

Improvements in medication adherence and healthcare utilization as evidenced from a pilot intervention combining contingency management and behavioral activation to reduce stimulant use among HIV-Infected individuals

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Stimulant use in HIV infected individuals is high and can have deleterious effects

- While survival rates of HIV-infection have significantly improved over the last two decades stimulant use has been associated with:
 - Decreased utilization of medical care for HIV infection
 - Reduced access to antiretroviral medications (ARVs)
 - Poor adherence to ARVs
 - Increased rates of malnourishment
- HIV-infected stimulant users have increased high risk behaviors
 - They are less likely to use condoms compared to those who do not use these drugs
 - They have an increased number of sex partners

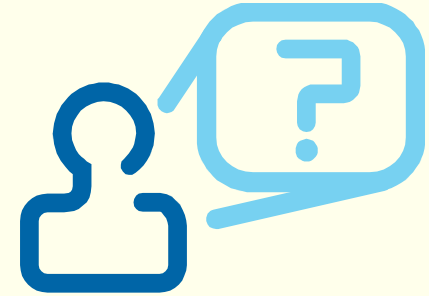


Increased focus on treatment as prevention- Need to minimize barriers to ART

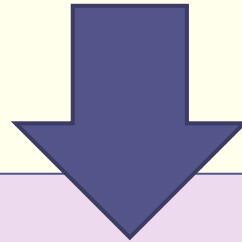
- Updated guidelines March 2012:
 - ART should be offered to patients who are at risk of transmitting HIV to sexual partners
- Patients starting ART should be willing and able to commit to treatment and should understand the benefits and risks of therapy and the importance of adherence



How do we put this together?



- Population
 - High risk of poor HIV outcomes
 - High risk for transmitting HIV to sexual or injecting partners
 - May have difficulty adopting new recommendations regarding antiretroviral therapy
- These challenges are in part mediated by substance use



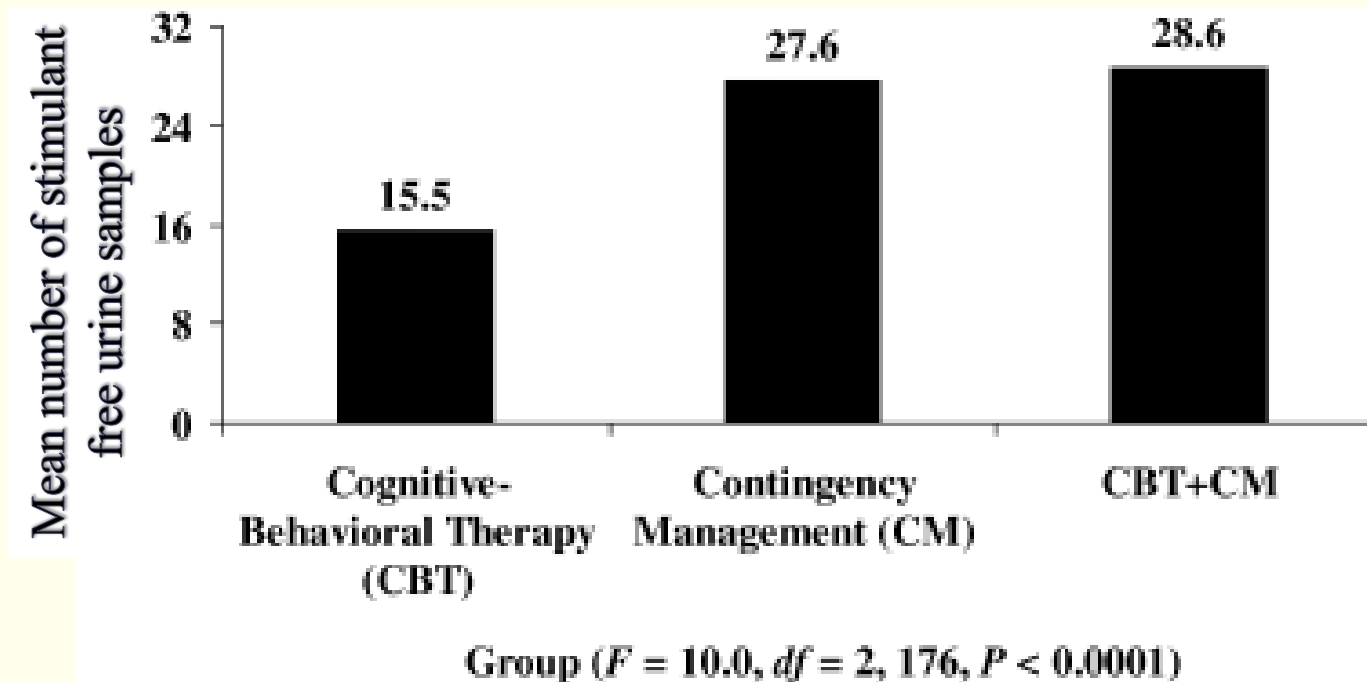
Hypothesis

By decreasing substance use we can improve access to and utilization of HIV treatment

