IS RECOVERY FROM CANNABIS USE PROBLEMS DIFFERENT FROM ALCOHOL AND OTHER DRUGS?

RESULTS FROM A NATIONAL PROBABILITY-BASED SAMPLE OF THE UNITED STATES ADULT POPULATION

John F. Kelly, Ph.D., ABPP.

Recovery Research Institute
MGH and Harvard Medical School
Background and Rationale
The policy landscape regarding the legal status of cannabis (CAN) in the US and globally is changing rapidly.

Research on CAN has lagged behind in many areas, none more so than in understanding:

- The clinical and public health consequences of cannabis at the population level
- How individuals suffering from the broad range of cannabis-related problems resolve those problems
- How their characteristics and problem resolution pathways are similar to or different from alcohol [ALC] or other drugs [OTH].
The broad array of attributable problems important...

Necessary to go beyond purely clinical diagnostic groups to examining broader array of individuals because many misusing substances don’t meet criteria for AOD disorder but still suffer from sig problems - add to economic, public health, burden.

E.g., >66 million Americans report hazardous/harmful alcohol use (i.e., consuming 5+ standard drinks in 2 hours) at least once during past month (increasing risk of accidents, social problems, violence, alcohol-poisonings). While only minority meet for alcohol disorder, harmful consumption accounts for ¾ of yearly economic burden (CDC, 2016).

Also, 2015 almost 13 million individuals reported past year misuse of pain relievers—increasing risk for overdose— but only 2.9 million met criteria for DSM disorder (Surgeon General’s Report, 2016).

Given public health and safety burden conferred by this broad population of individuals understanding more about them and how they resolve such problems is important, regardless of whether or not they meet criteria for an AOD disorder, per se.
Shifts in national emphasis in public health and health care policy emphasize the need to examine an array of substance-related impairment from individuals’ own perspective.

Push to move from “provider-centered” to “patient-centered”, to “person-centered” care (National Academies of Sciences, Engineering, and Medicine, 2017).

Been particularly true in addiction, as these are typified by heterogeneous and dynamic phenotypic expression that can be resolved through a variety of different bio-psycho-social therapeutic inputs (Papadimitriou, 2017).

For broad array of self-defined AOD problems, these salutary inputs been shown to come from individual sufferers themselves (i.e., unassisted or “natural recovery”) as well as formal treatment (i.e., “assisted recovery”).

Very little is known, however, about characteristics of this large heterogeneous population with self-identified AOD problems (i.e., beyond a clinical diagnosis derived from epidemiological studies that use structured diagnostic interviews).

Even less known about how they resolve and overcome this broad array of AOD problems.
Lack of knowledge on Problem Resolution Pathways

• With expansion of cannabis legalization, subsequent increased population exposure to cannabis, and related increases in public health burden attributable to cannabis problems (Cerda, Wall, Keyes, Galea, & Hasin, 2012; Hasin et al., 2015)...

• Policy makers will need data on how individuals suffering from broad array of cannabis-related problems resolve those problems, so that they can make evidence-based decisions when levying cannabis taxes and fiscal appropriation for treatment and other recovery support services.

• Greater knowledge could inform national policy debates as well as the nature and scope of any additional needed services as CAN population exposure increases.
Using a national probability-based sample of the non-institutionalized US population...

- Provide valid estimates of proportion of US adults who identify as having resolved significant cannabis problem
- Describe and contrast demographic, clinical, treatment and other recovery support service use histories of those resolving primary cannabis problem, with those resolving a primary alcohol or other drug problem
- Compare those resolving primary cannabis problem with those resolving primary alcohol or other drug problem on indices of psychological distress, quality of life, happiness, self-esteem, and recovery capital.
Method
Using the National Recovery Survey (NRS), a cross sectional, random, nationally representative sampling frame of 39,809 was identified. Out of the 25,229 that then responded, 2,002 individuals self-identified as resolving a significant alcohol or other drug problem. 

