

PAPER TITLE:

Persistent cannabis dependence and alcohol dependence represent risks for midlife economic and social problems: A longitudinal cohort study

A research team led by Magdalena Cerdá at UC Davis, and Avshalom Caspi, and Terrie Moffitt at Duke University reports that people who smoke cannabis on a regular basis over many years end up in a lower social class than their parents, with lower-paying, less skilled, and less prestigious jobs. They also experience more financial problems, more problems at work, and more relationship difficulties. These findings are based on a study that followed children born in Dunedin, New Zealand, from birth up to age 38.

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FINDINGS:

1. Study participants who smoked cannabis regularly over several years experienced downward social mobility, that is, they ended up in occupations that were less prestigious, less skilled, and less well paid than their parents' occupation. In contrast, participants who did not report regular and persistent cannabis use ended up in occupations that were more prestigious, more skilled, and better paid than their parents' occupation.
2. Regular cannabis users also experienced more financial problems, such as troubles with debt and cash flow; more problems of antisocial behavior at work, such as stealing money or lying to get a job; and more relationship problems such as intimate partner violence.
3. The more years of cannabis dependence (or regular cannabis use), the worse the decline in social class, financial problems, relationship conflict, and antisocial workplace behavior.
4. It is frequently said that cannabis is less harmful than alcohol, but we found that both similarly predicted declines in social class, antisocial behavior in the workplace, and relationship conflict. Participants who were dependent on cannabis experienced more financial difficulties, such as troubles with debt and cash flow, difficulty paying basic expenses, and food insecurity, than participants who were dependent on alcohol. The idea that cannabis is somehow "safer" than alcohol was not supported in our study.

WHY ARE THESE FINDINGS IMPORTANT

1. A common critique of past studies of the effects of cannabis use is that the problems experienced by regular cannabis users are due to other, pre-existing characteristics of cannabis users, and not by the cannabis use itself. In our longitudinal study, we followed participants for four decades starting at birth. We showed that the economic and social problems experienced by regular cannabis users were not explained by:
 - a. Socioeconomic problems in childhood
 - b. Lower IQ
 - c. Antisocial behavior and depression in adolescence;
 - d. Higher levels of impulsivity;
 - e. Lower motivation to achieve;

- f. Criminal conviction of cannabis users;
- g. Abuse of alcohol and hard drugs.

Even after accounting for all of these potential differences between regular cannabis users and other study participants, the relationship between regular cannabis use and economic and social problems persisted.

2. Alcohol may be worse than cannabis for physical health, but what about other aspects of life? We found that cannabis does not pose fewer economic and social harms than alcohol. In the case of financial difficulties, it may pose more harm than alcohol.
3. Our research does not support arguments for or against cannabis legalization. We have no stake in legalization. But, our research does show that cannabis was not safe for the long-term users tracked in our study. Whether legalized or not, we need to be aware that persistent heavy cannabis use may have consequences for how well people do in life, how they perform and function at work and in relationships with others.
4. By preventing regular cannabis use and treating people who are addicted to cannabis early, we may reduce the burden that persistent cannabis users pose to their families, communities, and national social welfare systems.

LIMITATIONS:

1. Our research has only addressed the economic and social consequences of cannabis use. In this domain, we find that cannabis did not appear to be safe, and may be just as harmful as alcohol. But, in other aspects of life (e.g., in terms of physical health), it is possible that alcohol is worse.
2. Alcohol is still a bigger problem than cannabis because alcohol use is more prevalent than cannabis use. But, if cannabis use increased, the economic and social burden posed by regular cannabis use could increase as well.
3. We are talking about long-term, persistent heavy use and dependence, not about short-term use.

SUPPORTING DETAILS:

Study participants.

Participants are members of the Dunedin Multidisciplinary Health and Development Study, which tracks the development of a birth cohort of 1,037 children born in 1972-1973 in Dunedin, New Zealand. This birth cohort's families represent the full range of socioeconomic status and health in the general population. Follow-ups have been carried out at ages 3, 5, 7, 9, 11, 13, 15, 18, 21, 26, 32, and most recently at age 38 years, when 95% of the living cohort members took part. We examined 947 participants who completed at least three of the five adult cannabis assessments from ages 18-38, including the age-38 assessment.

How we measured cannabis use.

We measured cannabis use in two ways: cannabis dependence and regular cannabis use. Persistence of cannabis dependence was defined as the total number of study waves out of five (ages 18, 21, 26, 32, and 38) at which a study member met criteria for cannabis dependence. Study members were grouped according to their number of dependence diagnoses: (a) those who never used cannabis at any study wave and thus could not have

become dependent; (b) those who used cannabis at least once at one or more study waves but never diagnosed; (c) those who diagnosed at one wave; (d) those who diagnosed at two waves; and (e) those who diagnosed at three or more waves.

Cannabis dependence is a substance-use disorder as defined in the Diagnostic and Statistical Manual of the American Psychiatric Association. The purpose of the DSM diagnosis is to predict a patient's future prognosis, and to identify which patients are most in need of scarce treatment resources. A diagnosis of cannabis dependence generally reflects an individual's continued use of cannabis despite experiencing significant health, social, and/or legal problems related to cannabis use.

Persistence of regular cannabis use. Because some people use cannabis on a regular basis but never develop problems, we also examined economic and social problems as a function of persistent regular cannabis use. This was defined as the total number of study waves out of five at which a study member reported using cannabis four or more days per week (the majority of days in a week). Study members were grouped as those who: (a) never used cannabis; (b) used but never regularly; (c) used regularly at one wave; (d) used regularly at two waves; and (e) used regularly at three or more waves.

Results were similar for persistent cannabis dependence and persistent regular cannabis use.

How we measured economic and social problems.

Economic and social problems were measured at age 38, using both self-report and administrative record data such as credit ratings, court records, and government social-welfare benefit records. We measured socioeconomic mobility by comparing social class in childhood (highest occupational status of either parent from the participant's birth to age 15) with social class in adulthood (most recent occupation of the participant at age 38). Measures of financial difficulties included self-reported net worth, troubles with debt and cash flow, difficulty to pay basic expenses, and food insecurity, as well as New Zealand government records of welfare benefit receipt, and credit ratings. Measures of relationship conflict included: self-reported relationship quality, intimate-partner physical abuse, and intimate-partner controlling abuse. Antisocial workplace behavior measures included self-reports of interpersonal deviance, productivity deviance, and property deviance. Finally, New Zealand government records were used to determine whether participants were convicted of traffic offenses between ages 32-38 years.

UNIVERSITIES INVOLVED:

University of California at Davis, Sacramento, CA; Duke University, Durham, NC, USA; University of Otago, Dunedin, NZ; Institute of Psychiatry, Kings College London, UK; Arizona State University, Tempe, AZ.

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