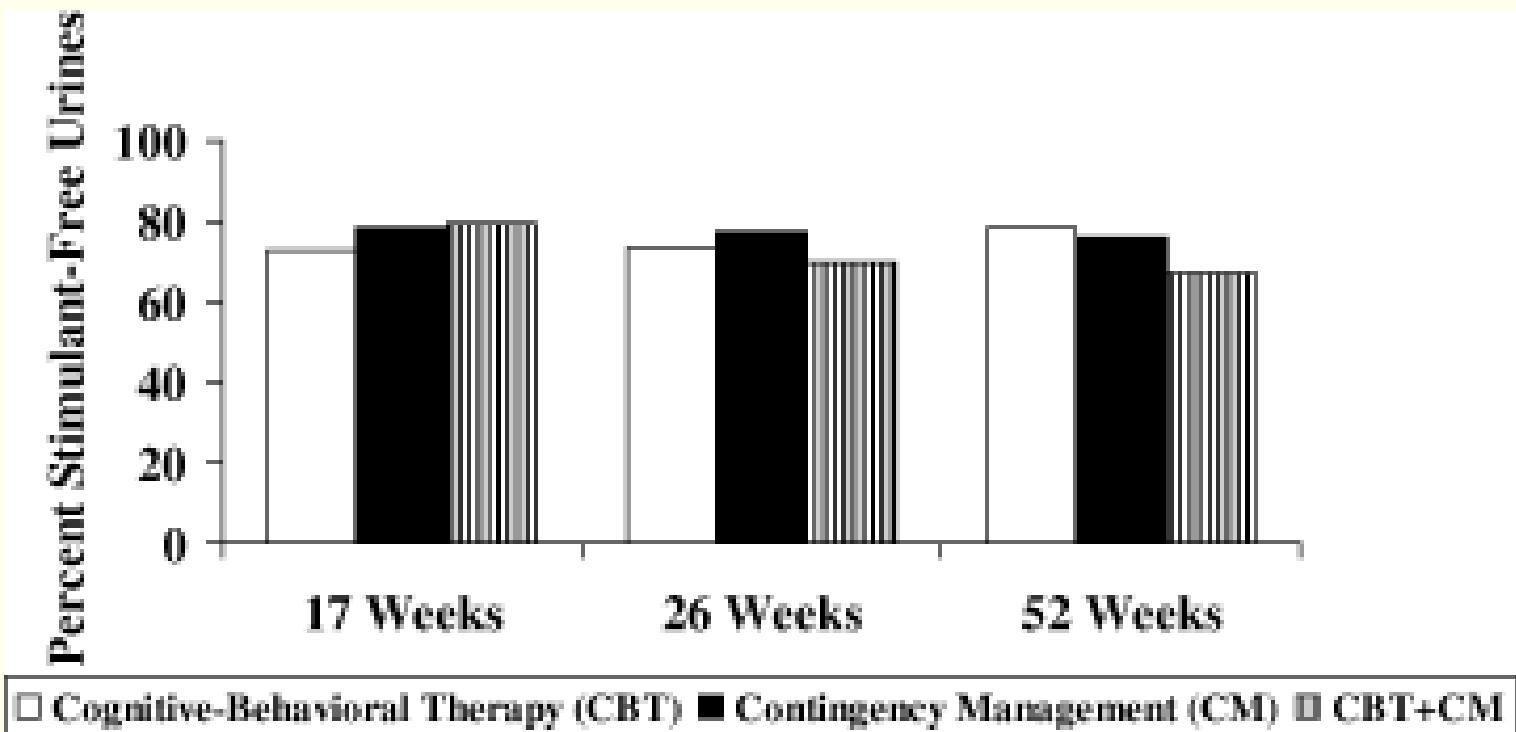
Limited Existing Effective Treatments for Stimulant Use

- There are no FDA-approved pharmacological treatments for stimulant use despite the wide range of medications tested for this type of dependence.
- Cognitive behavioral therapy (CBT)
 - Provides skills that are used to help people gain and sustain abstinence from drugs
- Contingency Management (CM)
 - Provides positive reinforcement for desired behaviors (e.g., abstinence from stimulant use)
 - Escalating monetary vouchers or “fish bowl”

A comparison of contingency management and cognitive-behavioral approaches for stimulant-dependent individuals



A comparison of contingency management and cognitive-behavioral approaches for stimulant-dependent individuals *(cont'd)*



Behavioral Activation Therapy (BA)

- BA is an evidenced-based approach in the treatment of depressed mood, and may be a useful supplement to CM
 - Helps patients gradually increase rewarding and pleasurable activities
- May be ideally suited to complement CM as the vouchers from CM can be used to support re-engagement into positive life activities



Pilot Study Combining BA and CM

Research Evaluating Contingency Management with
Behavioral Activation to Reduce Stimulant Drug Use:
Project REWARD



Funded by the Harvard University CFAR, 2010

Study Aims

1. Develop and implement a combined CM and BA intervention to HIV-infected-individuals who are engaged in HIV care and currently using crack, cocaine or methamphetamines.
2. Evaluate the acceptability/feasibility of the intervention by assessing barriers to enrollment and retention.
3. Evaluate the impact of the combined intervention on:
 - Reductions in stimulant use as measured by toxicology screens
 - Self-reported stimulant use, follow-up with HIV care, medication adherence, depression, high risk sexual behaviors.



Methods

Study Objective

We tested a novel combined contingency management (CM) and behavioral activation (BA) intervention for HIV-infected men and women who are dependent on stimulants: crack/cocaine or methamphetamines.

Participants

- Recruited from outpatient primary care and infectious disease clinic visits at a hospital in Boston and community-based AIDS service organizations in the area
- Eligibility criteria:
 - Age 18 years or older
 - HIV-infected
 - Meets DSM-IV diagnostic criteria for stimulant dependence/abuse
 - Active stimulant use (past 3 months)
 - Positive toxicology screen
 - Documentation of recent rehabilitation for stimulants
 - Documentation of stimulant use in the medical record

Study Protocol

- Behavioral activation
 - 10-16 weekly sessions delivered by at least a master's-level interventionist
- Contingency management
 - Saliva toxicology tests 3 times/week for 12 consecutive weeks
 - Escalating monetary vouchers for negative toxicology results
- Assessments
 - Self- and clinician-administered assessments
 - Conducted at Baseline, 3-, and 6-months
 - Exit interviews conducted after intervention completion
- Follow-up toxicology tests
 - Twice weekly toxicology tests repeated in the 4 weeks preceding 6-month assessment

Data Analysis

- SPSS software (v.18)
- Estimated differences in outcomes pre-/post-treatment:
 - Within-person mean change: paired t-tests
 - Percent change: $[(\text{pre} - \text{post}) / \text{pre}] * 100(3)$

