Cannabis Use Among Adolescents Three Years Post Chemical Dependency Treatment Entry

Cynthia I. Campbell [1], Felicia Chi [1],
Stacy Sterling[1], Constance Weisner [1, 2],

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[1] Drug and Alcohol Research Team, Division of Research, Kaiser Permanente Northern California

[2] Department of Psychiatry, University of California, San Francisco

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Overview

- Background: What we know
  - Cannabis use and adolescents in general population
  - Use in treatment populations
    - Continued use
    - Risk factors
    - Comorbidities
    - Outcomes
  - Cultural norms of cannabis use
- Description of cannabis users entering adolescent private managed care CD programs at intake and 3 years

Background: Cannabis use in General Population

- Cannabis most commonly used illicit substance
  - Initiation typical in early to mid-adolescence
  - Peaks in late adolescence and early adulthood (Schulenberg, 2005)
    - Dominant substance among 14-17 year olds
    - Some mature out, others do not
  - Increase in 1990s, decrease in last month use since 2002 (NSDUH, 2006).
  - Compton et al. (2004) found an increase in marijuana abuse or dependence problems from 1991/92 and 2001/2
  - Those with earlier age of use more likely to have SU problems later (Fergusson et al, 2006; Hall & Lynskey, 2005)
    - We see this in our own treatment sample. Cannabis is reported nearly as frequently as alcohol as substance of first use - a “gateway” drug

Background: Cultural Norms

- Ambivalence among some youth about cannabis use
  - Perception that it may not be that harmful or disruptive
    - Variations in perceived risk fluctuate with trends in use (Monitoring the Future, 2006)
  - Parents
    - Own history of use growing up
    - More acceptance, similar to alcohol in older cohorts
    - Compared to “harder substances”
      - Higher THC concentration/potency, risk of addiction
  - Clinicians
    - Less likely to refer to CD treatment for marijuana use than other illicit substances (Scott, 2004)
- California a unique place to study this issue
  - Medical marijuana indicative of culture of acceptance

Problems Associated with Cannabis Use

- Use of other substances (Dennis, 2002; Lynskey et al, 2003)
  - alcohol, tobacco, illicit drugs
- Physical health problems (Taylor et al., 2002; Taylor et al., 2000; Brodbeck, 2006; Dennis et al., 2002; Vitale, 2006)
  - respiratory, injuries/accidents, risky sexual behaviors
- Psychiatric comorbidities (Wittchen et al., 2007; Ferguson et al., 2005; Tims et al, 2002; Lynskey et al., 2004; Solowij et al., 2002)
  - conduct disorder, depression and anxiety, vulnerability to schizophrenia, cognitive disorders
- Social problems (Lynskey & Hall, 2000; Sterling et al., 2004)
  - school problems (lower performance); legal problems (theft or property crime)

Treatment Populations

- Overall, less is known about adolescent treatment populations and their longer-term cannabis outcomes
  - Complex population, high prevalence of physical and mental health comorbidities, polydrug use
  - Mostly public populations

- The DATOS-Adolescent national treatment study found that nearly half of adolescents (47%) reported marijuana use as their primary drug problem
  - Treatment study not specifically focused on cannabis use
  - In the year after treatment, weekly marijuana use decreased from 80.4% to 43.8%.
  - LOS in treatment related to improved outcomes

