NMHealth

Impact of Cannabis Use During Adolescence

Gary J. French

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Portal Update

Adolescent Development[1]

- A time of growth, change, and self-discovery
  - Figuring out who they are and want to be
  - Figuring out what they are good at
  - Forming identity
  - Maturing cognitively and emotionally
    - Memory, planning, attention, emotion regulation, impulse control
- Neural Plasticity
  - Brain changes in response to experiences
  - Fast Learners seek novelty

Why are teens using Cannabis?

- Many adolescents use cannabis to cope with stress, anxiety, depression, etc.
  - Social media a big factor
  - Political Climate – decreased opportunity
- Why is this a problem?
  - Adolescent brains are highly vulnerable to substance use/addiction
  - Begin to use cannabis as a substitute for healthy coping strategies
    - Exercise, meditation, talking with a friend, journaling
  - Narrowing of things that bring pleasure as cannabis supplants them.
  - Given dynamic state of neural plasticity: brain becomes wired to want cannabis to feel good.

Perceptions

- Most US adolescents do not perceive regular cannabis use as harmful.[2,3]
- Perceived risk of harm from weekly cannabis use has decreased by nearly half – 47.5% to 27.4% over the past decade.[2,3]
- In 2022[4]:
  - 30.7 % of 12th graders reported using cannabis in the past year.
  - 6.3 % of 12th graders reported using cannabis daily in the past 30 days.

Mental Health Impacts on Adolescents from Cannabis Use

- Addiction
- Depression
- Psychosis
- Suicide

Addiction[5]

- Cannabis Use Disorder
  - 12% of adolescents who have ever used cannabis with develop CUD.[6]
  - 33% of those who use weekly will develop CUD[6]
- Developing a substance use disorder is the most common long-term psychiatric diagnosis associated with adolescent cannabis use.[7]
- Higher risk of using other substances (tobacco, alcohol)[5]
- *Take home*: Cannabis use in adolescents leads to addiction particularly due to the fact that their brains are developing and not due to some "gateway effect".

Depression[8]

- Most common psychiatric symptoms associated with cannabis use in adolescence are depressive symptoms.[9]
- In a study of over 4,000 adolescents who presented to the ER for cannabis-related issues between 2005 and 2015, the most common ICD codes other than “cannabis use” was depression.[10]
- Reductions in cannabis use were associated with reductions in depressive symptoms.[11]

Psychosis

- Adolescent exposure to cannabis predicts up to a *twofold increased risk* of developing psychosis and schizophrenia in adulthood.[12]
- This association is also *dose dependent*. (greater the exposure, greater the chance of developing psychosis as an adult.[12] (potency/frequency)
- A 2024 study showed the association between cannabis use and risk of psychotic disorder was *notably greater* than in previous studies when cannabis was less potent.[13]

Psychosis

- In a study of over 400 first episode patients with psychosis, adolescents who had started cannabis at age 15 or younger, were daily users, and used cannabis with higher THC content, experienced first psychotic episode by 2 years earlier than users who started after age 15 and 6 years earlier than non-users.[14]

Suicide

- Study of twins (discordant for using 100 times or more in their life) showed that the twin using cannabis[15]:
  - *2.1 times more likely* to have a lifetime history of major depressive disorder
  - *2.6 times more likely* to have a lifetime history of suicidal ideation
  - *4.4 times more likely* to have a lifetime history of a suicide attempt.
- A recent meta-analysis did *not* find a relationship between *acute cannabis use* and suicidal ideation. It did find associations between *chronic cannabis use* and death by suicide, suicidal ideation, and suicide attempt.[16]

Cognitive Outcomes on Adolescents from Cannabis Use

- Brain Development
- Cognition
- Academic Performance
- Driving

Brain Development[1]

- Exposure to cannabis alters the adolescent endocannabinoid system
- Adolescent cannabinoid exposure alters dendritic architecture as well as neuronal and synaptic properties.
- These changes then lead to altered behavioral, synaptic, and molecular phenotypes in the adult brain.
- In an analysis of brain scans of 799 teens made 5 years apart, researchers found cannabis use was associated with accelerated thinning of the prefrontal cortex, a key aspect of brain development.[17]

