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CANNABIS AND PTSD RECOVERY: PROBLEM OR SOLUTION?

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GENERAL DISCLOSURES

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GENERAL DISCLOSURES

UW PACC is also supported by Coordinated Care of Washington

SPEAKER DISCLOSURES

I, Michele Bedard-Gilligan, have the following commercial relationship to disclose:

My husband is Vice President of Supply Chain for 4Front Ventures, a cannabis company. He leads their non cannabis business.

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SPEAKER DISCLOSURES

- ✓ Michele Bedard-Gilligan, PhD: One financial relationship

PLANNER DISCLOSURES

The following series planners have no relevant conflicts of interest to disclose:

Mark Duncan MD
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CASE EXAMPLE: "STELLA"

- Demographics
  - Cis-gender, heterosexual, married, Caucasian/not hispanic 39 year old woman
  - Employed full-time as a tattoo artist
  - Plays in a band
  - Target trauma: domestic violence (physical & sexual abuse) 20+ years prior
- Clinical Presentation
  - Moderate/severe PTSD symptoms (PSS-I = 40)
  - Diagnosis of past MDD, no current comorbidity
  - Daily cannabis use, reported 0.5 grams/per day over last 30 days
  - Cannabis use: "*for PMS, sleeplessness*"

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OBJECTIVES

1. Understand the observed relationships between PTSD and cannabis use
2. Explain conceptual models of how cannabis might impact PTSD
3. Discuss implications of cannabis use for PTSD recovery and treatment

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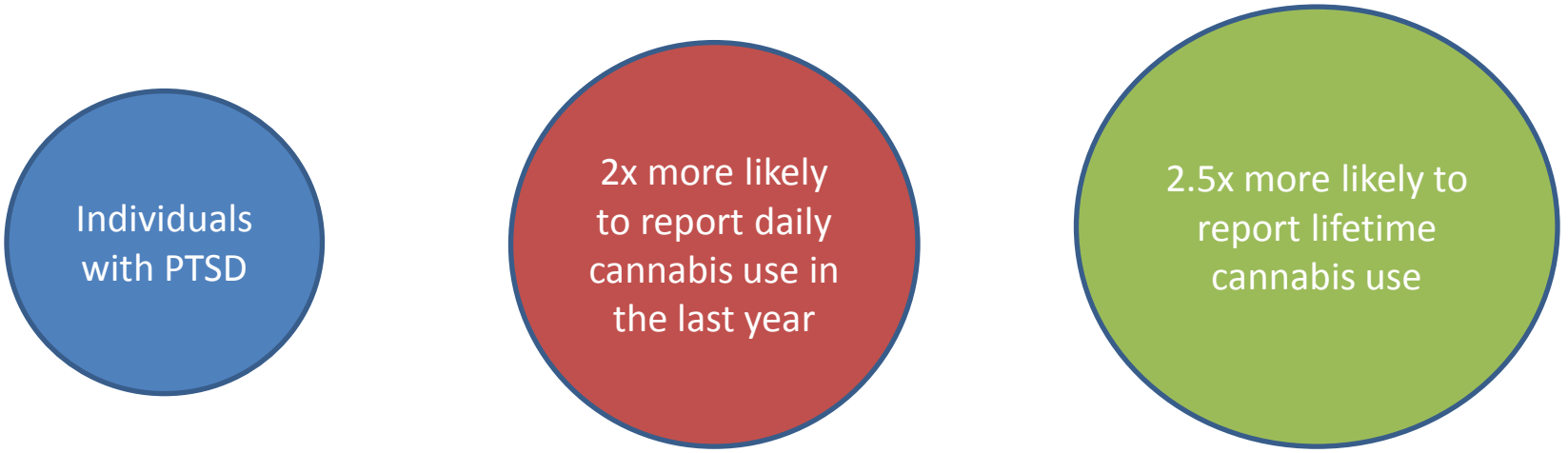
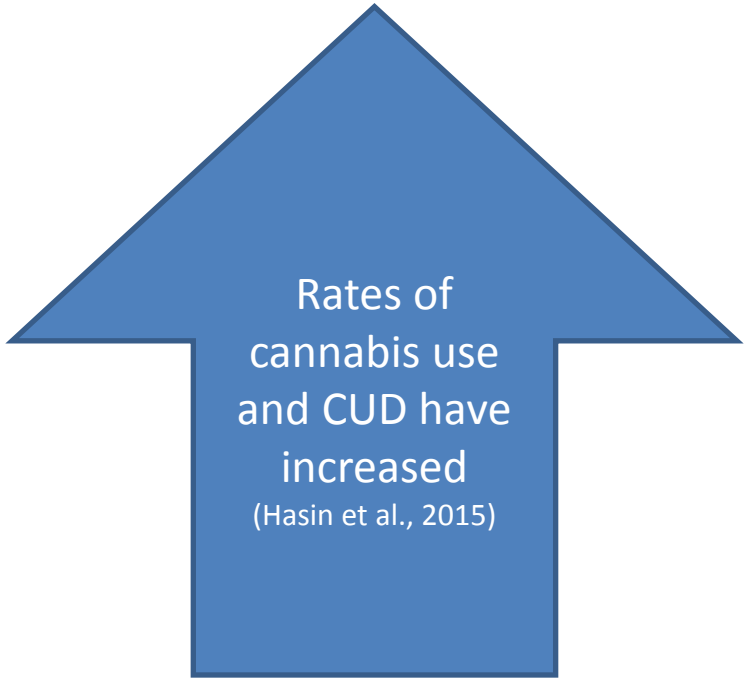
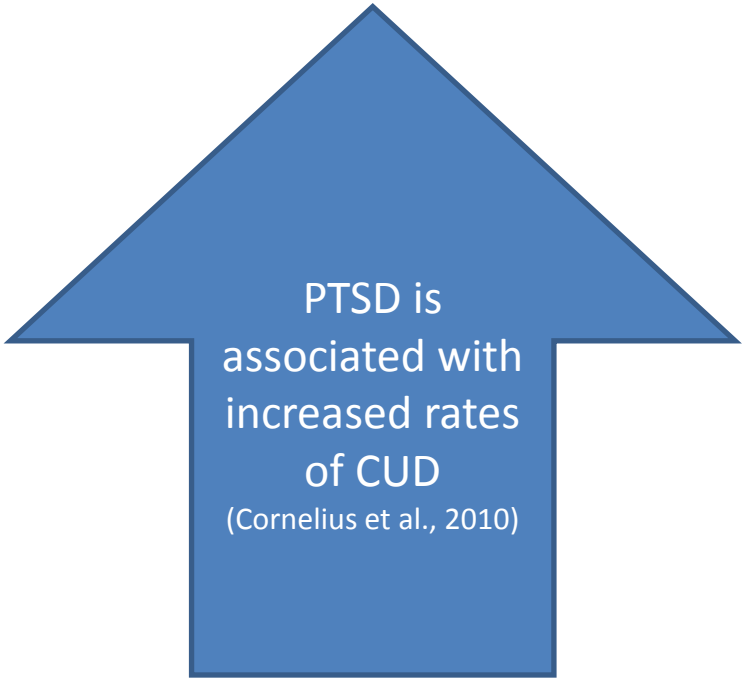
PTSD IS A PRIMARY REASON THAT INDIVIDUALS SEEK OUT CANNABIS IN STATES THAT HAVE LEGALIZED MEDICAL CANNABIS (BOWLES, 2012)



