STATISTICAL ANALYSIS PLAN

A TECHNOLOGY-DELIVERED PEER-TO-PEER SUPPORT ART ADHERENCE INTERVENTION FOR SUBSTANCE-USING HIV+ ADULTS

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Measures

HIV-1 RNA VL. Blood draws were collected at baseline and the 5-month, 11-month, and 17-month follow-ups at PRIDE by a trained phlebotomist and analyzed by Quest Diagnostics for the presence of HIV-1 RNA. To assess primary outcome, twenty copies per microliter was the lower limit of quantification for detectable HIV-1.

Demographic Characteristics. At baseline, participants were asked common demographics factors including age (in years), race and ethnicity, highest level of education, and current employment status. Additional HIV history data was collected including 30-day ART adherence.

Psychosocial Characteristic. Depressive symptoms were assessed using the 10-item Center for Epidemiological Studies-Depression Scale(1) and dichotomized into depressive symptoms (CESD-Score $\geq$ 10) and no depressive symptoms (CESD-Score < 10). ART related Information (9 items), personal and social motivation (10 items), and behavioral skills were assess used using the Information-Motivation-Behavior-ART Adherence Questionnaire (IMB-AAQ).(2) HIV stigma, including internalized (6 items), anticipated (9 items), and enacted stigma (9 items) was assessed using the HIV Stigma Scale.(3) Social Support, including emotional / information support (8 items), tangible support (4 items), affectionate support (3 items), positive social interaction (3 items), as well as an overall social support score was assessed using the Medical Outcomes Study (MOS) Social Support Survey.(4) Life chaos and perceived stress were assess using the 6-item Life Chaos Scale(5) and the 14-item Perceived Stress Scale,(6) respectively.

Substance Use. Information on substance use was collected in two-ways at each assessment time point: urinalysis and self-report. First, participants completed urine screens to detect for the following substances using the Integrated E-Z Split Key Cupp II-5 panel (Innovacon Laboratories): THC (marijuana), methamphetamine, amphetamine, cocaine, and opioids. This test is able to detect for methamphetamine, amphetamine, cocaine, and opioids from 1 to 4 days after use and THC (marijuana) for up to 30 days after use. For this analysis, positive urinalysis is defined as any detectable measure of methamphetamine, amphetamine, cocaine or opioids. Finally, alcohol use was assessed using the Alcohol Use Disorders Identification Test (AUDIT).(7)

Statistical Analyses.

Descriptive statistics (means [sd], frequencies [%]) were generated to describe the participants in the *TWM* study. Appropriate statistical tests were used to compare numeric (t-test) and categorical variables (chi-square) between the *TWM* intervention and control arms at baseline. All analyses were conducted using STATA v14 and significance was established at $p < 0.05$.

In order to account for missing data during follow-up, multiple imputation was utilized. Demographic, psychosocial, and substance-use factors that were associated with having a detectable HIV-1 VL baseline were used to impute missing variables at subsequent time points and detectable viral loads at month-5, month-11, and month-17 follow-ups. We utilized Generalized Estimating Equations to assess the *TWM* intervention over time using the binomial family and an independent correlation structure on undetectable VL over follow-up in an unadjusted model, a model adjusted for baseline differences, and stratified by urinalysis at baseline (positive vs negative drug users). The main effects of interest are the condition-by-time interaction terms at Month-5, Month-11, and Month-17. These represent the differences-in-

differences in proportion of those with an undetectable VL between participants in the *TWM* intervention arm and those in the control arm.

References

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