" tag used in previous years. To compare how health-related and incarceration patterns of groups not diagnosed with a Big 3 disorder were similar or different, three sets of analyses were performed: using all data, using data in 2020, and using data in 2021.

Health Utilization

Tables 5, 6, and 7: Frequency of encounters across Duke Health service areas, care services within the Durham Region, and comparison of healthcare utilization by sex and race/ancestry. The data shows that male individuals have a higher rate of healthcare utilization compared to female individuals. The data also indicates that individuals of non-white race/ancestry have a higher rate of healthcare utilization compared to individuals of white race/ancestry.

Diagnoses

Figure 3: Comparing Drug Overdose Types Across Groups

This figure shows the comparison of drug overdose types across different groups. The data indicates that the percentage of individuals with drug overdose is significantly higher in the 83.1% group compared to the 56.3% and 18.2% groups. The highest percentage of drug overdose is observed in the group with a "Big 3" disorder.

Discussion

Consistent with prior years’ findings, individuals who are released from DCDOC and saw providers are composed mainly of African Americans, non-Latino, males. Individuals with a Big 3 group have longer lengths of incarceration and a higher number of bookings compared to individuals without a Big 3 diagnosis. The percentage of the incarcerated female population that have been diagnosed with a Big 3 disorder is nearly double the percentage of the incarcerated male population. This is consistent with the previously observed trend. The main reason for this difference is that females have longer lengths of incarceration and shorter lengths of longest observed incarceration than those males. Additionally, the female incarcerated population overall has a lower rate of recidivism compared to the male incarcerated population, implying that during the 2019-2021 period both male and female incarcerated populations had higher rates of recidivism. The data suggests that females are more likely to have been diagnosed with a "Big 3" disorder and to receive more mental health and substance use diagnoses compared to males.

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The data above details the variation in number of encounters in the following Duke Health service areas: mental health and substance use diagnoses, primary care, and emergency department. The data indicates that primary care services have the highest number of encounters, followed by emergency department and mental health and substance use diagnoses services.

The graph above compares the prevalence of mental health and substance use diagnoses between different groups. The data shows that the prevalence of mental health and substance use diagnoses is higher in the group with a "Big 3" disorder compared to the group without a "Big 3" disorder. Additionally, the data indicates that the prevalence of mental health and substance use diagnoses is lower in the group with no diagnosis compared to the group with a "Big 3" disorder. The data suggests that the prevalence of mental health and substance use diagnoses is higher in the group with a "Big 3" disorder compared to the group without a "Big 3" disorder.