Cougle et al., 2011

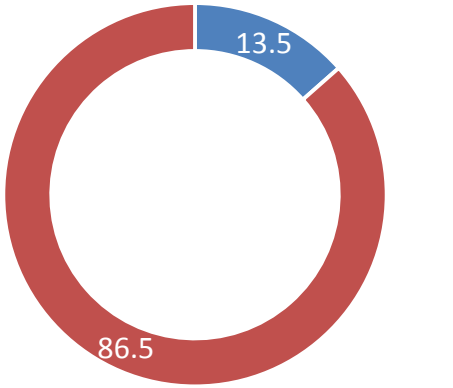
CANNABIS USE AND CANNABIS USE DISORDER (CUD) ARE INCREASING IN THE US POPULATION



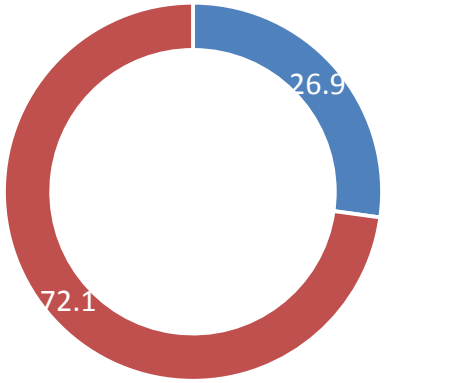


RATES OF CANNABIS USE ARE INCREASING IN THOSE SEEKING TREATMENT FOR PTSD

2004 - 2010



2011 - 2016



R01MH066347, R01MH066348, R01MH066347

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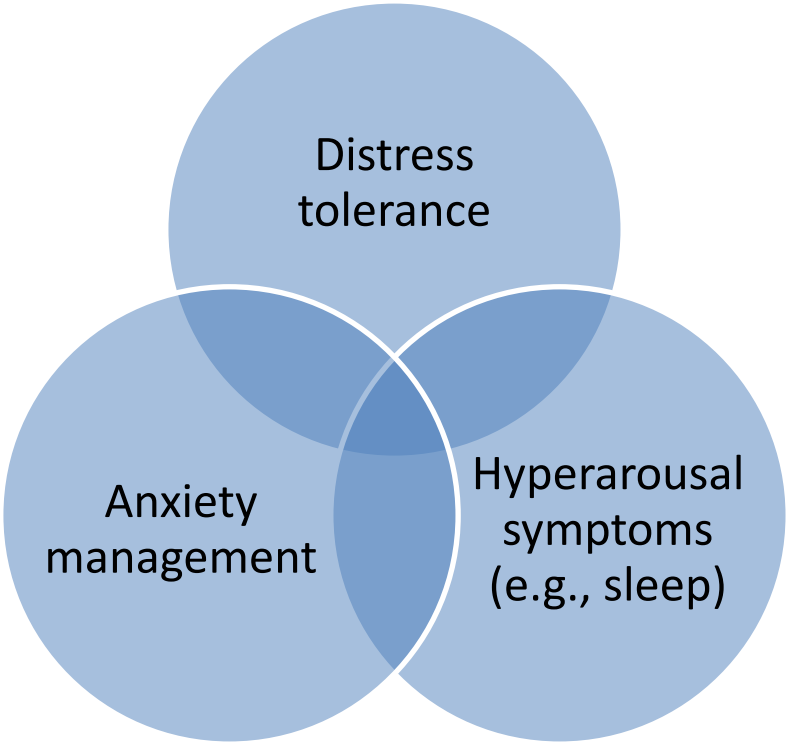
WHY DO PATIENTS WITH PTSD USE CANNABIS? SELF-MEDICATION THEORY

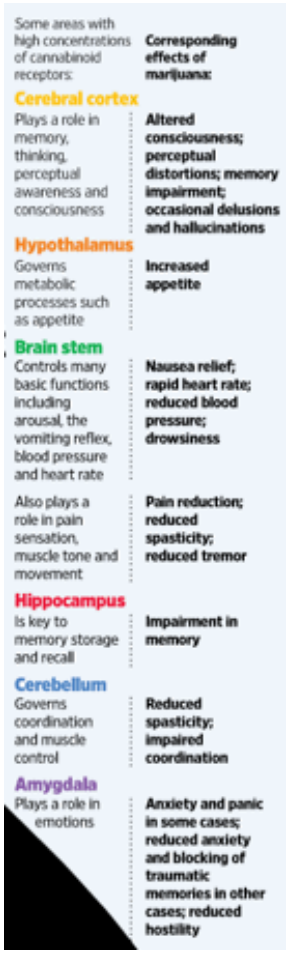


Bonn-Miller et al., 2010; Bremner et al., 1996

KEY BRAIN AREAS IMPLICATED IN CANNABIS USE

Targeting the endocannabinoid system as treatment for PTSD (Berardi et al., 2016; Korem et al., 2015; Trezza & Campoglona, 2013)

- Cannabinoid receptors (CB_1) are implicated in processing of fear, stress, emotion, and reward in the brain



I. Grant, University of California Center for Medical Cannabis Research

CANNABIS AS A POTENTIAL TREATMENT FOR PTSD?

