KATE WOLITZKY-TAYLOR, PH.D.

OVERVIEW

- Understand anxiety and substance use disorder comorbidity
- Introduction to essential components of CBT for anxiety disorders in the context of SUD treatment
- Coordinated Anxiety and Learning and Management for Addiction Recovery Centers (CALM ARC)
- Data on CALM ARC outcomes in a pilot study
- Future directions: moving into a fully integrated model of anxiety and SUD treatment in primary care?
- Videos demonstrating CBT for anxiety components in CALM ARC (time permitting)

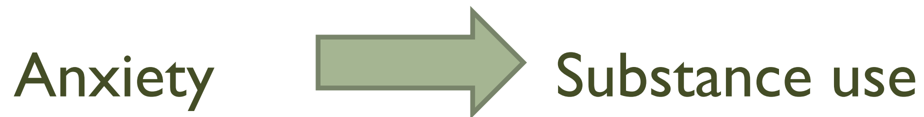
ANXIETY AND SUD COMORBIDITY

- Anxiety and substance use disorders (SUD) are highly comorbid and associated with:
  - Greater symptom severity, impairment, and health care utilization
  - Poorer substance use treatment outcomes
  - Poorer engagement in addiction treatment
- Anxiety and SUD comorbidity is observed across the anxiety disorders and substances of dependence

Grant et al. (2004); Conway et al. (2006); Compton et al. (2007); Kushner et al. (1990); Smith & Book (2010); Zvolensky & Schmidt (2003); Stewart & Conrod (2008); Ouimette et al. (2002); Bruce et al. (2005)

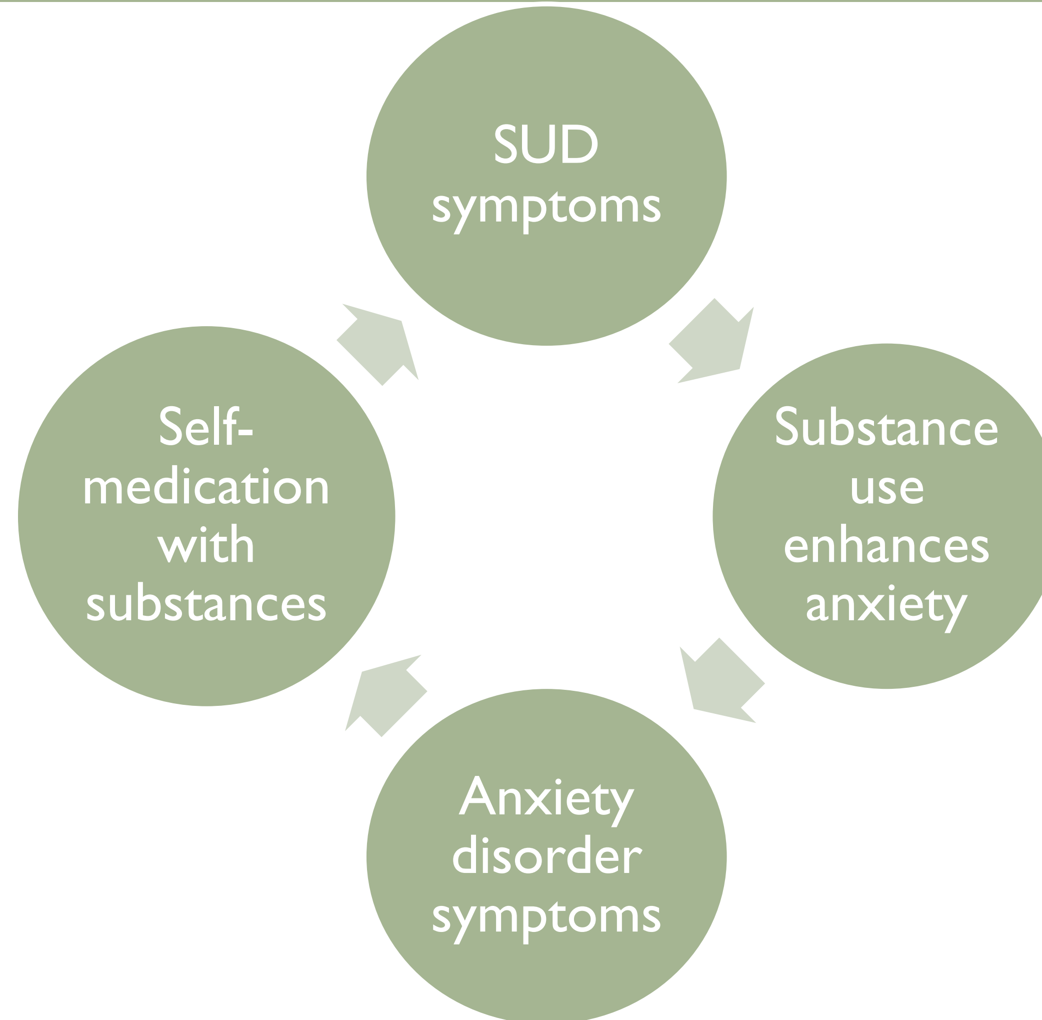
UNDERSTANDING THE NATURE OF ANXIETY AND SUD COMORBIDITY

- Tension-reduction/Self-medication hypothesis



- Substance-induced anxiety enhancement theory

THE MUTUAL MAINTENANCE MODEL



WHAT DO WE MAKE OF THIS?

- Treating anxiety should improve SUD outcomes
- Integrated approaches that simultaneously address both problems should break the "vicious cycle"
- Unfortunately
  - most SUD specialty clinics do not diagnose or treat underlying anxiety disorders that may contribute to relapse
  - most mental health programs refer out for addiction treatment, yet most people don't end up receiving it.

COMPONENTS OF CBT FOR ANXIETY DISORDERS AND SUDS

- Anxiety
  - Psychoeducation
  - Cognitive restructuring
  - **Exposure to feared/avoided stimuli (situations, images, physiological sensations, memories, thoughts)
- SUDs
  - Psychoeducation
  - Cognitive restructuring
  - Relapse prevention/coping skills tools (identifying triggers, coping plans, alternative, adaptive behaviors)

ADAPTING CBT FOR ANXIETY DISORDERS INTO SUD TREATMENT CLINICS

- Groups
- Brief
- Focus on psychoeducation about the mutual maintenance model
- Cognitive restructuring
- Exposure

PSYCHOEDUCATION

- Anxiety, fear, panic attacks
- Different anxiety disorders
- How anxiety and addiction work together
- Introducing the idea of alcohol and drugs as "safety aides" to mitigate or avoid anxiety in the short-term, but maintain anxiety in the long-term
- Components of anxiety

EXAMPLE OF ALCOHOL AS A SAFETY AIDE

Imagine you are afraid of going to parties and meeting new people because you are worried others will negatively evaluate you. You are afraid people will think you are boring or unintelligent. There is often alcohol at the social events you attend, so you start to drink in order to reduce your anxiety. You find that this helps you get through these social situations with much less anxiety. Now you think, *"It's a good thing I drank a couple of beers at that party! I had the courage to talk to people and some of them actually liked me and thought I was interesting!"* Soon you believe you need alcohol in every social situation to get the same result, and are drinking much more frequently and begin to develop an addiction to alcohol.

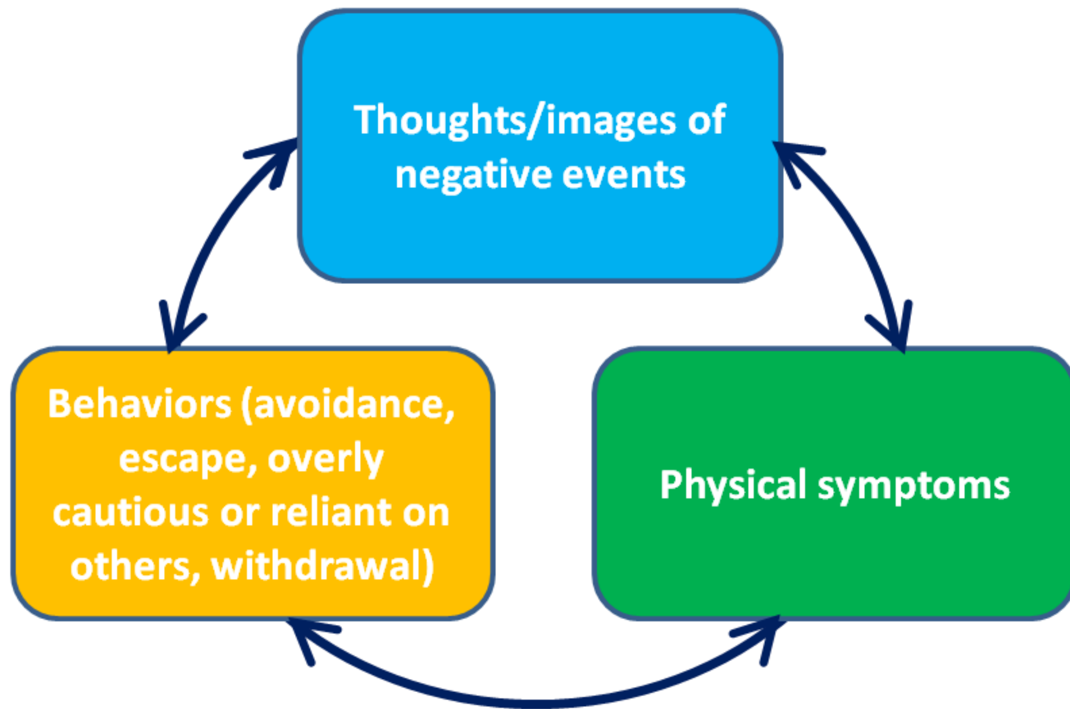
EXAMPLE OF HOW SUBSTANCES CAN LEAD TO ANXIETY PROBLEMS

Imagine you take a large amount of cocaine. You feel a lot of intense physical sensations and have a panic attack. You may start to become afraid of the panic attacks and even days later you may still find yourself worrying about what will happen if those physical sensations come back. You may start avoiding things (like exercise) in order to prevent those physical sensations (with the goal of avoiding panic attacks). However, you are already addicted to cocaine so you take it again, and you have a panic attack in the mall, and then another while you're driving. Now you avoid the mall and driving too. Soon your anxiety becomes a problem that is getting in the way of your life.