Primary outcome	<ul style="list-style-type: none">• Toxicology test results for stimulant use
Secondary outcomes	<ul style="list-style-type: none">• Self-reported stimulant use• Follow-up with HIV care
Exploratory variables	<ul style="list-style-type: none">• Medication Adherence• High risk behaviors• Depression

Contingency Management

- Protocol was based on the work of S. Shoptaw who served as a consultant on our initial grant
- Participants met with an RA 3/week for 12 weeks in a private setting
- iScreen OFD™ saliva-based toxicology test for methamphetamine and crack/cocaine
- Participants with negative test results received escalating monetary vouchers which they could redeem at any time
- Positive results
 - No voucher was earned for the day.
 - Participant encouraged to continue goal of abstinence



Escalating monetary vouchers

Schedule of incentives

	Monday	Wednesday	Friday	Bonus	Weekly Totals
Week 1	\$2.50	\$3.75	\$5.00	\$10.00	\$21.25
Week 2	\$6.25	\$7.50	\$8.75	\$10.00	\$32.50
Week 3	\$10.00	\$10.00	\$10.00	\$10.00	\$40.00
Week 4	\$10.00	\$10.00	\$10.00	\$10.00	\$40.00
Week 5	\$10.00	\$10.00	\$10.00	\$10.00	\$40.00
Week 6	\$10.00	\$10.00	\$10.00	\$10.00	\$40.00
Week 7	\$10.00	\$10.00	\$10.00	\$10.00	\$40.00
Week 8	\$10.00	\$10.00	\$10.00	\$10.00	\$40.00
Week 9	\$10.00	\$10.00	\$10.00	\$10.00	\$40.00
Week 10	\$10.00	\$10.00	\$10.00	\$10.00	\$40.00
Week 11	\$10.00	\$10.00	\$10.00	\$10.00	\$40.00
Week 12	\$10.00	\$10.00	\$10.00	\$10.00	\$40.00
Grand Total					\$453.75

Behavioral Activation

Re-learn how to engage in life activities by pursuing pleasurable events

Decrease substance use during 12 week CM intervention

Sustain the effects of abstinence after the CM is discontinued

Use the contingencies earned from CM in a way that supports the goals of BA

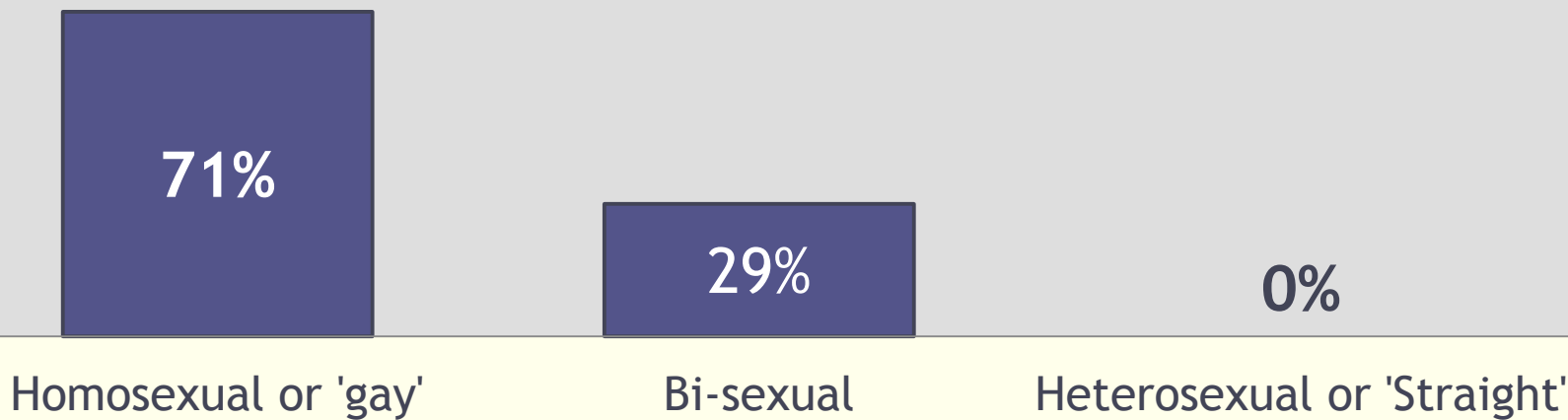
Results

- Participants were enrolled between January and July, 2011
- 11 participants enrolled
- 7 participant completed
 - Study retention was 63% and was negatively impacted by incarceration, continued scheduling conflicts, and lost to follow-up

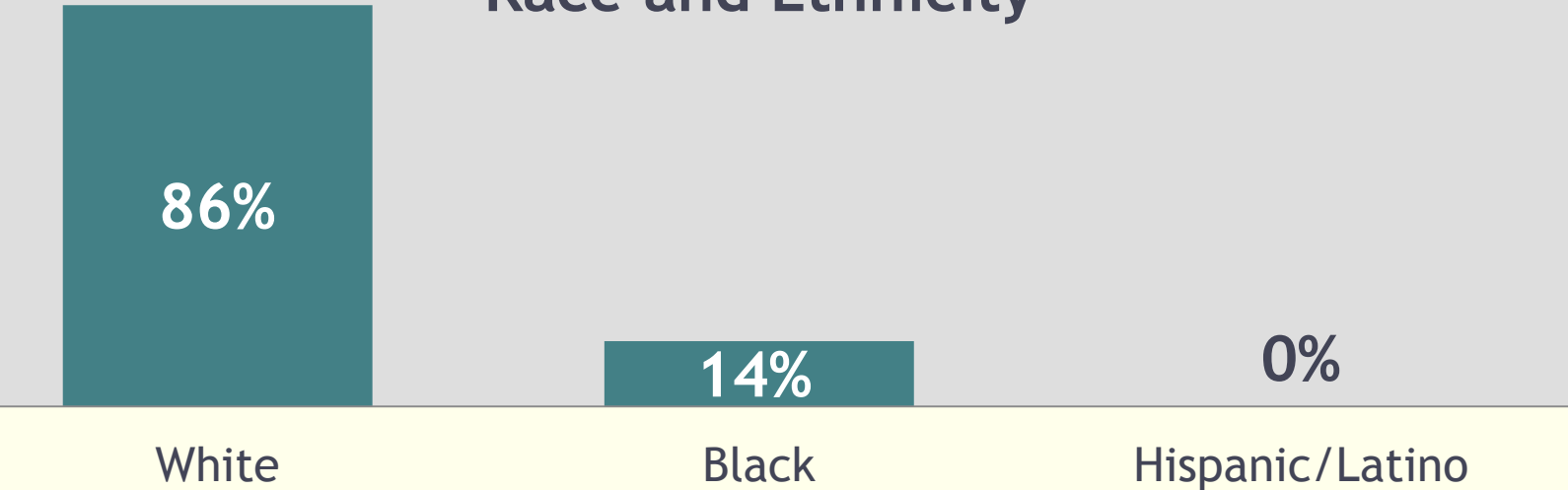
Baseline demographic characteristics of participant completers ($n=7$)