- Potential therapeutic benefits
  - Manage the emotional symptoms (e.g., capitalize on anxiolytic effects of cannabis)
  - Increase the process of new learning associated with recovery (i.e., extinction enhancer)

PTSD IS THE PERSISTENCE OF MALADAPTIVE REACTIONS, NOT THE MERE PRESENCE OF REACTIONS

Failure in natural fear extinction thought to be key mechanism in the persistence of PTSD

Mahan & Ressler, 2012

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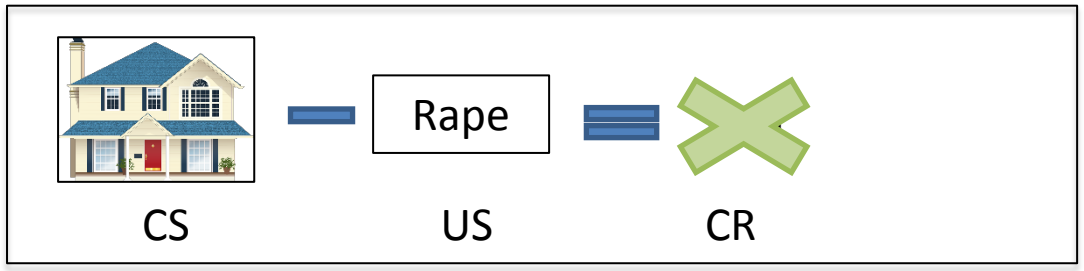
HOW MIGHT CANNABIS RELATE TO FEAR EXTINCTION?

- Fear extinction



- Facilitation effect:
  - CB_1 receptors in the ventromedial prefrontal cortex and hippocampus
  - These areas are heavily implicated in extinction learning (e.g., Bouton et al., 2006; Milad et al., 2008)

- Detrimental effect:
  - Documented amotivational and anxiolytic effects
  - Biphasic effects – anxiolytic vs anxiogenic (D'Souza et al., 2004; Viveros et al., 2005)
  - Acute impairments on learning, memory, attention, and working memory (Volkow et al., 2016)

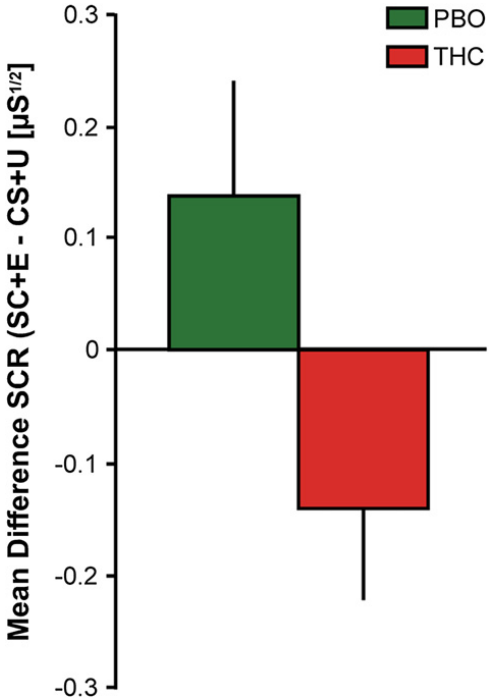
PSYCHOTHERAPIES BASED ON EXTINCTION LEARNING HAVE LARGE EFFECTS IN DECREASING PTSD SYMPTOMS

Intervention	*N*	Effect Size (*g*)
All Psychotherapies	76	1.14
Cognitive Therapies	10	1.63
Exposure Therapies	27	1.08
Mixed Cognitive and Exposure	14	1.38
EMDR	11	1.01
All Medications	56	0.42
SSRIs	20	0.48

Watts et al., 2013

HUMAN STUDIES OF THC AND EXTINCTION

- Administration of THC facilitated short-term extinction as evidenced by decreased skin conductance response when tested 24 hours later (Rabinak et al., 2013)
  - THC prevented the recovery of fear
- Facilitation may be limited to acute effects (Klumpers et al., 2012)
- **Studies were done in healthy, cannabis naïve volunteers**



