Final Report on the Impact of Marijuana Use on Mental Health Using NHANES Dataset

Background

The possible impact of marijuana use on mental health has come under closer scrutiny, especially as more areas legalize the drug. Using data from the National Health and Nutrition Examination Survey (NHANES), this study attempts to investigate the connection between marijuana usage and mental health outcomes. It is essential to comprehend this link in order to inform public health actions and policies.

Methods

Data Source :

The NHANES, which gathers detailed health and nutrition data from a wide range of Americans, provided the data used in the analysis.

Study Parameters :

The study focused on adults and analyzed the following parameters including age, gender, Ethnicity, Marijuana use (frequency and quantity), Mental health indicators (such as anxiety, depression, and overall mental well-being).

Statistical Analysis :

After adjusting for potential confounders, correlation and regression analyses were used to evaluate the association between marijuana usage and mental health indicators.

Hypothesis :

It is hypothesized that more marijuana usage is linked to worse mental health outcomes, like more anxiety and depressive symptoms.

Results (Hypothetical)

High marijuana usage was found to have a statistically significant negative link with mental health markers, suggesting that frequent users have higher levels of anxiety and depressive symptoms. Compared to older adults, this effect was noticeably more noticeable in younger adults (ages 18–34), and women reported higher levels of anxiety and depressed symptoms related to marijuana use than did men. Additionally, different ethnic groups showed distinct associations between marijuana use and mental health, with certain ethnicities showing a higher correlation between heavy use and negative mental health outcomes.

Discussion & Conclusion

The results point to a significant link between marijuana use and mental health, indicating that more usage may make depressive and anxious symptoms worse. These findings highlight the significance of keeping an eye on marijuana users' mental health outcomes, especially for females and younger adults. The observed ethnic differences point to the necessity of interventions that are culturally appropriate. The cross-sectional form of the study, however, makes it difficult to prove causation, suggesting that more extensive knowledge will require longer-term research in the future.

References

https://www.sciencedirect.com/science/article/abs/pii/S0165032715310004?via%3Dihub

https://www.sciencedirect.com/science/article/abs/pii/S0140673607611623?via%3Dihub

Analysis Plan - First Draft

Background and Rationale/Unmet Need

A careful analysis of this link is required due to the rising incidence of marijuana usage and the continuous discussions over its impact on mental health. A unique chance to investigate the relationship between marijuana use and other mental health markers is offered by the NHANES dataset, which includes a broad population.

Study Aims

Primary Study Aim

To use the NHANES dataset to examine the relationship between marijuana use (frequency and quantity) and mental health indicators in the adult U.S. population.

Secondary Study Aims

To assess the effects of gender and age on the association between marijuana usage and mental health. To investigate how this link varies among different ethnic groups.

Study Hypotheses

Primary Outcome

Hypothesis:

Poorer mental health indicators (as determined by anxiety and depression symptoms) are linked to higher marijuana use.

Secondary Outcome

It is predicted that the association between marijuana use and mental health will be moderated by age and gender. Additionally, it is expected that different ethnic groups may experience marijuana use's effects on mental health differently.

Data Extraction and Analysis Plan

Study Cohort Definitions:

Cohort:

The study will include adults from the NHANES dataset, covering all ethnicities.

Key Parameters :

The focus will be on age, gender, ethnicity, marijuana use (frequency and quantity), and mental health indicators, aligning with the study's aim to explore the impact of marijuana use on mental health.

Analyses to Perform

Descriptive Statistics of Baseline Parameters

Objective:

Summarize the demographic and health characteristics of the study population.

Method:

Calculate measures like mean, median, standard deviation, and interquartile range for continuous variables (e.g., marijuana use frequency, mental health scores) and proportions for categorical variables (e.g., gender, ethnicity).

Statistical Analysis :

Correlation Analysis :

Purpose: Assess the direct relationship between marijuana use and mental health indicators.

Method: Use Pearson or Spearman correlation coefficients, depending on the distribution of the data.

Multiple Regression Analysis :

Purpose: Explore the impact of marijuana use on mental health indicators, considering potential confounding variables.

Method: Employ a linear regression model to determine the independent impact of marijuana usage on mental health outcomes after controlling for age, gender, and ethnicity.

Subgroup Analysis :

Purpose: Examine how different age groups, genders, and ethnicities have varied associations with marijuana use and mental health.

Method: Conduct stratified analyses to explore interaction effects and provide insights into specific population subgroups.