63% survey response rate, similar to other national epidemiological surveys

Data was collected in July & August of 2016

The data was weighted to accurately reflect the US population using iterative proportional fitting (raking), which produced weights based on eight geo-demographic benchmarks identified by the U.S. Census Bureau (CPS) in the 2015 Current Population Survey.
Response rate comparisons

- This response rate is comparable to most other current nationally representative surveys

  - NESARC-III; 60.1% (Grant et al., 2015)
  
  - 2015 National Survey on Drug Use and Health (NSDUH; 58.3%; Center for Behavioral Health Statistics and Quality, 2016)
  
  - 2013-2014 National Health and Nutrition Examination Survey (NHANES; 68.5%; Centers for Disease Control and Prevention [CDC], 2013).

- Data were weighted to accurately represent the civilian population using the method of iterative proportional fitting, which is commonly referred to as “raking” (Battaglia, Hoaglin, & Frankel, 2013).
Sample Weighting
Weights were computed via comparisons to benchmarks from the March 2015 Current Population Survey (CPS; United States Census Bureau, 2015) along eight dimensions.

1. gender (male/female)
2. age (18–29, 30–44, 45–59, and 60+ years)
3. race/Hispanic ethnicity (White/Non-Hispanic, Black/Non-Hispanic, Other/Non-Hispanic, 2+ Races/Non-Hispanic, Hispanic)
4. education (Less than High School, High School, Some College, Bachelor and beyond)
5. census geographical region (Northeast, Midwest, South, West)
6. household income (under $10k, $10K to <$25k, $25K to <$50k, $50K to <$75k, $75+)
7. home ownership status (Own, Rent/Other); and
8. metropolitan area (yes/no).
MEASURES

- Demographic characteristics
- Substance Use History
- Medical History
- Criminal Justice History
- Treatment and Other Recovery Support Services
- Problem Resolution/Recovery History
- Recovery Capital
- Psychological Distress
- Quality of Life
- Happiness
STATISTICAL ANALYSIS

• The primary problem substance was categorized as cannabis (CAN), alcohol (ALC) or other drugs (OTH).

• OTH group included cocaine, heroin, narcotics other than heroin, methadone, amphetamine/methamphetamine, benzos, barbs, hallucs, synthetics, inhalants/other.

• 12% did not report primary substance - excluded

• Compared distribution of demographic, clinical and recovery indices as function of primary problem drug using weighted cross-tabulations as well as unadjusted linear, logistic and Poisson regressions for categorical, continuous and count variables.

• Given exploratory nature of study and multiple comparisons across groups, we used \( p < 0.01 \) as the cutoff indicating statistical significance.
Results
RESULTS

9.1% or 22.35 million Americans have resolved an alcohol or other drug problem.

PRIMARY SUBSTANCE

- 51% alcohol
- 11% cannabis
- 10% cocaine
- 7% methamphetamine
- 5% opioid

SAMPLE

- 60% male, 45% aged 25-49 years of age,
- 61% non-Hispanic White, 14% Black, 17% Hispanic
- 48% employed, 46% living with family or relatives
RESULTS

• 10.97% have resolved a cannabis problem, which translates into 2.40 million American adults.

• Of those who reported a primary problem substance, 12.55% reported having resolved a cannabis problem as compared to 58.5% and 28.9% of the sample reporting having resolved an alcohol or other drug problem, respectively.
RESULTS

Differences between primary cannabis, alcohol, and other drug problem resolution groups on demographic variables

• CAN approx 10- and 4- years younger than ALC (99% CI: -14.52, -6.24; Table 1a) and OTH (99% CI: -8.73, -0.04), respectively

• No differences observed between CAN and ALC or OTH in terms of sex or education ($p>0.01$).

• CAN also reported being more religious relative to OTH, but were similar to ALC.

• No differences between any primary substance groups regards to household income, urbanicity, employment, religious group or spirituality ($p>0.01$).
RESULTS

**History of physical, mental health, and substance use problems**

- CAN less likely to report a history of chronic physical disease compared to ALC, but not OTH.

- CAN more likely to report a history of other drug use problems relative to ALC (OR=2.18, 99% CI: 1.14, 4.17).