EXAMPLE OF THE MUTUAL MAINTENANCE OF ANXIETY AND SUD COMORBIDITY

Imagine you worry a lot about all sorts of things: your job, how you will pay the bills, and your relationship. All of this worry causes so much distress that you start to take prescription pills (such as opiates or benzodiazepines) to help you relax. Soon every day you get home and find that taking those pills is the easiest way to "forget about it all." The problem is, soon your time and money is being spent on getting, using, and recovering from taking the pills. You have trouble concentrating at work and end up losing your job. Your romantic partner is tired of you always using and not spending time as a couple and now you are fighting more. Money is getting tighter and tighter. This makes you worry more and more, so you need more pills to get through it. Now you are addicted to the pills and your worry feels too difficult to manage without the help of the drugs.

COMPONENTS OF ANXIETY



How this can work in the context of SUD: You know you will be going out to dinner with a few new friends you just met in a class. You are anxious about getting to know the new people. You **think,** *"They will think I'm weird."* This makes you more anxious. You may feel the **physical** sensations of anxiety. You **think,** *"I will be more relaxed if I smoke some marijuana,"* so you **behave** by smoking marijuana. You go to the dinner while you are high, and realize that it is harder to make good conversation while you are high than you expected. This makes you more anxious and you begin to feel **physical** symptoms like feeling detached. You **think,** *"Now they will notice I am anxious and really think I'm weird,"* so you **behave** by not talking, and you leave as soon as you can.

COGNITIVE RESTRUCTURING

- Overestimation of likelihood
  - Downward arrow to identify anxious thought
  - Examining evidence for/against thought
  - Generating alternative explanations
- Catastrophizing
  - Identifying the worst case scenario
  - Imagining how you could cope
  - Generating less catastrophic ways it is more likely to turn out

EXPOSURE!

- Do this as soon as possible
- Identify avoided situations, memories, images, bodily sensations
- Create a fear hierarchy
- In-session and homework exposures
- Focus is not just on fear habituation but on new learning/testing hypotheses

COMMON TYPES OF EXPOSURE FOR DIFFERENT ANXIETY DISORDERS

Disorder/Focus of Anxiety	Type of Exposure
Panic If with agoraphobia	Interoceptive (bodily sensations of fear) Add in vivo (situational) to avoided situations
Social phobia If also afraid of showing physical signs of anxiety	In vivo (situational) to avoided situations Interoceptive + in vivo (social situations) in combo
OCD	Obsessions/feared images or thoughts attempting to avoid Refrain from using compulsions during exposure
GAD	Feared images of catastrophic situations attempting to avoid Confronting situations without using safety behaviors
PTSD	Images/story of traumatic memory attempting to avoid In vivo (situational) to avoided situations/reminders

EXAMPLE OF A FEAR HIERARCHY

Situation	Fear Rating
Leading an AA meeting	100
Asking someone out on a date	90
Reading a passage during an AA meeting or group	80
Stating an opinion to a group of people at a social gathering	75
Telling a story to a group of people at a social gathering	70
Approaching someone at an AA meeting and having a conversation	65
Asking a question in an addictions recovery group session	60
Telling a using friend that I'm sober now	55
Going to a (sober) party	50
Disagreeing with a friend	40
Having lunch with sober friends	35

ADAPTATION OF COORDINATED ANXIETY LEARNING AND MANAGEMENT (CALM) FOR COMORBID ANXIETY AND SUBSTANCE USE DISORDERS: DELIVERY OF EVIDENCE-BASED TREATMENT FOR ANXIETY IN ADDICTIONS TREATMENT CENTERS

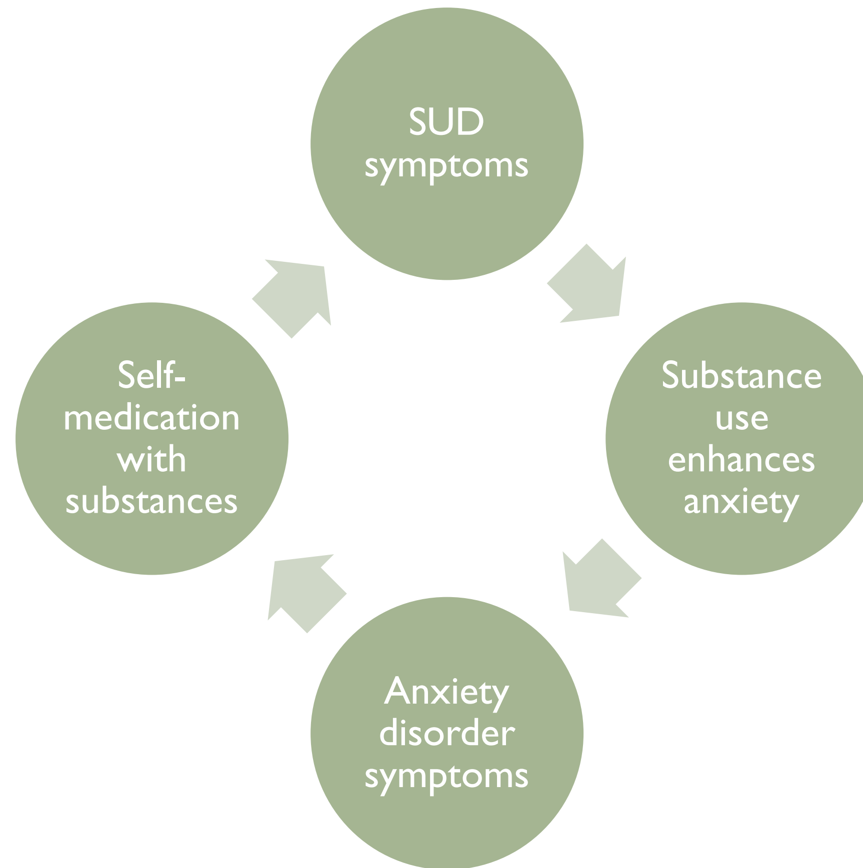
KATE WOLITZKY-TAYLOR, PH.D., RICHARD RAWSON, PH.D., PETER ROY-BYRNE, M.D., RICHARD RIES, M.D. & MICHELLE CRASKE, PH.D.

Research supported by NIDA K23 DA036177

ANXIETY AND SUBSTANCE USE COMORBIDITY

- Anxiety disorders and substance use disorders (SUD) are highly comorbid
- This comorbidity is associated with a number of poorer outcomes

THE MUTUAL MAINTENANCE MODEL



(Stewart & Conrod, 2008)

LACK OF ACCESS TO ANXIETY TREATMENT AMONG THOSE WITH SUD/ANXIETY COMORBIDITY

- Most people with comorbid anxiety and substance use disorders who receive any treatment will receive treatment for their SUD
  - Most of this treatment will be delivered in a SUD specialty care clinic
  - Almost none of these treatment centers identify or treat comorbid anxiety disorders using evidence-based treatments
  - Presence of anxiety disorders is associated with poorer substance use outcomes following treatment for SUDs
- Thus, SUD specialty clinics represent clinical settings with high proportions of patients with anxiety disorders who do not receive adequate treatment

Mojtabai et al. (2009); McGovern et al. (2006)

THE CURRENT STUDY

- Thus, research is needed to:
  - Adapt cognitive behavioral therapy (CBT) for anxiety to be appropriate for a SUD population
  - Evaluate its effectiveness in reducing anxiety and substance relapse

WHAT IS COORDINATED ANXIETY LEARNING AND MANAGEMENT (CALM)?

- Large, multi-site effectiveness trial (N = 1004) of evidence-based treatment for anxiety disorders (CBT and/or SSRIs) in primary care (compared to usual care)
- Most people received the CBT intervention (called "CALM Tools for Living"), which was a computerized but therapist-directed program delivered by providers with minimal training in treating mental health problems
- CALM outperformed usual care (UC) on anxiety outcomes across GAD, social phobia, PTSD, and panic disorder (the 4 most common anxiety disorders in primary care)

SPECIFIC AIMS

- Aim 1: To develop an adaptation of an anxiety disorder treatment (CALM) to be suitable for delivery in SUD specialty clinics for individuals with comorbid anxiety and substance use disorders.
- Aim 2: To test the relative effectiveness of the CALM adaptation (CALM ARC) in treating *anxiety disorders* compared to addiction treatment as usual (UC) in an Intensive Outpatient Program at a community substance abuse treatment center.
- Aim 3: To examine whether CALM ARC reduces rates of substance use more than UC.
- Aim 4: To examine whether changes in anxiety during treatment are associated with substance use outcomes.

COORDINATED ANXIETY LEARNING AND MANAGEMENT FOR ADDICTIONS RECOVERY CENTERS (CALM ARC)

- Group format
- Mixed anxiety disorders and mixed substances of dependence
- Intentionally very brief: orientation plus 6 sessions
- Web-based program guided by substance abuse counselors
- Web-based program includes home practice resources and assessments
- Components include psychoeducation, cognitive restructuring, exposure, and relapse prevention
- Interactive exercises, video demonstrations, and content modified to be relevant for anxiety/substance use disorder comorbidity