Age Mean 46, (36 - 51) SD = 5.0	%
Gender	
Male	100%
Engagement in HIV Care	
Currently taking ART	100%
Saw a regular medical provider in the past year	100%
<i>Number of visits in past year: Mean 7.6 (3-20) SD=6.3</i>	
Socioeconomic Status	
College degree or higher	43%
Earn < \$12,000 annually	43%
Health insurance	100%

Sexual Orientation

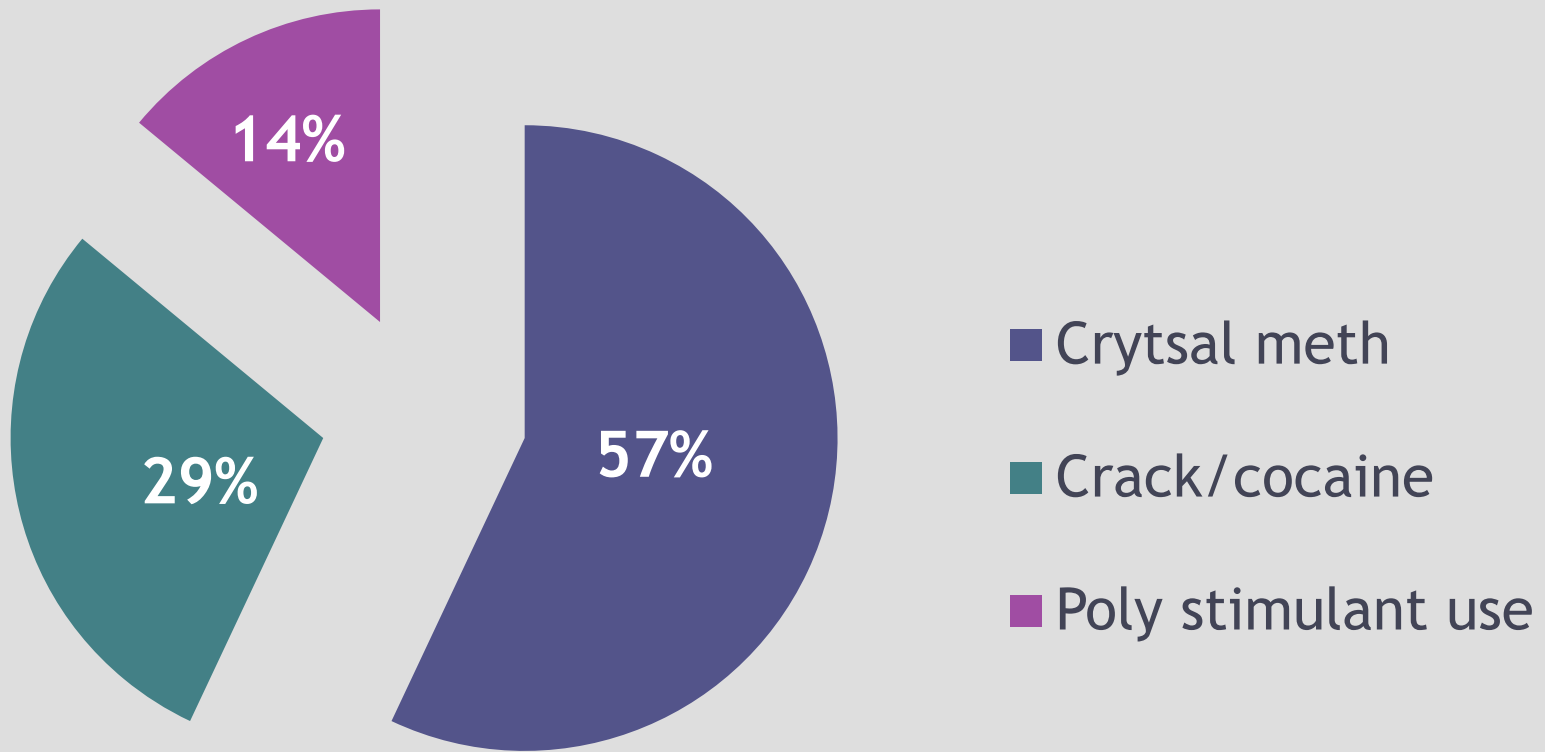


Race and Ethnicity

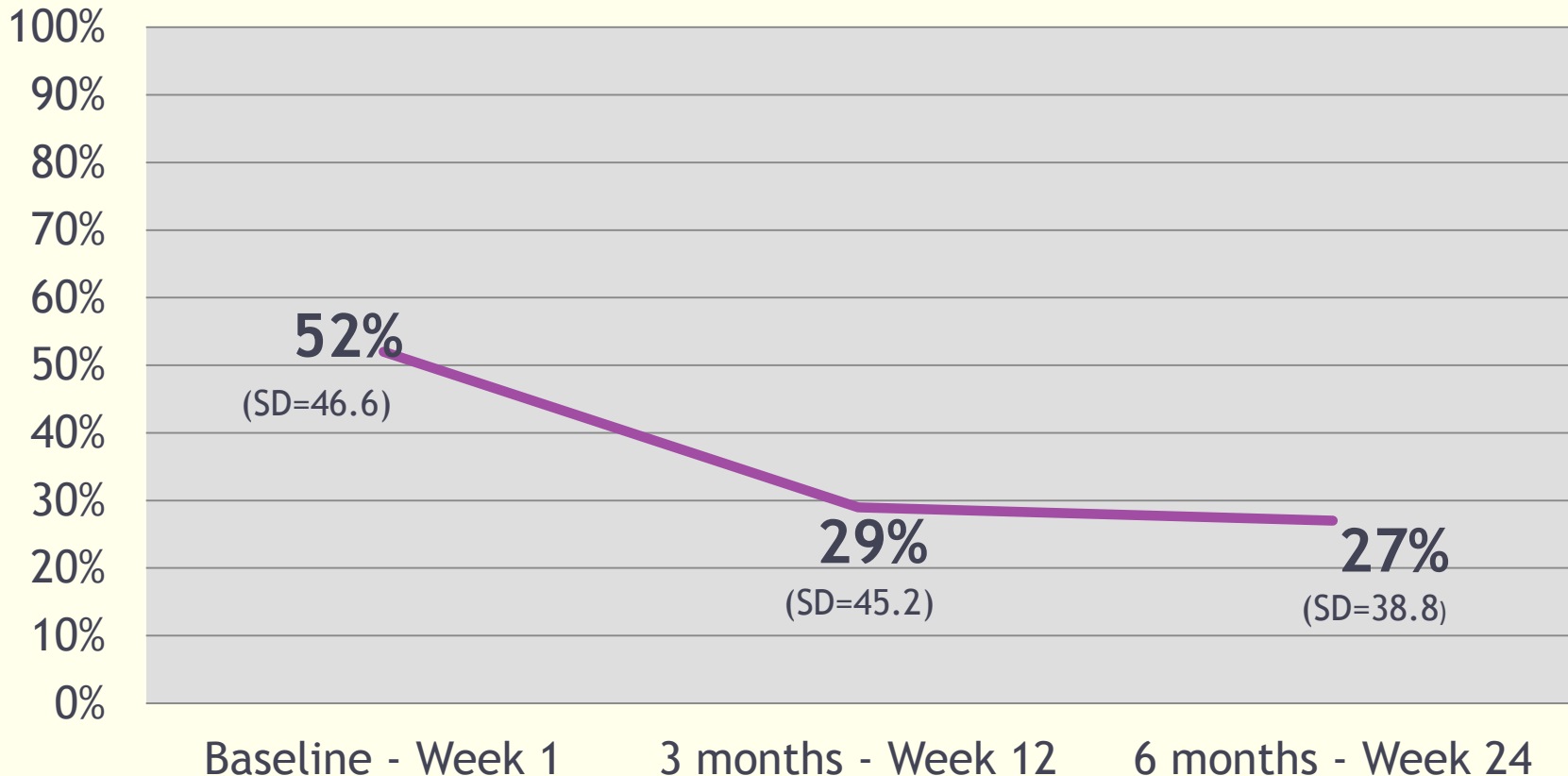


Stimulant use by type at baseline

Saliva-based toxicology results and self-report

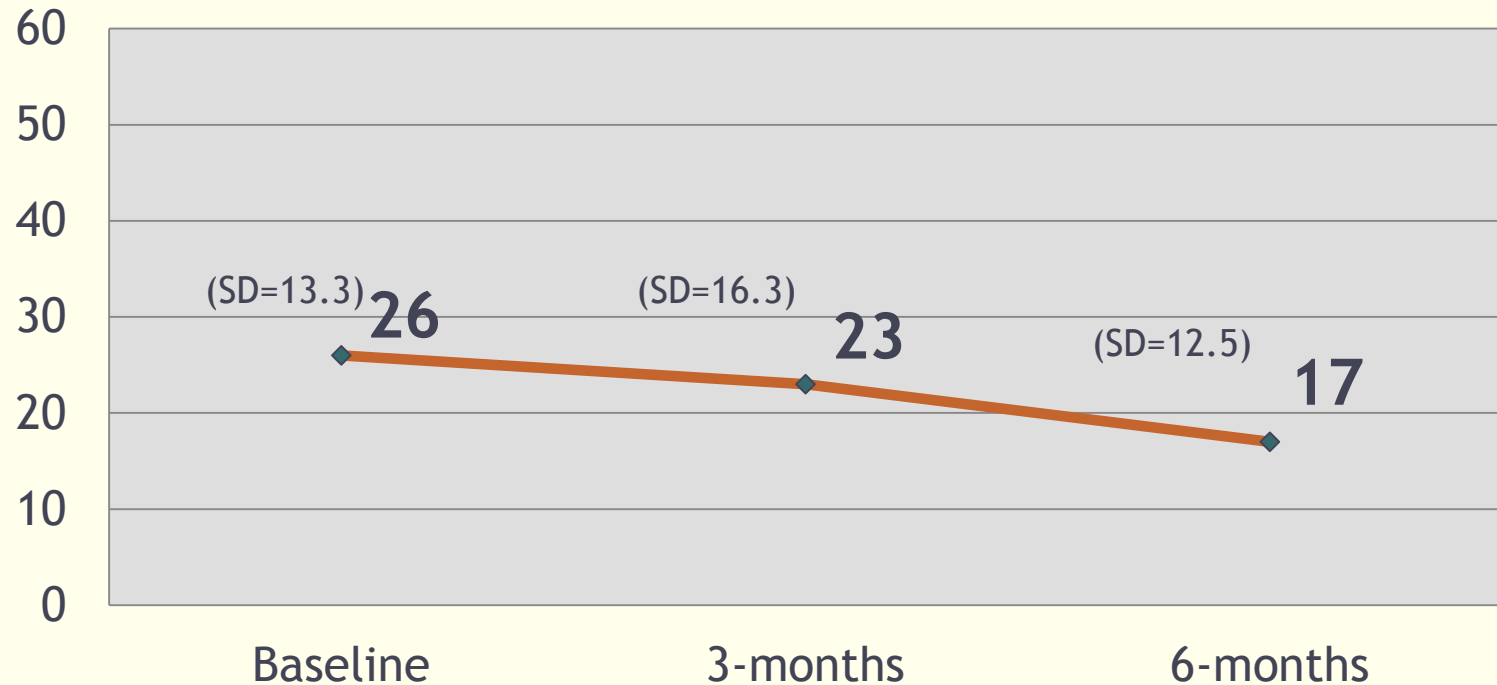


Mean percent of positive toxicology results for stimulants



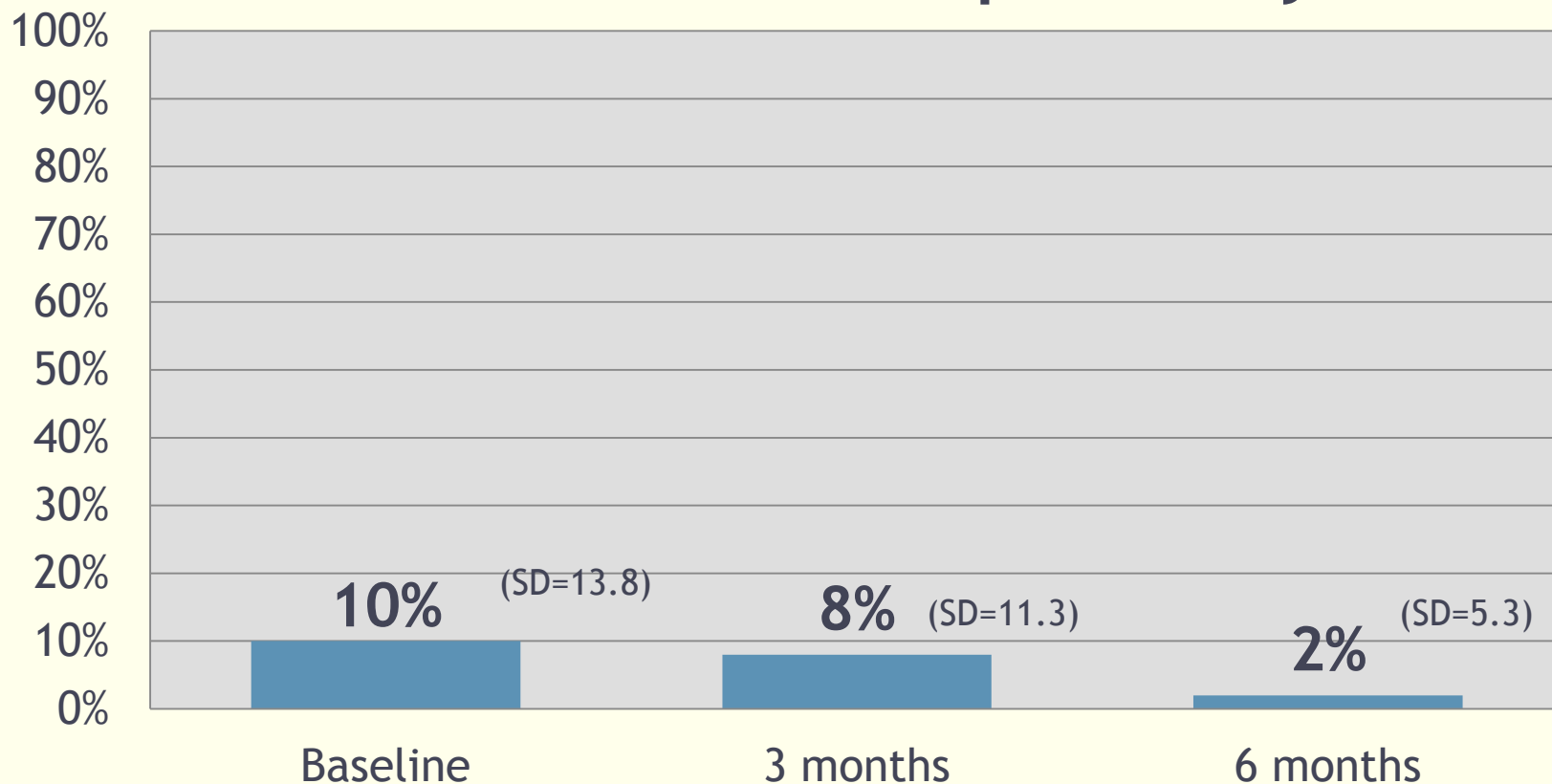
Within-person change = -25.4 (SD = 16.3)
 $t(6) = 1.77$ $p = 0.13$; Cohen's $d = .58$

Mean self-reported depressive symptoms (CES-D)



Within-person change = -8.6 (SD = 10.4)
 $t(6) = 2.19, p = 0.07$; Cohen's $d = 0.70$

Mean self-reported percent of *missed doses* in the past 7 days



Within-person change = -8.3 (SD = 16.3)
 $t(6) = 1.35, p = 0.23$; Cohen's $d = .76$