- CAN reported using 3.47 substances ≥10x lifetime (99% CI: 2.90, 4.04) - sig more than ALC (M=2.75, 99% CI: 2.49, 3.00) fewer than OTH (M=5.06 substances, 99% CI: 4.57, 5.56).

- Age of first use of primary substance was 15.26 years (99% CI: 14.26, 16.28) for CAN - similar to ALC (M=14.90 years, 99% CI: 14.46, 15.35), but sig younger than OTH (M=21.70 years, 99% CI: 20.60, 22.79).

- Age of onset regular cannabis use among CAN = 16.89 yrs (99% CI: 15.53, 18.24) - sig younger than regular alcohol use among ALC (M=19.02 years; 99% CI: 18.41, 19.63) and other drug among OTH (M=23.28 years; 99% CI: 22.16, 24.41).

- Years since resolving substance problem similar between groups - ranged from 10.7 years in CAN to 12.3 years in ALC, on average. **In contrast**, duration of addiction career for CAN was 11.74 yrs (99% CI: 9.33, 14.16) - sig shorter than ALC (M=18.39 years; 99% CI: 17.05, 19.74) and similar to OTH (M=9.37 years; 99% CI: 8.02, 10.71).

- Average age at problem resolution was also significantly younger for CAN (M=28.87 years; 99% CI: 26.46, 31.29) relative to ALC (M=37.86 years; 99% CI: 36.50, 39.21) and OTH (M=33.06 years; 99% CI: 31.40, 34.73).
Group differences in treatment and services utilization

- Overall, majority resolved without formal services (54%); however, CAN less likely to utilize formal tx (18.1%) relative to OTH (41.6%; OR=0.31, 99% CI: 0.14, 0.68).
- Treatment and recovery processes - no diffs across groups in medication use for alcohol/opioids/other psych conditions ($p>0.01$).
- Most common services used by all were mutual help (44.4%) outpatient tx (16.8%). Any use of outpatient tx less common among CAN compared to OTH (OR=0.34, 99% CI: 0.14, 0.85).
- Among those utilizing outpatient tx, CAN reported fewer episodes relative to ALC (Mean Diff: -1.12; 99% CI: -1.97, -0.27) and OTH (Mean Diff: -1.56; 99% CI: -2.76, -0.37).
- Utilization of inpatient tx less common among CAN compared to both OTH (OR=0.14, 99% CI: 0.04, 0.43) and ALC (OR=0.33, 99% CI: 0.11, 0.99).
- CAN participants that reported utilizing inpatient tx reported fewer inpatient treatment episodes relative to OTH participants (Mean Diff: -1.47; 99% CI: -2.36, -0.59). No difference in number inpatient txs among participants reporting history of inpatient tx in CAN and ALC (99% CI: -1.13, 0.08).
- Past 3-month mutual help lower in CAN (M=1.66 meetings, 99% CI: 0.58, 2.75) relative to ALC (M=7.7 meetings, 99% CI: 3.2, 12.2) and OTH (M=7.7 meetings, 99% CI: 2.0, 13.3)
- Criminal justice involvement - no diffs in proportion arrested between groups (CAN v. ALC: p=0.265; CAN v. OTH: p=0.305). Average number of lifetime arrests (M=4.46, 99% CI: 3.39, 5.54) as well as number of arrests since recovery (M=1.35, 99% CI: 1.18, 1.51) not different between groups. CAN more likely than ALC to have been involved in drug court (CAN: OR=3.75, 99% CI: 1.12, 12.51).
- QOL, recovery capital, happiness, self-esteem did not differ among groups
Subsidiary Analyses

• Overall, CAN showed a pattern of less formal treatment/service use. We wondered whether, given increased access to, and potency of, cannabis in more recent years (CDC, 2015) as well as increased SUD insurance coverage (e.g., through the essential benefits provision in the Affordable Care Act) whether CAN individuals who had resolved their cannabis problem more recently more likely to use formal treatment.

• When looking at outpatient and inpatient treatment, specifically, sig diffs emerged—any utilization of outpatient treatment among CAN group participants was associated with 5.15 fewer years since problem resolution, on average, relative to CAN participants that did not utilize outpatient treatment (controlling for inpatient treatment \( p=0.014 \)).