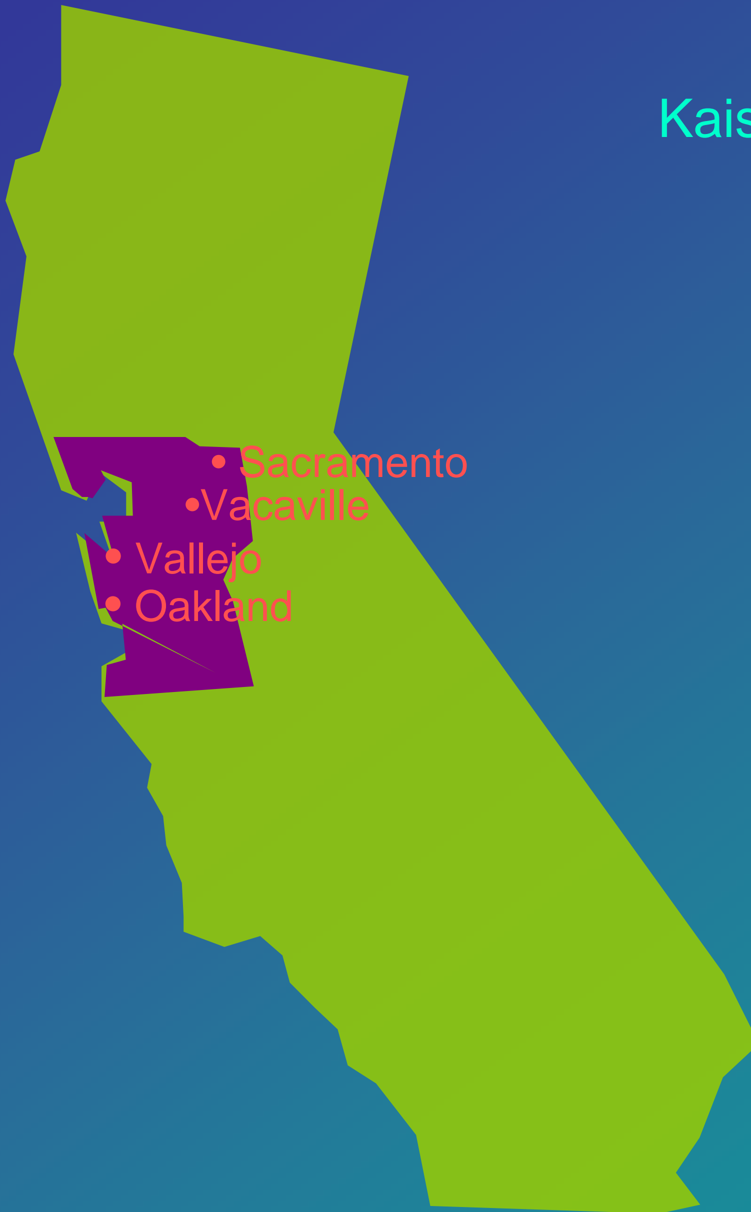
Treatment Populations (cont.)

- The Cannabis Youth Project (Dennis, 2004)
  - CSAT-funded study of short-term outpatient cannabis treatment, publicly funded
    - N= 600 adolescents
  - 71% reported weekly or daily marijuana use at intake; 86% reported either dependence or abuse
  - Improvements observed across all interventions in days of abstinence and no past month use at 12 months
  - Relapse patterns indicated that half of the adolescents had periods of recovery and relapse over the 12 months FU; 2/3 reported SU or related problems at 12 months.
  - Authors suggest this pattern and continued use indicates need for continuing care.

Research Questions

- Who are the cannabis users at treatment entry?
  - What are the cannabis use patterns?
  - Is there a unique group only using cannabis, but not other illicit drugs?
- Who is using cannabis over the longer term at 3 years?
  - Is there a unique group using only cannabis but not other illicit drugs?
  - What are their characteristics?
  - Does this group of cannabis users who also use alcohol and tobacco have the same patterns as only alcohol and tobacco at 3 years?
  - As cannabis use becomes somewhat less problematized in public opinion, do we find that long-term cannabis use is a problem? Is there a group who is using cannabis non-problematically?

Setting



Kaiser Permanente Medical Care Program of Northern California

- Private, non-profit, group-model managed care health plan
- Serves 3.2 million members (about 40% of commercially insured population in the region)
- ~300,000 members aged 12-18
- 16 hospitals, 23 outpatient clinics
- Integrated health care system (medical, psychiatry, chemical dependency services)
- 17 adolescent Chemical Dependency (CD) programs, and 29 Department of Psychiatry across the region

Treatment Programs

- Each offers 1-year program
- Representative of more common treatment approaches
- Same modalities of other CD programs in the country
- Intensive, structured outpatient treatment
  - Abstinence based
  - Breathalyzer and urine screens
- Services include group therapy, education, relapse prevention, family therapy.
  - Individual counseling with a CD clinician available as needed
  - Require participation of a parent or guardian
  - Attendance at 12-step programs expected and monitored

Adolescent Study: CD Patients

Treatment Sample:

- 419 adolescents, aged 12-17; recruited between March 2000 – Sept. 2002.
  - 83% of those with an intake and orientation
  - 143 girls, 276 boys
- Ethnicity
  - 49% White
  - 20% Hispanic
  - 16% African-American
  - 9% Native American
  - 6% Asian

Campbell CI, Weisner C, Sterling S. Adolescents entering chemical dependency treatment in private managed care: ethnic differences in treatment initiation and retention. *Journal of Adolescent Health.* 2006 Apr;38(4):343-50

Data Sources

- Baseline interviews with adolescents (and their parents) entering CD treatment at 4 KP programs
  - Substance use, mental health, family problems, motivation/readiness, school, legal, Comprehensive Adolescent Addiction Severity Inventory (CASI)
- Follow-up interviews with adolescents and parents
  - 1 and 3 years (Response rates = 92% and 86% respectively)
- ICD Diagnostic Database
  - Primary and multiple secondary medical diagnoses
- KP administrative utilization and cost databases
  - CD, Psychiatric and Medical services

