Cannabis Use Disorder
Interventions for Adults: State of the Science and Looking Ahead

Roger Roffman, DSW
Professor Emeritus
University of Washington
School of Social Work
4.3 million (age 12 and above) met criteria in 2012

9% of those who ever use

17% of those who use marijuana early in adolescence

Up to 50% of heavy users
Relative Risk of Dependence

- Heroin: 23.1%
- Cocaine: 16.7%
- Stimulants: 11.2%
- Marijuana: 9.1%
- Tobacco: 31.9%
- Alcohol: 15.4%
20,000 – 90,000 people become marijuana dependent each year

50 to 250 people become marijuana dependent each day
Cognitive-Behavioral Therapy
+
Motivational Enhancement Therapy
MET – 2 sessions (5 weeks)

CBT/MET/Case Management – 9 individual sessions (12 weeks)

Delayed Treatment

- Both treatments superior to DTC.
- CBT/MET/Case Management superior to MET.

-- Marijuana Treatment Project Research Group, 2004
Posttreatment Days of Use

% of Days Smoked per Week

Delayed Treatment
Brief Treatment
Extended Treatment

% of Days Smoked per Week
BL 4-mo 9-mo 15-mo

0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1

Delayed Treatment
Brief Treatment
Extended Treatment

% of Days Smoked per Week
90-day Abstinence Rates

- DTC
- 2-Session
- 9-Session
Online at SAMHSA website
Cognitive-Behavioral Therapy
+ Motivational Enhancement Therapy
+ Contingency Management
CBT/MET/CM – 14 sessions

- Up to $570 worth of abstinence-based vouchers
- Vouchers redeemed for retail goods or services

CBT/MET – 14 sessions

MET – 4 sessions

-- Budney, Higgins, Radonovich, & Novy, 2000
- Abstinent for at least 7 weeks during tx
  - 40% of CBT/MET/CM
  - 5% of CBT/MET
  - 5% of MET

- Abstinent at end of tx
  - 35% of CBT/MET/CM
  - 10% of CBT/MET
  - 5% of MET

- No significant difference in abstinence between CBT/MET and MET
In a subsequent trial ...

- Abstinence-based vouchers led to extended during treatment abstinence, even with no counseling.
- MET/CBT/CM had better long-term outcomes than CM alone.
- Yet, long-term abstinence rates were still modest (37%).
Cognitive-Behavioral Therapy + Motivational Enhancement Therapy + Continuing Care
- CBT/MET/Case Mgmt – 9 individual sessions (12 weeks)

- CBT/MET/Case Mgmt – 4 individual sessions (4 weeks) plus *treatment as needed*
  - Additional Treatment Episodes over next 30 months – As Needed
    - Each episode 1-3 weekly sessions
    - See same therapist
    - Number and content of sessions decided on by client-therapist interaction

-- Stephens & Roffman, 2006
Percent Days of Use by Episode Utilization

% Days of Marijuana Use

Baseline 4 19 16 22 28
Assessment

PRN 3-5 EPS
PRN No EPS
9-SESSIONS
PRN 1-2 EPS
PRN 6-13 EPS

Assessment
Aversion Therapy
Schick Shadel Hospital; 1988

- 22 adult chronic marijuana smokers
- 5 days of 50-minute aversion sessions
  - Rapid smoking of THC-free marijuana
  - 3 weekly group counseling sessions
- 75% abstinent at 6 months; 84.2% at 12 months

No control group; un-replicated

Mindfulness Meditation + Motivational Interviewing
MI/MM – 2 sessions

Assessment only

- At follow-up, few had achieved abstinence; no significant difference between groups.
- MI/MM participants reported significantly fewer days of use at follow-up than Assessment Only participants.