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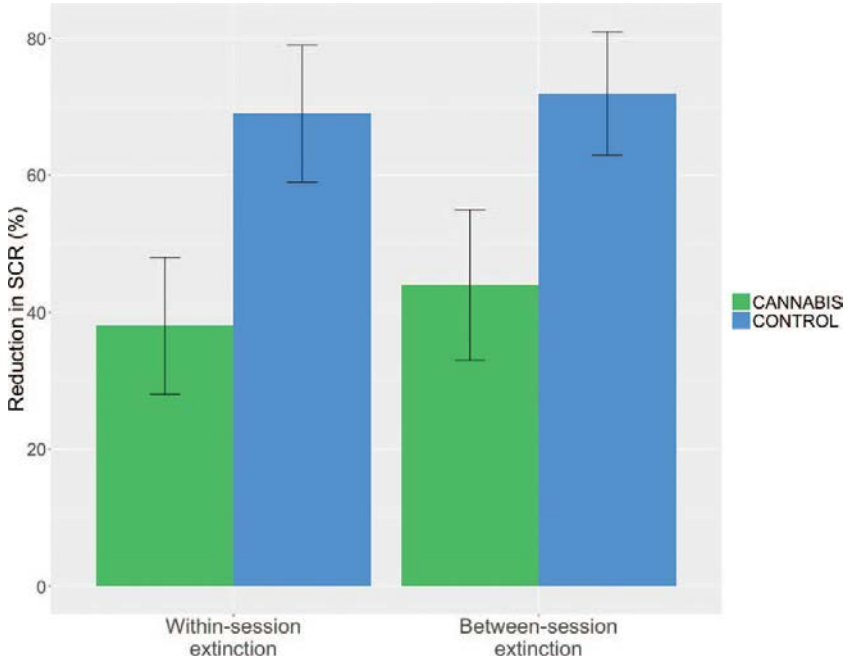
CHRONIC CANNABIS USERS SHOW DEFICITS IN EXTINCTION LEARNING

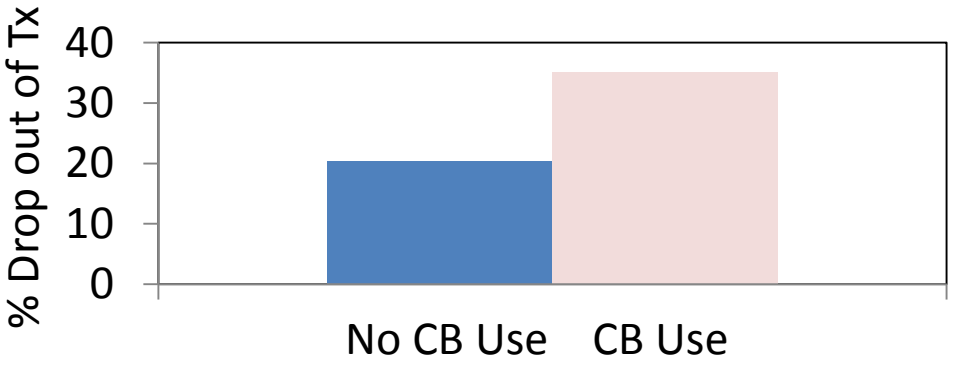
- Reduced within-session (d = 0.78) and between session (d = 0.76) extinction, as measured by skin conductance response
- Suggests chronic cannabis use impairs, not facilitates, extinction



Papini et al., 2017

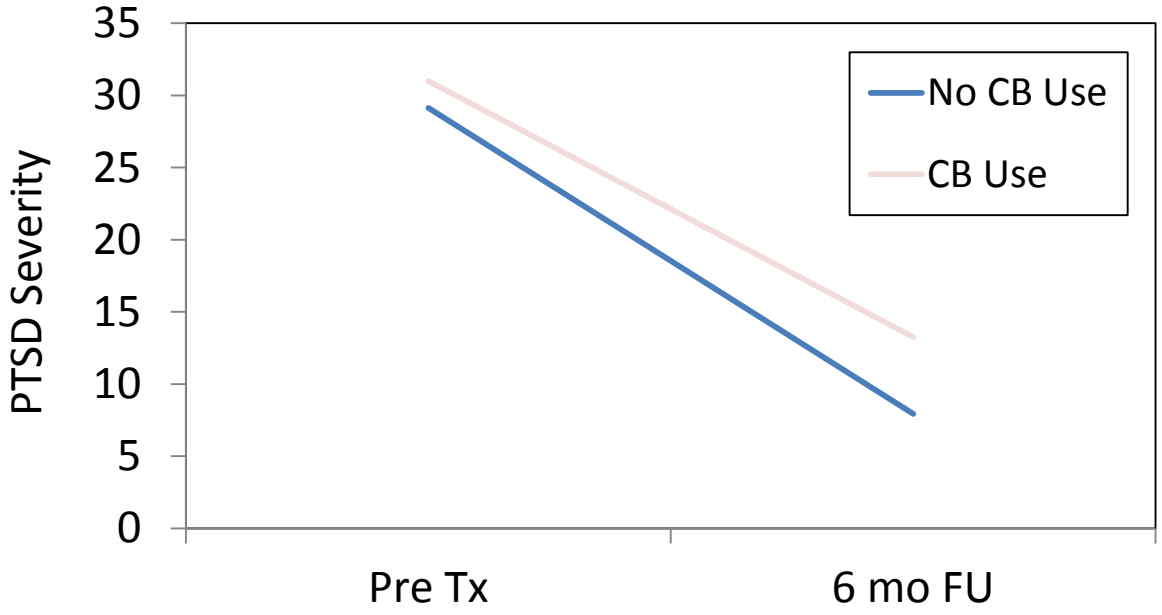
CANNABIS IS ASSOCIATED WITH HIGHER DROPOUT IN A CLINICAL TRIAL OF AN EXTINCTION-BASED PTSD THERAPY

- In clinical practice, cannabis use may impair PTSD treatment response to an extinction based treatment
- In our clinical trial (*N* = 200; R01MH066347/R01MH066348) cannabis use predicted
  - Higher likelihood of dropout



