Executive Summary

Problem Statement

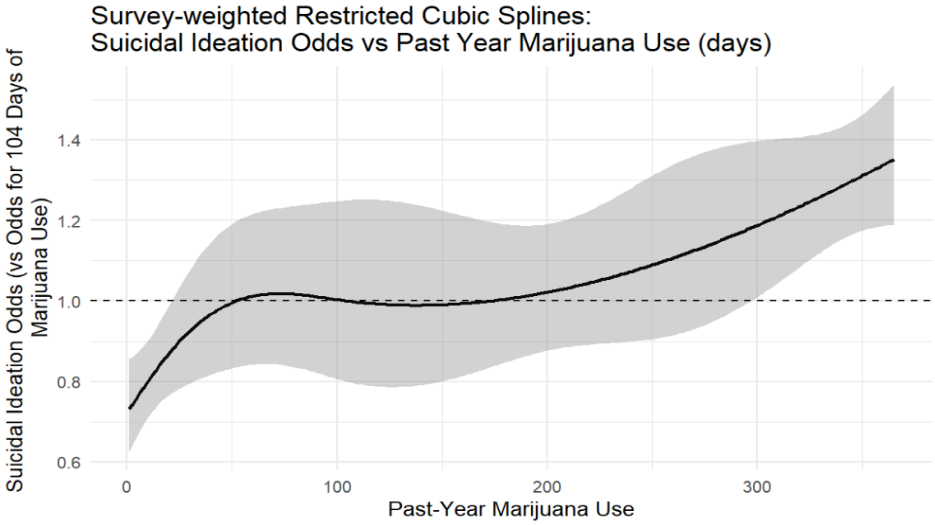
Problems with marijuana use and suicidal ideation specifically in the population of young adults merit further attention. As of 2023, about a quarter of young adults used marijuana in the past year, and greater than 10% experienced suicidal ideation (SI). Moreover, more than 10% of young adults experienced co-occurring substance use disorder (SUD) and any mental illness (AMI), which is more than other age groups. Therefore, this study took on the following question: to what extent is past-year marijuana use associated with past-year SI among young adults aged 18-25? Findings and recommendations of this study inform public health policy makers, clinicians, and young adults.

Methodology

Using data from the 2021-2023 National Surveys on Drug Use and Health (NSDUH), this study used two primary methods commonly used in health analytics research: (1) logistic regression and (2) restricted cubic splines. Logistic regression was used to examine the linear association between marijuana use and SI, meaning: what are the odds of SI for different levels of marijuana use? Restricted cubic splines were used to investigate the non-linear association between marijuana use and SI, meaning: do past-year odds of SI increase at a constant rate with increasing past-year marijuana use?

Key Findings

Overall, we found that past-year marijuana use was strongly associated with past-year SI among young adults, even after adjusting for sociodemographic (e.g., gender, household income), substance use (e.g., alcohol use, nicotine vaping), and mental health (e.g., nervousness, difficulty concentrating) variables. Notably, young adults that used marijuana for 90-180 days in the past year had 68% higher odds of SI compared to young adults that used marijuana for 0-90 days (Adjusted Odds Ratio = 1.68). However, the association is not linear, with odds of past-year SI plateauing at 50 to 200 days of marijuana use in the past year, while increasing before and after that range of days, as shown with the graph below. Important characteristics of young adults to consider include that they used alcohol about 44.1 days on average in the past year, 40.1% had completed some degree of college education, and 9.6% were unemployed.



Recommendations

Based on these findings, we recommend the following:

- **Public Health Policy -** To mitigate risk of SI, we recommend that public health policy makers form legislation that puts a limit on past-year marijuana use to 50 to 200 days of use for marijuana users, and at most 50 days for non-users, which would most likely reduce the odds of SI relative to young adults that used marijuana for more than 200 days in the past year.
- **Behavioral Healthcare -** We recommend that behavioral health clinicians, as part of their holistic care, inform patients on methods of marijuana use prevention and minimization, including referral to counselors that help with substance use addiction, gradual reduction of use for young adults that used marijuana for more than 200 days in the past year, and tracking marijuana use in a journal or spreadsheet for accountability.
- **Emphasis on Subgroups -** Based on the aforementioned characteristics of young adults, we recommend that behavioral health clinicians and public health policy makers emphasize marijuana use management strategies in the subgroups of college students, unemployed young adults, and young adults that frequently use alcohol.
- **Education Programs -** We recommend that wellness center leaders at various colleges across the United States educate college students on the importance of marijuana use prevention and minimization, explaining that it can cause a host of problems including suicidal ideation. In addition, we recommend that epidemiologists organize, plan, and participate in community programs centered around marijuana use management for young adults.

Limitations

Limitations of this study include a lack of causation, bias, and not all relevant variables were accounted for. Because we used data that was collected from single points in time, we cannot tell if past-year marijuana use happened before or after suicidal ideation, which is an important component needed to establish causation. Moreover, there was recall bias in this study, meaning that young adults who responded to the 2021-2023 NSDUH surveys likely had trouble recalling past exposure to marijuana to an extent. Meanwhile, there was also self-report bias in this study with young adults providing information that doesn't accurately reflect what they are experiencing. An example of one variable in this study that could have had self-report bias is nervousness, with coping mechanisms in response to nervousness varying from person to person. Finally, relevant variables not accounted for in the logistic regression analysis included discrimination (specific to racial minorities), impulsivity (specific to college students), and depression. Additionally, our restricted cubic splines analysis did not account for any variables beside marijuana use.

Future Directions

Future studies should aim to add a temporal element to the association between marijuana use and SI, and account for additional variables that are possibly relevant in the association. To increase the validity of the results, future studies could do an adjusted restricted cubic splines model between marijuana use and suicidal ideation, accounting for sociodemographic, substance use, and mental health variables. To add temporality, future studies could involve cohort or experimental studies, which would measure our exposure of marijuana use before the outcome of suicidal ideation. Finally, future studies should find additional data on discrimination, impulsivity, and depression to increase the validity of the logistic regression results.