-- deDios, Herman, Britton, Hagerty, et al., 2012
Psychodynamic Therapy
Randomized to

- Supportive-Expressive Psychotherapy – 16-sessions; manual-guided; focus on interpersonal relationships as mediating factor in treatment outcome.
- Single session of brief advice; self-help materials (“A Guide to Quitting Marijuana”)

- At 4 months, abstinence significantly greater in S-E (58%) than in Advice (16%)
- At 12 months, no significant difference in abstinence between S-E (28%) and Advice (14%)

-- Grenyer & Solowij, 2006
Delivering CBT/MET by Phone
Participants recruited from callers to the Australian Cannabis Information and Helpline

Randomized to:
- 4 sessions of CBT/MET + * Quitting Cannabis Workbook*
- DTC

Treated compared to controls:
- Greater reductions in dependence symptoms and related problems at 4 and 12 weeks
- Greater confidence to reduce use at 4 weeks

Percent of abstinent days reduced overall at 12 weeks
(Active: 73.3%; DTC: 55.3%)

-- Gates, Norberg, Copeland, & Diguisto, 2012
Delivering CBT/MET/CM by Computer
Randomized Trial

- MET (2 sessions)
- tMET/CBT/CM – 9 sessions over 12 weeks
- cMET/CBT/CM – 9 sessions over 12 weeks (augmented by 3 supportive sessions with a therapist)

Assessment: End of tx, 3, 6, & 9 months post treatment

-- Budney, 2013
Computer-assisted MET/CBT/CM for cannabis use is efficacious and equivalent to therapist-delivered treatment in the initiation and maintenance of cannabis abstinence:

- The potential savings from computerized MET/CBT could offset expenses related to CM, and facilitate its dissemination.
- Computerized therapy may enhance access to MET/CBT.
- Could expedite adoption of effective cannabis and other forms of substance abuse treatments.
Delivering CBT/MET via the Web
Web-based intervention ("Reduce Your Use")
- 6 core modules based on CBT/MET
- Ongoing feedback:
  - Graphing of cannabis use, attitudes, goals, weekly expenditures
- Blogs from former cannabis users on website
- Quick assist links on website
- Weekly automated encouragement emails

Web-based cannabis education – 6 modules

-- Rooke, Copeland, Norberg, Hine, & McCambridge, 2013
High rates of non-compliance

At 6 weeks, experimental group reported significantly:
- fewer days of use in past month (43.5% vs 32.0% reduction for controls)
- lower quantity of use in past month (53.8% reduction vs 44.2% reduction for controls)
- fewer symptoms of cannabis abuse

At 6 weeks, no differences in number or severity of cannabis dependence symptoms or past-month abstinence.

At 3 months, experimental group reported significantly fewer and less severe cannabis dependence symptoms.
Reaching the Non-Treatment-Seeking Ambivalent User
Questions About Your Pot Use?

call

THE MARIJUANA CHECK UP

(206) 616-3457

www.marijuanacheckup.com

For adults who have questions.
Not a treatment program.
Free and Confidential.

Research at the UW School of Social Work
**Personalized Feedback (PF)**
- Personal Feedback Report based on comparisons of participant’s baseline data with normative data
- MI style when delivering feedback

**Multimedia Feedback (MMF)**
- Unbiased research findings on the effects of marijuana
- Presented via computerized slides and video

**Delayed Treatment (DF)**
- No intervention for 7 weeks
- Followed by choice of feedback intervention
- Not followed-up at 6 and 12 months
Number of Days Smoked per Week

![Graph showing the number of days smoked per week over time with different treatments.]
Pharmacological Treatment
Treatment of withdrawal

Two types:
• CB receptor agonists that suppress withdrawal symptoms
• Medications that alleviate symptoms (dysphoric mood, irritability, sleep disturbance)

Oral synthetic THC (dronabinol) – reduction of withdrawal discomfort

Lofexidine (used to treat opiate withdrawal) plus oral THC
• Produced the most robust improvements in sleep and decreased cannabis withdrawal, craving, and relapse relative to either medication alone
- **Buspirone (Buspar) – anxiolytic**
  - Reduced frequency and duration of cannabis craving
  - Reduced irritability and depression
  - Trend: earlier abstinence when compared with placebo in a cannabis dependence treatment trial

