

Official Title: HEARTS R34 Feasibility Study, Autistic Participants

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Study Protocol and Statistical Analysis Plan

All statistical analyses were conducted in R version 4.4.3 (R Core Team, 2021) on Boston University's Shared Computing Cluster (SCC). Before modeling, data distributions were examined, and the assumptions for linear mixed-effects models were verified. Missing data across outcomes did not exceed 10%; item-level missingness was addressed through person-mean imputation to create composite scores, while timepoint-level missingness was managed with the Last Observation Carried Forward (LOCF) method. Participant satisfaction was summarized descriptively with means and standard deviations.

Since data were collected at two timepoints—baseline and 12-week follow-up—we used linear mixed-effects models (LMM) to analyze social motivation (ASHI), hostile automatic thoughts (HATS), and rejection sensitivity (RSQ). Because scores for relationship improvement (CGI-I) and dating aggression experiences were integer-valued, they were modeled with Poisson mixed-effects models using a log link. All models included a fixed effect for timepoint, a group-by-timepoint interaction, and random effects at the individual level to account for within-person correlation. Confidence intervals and p-values for LMMs were calculated using the Kenward-Roger Wald method; profile likelihood-based intervals were used for the Poisson models. The significance level was set at $p < .05$. As this was an exploratory study and to reduce the risk of Type II errors, no adjustments for multiple comparisons were made.