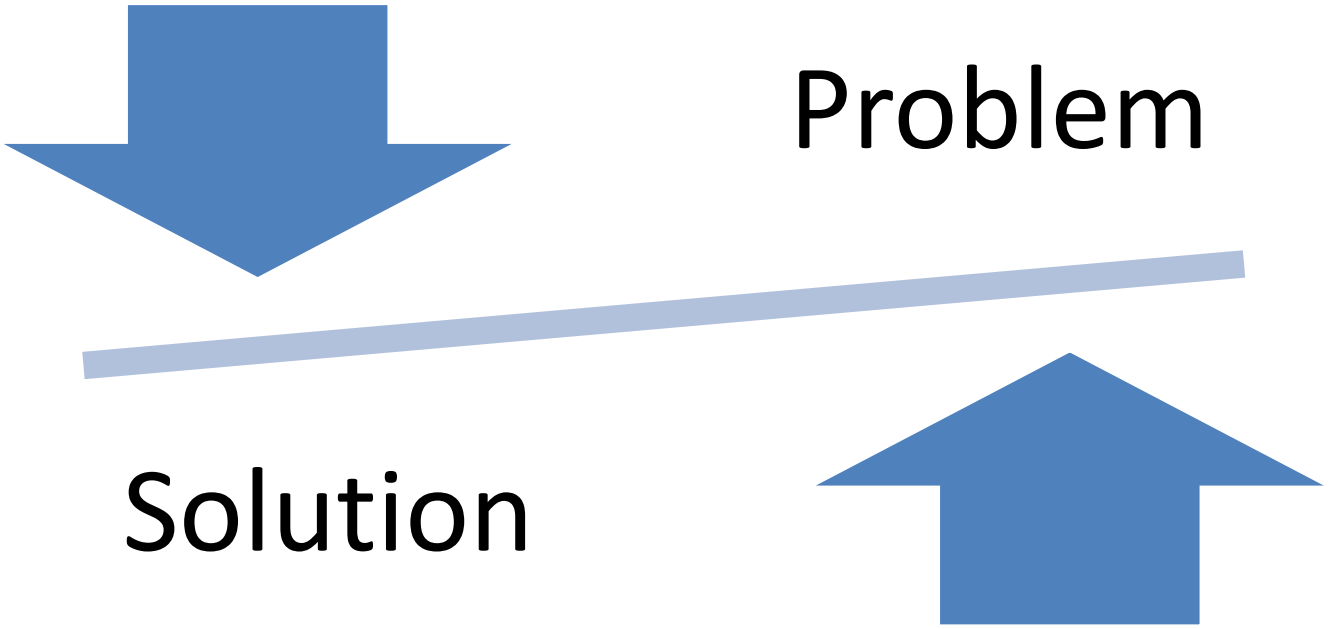
Bedard-Gilligan et al., 2018

CANNABIS USE ALSO ASSOCIATED WITH LESS PTSD RECOVERY IN THAT SAME TRIAL



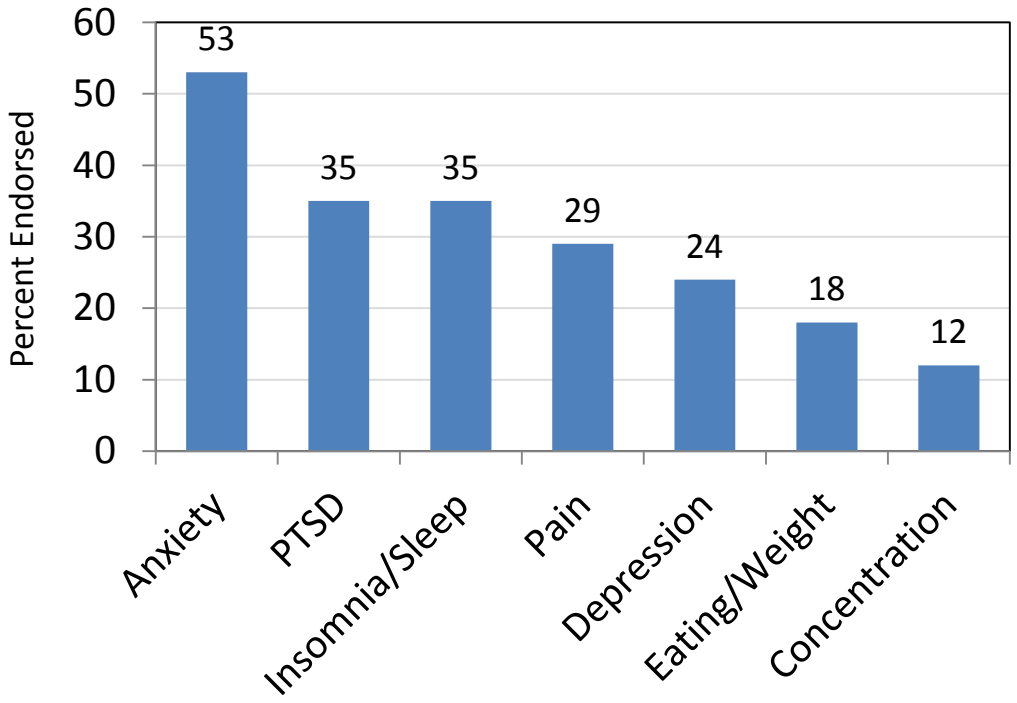
Bedard-Gilligan et al., 2018

EFFECTS OF CANNABIS ON RECOVERY ARE UNCLEAR



THE FUNCTION OF CANNABIS: PATIENT VIEWS

- Patients perceive clinical benefits to their cannabis use
  - *"Marijuana makes it so I do not have to take any heavy narcotic pain medications"*
  - *"Marijuana replaces an obscene amount of things that I have been prescribed and tried in the past with less successful results"*
  - *"I use it to calm my anxiety and focus more on self-care"*



Diverse reasons for cannabis use (*N* = 17)

Bedard-Gilligan, Unpublished Data

ONGOING TRIAL OF EXPOSURE THERAPY FOR PTSD AND CANNABIS USE (R34 DA040034)

- Key questions/issues:
  - Does cannabis use get in the way of treatment?
    - How does it affect engagement and fear extinction?
    - How does it affect cognitive ability to process?
  - Does cannabis use change with treatment?