calm arc

COUNSELOR: 3C014
USER: 3P050 LOGOUT

COUNSELOR TOOLS

WELCOME TO CALM ARC

PRE-TREATMENT

- [ ] Start Pre-Treatment

GROUP ORIENTATION

- [ ] Overview of CALM ARC
- [ ] Information 1
- [ ] Information 2

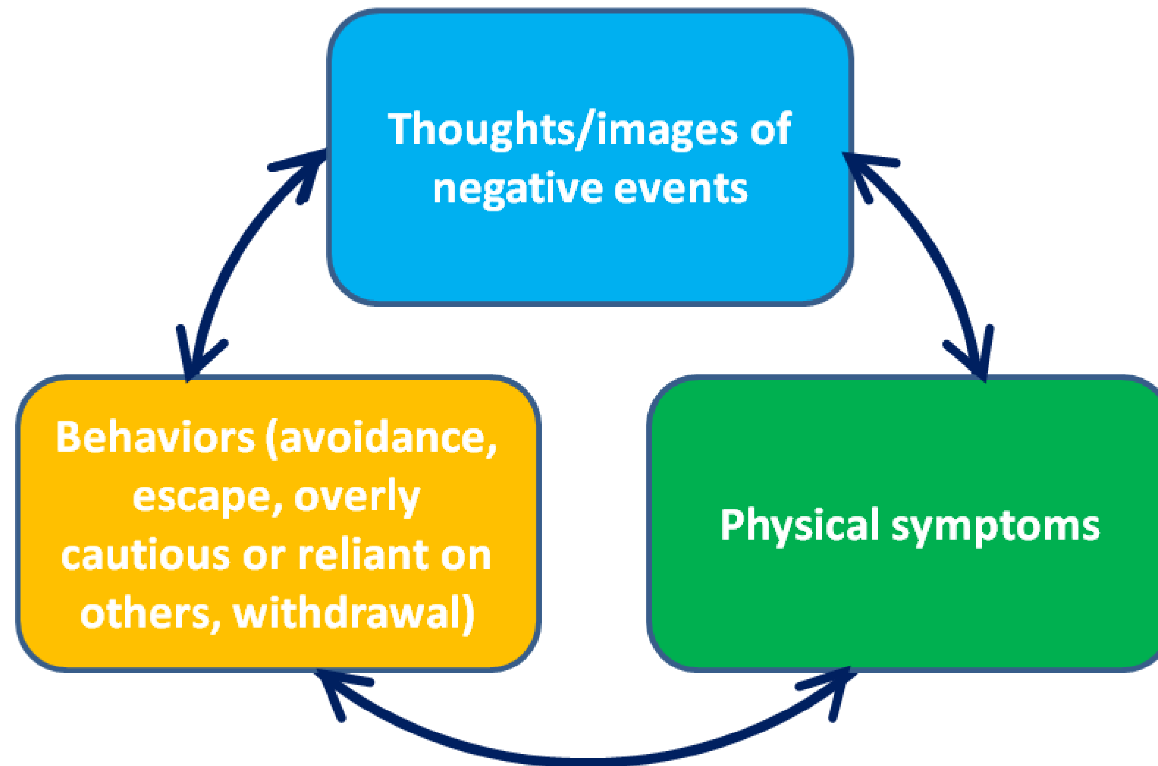
HOME ORIENTATION

- [ ] Summary
- [ ] Identifying my Anxiety Problem

INFORMATION

How the three parts of anxiety work together

Your physical, thinking, and behaving parts of anxiety all work together in different ways.



Let's go through a few examples:

- You are at a concert and it is crowded. You start to feel detached, like things around you aren't real. This **physical** sensation makes you **think**, *"I am going to lose control or pass out."* This makes the **physical** feelings even worse. Now your heart is racing and your fingers are tingling. You **think**, *"I will die if I don't get out of here."* You **behave** by making a quick rush to the exit and

calm arc

COUNSELOR: 3C014
USER: 3P032 LOGOUT

COUNSELOR TOOLS | HOME SESSION 1 | PRINT SECTION | FONT SIZE

IDENTIFYING AND CHALLENGING MY THOUGHTS

Situation

Layers of Negative Thought:

1.
2.
3.
4.

What are the odds that this thought is true (consider what you think in the moment during the situation):

Evidence *for* the thought being true

FEAR LIST

Exercise: Using your **"What makes me anxious," "Sensations exercises," and "What thoughts and images do I avoid?"** lists, work on your **Fear List**. And remember, there are plenty of examples online.

Fear List

Fear/Distress Scale

0---10---20---30---40---50---60---70---80---90---100
none mild moderate strong extreme

Situation | **Fear Rating**

0
5
10
15
20
25
30

ASSESSING FEARS OF PHYSICAL SENSATIONS VIDEO

Exercise 1: Running in Place

0---10---20---30---40---50---60---70---80---90---100
none mild moderate strong extreme

Fear rating

Sensation rating

Similarity to panic

Overall Anxiety Severity and Impairment Scale (OASIS)

The following items ask about anxiety and fear. For each item, circle the number for the answer that best describes your experience over the past week.

1. In the past week, how often have you felt anxious?

- 0 = No anxiety in the past week.
- 1 = Infrequent anxiety. Felt anxious a few times.
- 2 = Occasional anxiety. Felt anxious as much of the time as not. It was hard to relax.
- 3 = Frequent anxiety. Felt anxious most of the time. It was very difficult to relax.
- 4 = Constant anxiety. Felt anxious all of the time and never really relaxed.

2. In the past week, when you have felt anxious, how intense or severe was your anxiety?

- 0 = Little or None: Anxiety was absent or barely noticeable.
- 1 = Mild: Anxiety was at a low level. It was possible to relax when I tried. Physical symptoms were only slightly uncomfortable.
- 2 = Moderate: Anxiety was distressing at times. It was hard to relax or concentrate, but I could do it if I tried. Physical symptoms were uncomfortable.
- 3 = Severe: Anxiety was intense much of the time. It was very difficult to relax or focus on anything else. Physical symptoms were extremely uncomfortable.
- 4 = Extreme: Anxiety was overwhelming. It was impossible to relax at all. Physical symptoms were unbearable.

3. In the past week, how often did you avoid situations, places, objects, or activities because of anxiety or fear?

- 0 = None: I do not avoid places, situations, activities, or things because of fear.
- 1 = Infrequent: I avoid something once in a while, but will usually face the situation or confront the object. My lifestyle is not affected.
- 2 = Occasional: I have some fear of certain situations, places, or objects, but it is still manageable. My lifestyle has only changed in minor ways. I always or almost always avoid the things I fear when I'm alone, but can handle them if someone comes with me.
- 3 = Frequent: I have considerable fear and really try to avoid the things that frighten me. I have made significant changes in my life style to avoid the object, situation,

VIDEOS

- Knowing My Thinking: Social Fears
  https://vimeo.com/70280447

- Jumping to Conclusions: Social Fears
  https://vimeo.com/70283756

- Blowing Things Out of Proportion: Social Fears
  https://vimeo.com/70283757

- Facing Social Fears
  https://vimeo.com/70786717

DESIGN OF THE RCT PHASE

Recruitment through collaborative referral process with clinic

Baseline eligibility assessment

Eligible participants randomized to either:

CALM ARC + UC (without family ed)	UC (with family ed)

Pre-treatment assessment

7 weeks of acute phase of treatment

Weekly CALM ARC Sessions	Matched Weekly Assessment

Post-treatment assessment

6-month follow-up assessment

INCLUSION/EXCLUSION CRITERIA

- Screening
  - At least moderate distress/impairment due to anxiety symptoms (Score ≥ 8 on OASIS)
- Inclusion Criteria
  - Ages 18-65
  - Currently enrolled at the Matrix Institute Intensive Outpatient Program
  - Substance use disorder
  - Meet the diagnostic criteria for at least one anxiety disorder (including OCD and PTSD)
- Exclusion Criteria
  - Marked cognitive impairment, moderate to severe suicidality, unstable manic or psychotic symptoms

OUTCOME MEASURES

- Anxiety: OASIS (weekly)
- Depression: PHQ (weekly)
- Substance use:
  - Timeline Follow Back (drinking days and drinks per drinking day; total days of any substance use; past 30 days)
  - Urinalysis
- Treatment Effectiveness Assessment (QOL measure)
- Treatment satisfaction (post)

RESULTS

THERAPIST VARIABLES

- Two therapists trained (both Caucasian, female; one MFT intern and one PsyD)

Training Outcome	Mean Score (N = 2)
% Proficiency Quiz	96.06 (1.86)
YACS-SP	3.92 (0.12)
YACS-PTSD	4.67 (0.47)
YACS-PD	4.75 (0.12)
YACS-GAD	4.91 (0.12)

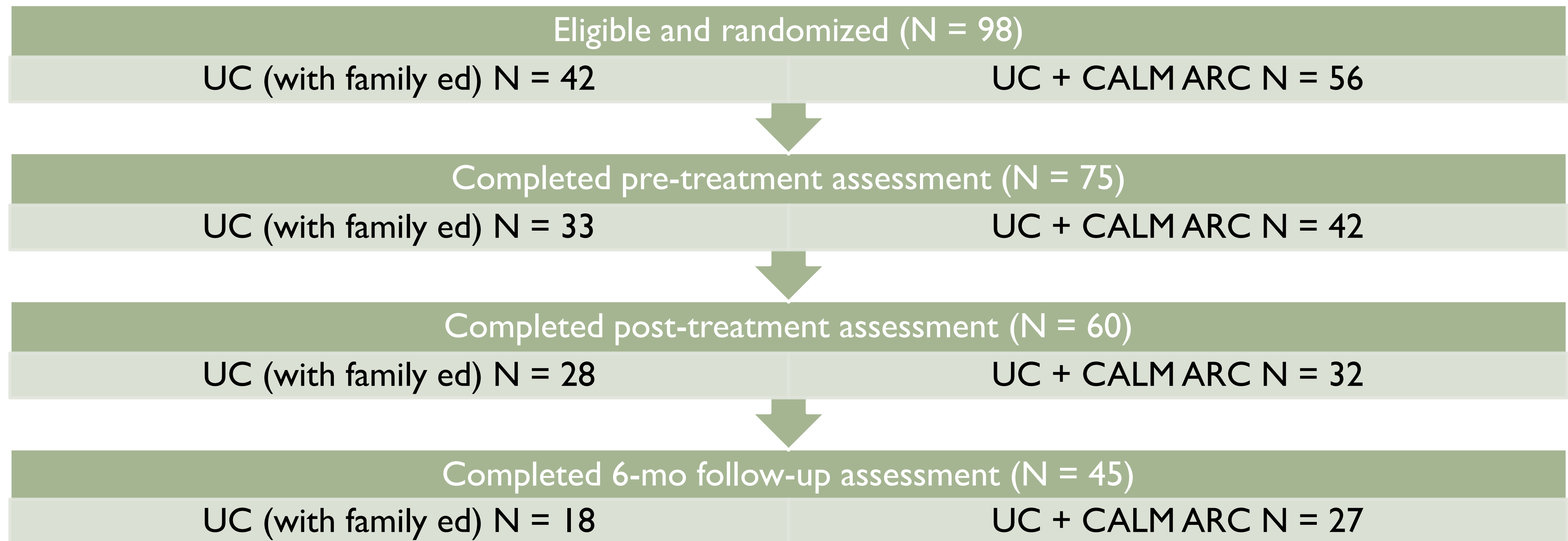
YACS ratings from 1 (poor) to 7 (expert)
4 indicates "adequate" delivery

THERAPIST FIDELITY TO TREATMENT

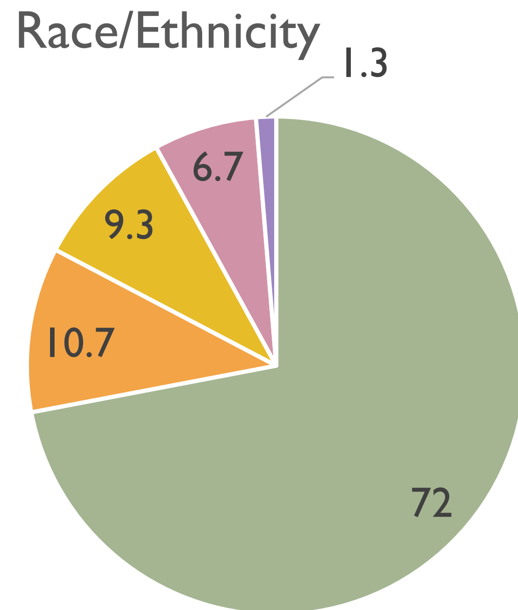
Fidelity Variable	Mean
Percent adherence	99.3%
Average competence across all treatment components for a session	5.23 (0.35)
Rapport	5.29 (0.61)
Session management	5.50 (0.65)
Collaborative exchange	5.21 (0.65)

