Data Analysis Plan Cover Page

Official Title: CoMBAT Opioid Use Disorder: A Pilot RCT of a Combined Medication and Behavioral Activation Treatment for People Living with Opioid Use Disorder.

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CoMBAT OUD: Data Analysis Plan

Protocol Title: CoMBAT Opioid Use Disorder: A Pilot RCT of a Combined Medication and Behavioral Activation Treatment for People Living with Opioid Use Disorder.

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This study is designed to explore the preliminary efficacy of the intervention on retention in Medications for Opioid Use Disorder (MOUD) care (primary outcome) and opioid use (secondary outcome) to inform a larger-scale R01 efficacy trial.

Data Analysis. The distribution of and correlations between all variables will be assessed. In the preliminary analyses, we will examine the randomization of groups with regard to baseline characteristics. In the unlikely event that randomization does not work to balance participant characteristics, we will run analyses with and without these variables to determine whether baseline differences account for differences in outcomes. If deemed appropriate, we will control for baseline characteristics. All analyses will use two-tailed tests of significance at p=0.05.

The primary quantitative analysis will compare engagement in care (number of missed doses & number of missed visits in the past 30 days) from baseline through the 6-month follow up visit by randomization arm. For the secondary outcome, we will examine changes in opioid use (as measured via urine toxicology screening) from baseline to the 6-month visit by randomized arm. While we expect some levels of care disengagement and opioid use across study conditions, we anticipate that those in the intervention arm will report fewer missed doses and visits and have fewer opioid-positive toxicology tests at follow-up than participants randomized to the control arm. For the primary outcomes, we will use generalized linear models (GLM) with properly-chosen link function (i.e., Poisson distribution) to analyze longitudinal data for each outcome. The GLMs will be estimated using generalized estimating equations (GEE) with robust standard error estimates. For the binary secondary outcome, we will use GEE models with a binomial distribution. We will follow an intent-to-treat model, analyzing participants according to their randomized study condition regardless of their intervention participation.

To assess feasibility and acceptability, we will conduct qualitative exit interviews with participants in both arms and administer the quantitative Working Alliance Inventory at the 3 month follow-up visit. The interviews will be transcribed, coded, and analyzed using thematic analysis. Participants' responses to the Working Alliance Inventory will be descriptively analyzed to assess perceptions of the therapist's empathy and engagement. We will also examine intervention attendance and study completion as an indicator of feasibility.

Missing data. We will assess patterns of missing data, which we expect to be low given our use of electronic data capture. If data are found to be missing, we will explore strategies for imputing missing data based on patterns of missingness and conduct sensitivity analysis to determine the optimal method of handling the missingness.

Sample Size and Power. This randomized controlled pilot trial is designed to assess feasibility and acceptability; thus, we are not powered to detect the preliminary efficacy of the primary and secondary quantitative outcomes. Nonetheless, in accordance with NIH policy, we will report our statistical findings on ClinicalTrials.gov.