Cognition

- Regular use leads to impairments in learning, memory, attention, and inhibitory control.[18]
- Twice the odds of difficulty concentrating than non-users[2]
- Poor judgment and decision-making
- Poor relationship skills
- Impaired cognitive function in cannabis users appears to improve with sustained abstinence.[18]

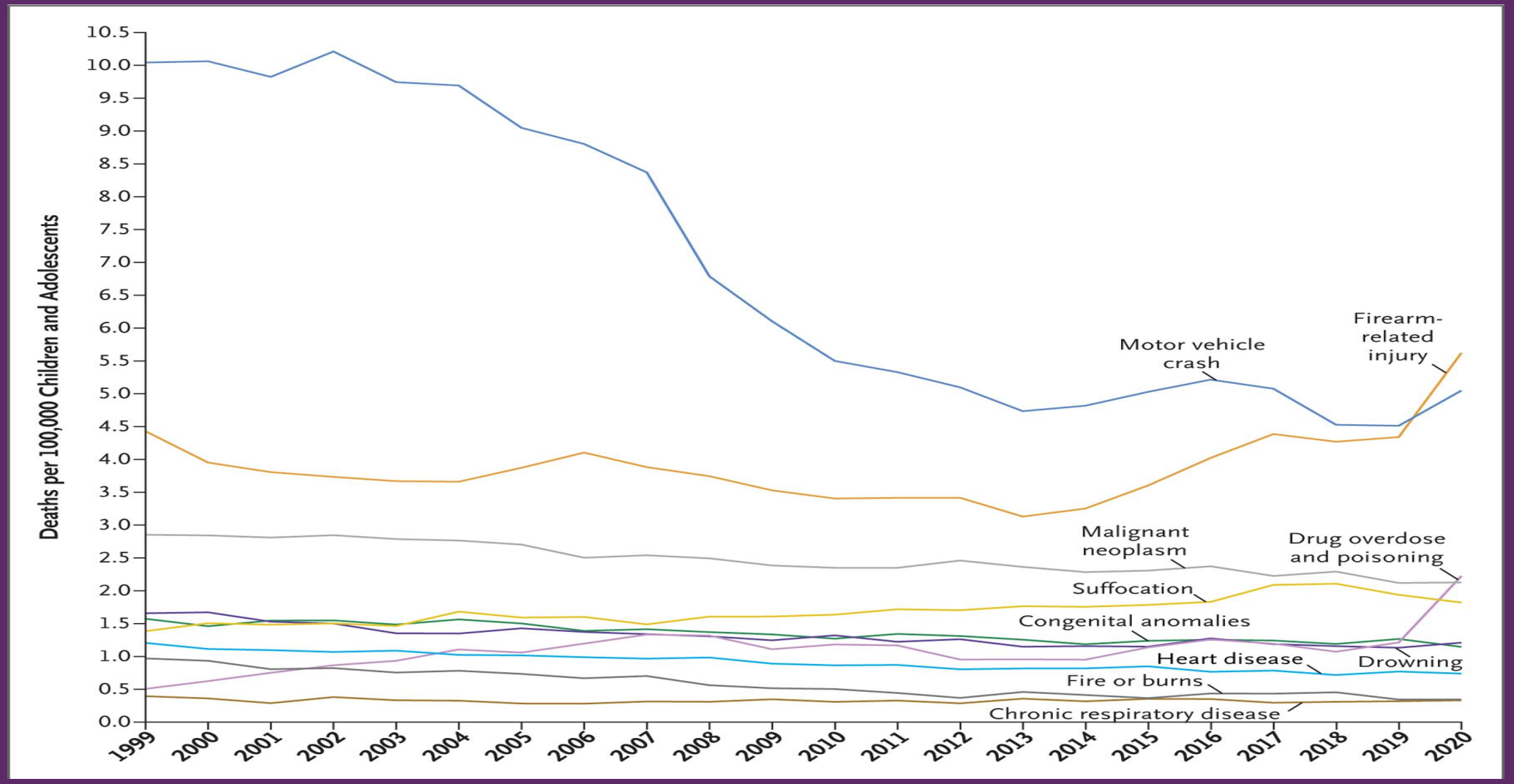
Academic Performance

- Cannabis us associated with poor academic performance
- Twice the odds of truancy compared to non-users[2]
- Associated with lower school attainment and early school dropout.[2]
- Statistically significant risk for arrest compared to non-users.[2]
- Significantly greater odds of a serious fight over the last year.[2]

