

Elucidating the Nature of the Links Between Cannabis Use and ADHD

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INTRODUCTION

- ADHD is a neurodevelopmental disorder characterized by impairments in attention and/or hyperactivity and impulsivity
- There is limited evidence to suggest that people with ADHD might use cannabis to self-medicate for their symptoms
- Relative to other mental health disorders there has been far less attention paid to examining cannabis use among people with ADHD

PURPOSE

- Examine the perceived effects of cannabis on:
 - Symptoms of ADHD
 - ADHD medication side effects
 - ADHD related executive dysfunction

METHOD

- A total of 1,382 undergraduate students completed an online survey using Qualtrics where they completed measures of ADHD symptom severity (BAARS-IV) cannabis use (DFAQ-CU), cannabis use disorder (CUDIT-R), executive dysfunction (DEX), as well as a series of questions on the perceived effects of cannabis on ADHD symptoms and medication side effects. 976 participants reported they use cannabis, 159 reported they have ADHD and 131 reported both using cannabis and having ADHD
- This study was exempt from IRB approval

RESULTS

| Acute Use | Improves | Worsens | No Effect | Chi-Square |
|----------------------------------|-------------------------------|-------------------------------|-------------------------------|-----------------------------|
| Overall | (n = 164) 93.18% ^a | (n = 9) 5.11% ^b | (n = 4) 2.27% ^b | $\chi^2 = 280.51, p < .001$ |
| Hyperactivity | (n = 150) 81.08% ^a | (n = 11) 5.94% ^b | (n = 14) 7.57% ^b | $\chi^2 = 216.15, p < .001$ |
| Impulsivity | (n = 87) 47.03% ^a | (n = 28) 15.14% ^b | (n = 36) 19.46% ^b | $\chi^2 = 40.70, p < .001$ |
| Inattention | (n = 72) 38.92% ^a | (n = 71) 38.38% ^a | (n = 22) 11.89% ^b | $\chi^2 = 29.71, p < .001$ |
| Restlessness | (n = 158) 85.40% ^a | (n = 13) 7.03% ^b | (n = 5) 2.70% ^b | $\chi^2 = 252.83, p < .001$ |
| Frustration | (n = 137) 74.05% ^a | (n = 15) 8.11% ^b | (n = 21) 11.35% ^b | $\chi^2 = 164.02, p < .001$ |
| Memory | (n = 9) 4.86% ^a | (n = 124) 67.03% ^b | (n = 38) 20.54% ^a | $\chi^2 = 125.51, p < .001$ |
| Chronic Use | Improves | Worsens | No Effect | Chi-Square |
| Overall | (n = 65) 35.14% ^a | (n = 27) 14.59% ^b | (n = 73) 39.56% ^a | $\chi^2 = 21.69, p < .001$ |
| Hyperactivity | (n = 48) 25.95% ^a | (n = 24) 12.97% ^b | (n = 42) 22.70% ^{ab} | $\chi^2 = 8.21, p = .02$ |
| Impulsivity | (n = 24) 12.97% ^a | (n = 22) 11.89% ^a | (n = 54) 29.19% ^b | $\chi^2 = 19.28, p < .001$ |
| Restlessness | (n = 41) 22.16% | (n = 37) 20.00% | (n = 39) 21.08% | $\chi^2 = 0.21, p = .90$ |
| Inattention | (n = 27) 14.59% | (n = 34) 18.38% | (n = 47) 24.40% | $\chi^2 = 5.72, p = .06$ |
| Frustration | (n = 41) 22.16% | (n = 33) 17.84% | (n = 46) 24.86% | $\chi^2 = 2.15, p = .34$ |
| Memory | (n = 12) 6.49% ^a | (n = 48) 25.95% ^b | (n = 54) 29.19% ^b | $\chi^2 = 27.16, p < .001$ |
| Medication Side Effects | Improves | Worsens | Chi-Square | |
| Anxiety | (n = 39) 27.66% | (n = 8) 5.67% | $\chi^2 = 8.09, p = .004$ | |
| Rebound Effect | (n = 24) 17.02% | (n = 7) 4.96% | $\chi^2 = 2.27, p = .13$ | |
| Headaches | (n = 28) 19.86% | (n = 6) 4.26% | $\chi^2 = 3.84, p = .049$ | |
| Sleeping Problems | (n = 49) 34.75% | (n = 0) 0.00% | | |
| Loss of Appetite | (n = 56) 39.72% | (n = 0) 0.00% | | |
| Moodiness or irritability | (n = 38) 26.65% | (n = 7) 4.96% | $\chi^2 = 1.52, p = .005$ | |
| Stomach Ache | (n = 15) 10.64% | (n = 3) 2.13% | $\chi^2 = 1.06, p = .30$ | |

- CUD demonstrated a small, positive, significant correlation with symptoms of ADHD ($r = .19^*$)
- Frequency of cannabis use demonstrated a small, positive, significant correlation with symptoms of ADHD ($r = .16^*$)
- Frequency of cannabis use was a statistically significant moderator of the associations between executive dysfunction and ADHD symptom severity

DISCUSSION

- Cannabis is perceived to have acute beneficial effects on many symptoms of ADHD and medication side effects. In contrast, chronic use of cannabis was not perceived to be beneficial for most ADHD symptoms
- ADHD symptom severity was associated with more frequent cannabis use and symptoms of CUD
- The strength of the association between ADHD severity and executive dysfunction decreased as frequency of cannabis use increased, suggesting that more frequency use may mitigate ADHD-related executive dysfunction
- Collectively these results suggest that people with ADHD may be using cannabis to self-medicate for their symptoms and to counteract ADHD medication side effects and that doing so may mitigate ADHD-related executive dysfunction but increase risk for CUD