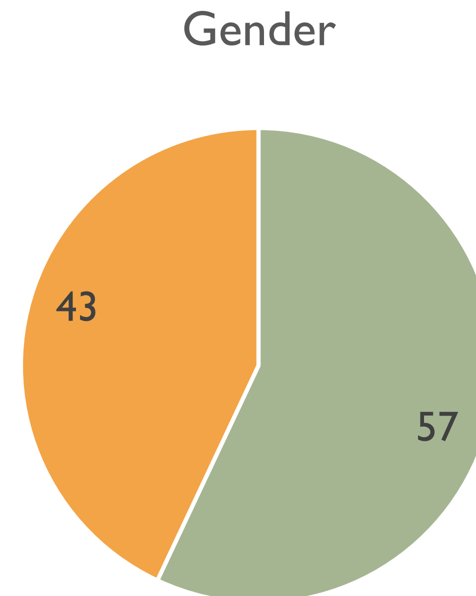
26% of sessions rated
Continuous ratings from 0 (worst) to 6 (best)

PATIENT FLOW THROUGH THE STUDY



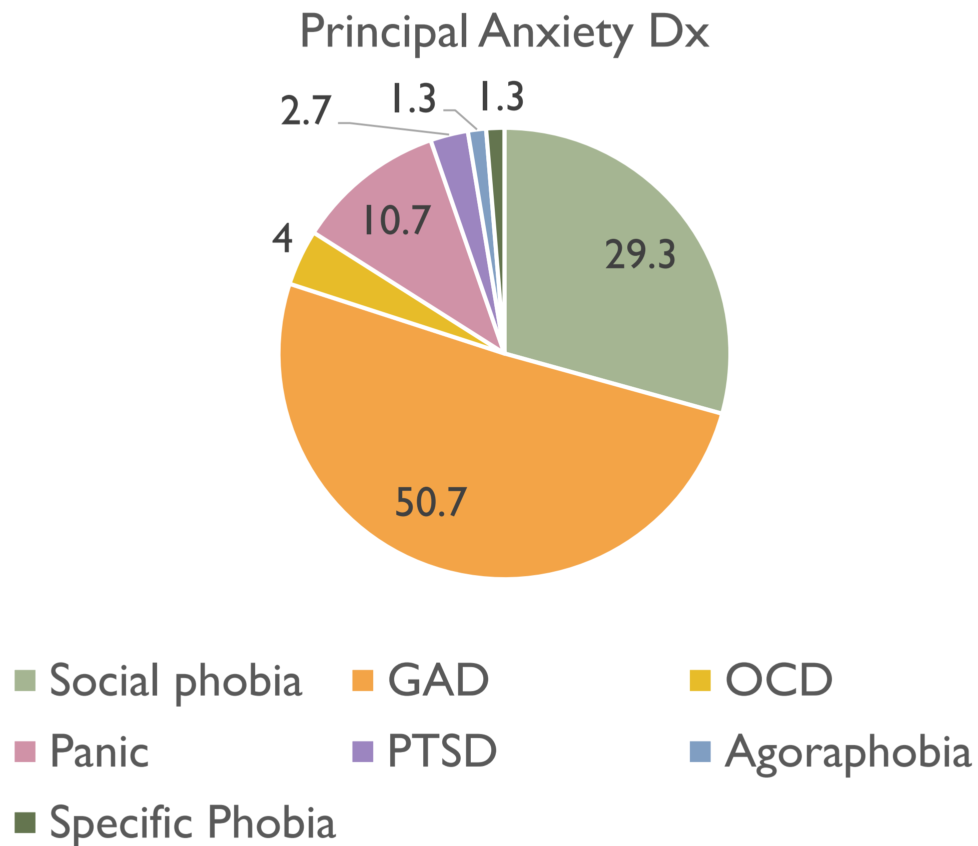
DESCRIPTION OF PARTICIPANT SAMPLE





Mean age = 36.24 (SD = 12.34)

ANXIETY DISORDER DIAGNOSES AND COMORBIDITY

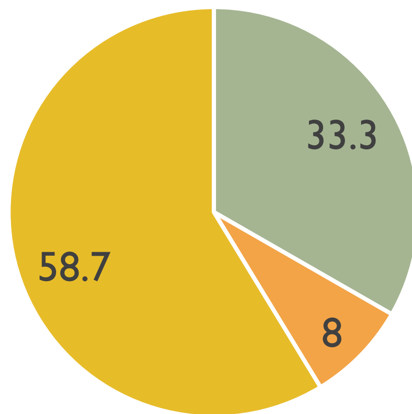


Mean number of anxiety disorder diagnoses = 2.83 (SD = 1.46)

Comorbid *current* diagnoses:
Current MDE: 44.8%
Binge Eating Disorder: 19.5%
Bulimia Nervosa: 4.5%
Psychotic Symptoms: 1.1%
Anorexia Nervosa: 1.1%
Manic episode (past month): 2.3%

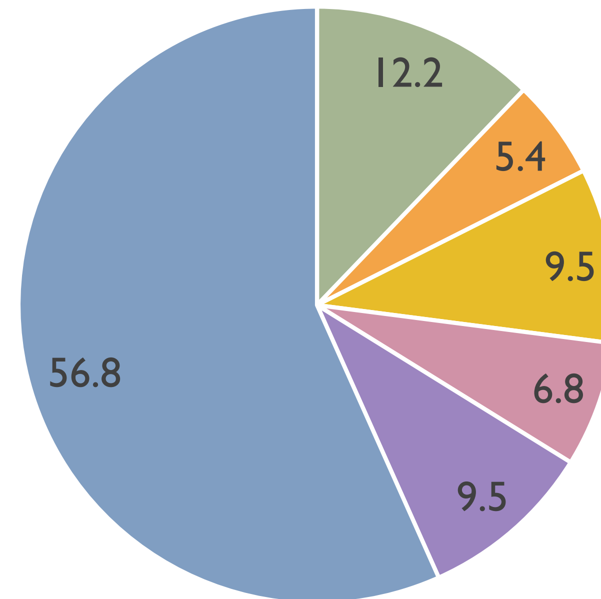
SUBSTANCE DIAGNOSES

Primary Substance Dx



- AUD only
- One non-AUD
- SUD criteria met for 2+ substances

Primary Substance



- Stimulants
- Cocaine
- Opiates
- Tranquilizers
- Cannabis
- Alcohol

PATIENT TREATMENT ADHERENCE: WHAT DID PARTICIPANTS IN CALM ARC DO?

- Average number of sessions completed: 4.92 (SD = 1.81)
- Average homework completion (scale from 0-7): 4.00 (SD = 2.08)
- Average number of continuation groups: 0.21 (SD = 0.83)
- Average number of make-up sessions: 0.58 (SD = 0.79)
- % of participants "engaged" in CALM ARC: 30.6%

WHO IS INCLUDED IN THE OUTCOME ANALYSES

- Anyone who completed at least a pre-treatment assessment is included in the analyses
- We include any assessment data we have, regardless of how many sessions completed
- The full sample is used to look at anxiety and depression change over time using hierarchical linear modeling (HLM), which accounts for missing data
  - Can look from pre through FU
- The full sample with available data (regardless of how many treatment sessions completed) for substance use outcomes that are not analyzed in HLM
  - Pre to post change
  - Used ANCOVA and Chi-square tests
- What we have not done yet:
  - Impute missing data to conduct an intent-to-treat analysis using the full sample even if they did not provide data

PATIENT SATISFACTION/ACCEPTABILITY OF CALM ARC

- Items rated from 0 (not at all) to 7 (very much)
- Patients in CALM ARC found the treatment to be moderately to highly acceptable:
- How **useful** were the treatment components? M = 4.84 (SD = 1.18)
- How much did you **like** the treatment components? M = 4.69 (SD = 1.27)
- How much have your **anxiety symptoms** improved? M = 5.11 (SD = 1.27)
- How much have your **substance use symptoms** improved? M = 4.81 (SD = 2.36)
- How much has your **quality of life** improved? M = 4.82 (SD = 1.33)