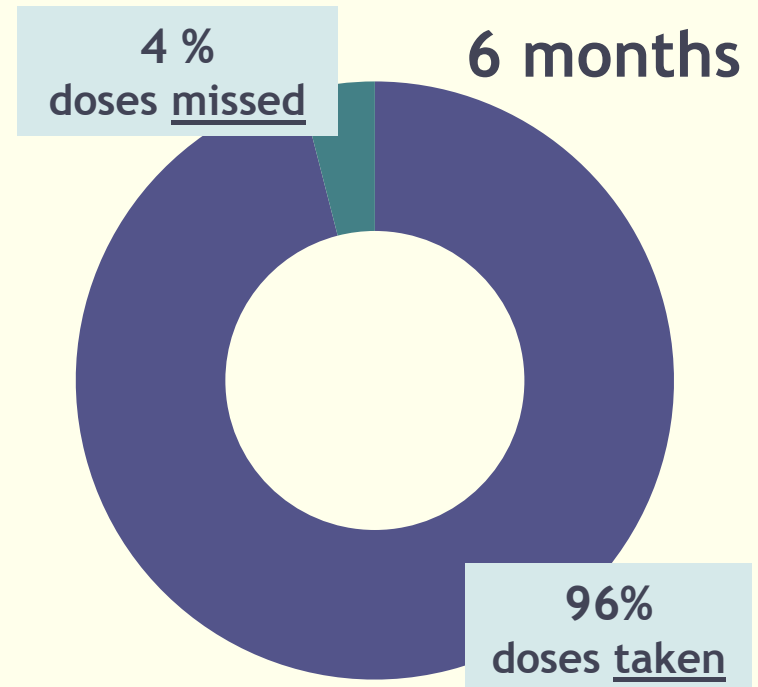
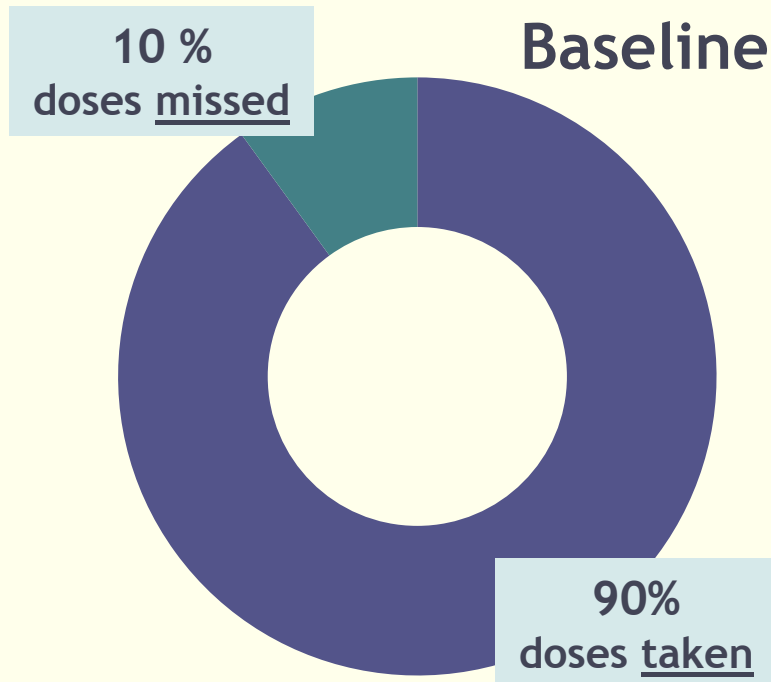
Mean self-reported percent of doses of ART taken as prescribed in the past 30 days