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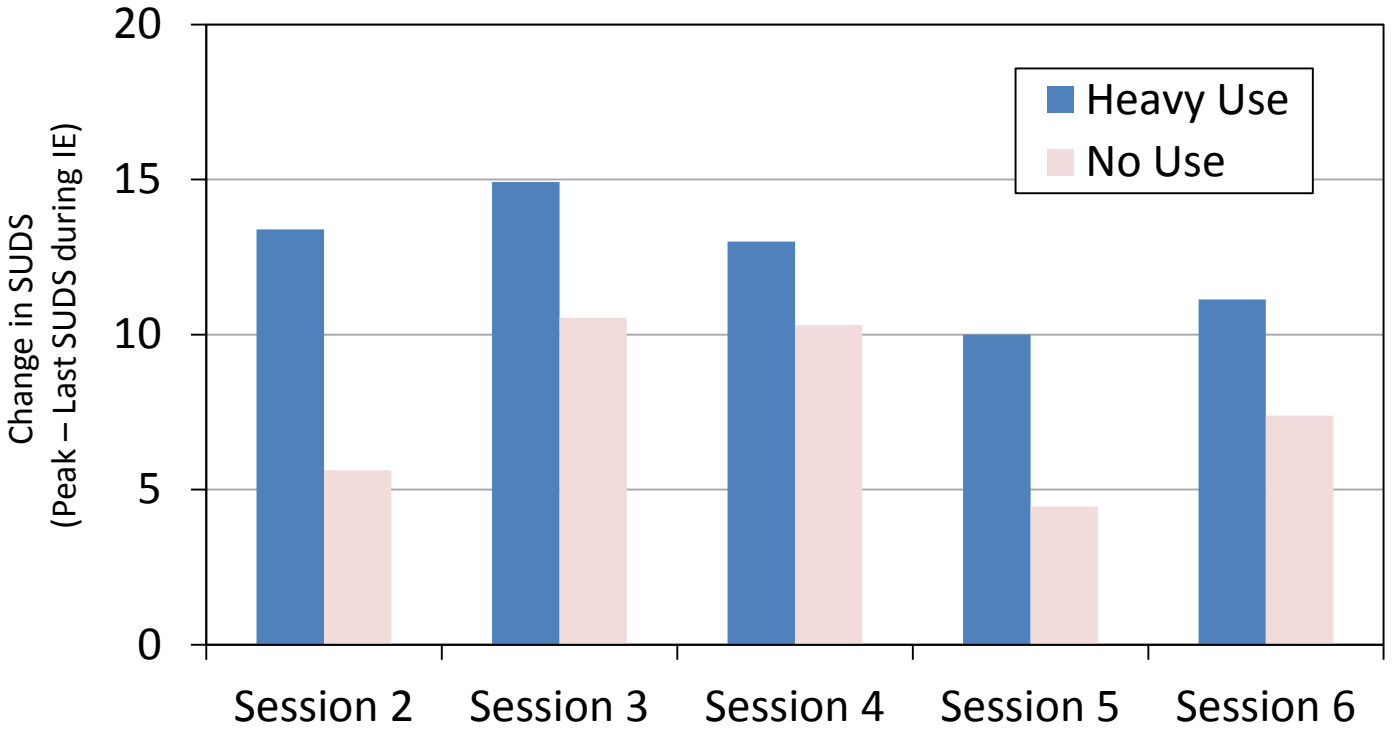
WITHIN SESSION EXTINCTION PATTERNS BY CANNABIS USE GROUP (*N* = 31)



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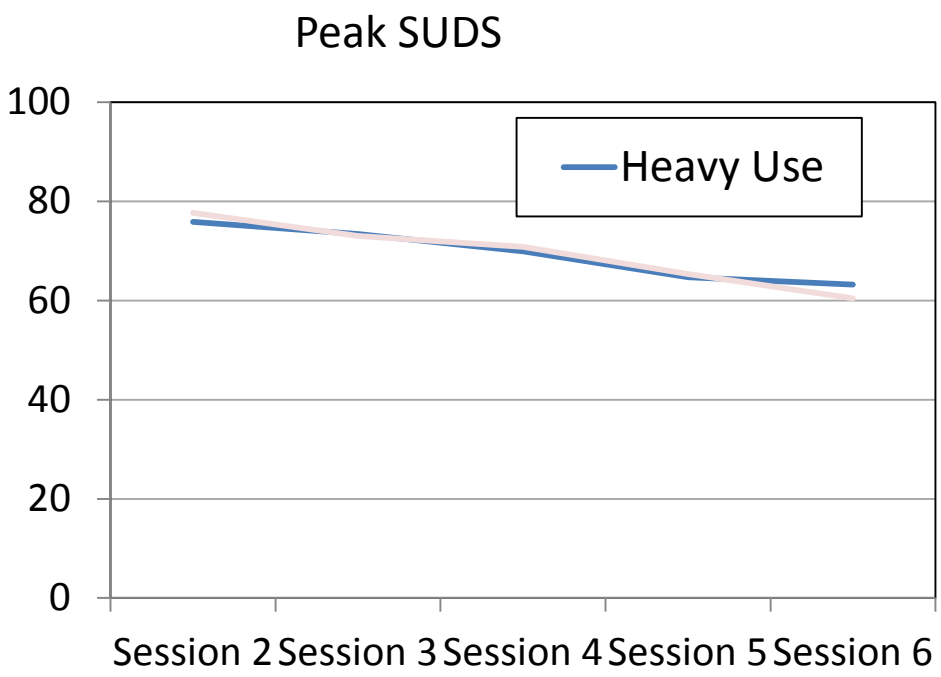
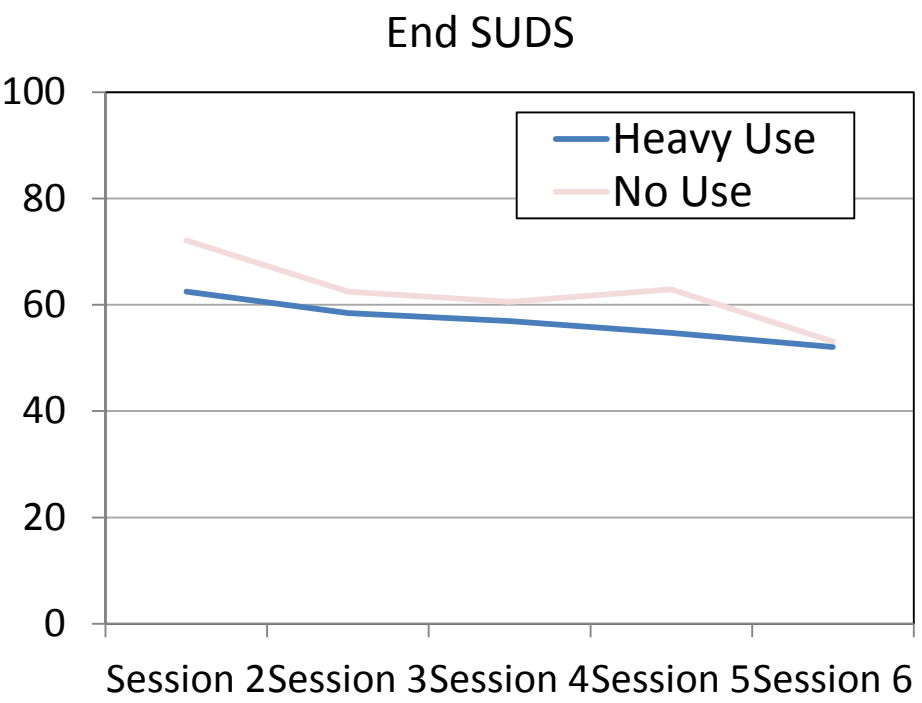
BETWEEN SESSION EXTINCTION PATTERNS BY CANNABIS USE GROUP (*N* = 31)