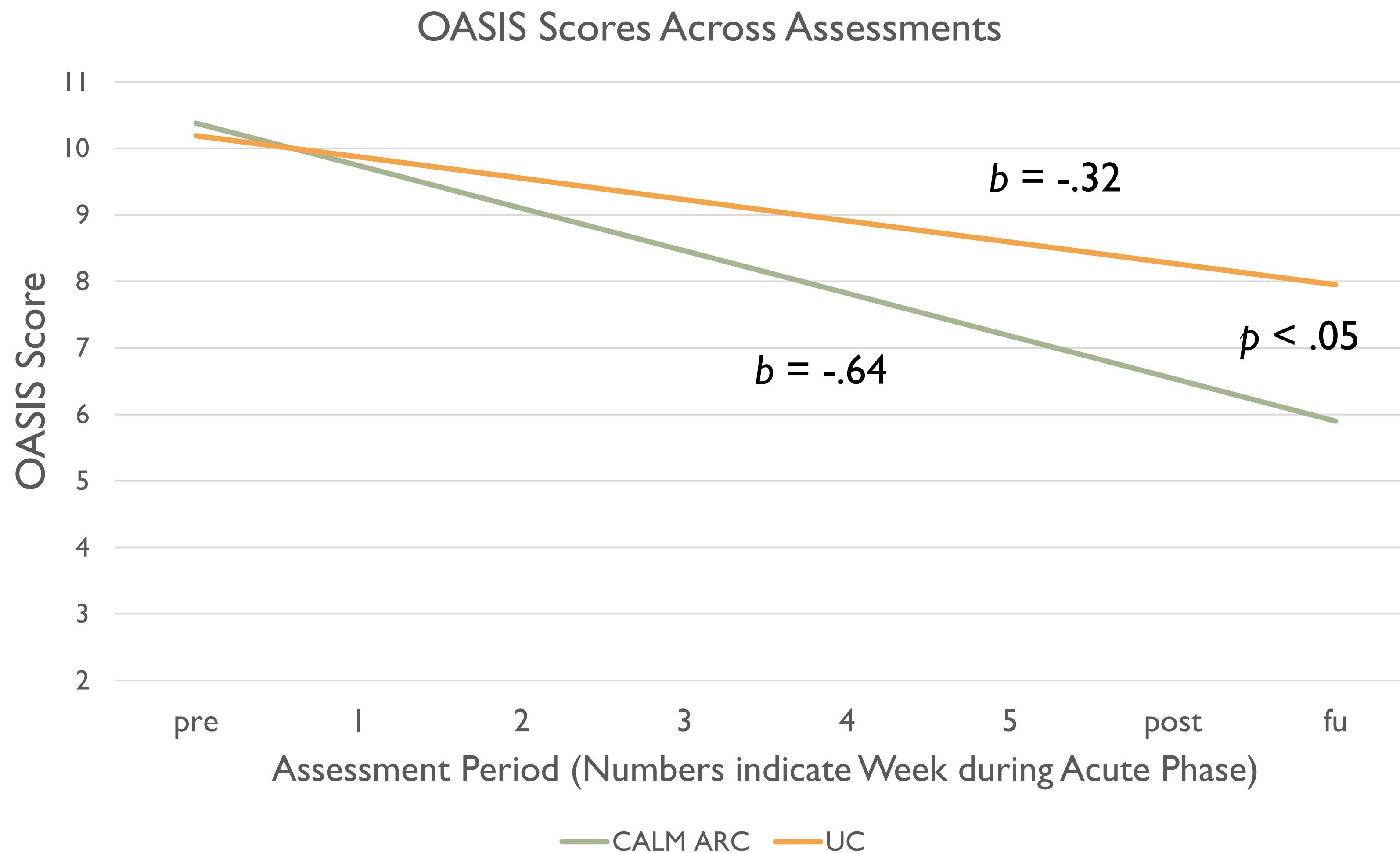
QUALITY OF LIFE (TREATMENT EFFECTIVENESS ASSESSMENT)

- Higher scores indicated greater improvement/quality of life
- Significantly higher total score in CALM ARC compared to UC, $t\,(56) = -3.73$, $p < .001$
- Significantly higher scores in CALM ARC compared to UC for general health, lifestyle (e.g., taking care of personal responsibilities), community (i.e., being a better member of the community), *and perceived improvement in substance use*, all $ps < .05$

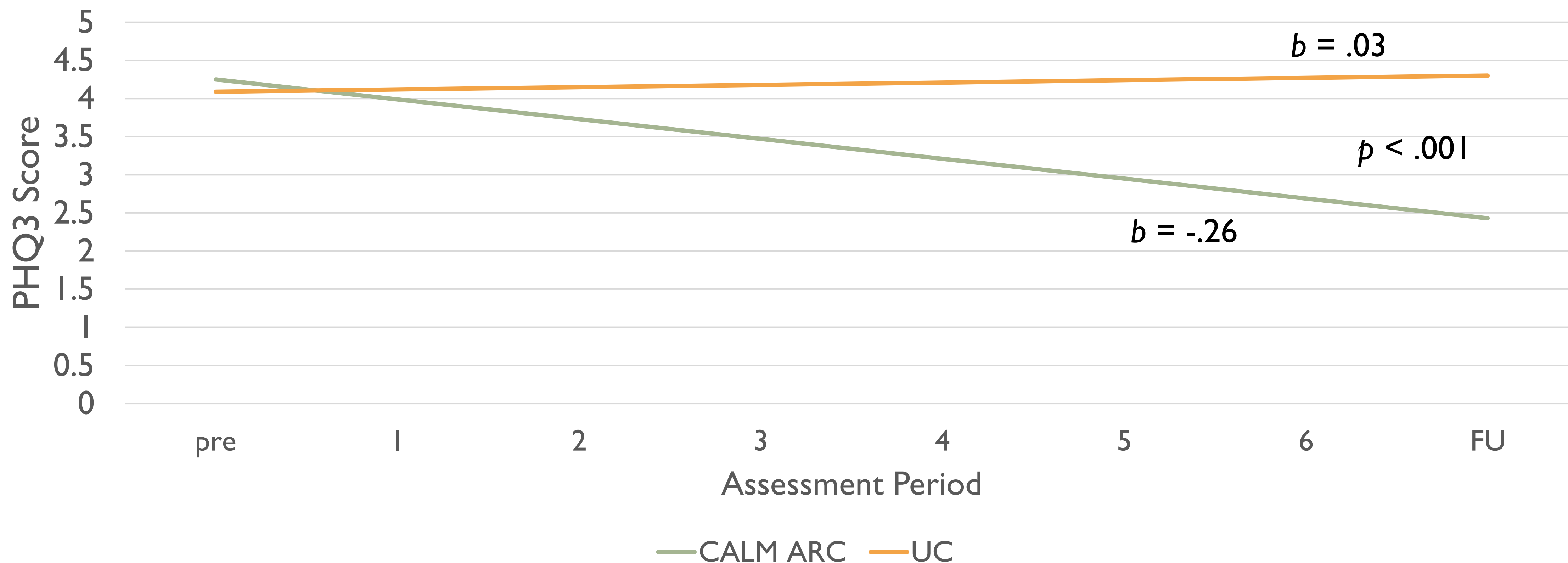
TAKE HOME MESSAGE SO FAR

- CALM ARC participants generally satisfied with treatment and perceive greater improvement in several relevant quality of life domains than those in UC