Driving

- Cannabis use increases risk of collision[19]
- Driving under the influence of cannabis results in poorer lane control and reduced driving speed.[20]
- Driving under the influence of cannabis is now more common than driving under the influence of alcohol among adolescent drivers.[21]
- Cannabis is also the illicit drug most frequently reported in connection with impaired driving and accidents.[22]
- Motor vehicle fatality has been a leading cause of death among teenagers[23]…until recently.[24]

Leading cause of Death among persons 1 - 19 years of age in the United States, (1999 – 2020)[24]



Physical Impacts on Adolescents from Cannabis Use[25]

- Cardiac
- Lungs
- Gastrointestinal
- Sleep

Cardiac[26]

- Increase in heart rate/ blood pressure
- Postural hypotension
- Development of Arrythmias
  - atrial fibrillation
  - ventricular tachycardia/fibrillation
- Studies have shown an association between recent cannabis use and history of MI in young adults.[27,28]

Lungs

- Smoking is the most common form of cannabis intake in adolescents.[29]
- Greater than 15% of EVALI (e-cigarette or vaping product use-associated lung injury) cases occurred in adolescents.[30]
- Smoking cannabis is associated with coughing, wheezing, shortness of breath, and increased sputum production.[31]
- May be associated with asthma, COPD, and bronchitis.[32]
- No clear association with lung cancer…yet[33]

Gastrointestinal[25]

- Cannabis Hyperemesis Syndrome
- Cannabis Withdrawal Syndrome
  - Nausea
  - Stomach pain
  - Appetite loss

Sleep[25]

- Insomnia
- Insufficient sleep on school nights
- Shorter total sleep time
- Later bedtime

Identifying Cannabis Use in Adolescents

- Physical and Behavioral Signs
- Paraphernalia

Physical and Behavioral Signs

- Unusual laughing
- Forgetfulness
- Coordination issues
- Bloodshot eyes or repeated use of eye drops
- Strange smelling clothes or bedroom
- Frequent use of incense and other deodorizers
- Drug-themed clothing, jewelry, or décor
- Unexplained lack of money or frequent requests for money

Paraphernalia

- Rolling paper (a specialty paper used for making a marijuana cigarette)
- Cigar (hollowed out and filled with marijuana to make what is referred to as a “blunt”)
- Pipe (a device to smoke marijuana)
- Bong (a filtration device to smoke marijuana)
- Roach clip (a metal clip used to hold a marijuana cigarette)
- Electronic cigarette (a device to smoke marijuana extracts)
- Grinder (a tool that breaks marijuana up into smaller bits)

Does legalization Increase use?

- Legalization or the opening of retail stores *has not* led to an increase in youth cannabis use.[34]
  - Fewer minors reported having used cannabis in the previous month.
  - Also showed decreases in alcohol use and e-cigarettes.
  - Among those who used cannabis, the frequency of use increased.
- Adoption of laws to legalize and regulate cannabis for adults *has not* led to an increase in youth cannabis use.[35]
  - Limitation: Those who dropped out of high school (more susceptible to increased cannabis access) were not part of the survey
  - Role of synthetic cannabis products and Delta – 8.

Possible Explanations

- As cannabis has become legalized, parents and others are more aware of potential access for their children and parents are having more discussions about the potential risks.
- Moving cannabis from the illegal market/street sales into the legal marketplace (where access is restricted for people under 21) has lowered access for adolescents.
- Possible migration to synthetic cannabis products and hemp-derived products (Delta – 8/Delta - 10).

Why does all this matter?

- Recommending cannabis to an adolescent can be problematic:
  - Requires thorough evaluation (qualifying condition or teenager)
  - Benefits must outweigh the risks
  - Detailed documentation of need for cannabis
  - Obtain signed consent from caregiver that risks were discussed
  - Need to follow-up to verify medical benefit
  - Avoid high potency cannabis products and chronic use
  - Consider keeping other providers informed

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Any Questions?

- Website: www.nmhealth.org/go/mcp
- Email: medical.cannabis@doh.nm.gov
- Phone: (505) 827-2321