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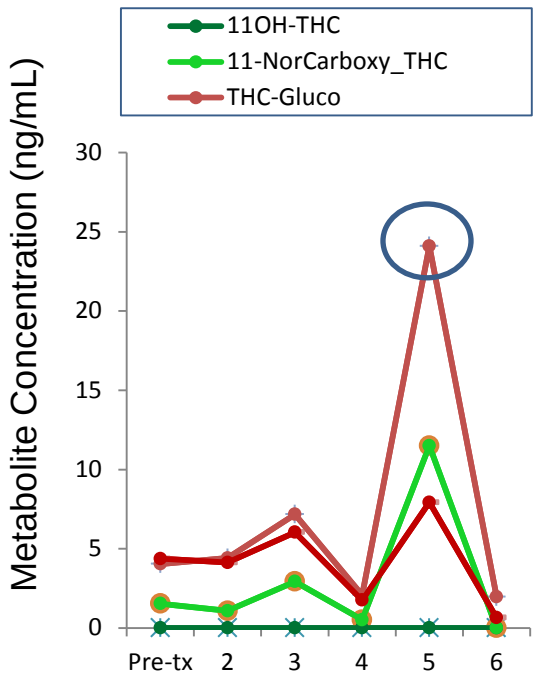
CASE EXAMPLE "STELLA": HIGHER COGNITIVE FUNCTIONING DURING PROCESSING?



Session 5	
PTSD (PSS-SR)	22
Depression (QIDs)	14
Time since last cannabis use	1 hour
Perceived high	2/10
Strain	Strawberry Banana Sherbert
Pre-SUDs	30
Post-SUDs	15

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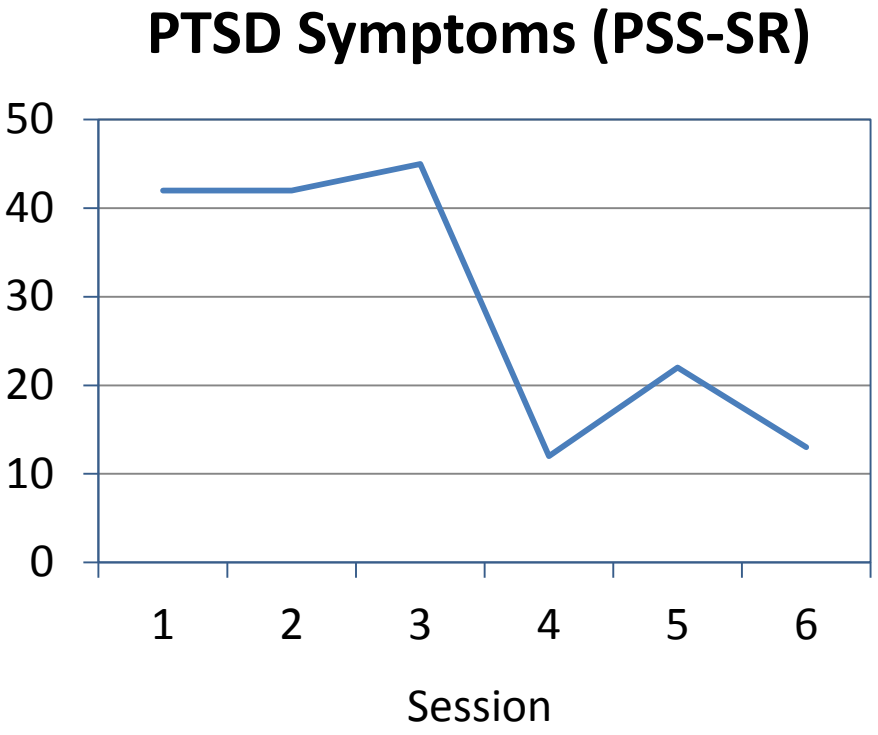
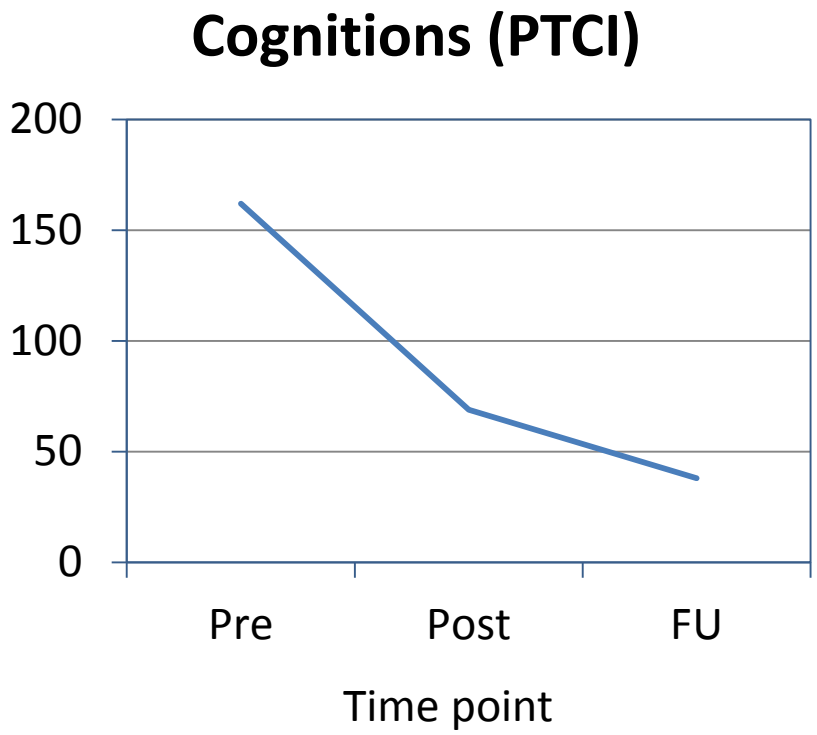
CHANGES IN PTSD SYMPTOMS AND TRAUMA RELATED COGNITIONS FOR "STELLA"