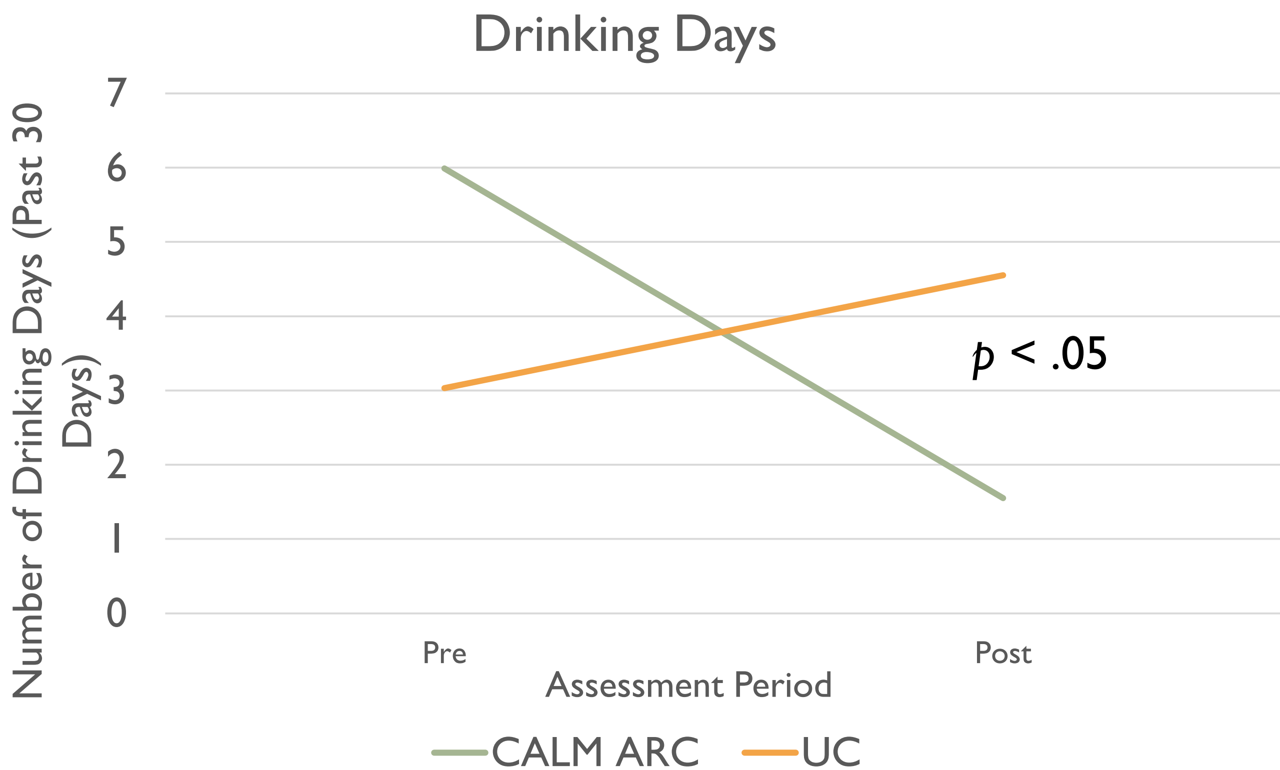
CHANGE IN ANXIETY SYMPTOMS OVER TIME

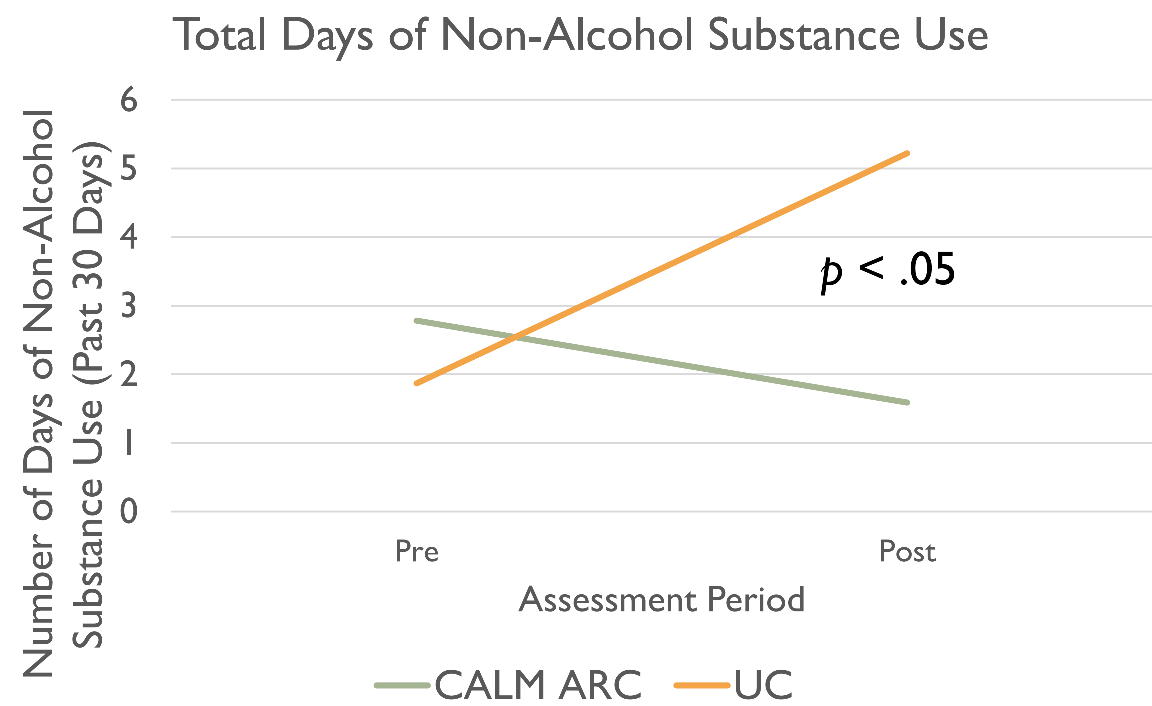


CHANGE IN DEPRESSION SEVERITY OVER TIME

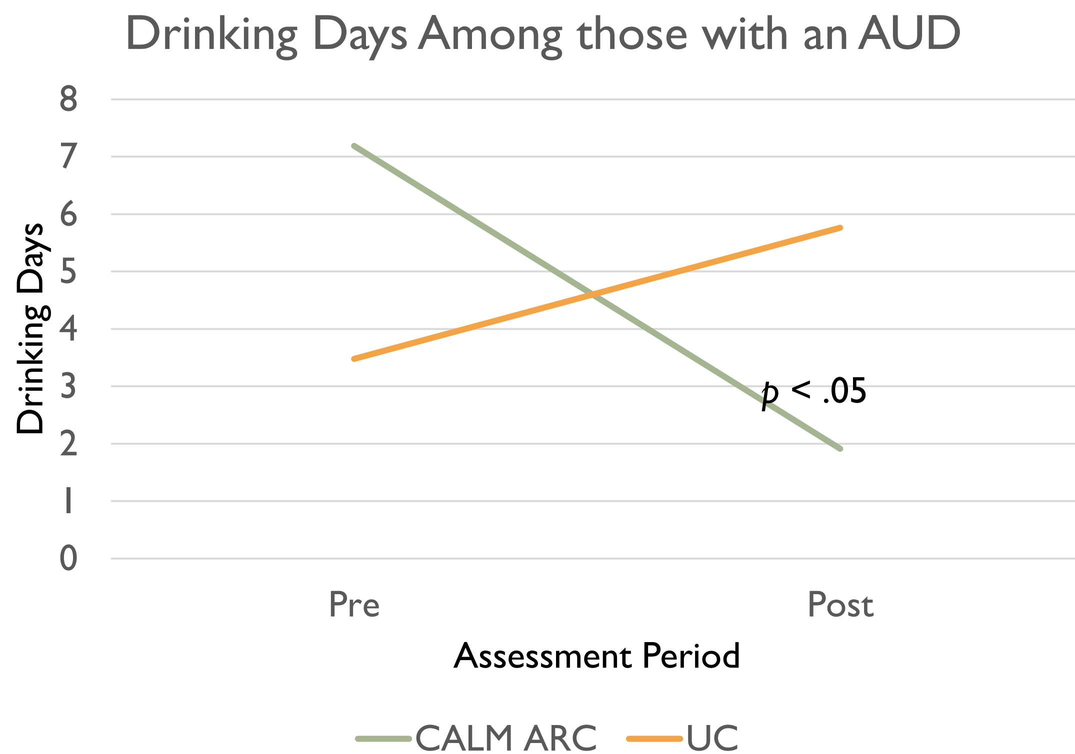


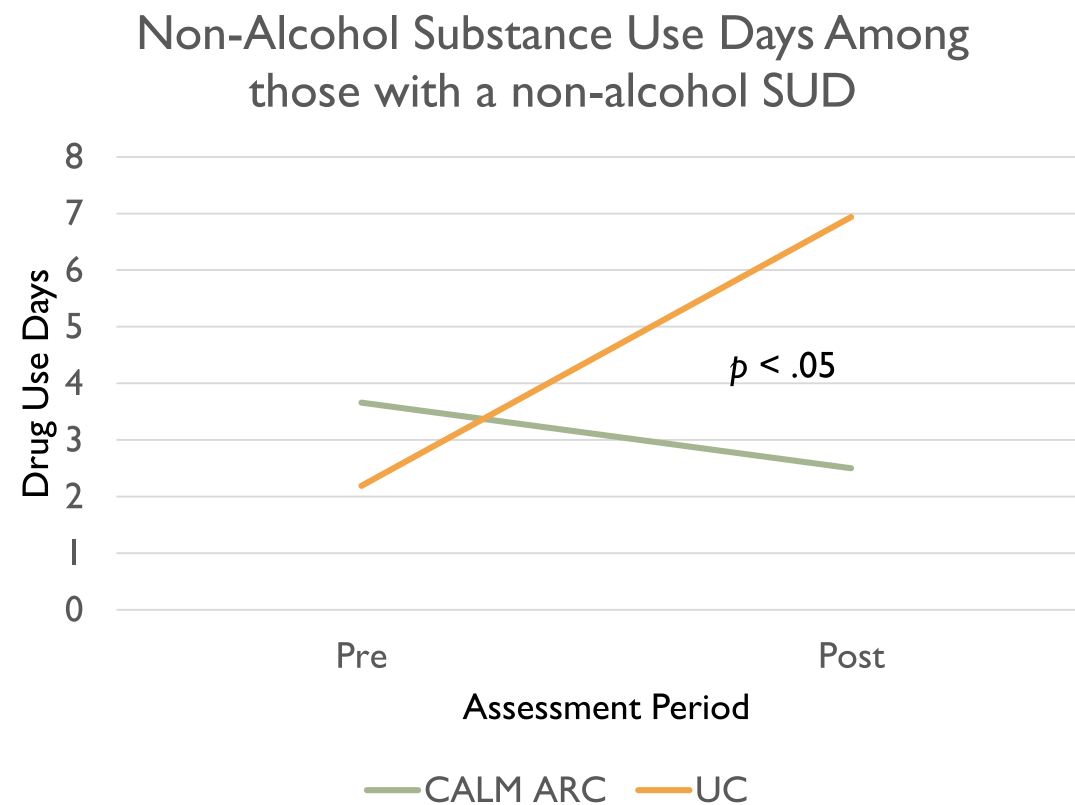
AIM 3: SUBSTANCE USE OUTCOMES: TLFB ON FULL SAMPLE