- **Lithium – mood stabilizer**
  - 7 days of medication while in an in-patient detox facility
  - High rate of self-reported abstinence during follow-up

- **Gabapentin (Neurontin) – treatment of pain, seizures**
  - Compared with placebo in a 12-week cannabis treatment program
  - Significant reduction in cannabis use, withdrawal symptoms
  - Significant improvement in tests of executive function
Ineffective

- Divalproex (an anticonvulsant) – poorly tolerated
- Bupropion (an antidepressant; smoking cessation) – worsened symptoms
- Nefazadone (an antidepressant) – worsened symptoms
- Baclofen (antispasmodic medication) – ineffective in preventing relapse
- Mirtazapine (an antidepressant) – ineffective in preventing relapse
- Naltrexone – may increase cannabis use
- Rimonabant (CB₁ receptor antagonist) – psychiatric side-effects
What helps people change?

Several key findings from behavioral studies
- Being abstinent at the start of treatment
- Continuous abstinence during treatment, i.e., avoiding early lapses
- Making frequent use of coping strategies (calming thoughts, finding other ways to relax, finding other ways to cope with negative emotions, stimulus removal)
- Sense of self-efficacy
- Reduced exposure to other users
Using no more than 1-2 times/month if seeking moderation.

Acquiring social support.
Future Research
Future intervention development...

- Needed: Defining and measuring non-problematic marijuana use
- Moderation-focused counseling
- Menu-driven treatment
- Treatment services contingent on behavioral performance markers
- Goals for use individually tailored to meet quality of life objectives
Cannabis use disorder treatment integrated with treatment for concurrent psychosocial disorders
Policy Implications
Technical assistance should be provided to agencies and practitioners in adopting evidence-based Cannabis Use Disorder interventions.

The Marijuana Help-Line should include the 4-session telephone CBT/MET intervention studied in Australia.
Considerable misinformation about marijuana as having a dependence liability suggests the importance of science-based public education.

Research is needed on the effectiveness of alternate methods of educating each segment of the public concerning marijuana.
Research is needed on the dependence liability of varying marijuana products.
DSM V Highlights
Cannabis Use Disorder is…

“A problematic pattern of cannabis use leading to clinically significant impairment or distress, as manifested by at least \textit{two} of the following, occurring within a 12-month period.”
<table>
<thead>
<tr>
<th>Using more or for a longer period than intended</th>
<th>Use leads to giving up or reducing important social, occupational, or recreational activities</th>
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<tbody>
<tr>
<td>Persistent desire to cut back or control use</td>
<td>Recurrent use in hazardous situations</td>
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<tr>
<td>Great deal of time spent in using</td>
<td>Continued use despite recurrent physical or psychological problems related to use</td>
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<tr>
<td>Craving, strong urges to use</td>
<td>Tolerance</td>
</tr>
<tr>
<td>Use contributes to failure to perform obligations (work, school, home)</td>
<td>Withdrawal</td>
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<tr>
<td>Continued use despite recurrent interpersonal or social problems related to use</td>
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</tbody>
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Severity levels:

• Mild (2 or 3 symptoms)
• Moderate (4 or 5 symptoms)
• Severe (6 or more symptoms)
In early remission:

None of the criteria (except craving) have been met for 3 to <12 months

In sustained remission:

None of the criteria (except craving) have been met for at least 12 months
No distinction between abuse and dependence.

Added: “Recognition that abrupt cessation of daily or near-daily cannabis use often results in the onset of a cannabis withdrawal syndrome.”

Irritability  Anger or aggression
Depressed mood  Restlessness
Anxiety  Sleep difficulty
Decreased appetite
Added: "Craving, or a strong desire or urge to use cannabis."

Dropped: Legal problems

-- Hasin, O’Brien, Auriacombe, Borges, et al., 2013


