

## BACKGROUND AND OBJECTIVE

- Substance abuse is a major public health concern in the United States, associated with crime, homelessness, mental illness, HIV, and premature mortality.
- Adverse effects of substance abuse have a disproportionate impact in the African American community.
- Motivational enhancement therapy (MET) is a low-cost, brief substance use intervention within the framework of stages of change theory, emphasizing motivation and commitment for behavior change.
- Among African American adults participating in this multi-site randomized trial of MET, previous analyses showed that women had higher 12-week treatment retention rates in MET versus counseling as usual (CAU); however, MET participants reported more drug-using days per week overall compared to CAU. Further analyses indicated that this finding appeared limited to participants with low readiness to change (RTC), and that MET significantly reduced substance use in the high RTC group.
- We sought to evaluate the impact of treatment type on “readiness to change” (RTC) through the study period, evaluate the relationship between RTC and substance use through follow-up, and determine whether baseline RTC mediates the relationship between treatment type and drug use during follow-up.

## METHODS

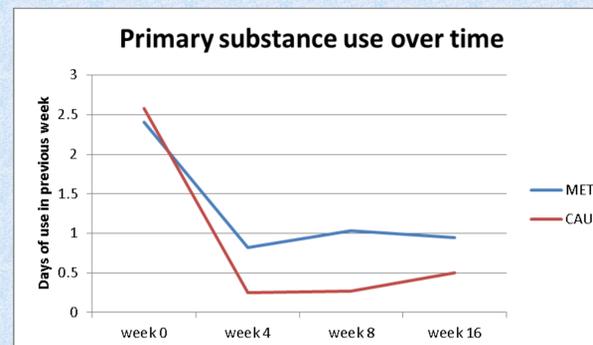
- Design**
  - Secondary data analysis of a NIDA-funded multi-site study in the National Drug Abuse Treatment Clinical Trials Network (CTN).
  - Randomized controlled trial (CTN 0004) of MET versus CAU for substance use disorders (SUD).
  - Participants enrolled from five community-based treatment programs (CTP), affiliated with the New England Node, the Delaware Valley Node, and the Pacific Region Node of the CTN.
    - MET: participants attended three carefully planned MET sessions (45-55 minutes each) during the 4-week active phase, in addition to CAU. The first session focused on reviewing the Personal Feedback Report, and the second and third focused on plans for changing substance use.
    - CAU: participants attended three sessions (45-55 minutes each) during the active phase, in addition to CAU. Clinicians collected information on substance use and psychosocial functioning, and discussed treatment program requirements and treatment goals.
  - Study follow-up visits at 4, 8, and 16 weeks.
- Measures**
  - Readiness to change: University of Rhode Island Change Assessment (URICA)
    - 32-item, self-report inventory
    - Four summary scores reflecting stages of change: Precontemplation, Contemplation, Action, and Maintenance
    - Continuous score ranges 0-14 (calculated by subtracting precontemplation from other scores)
    - Categories defined as Precontemplation (score ≤ 9.8), Contemplation (9.8 to 11.3), and Preparation/Action (score > 11.3)
  - Substance use calendar (SUC)
    - Adapted from Form-90 and Timeline Followback (TLFB)
    - Self report of daily substance use (marijuana, cocaine, alcohol, methamphetamine, benzodiazepines, opioids, other substances)
    - Primary outcome: self-reported days of primary drug (or drugs) over 16 week study follow-up period.

## METHODS

- Inclusion criteria**
  - Self-identify as African American or Black
  - Seeking outpatient treatment for any substance use disorder
  - Acknowledged substance use in previous 28 days
  - Age 18 or older
  - Willing and able to give informed consent
- Statistical analysis**
  - Preliminary analyses: chi square and t-test for bivariate associations
  - Generalized linear models to examine effect of MET on substance use during follow-up.
  - Mediation analysis: our goal was an evaluation of the relationship between MET and substance use, with possible mediation by RTC.
    - Evaluate relationship between MET and RTC
    - Evaluate relationship between RTC and substance use
  - We fit mediational models to assess the role of RTC, by fitting models with and without this pathway included. To evaluate the possible mediation by RTC, we fit predictive models of substance use with and without inclusion of RTC in the multivariable model. The difference between the two models in estimated impact of MET on substance use can be interpreted as the extent of mediation by RTC.