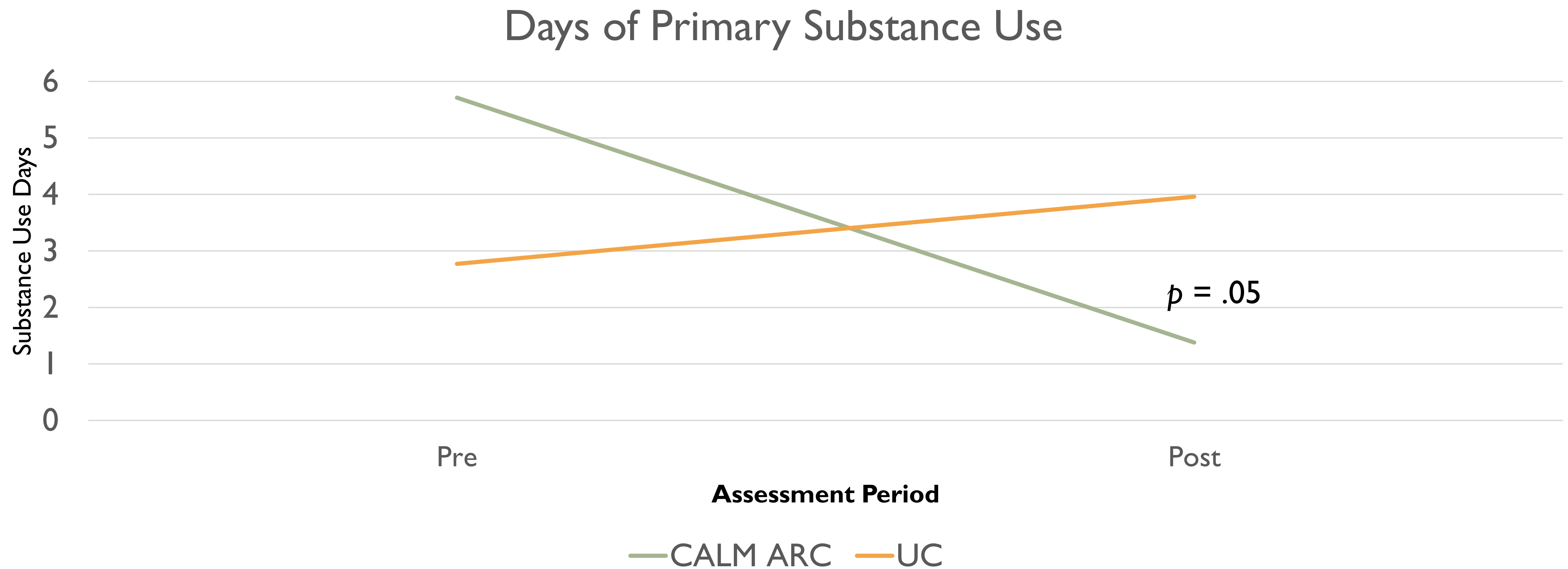


TIMELINE FOLLOW BACK ON RELEVANT SUD DIAGNOSIS

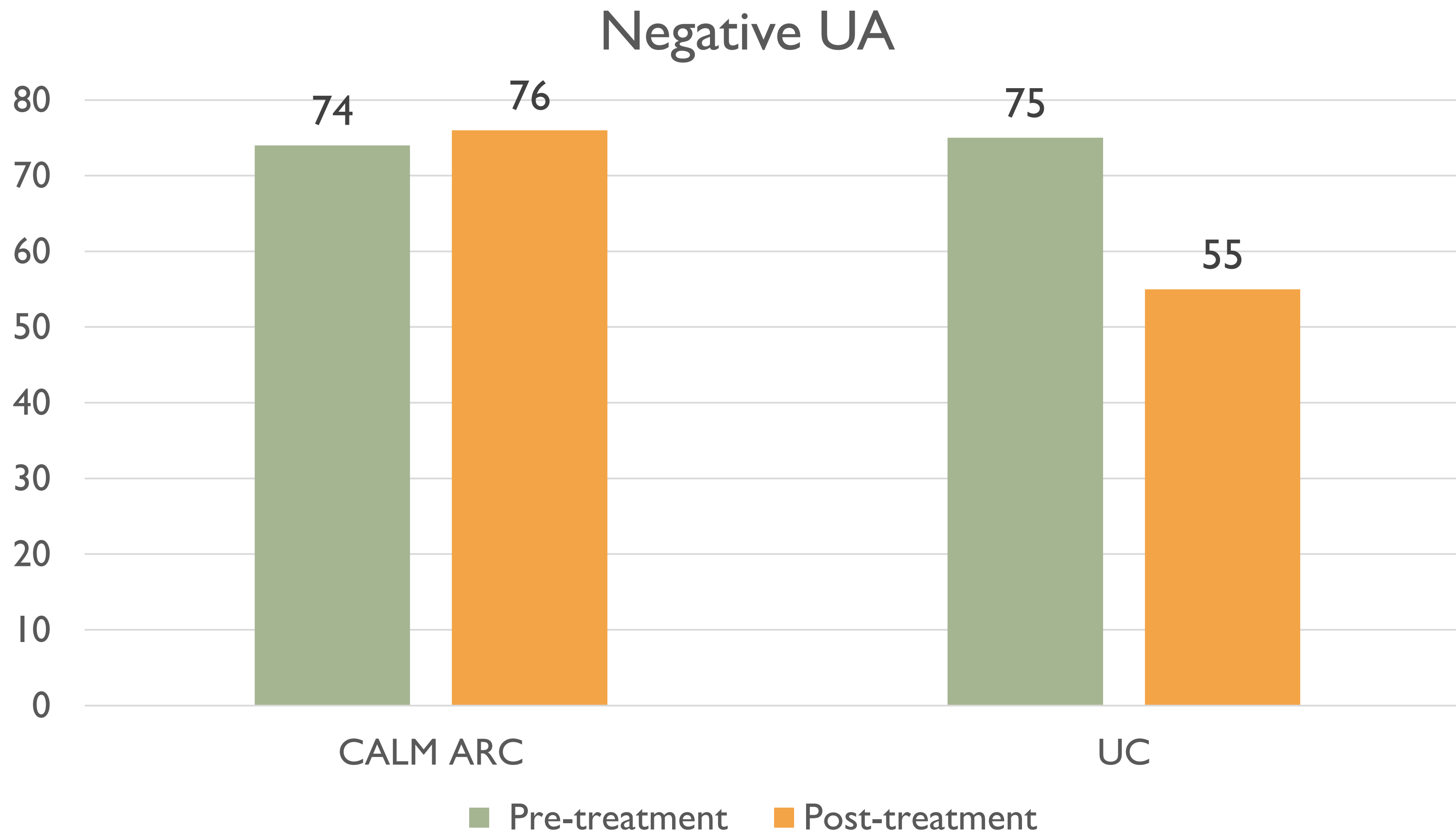




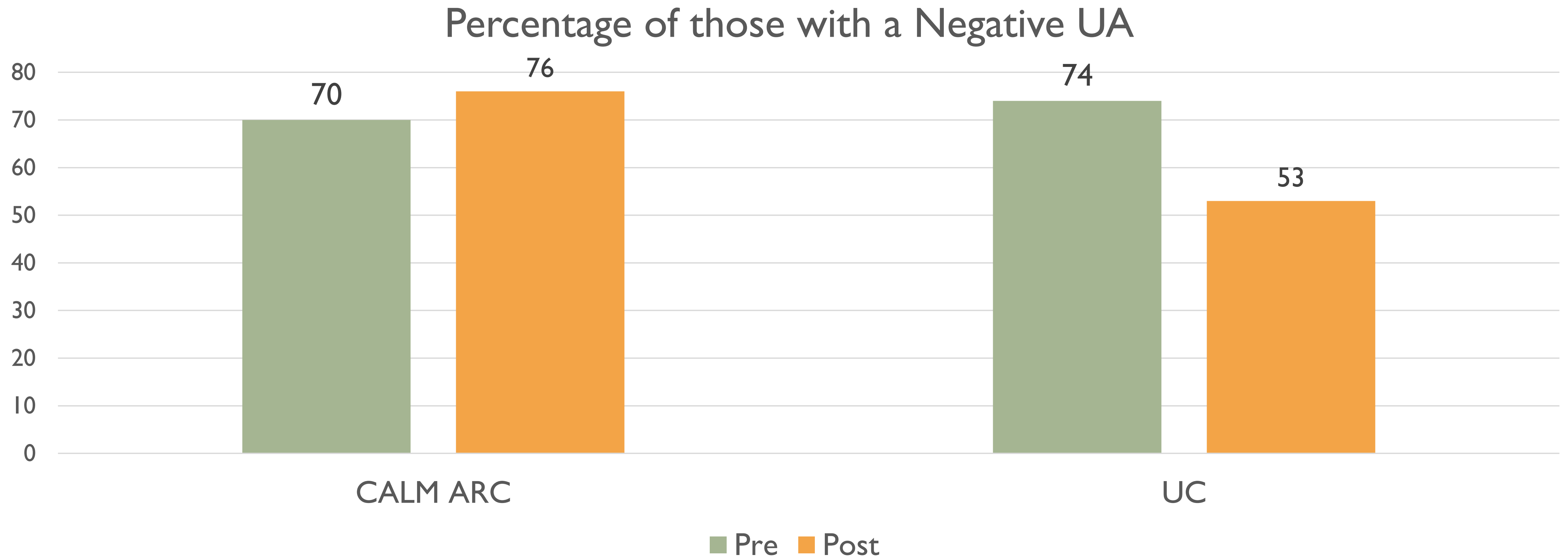
DAYS OF USE OF PRIMARY SUBSTANCE OF DEPENDENCE



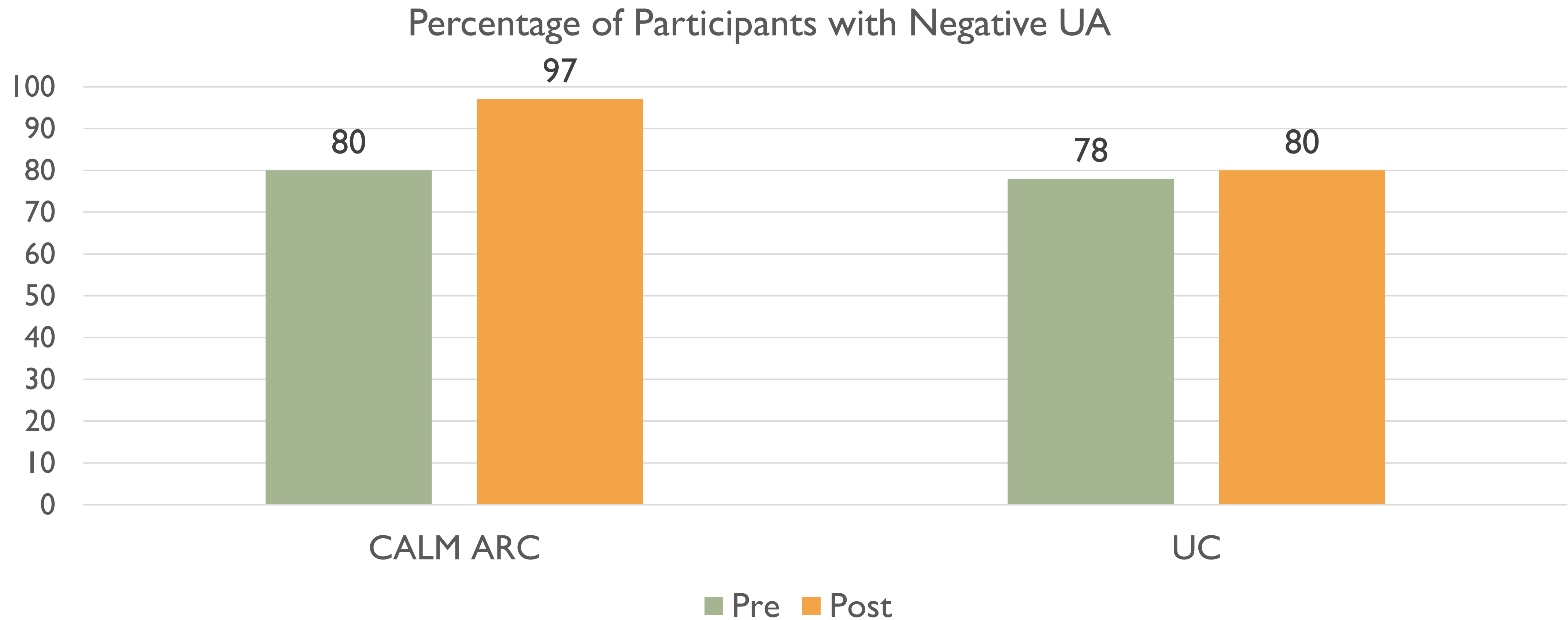
SUBSTANCE USE OUTCOMES: UA (FULL SAMPLE)



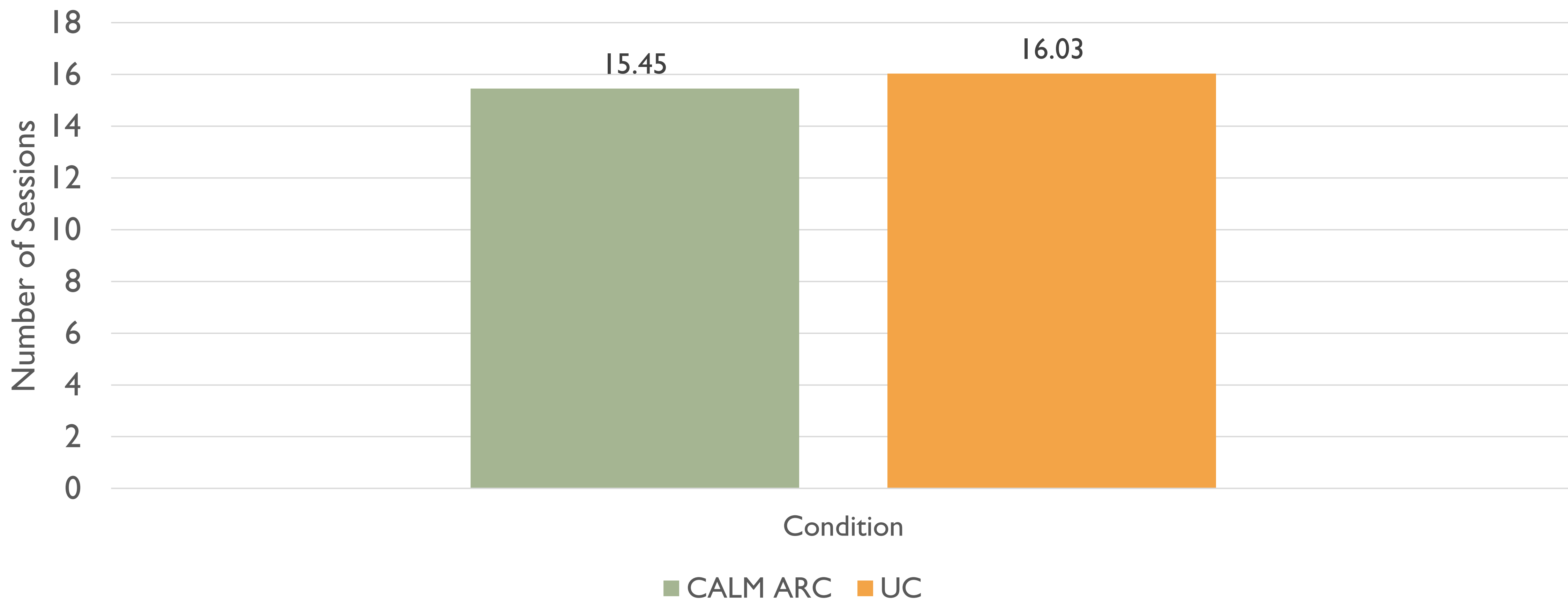
UA OUTCOMES FOR THOSE WITH A NON-ALCOHOL SUD



