Title: Researching Resiliency in Stressful Experiences (RISE) Program for Men Leaving Incarceration

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Analytic Plan. STATA version 14 will be used for data cleaning, coding, and analysis. Prior to analysis, data will be examined for missing and outlier values to resolve any issues. Descriptive statistics will be computed for each variable. Correlation matrices and squared multiple correlations will be examined for multicollinearity and singularity. The reliability of scales composed of multiple items will be assessed. Precautions will be taken to minimize the amount of missing data (i.e., robust methods of participant tracking and incentives to participate). If missing data occurs, analyses will be undertaken to test for the assumption of missing at random (MAR) or missing completely at random (MCAR). Based on the determined pattern and proportion of the missing data, the recommended procedures for multiple imputation may be performed. Multivariate statistical methods must meet multiple assumptions before analyses can occur. We will test for the following assumptions: normality, multicollinearity, homoscedasticity, independence of error terms, and linearity. If assumptions are not met, appropriate corrections and transformations will be made.

Key Mechanisms of Change and Community Stability. We will use the multivariate statistical test of Analysis of Covariance (ANCOVA) to test our study aims around key mechanisms of change (i.e., trauma symptoms, coping, impulsivity, and aggression) and community stability (i.e., housing and employment). One two-level independent variable indicates the study condition: the comprehensive trauma-based reentry program condition and the TAU control condition. ANCOVA allows for an assessment of between-group differences on key mechanisms of change and community stability after controlling for the effects of one or more covariates (e.g., race, other program participation, criminal history). The purpose of this analysis is to partial-out the effects of study condition on key mechanisms of change and community stability, determining whether any effects are due to the covariates and/or are a result of the study condition assignment.

Power analysis. To determine the sample size, we conducted an a priori power analysis with the software program G*Power. We conducted the power analysis to make sure we would be able to detect differential effects on key mechanisms of change and community stability between participants allocated into the two study conditions. We powered the study based on conducting multivariate analysis using ANCOVA. We used a small effect size estimate - Cohen's *d* of .15 - based on guidance and data from the Clinician Administered PTSD Scale on a similar population.[67] Being able to detect small effects is important as we may find minimal difference between group members. Using an alpha of .05 and powered at a .80 level across two groups with up to seven covariates, a sample of 352 would allow us to detect small effects. Thus, a targeted sample size of 400 provides statistical power greater than .80, giving us strong confidence that we will be able to detect even small difference between study conditions.

Recidivism. Survival analysis will be conducted to analyze time-to-event on recidivism outcomes (i.e., time to arrest and time to incarceration). Participants without the occurrence of the events will be censored at their last known event-free time point. Survival curves will be constructed using Kaplan-Meier estimates. Using the Kaplan-Meier curve allows us to derive the median, or that time at which 50% of cases of the event of interest has occurred, and the mean (i.e. the average time it took for the event to occur). Although there are several methods available to analyze time-to-event curves, the proposed study uses a Cox proportional hazard model which is a regression method for survival data and has been used in previous criminal justice-related studies. The Cox model allows for the identification of differences in survival rate due to study condition and prognostic factors, such as covariates. Further, the Cox model provides an estimate of the hazard ratio and its confidence interval. There are two underlying assumptions of the Cox proportional hazard model: (1) the hazard ratios of two people are independent of time and (2) are valid only for time independent covariates. For the current study, results will be displayed for comparison of survival distributions for three years post-release.

Power Analysis. The Bureau of Justice Statistics (BJS) 2005-2014 data show that 76.5% of prisoners age 24 or younger released in 2005 were arrested within three years of release. Specifically, 51.8% were arrested within the first year, an additional 17% in the second year, and an additional 7.7% in the third year. Our goal is to reduce recidivism by 28% over three years. Using these data and the method described by Collett (2003, pp. 299-312), we calculate that the hazard ratio of recidivism for this study at 1.39, meaning that members of the control group will recidivate 39% faster than participants receiving the targeted treatment. Using the same BJS data, we calculated the median survival time (pre-recidivism) for members of the control group at 17.28 months. The median survival time suggests that 50% of the control group will recidivate by 17.28 months after release from incarceration. These data provided the basis for the power calculation. The power analysis was conducted using PS software.[78] Results show that for a study with 200 experimental participants and 200 control participants, a hazard ratio of recidivism of 1.39, and a median survival time for the control group of 17.28 months, we will be able to reject the null hypothesis that the treated and control survival curves are equal with a probability (power) of .810. The Type I error probability associated with this test of this null hypothesis is 0.05. Therefore, the study will have adequate statistical power.