Study Measures

- Cannabis use measures at baseline and 3 years:
  - Any, weekly, or daily use of cannabis in the prior 6 months
  - First substance used and age of first use (for baseline)
- Other SU measures in prior 6 months
  - Alcohol, tobacco, cocaine, Ritalin, stimulants, barbiturates, tranquilizers, inhalants, party drugs, heroin, hallucinogen, opiates
- Social problem measures at 3 years
  - Problems in school, legal, family, employment, internalizing and externalizing ASR scores, risky sexual behavior, and medical conditions (asthma, bronchitis, headaches, abdominal pain)

Data Analysis

- Chi-squares and t-tests
- Logistic regression of cannabis use (no other illicit drug use) at 3 years
- Models included individual demographics, problem severity, and social problem measures
  - weekly alcohol and tobacco use, internalizing and externalizing scores, family use, SU severity, legal problems, # sexual partners, peer use, length of stay of index CD treatment, selection of medical conditions

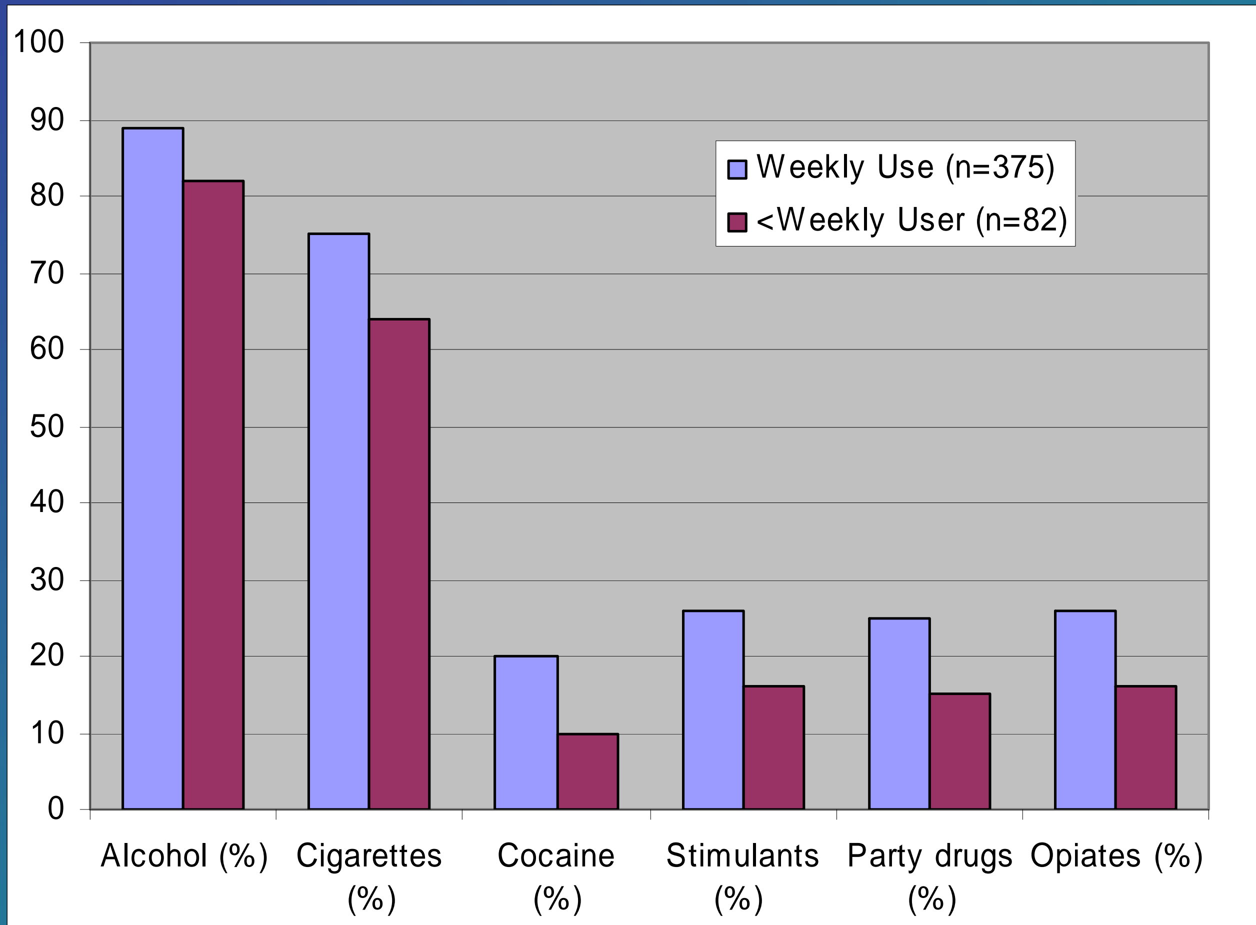
Characteristics of Baseline Cannabis Use

- 90% had used cannabis in the prior 6 months
  - 78% report weekly use
  - 45% daily use
  - Average days used was 17 in last month
- 27% of the full sample reported cannabis as the first drug tried, comparable to alcohol (28%)
- Mean age at first use was 12.4 years for this 'first use' cannabis group.
  - For weekly cannabis users, mean age at first use was 11.4 years

Who are Weekly Cannabis Users at Treatment Intake?