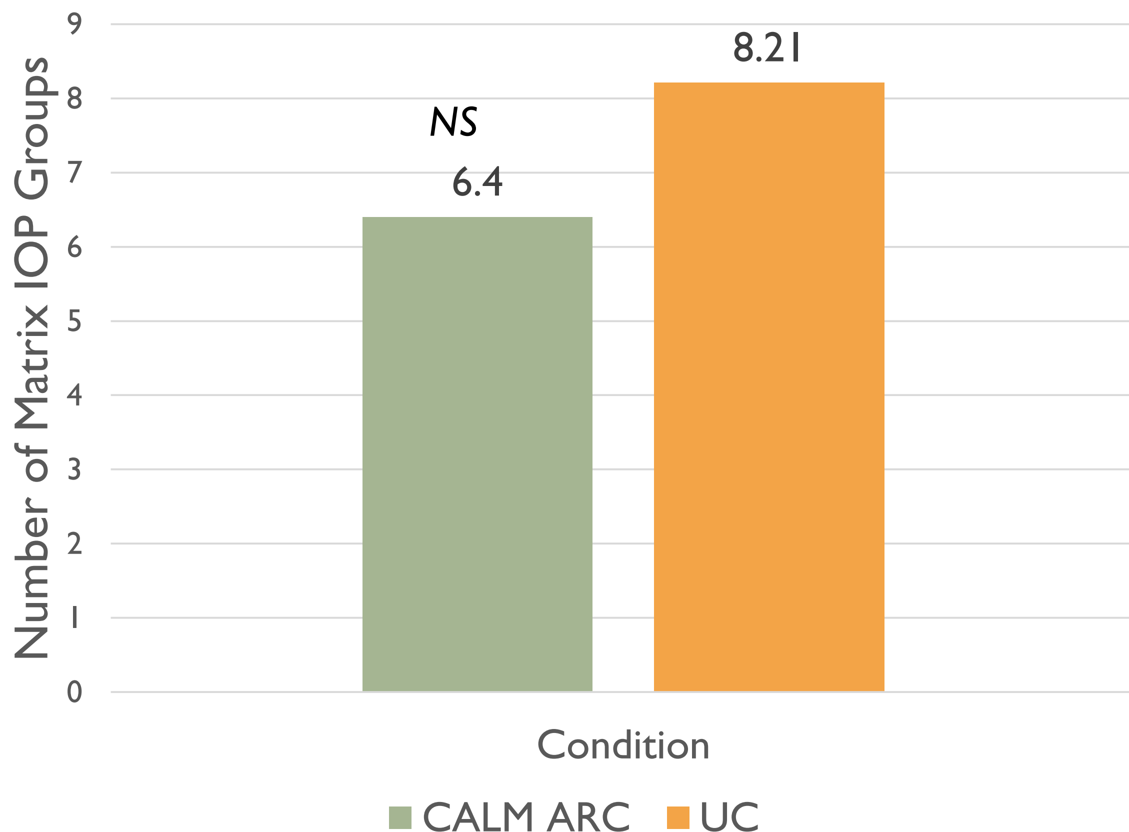
UA OUTCOMES MATCHED TO PRIMARY NON-ALCOHOL SUBSTANCE OF DEPENDENCE

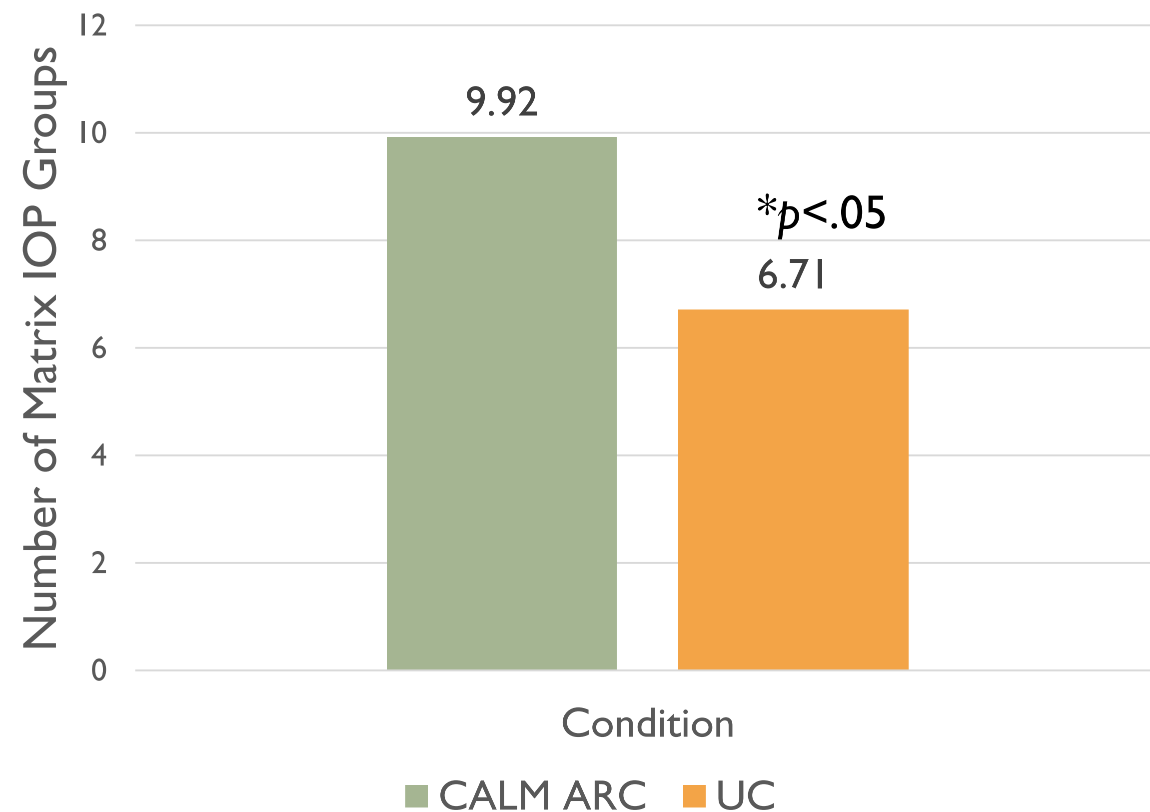


DID CALM ARC ENHANCE IOP TREATMENT ADHERENCE?



YES!





SUMMARY OF SUBSTANCE USE OUTCOMES

- When we look globally at drug and alcohol use, CALM ARC outperforms UC on both of our measures of substance use outcomes.
- When we look at primary substance use only, CALM ARC effects appear to be smaller
- Thus, CALM ARC may be generally reducing drug and alcohol use in this population to a greater extent than UC, whereas UC may be sufficiently reducing use of the primary substance

DO CHANGES IN ANXIETY DURING TREATMENT PREDICT POST-TREATMENT SUD OUTCOMES?

Model	Variable	B	SE	β	*t*
1	Intercept	-.559	2.478		-.226
	Baseline Days primary substance used (past 30 days)	.110	.124	.137	.892
	Intercept of OASIS (S1)	.309	.234	.203	1.319
2	Intercept	-.957	2.270		-.422
	Baseline Days primary substance used (past 30 days)	.109	.113	.135	.965
	Intercept of OASIS (S1)	.429	.218	.282	1.971*
	OASIS Slope (S1-S5)	2.362	.794	.425	2.975**

SUMMARY AND TAKE-HOME MESSAGE

- Feasible for substance abuse counselors to learn this treatment with this delivery method and to show high levels of adherence and competency
- Findings so far suggest a VERY BRIEF treatment, even with moderate engagement, improves anxiety outcomes and substance use outcomes
- CALM ARC outperformed UC on substance use *frequency* but not *quantity* variables
- It appears that the SUD program was generally good at reducing use of the primary drug of dependence, but that CALM ARC more broadly improved substance use outcomes

DISCUSSION: LIMITATIONS, IMPLEMENTATION CHALLENGES, AND FUTURE DIRECTIONS

- Therapist adherence great but patient engagement moderate to low
- Dropout during "waiting period" for cohort of group (or matched control) to begin
  - Look at barriers to treatment completion and develop intervention components targeting these
- Look at secondary data (mediators and moderators)
- Matrix Institute uses evidence-based treatment for SUD, so this may be a more stringent control group than some SUD clinics that do not use evidence-based treatments

SO WHERE DO WE GO FROM HERE?

- We can treat anxiety disorders in primary care
- We have SBIRT in primary care
- We can treat anxiety disorders in SUD specialty clinics
- Can we put all of these pieces together as we move into a fully integrated system of care?
- Next steps: figure out the logistics
  - What would this look like?
  - Who would deliver the treatment?
  - Who would get the treatment?
  - What about other mental health disorders (like depression)?

THANKS TO…

Clinic staff

- Linsay Sawzak
- Mickey McCann
- Janice Stimson

Mentors

- Michelle Craske
- Rick Rawson
- Peter Roy-Byrne
- Rick Ries

Project Coordinators

- Martha Zimmermann
- Jason Grossman

Research Assistants

- Aaron Mejia
- Liana Litvak
- Allison Vreeland
- Abhiram Reddy