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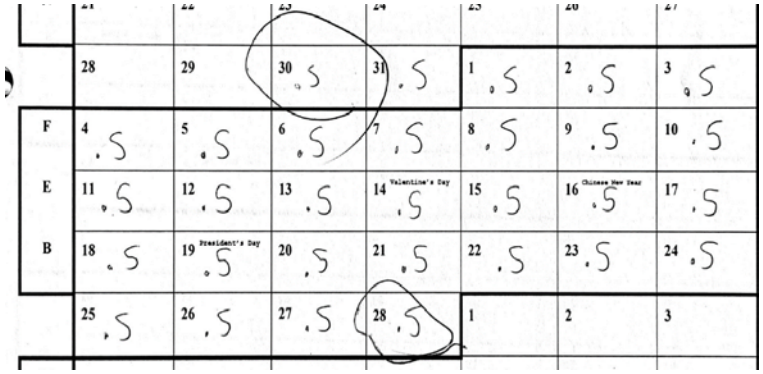
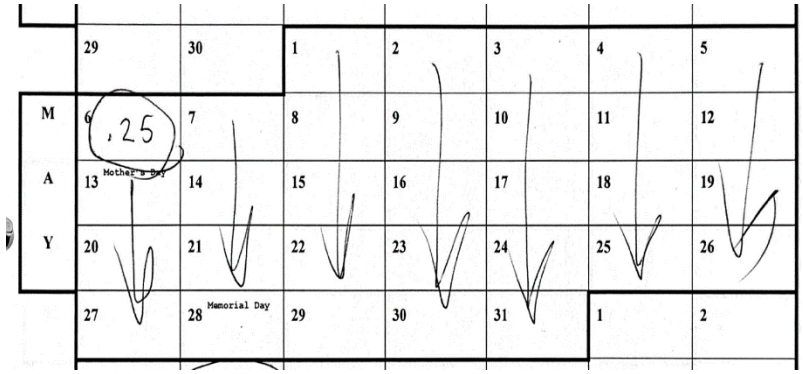
“STELLA’S” PRE TO FOLLOW-UP CANNABIS USE

Pre-Tx TLFB Cannabis Use



Follow-up TLFB Cannabis Use



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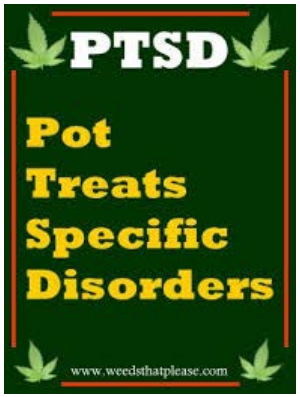
PERSONALIZING TREATMENTS

- One size fits all approach to treatment means we are missing important subgroups
- Meeting patients “where they are at”
- Many using cannabis may not seek or comply with treatment that requires reductions/abstinence in use
- Doesn’t mean we need to abandon treatments we know work
- Simple treatment adjustments may improve adherence and create hope
  - Fewer sessions in compressed time frame with no HW

CANNABIS AND PTSD: PROBLEM OR SOLUTION?



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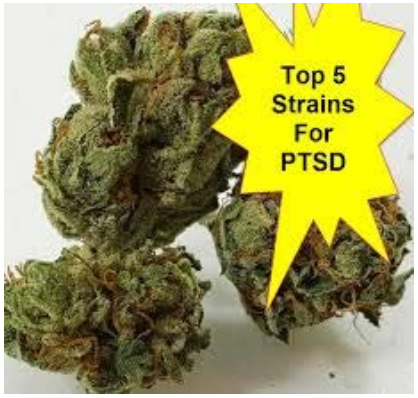

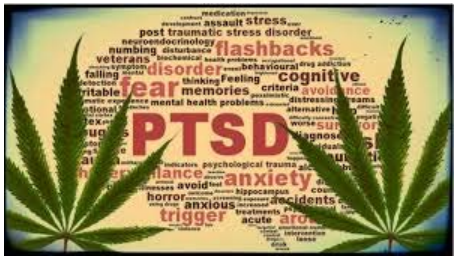

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