	Weekly Use (n=375)	<Weekly Use (n=82)	p value
Boys (%)	70	48	.0001
>3 peers who use substances (%)	84	64	<.0001
Legal problems (%)	31	21	.071
Ever had sex (%)	72	61	.015
Failed most classes (%)	20	11	.053

Weekly Cannabis Users: Other SU at Treatment Intake



Who is using cannabis at 3 years?

Is there a unique group who does not use other illicit drugs?

Do they experience problems with longer-term use?

Sample Characteristics for Cannabis Use at 3 Follow Up

	3 Years N=(358)
Any use in last 6 mos.	53%
Weekly use in last 6 mos.	34%
Daily use in last 6 mos.	19%
Average days used in past month	14
Age of first substance use among any users	11.5

Cannabis Comparison Groups at 3 Years: Among “Soft” Users

- 108 youth were using cannabis but not other illicit drugs
- 153 were not using cannabis or other illicit drugs
- “Soft” Users – alcohol or tobacco use is not excluded
- Will be comparing these groups going forward

Among “Soft” Users, Who is Using Cannabis at 3 Years?

	Cannabis (n=108)	Non-Cannabis (n=153)	p value
Boys (%)	73	54	.036
SU dependence Symptoms (mean)	2.1	.88	.0002
Weekly alcohol use (%)	43	28	.070
Migraine headaches (%)	16	6	.045
ASR Externalizing (mean)	18.3	15.3	.008
# sexual partners (mean)	2.0	1.3	.003
Condom use most/always (%)	26	45	.029
Peer use (%)	79	60	.013

Note. Alcohol and tobacco use have not been excluded from either group.

Potential Correlates of Longer Term Cannabis Use for Multivariate Models

- demographics: age, gender, ethnicity,
- Substance use: weekly cigarette and alcohol use, substance use severity
- Mental health severity: ASR internalizing and externalizing scales
- Significant medical conditions: headaches
- Peer use
- Legal problems
- Risky sexual behaviors
- Length of stay in index CD treatment

Regression Model Results for 3 Year Cannabis Use Among "Soft" Users

	OR	95% CI	p value
Gender	0.58	(0.29, 1.18)	.128
Age	0.93	(0.72, 1.19)	.541
African American	1.09	(0.43, 2.75)	.853
Asian American	1.56	(0.43, 6.33)	.533
Hispanic	**1.55**	**(0.67, 6.33)**	**.303**
Native American	3.02	(1.09, 3.58)	.033
Substance Use Severity	**2.81**	**(1.87, 4.20)**	**<.0001**
Internalizing Scale	**0.97**	**(0.93, 1.00)**	**.061**
Number of Sexual Partners	**1.25**	**(1.0, 1.57)**	**.048**

Model included: Marital and parental status, weekly cigarette use, weekly alcohol use, family use, length of stay in index treatment, risky sexual behaviors, medical conditions (bronchial, asthma), ASR internalizing, legal problems

Summary

- Three-fourths of the sample used cannabis weekly at intake
  - Boys
  - More severe SU
  - Social problems – legal, school, peer SU
  - Frequently substance of first use

Summary

- Considerable portion of youth continue to use cannabis at 3 years, although almost half have stopped
  - Weekly use is still considerable, although lower; suggests a committed group
  - Interviewer debriefings suggest cannabis use is not seen as substance use – may be viewed similarly to alcohol and tobacco by those who use

Is There "Non-problematic" Cannabis Use at 3 Years?

- The perception that cannabis is not problematic but our findings indicate otherwise
- Not as severe at 3 years as at baseline, or as severe as those using other illicit substances, but they do experience problems compared to those not using cannabis
  - Bivariate tests indicate: higher mental health problem scores, higher rates of alcohol and tobacco use, more SU dependence symptoms compared to non-cannabis users, less likely to use condoms consistently and higher number of sexual partners
  - Higher prevalence of serious headaches indicates possible medical consequences
- Multivariate results suggest that Native Americans may be at higher risk of continued use. This group may also be engaging in riskier sexual practices.
- Using cannabis does not make it more likely they have returned to CD treatment

Implications

- The strong concern about other illicit drugs such as methamphetamines may detract clinical attention from cannabis (and alcohol and tobacco)
- Given the greater acceptability of cannabis use, and a growing harm reduction perspective in the public and in treatment, monitoring problems of long-term users continues to be important