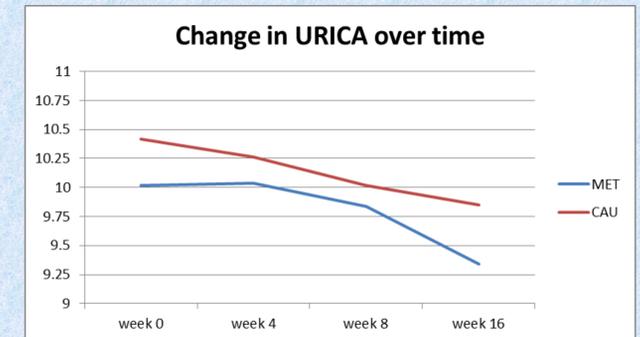
## RESULTS

- Baseline characteristics (n=194)**
  - Mean age 37.5 years (SD=9.9)
  - 24.7% women
  - Primary drug of choice:
    - Alcohol (26.3%); cocaine (25.8%); marijuana (18.0%); two or more drugs (24.2%); other drugs (5.6%)
  - Days of use (primary drug, past week): 2.5 (SD=2.1)
- Drug use over time**
  - Mean days used primary drug over the entire follow-up period: 3.1 (SD=9.3) in CAU versus 6.7 (SD=14.8) in MET (p=0.07)

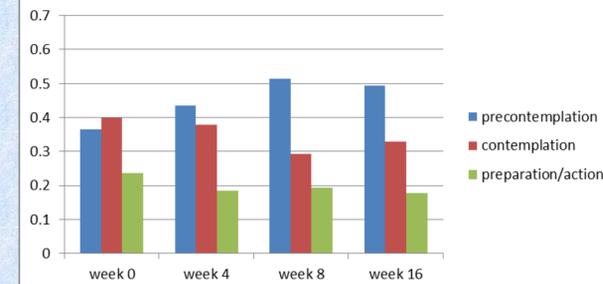


## RESULTS

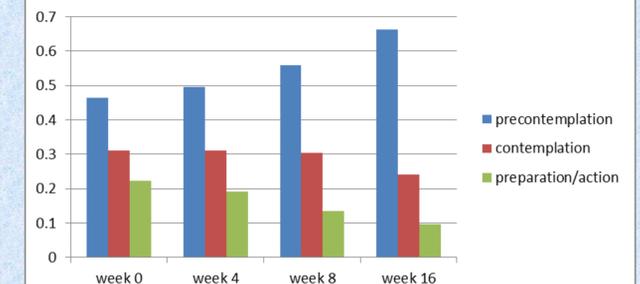
- Readiness to Change (URICA) over time**
  - Total score (continuous)
    - During study follow-up, total Readiness to Change declined for both MET and CAU groups.
  - Categories of Readiness to Change:
    - No group differences in proportion improving their category of RTC
      - Proportion improving from baseline level: 27.6% in CAU versus 27.4% in MET (p=0.98)
      - Proportion improving between any two timepoints: 42.0% in CAU versus 39.7% in MET (p=0.77)
    - Over follow-up period:
      - Proportion of participants in Pre-contemplation stage increased from 36.4% to 49.3% in CAU group, versus 46.4% to 66.4% in MET.
      - Proportion in Preparation/Action stage declined from 23.6% to 17.9% in CAU group, versus 22.4% to 9.6% in MET.



## URICA categories over time: CAU



## URICA categories over time: MET



## Mediation of MET by Readiness to Change

- Treatment assignment was not strongly associated with URICA scores, or URICA changes, during follow-up.
- Improving URICA category between baseline and 8 weeks, was associated with 5.3 more days of primary substance use over follow-up (p=0.03). However, URICA scores at single timepoints, and URICA change measures between baseline and 4 weeks or 16 weeks, were not significantly associated with substance use over time.
- We tested for mediation effects of RTC, and found that the relationship between treatment type and substance use during follow-up did not change substantially with the addition of URICA covariates to the model. We investigated mediation by URICA values during follow-up, as well as measures reflecting change over time in URICA score.

## SUMMARY AND CONCLUSIONS

- We observed declines in Readiness to Change in both treatment groups over time, as well as increasing proportions in the pre-contemplation stage. This suggests that suggesting that maintenance of RTC may be as important as increasing RTC.
- Our results may suggest that readiness to change tends to decline (worsen) as an individual 1) decreases substance use during treatment and 2) perceives reduced need for treatment or behavior change. Thus changes in RTC during treatment may not be driving the relationship between treatment type and substance use, but rather reflect a waning urgency to seek treatment. These results do not support a strong role of RTC as a mediator of the impact of MET on substance use.

## ACKNOWLEDGEMENTS

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