←0%—10%—20%—30%—40%—50%—60%—70%—80%—90%—100%→

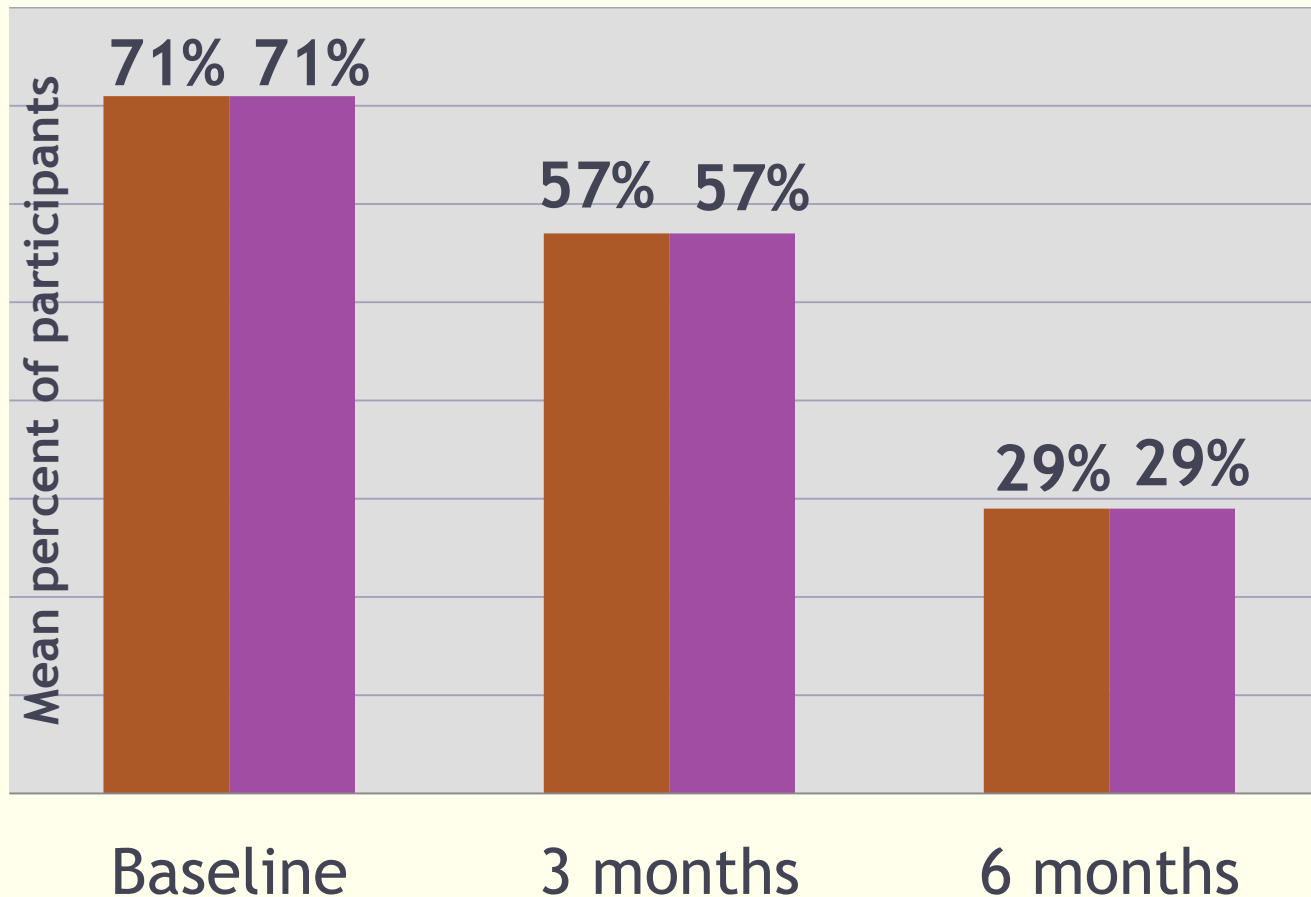
No medication taken

Half of medication taken

All medication taken



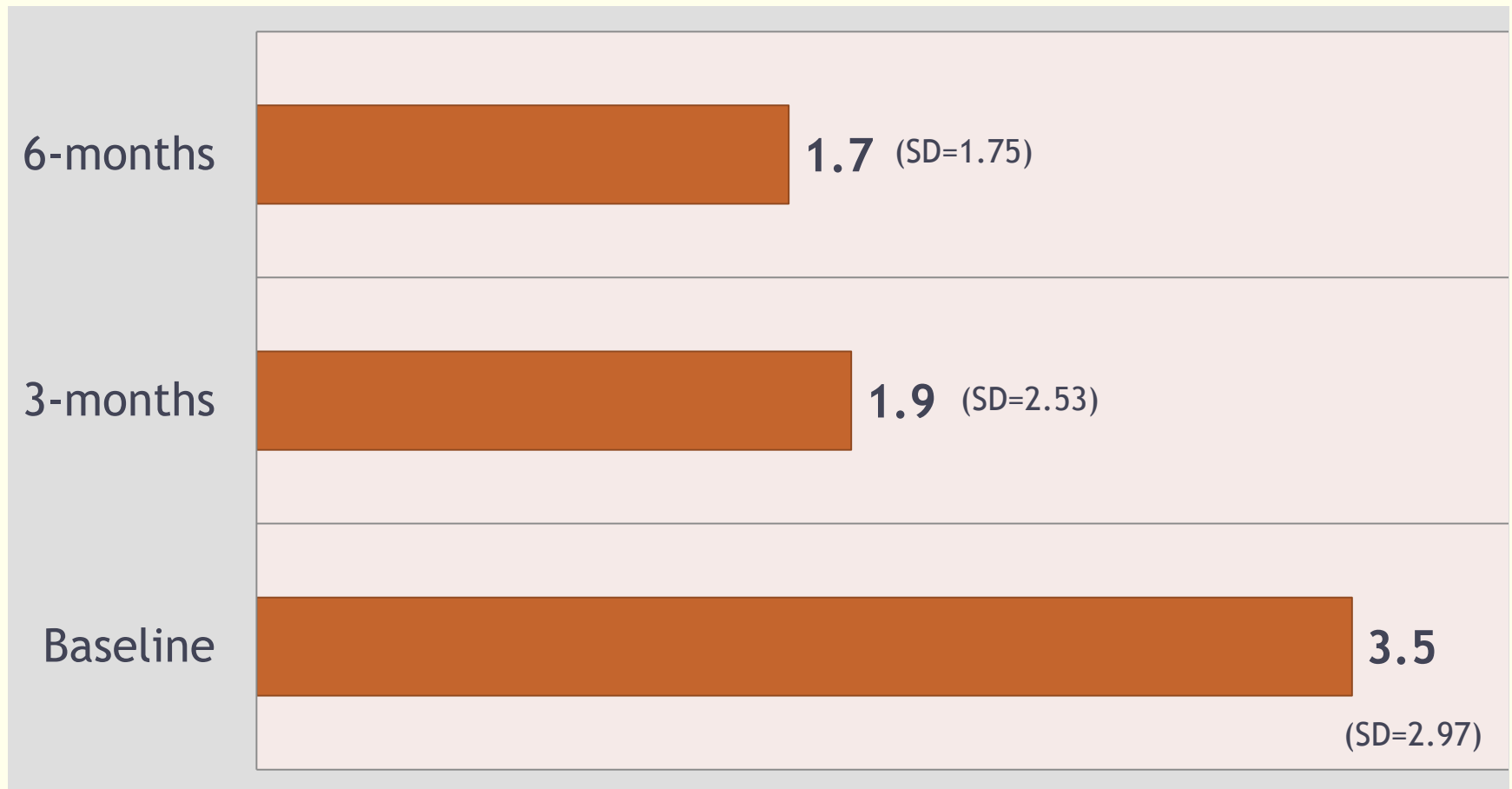
Self-perceived effects of stimulant use on health care utilization



■ *Has your stimulant use impacted your ability to follow-up with medical care in past 3 months?*

■ *Has your substance use impacted ability to take ART as prescribed in the past 3 months?*

Mean number of appointments with a PCP in past 3 months



Findings suggest that including ART adherence in interventions aimed at decreasing stimulant use may be particularly useful for this population.

“Having awareness helps with adherence, helps with being mindful to do the right thing... so I think that it would be helpful to know your cravings, the amount of use, and to know right beside it (if) it affected your adherence and your HIV meds. Because I will tell you, in my heavy addiction when I was using the most, I was adhering the least”.

- Excerpt from exit interview

Conclusions

- Combining CM and BA appears to be an acceptable and feasible intervention for stimulant dependent HIV-infected patients.
- Given the increased focus on treatment as prevention, interventions which decrease barriers to care are of great importance.
- This combined, novel intervention should be further investigated through efficacy testing, and if successful, adopted into HIV clinical care settings.

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 - The Boston Living Center
 - AIDS Action Committee of Massachusetts