• Each additional outpatient treatment episode was associated with 4.87 fewer years per episode, \( p<0.001 \), controlling for number of inpatient treatment episodes).
RESULTS SUMMARY

1. 9.1% of the US adult population reported resolving a significant substance problem, and of these, 10.97% (2.4 million American adults) were CAN.

2. Compared to ALC or OTH, CAN sig younger, had earliest onset of regular use and resolved problem sig earlier

3. Compared to both ALC and OTH, CAN were significantly less likely to report use of inpatient treatment and used substantially less outpatient treatment, overall although CAN resolving problems more recently were more likely to use outpt treatment (p<.01).

4. Lifetime use of mutual-help was similar, but CAN (M=1.67) had substantially lower recent attendance compared to ALC (M=7.70) and OTH (M=7.65).

5. QOL indices were similar across groups.
DISCUSSION

1. Of all Americans who report resolving a significant AOD problem (22.35 million), 10.97% report resolving a cannabis problem. CAN second most prevalent after ALC.

2. Approximately 2.40 million have resolved a cannabis problem - these individuals largely similar in gender, education, income, ethnicity, and sexual orientation compared to other primary problem drug use groups.

3. Compared to both ALC or OTH individuals, CAN individuals, overall, are younger, and also younger when they began regular, weekly, use of their primary substance and when they resolved their drug problem. Substance use career was substantially shorter than ALC (similar to OTH); may be that the availability/cultural promotion of drinking that it makes it harder to stop alcohol than illicit substance use (greater stigma).

4. Cannabis users more likely, in general, to resolve cannabis problem without treatment or recovery support services, compared to ALC and OTH, but this trend appears to have changed recently, with CAN who resolved their problem in more recent years more likely to have used outpatient treatment. Overall, CAN may have less dramatic impact in people’s lives compared to ALC/OTH making it easier to self-regulate/stop. Greater potency/impact might relate to trend in more tx-seeking among more recent resolving cohorts.

5. Perhaps most intriguing was that CAN were least likely to use formal (inpatient/outpatient treatment) or informal (e.g., mutual-help organizations like NA, AA etc.) intervention and support services. They were also less likely to report suffering from chronic health conditions compared to ALC. CAN may have less dramatic biopsychosocial impact compared to ALC/OTH making ability to stop without help easier.

6. Compared to ALC and OTH, CAN individuals appear similar on measures of psychological distress and quality of life. One might have expected earlier regular use to have lasting impact (e.g., Meier et al, 2012) but didn’t. Possible that earlier offset for CAN means compensatory mechanisms are able to manifest.
LIMITATIONS

1. The purpose of study was to characterize problem resolution across the broad heterogeneous array of self-defined cannabis problems - initial screening question was open to interpretation, where “a drug or alcohol problem” was participant-defined and did not necessarily signify the presence of a diagnosable SUD.

2. It should be kept in mind therefore, that the term “resolution of a cannabis problem” used in this study certainly overlaps with, but does not necessarily signify, diagnostic remission.

3. The cross-sectional nature of the data also precludes making strong inferences to causal or longitudinal relationships, although our data may uncover the existence of such relationships. Future, prospective studies therefore should confirm or refute observations here made cross-sectionally.
CONCLUSION

• This study is the first nationally representative investigation on cannabis problem resolution

• With legal, social, and political changes in the drug policy landscape regarding cannabis use, preliminary information on how individuals resolve a broad array of cannabis problems can inform the national debate and also the potential future need for different types of services that may be required to address problems secondary to increased access and exposure in the general population.

• Approximately 2.4 million Americans have resolved a significant cannabis problem. Compared to ALC and OTH, the pattern of findings for CAN suggest similarities but also some notable differences in characteristics and problem resolution pathways particularly regarding earlier onset, problem offset, and less use of formal and informal services.

• Within a shifting policy landscape, research is needed to understand how increases in population exposure and potency may affect the nature and magnitude of differences observed in this preliminary study.
RECOVERY RESEARCH INSTITUTE

SIGN UP FOR THE FREE MONTHLY RECOVERY BULLETIN

@RECOVERYANSWERS