

Project Title: SMART-DAPPER: Leveraging the Depression And Primary-care Partnership for Effectiveness-implementation Research Project (SMART-DAPPER)

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Statistical Analysis Plan

We used an intent-to-treat analysis. We used multivariate normal multiple imputation with 100 imputations to impute missing values of BDI-2 and PCL-5. For both of our primary outcomes (binary) we used generalized estimating equations (GEE) methods to fit a log-link binomial regression model with robust standard errors and a working exchangeable correlation structure to accommodate the repeated measures over time. Because not all participants had both major depression and PTSD at baseline, our analysis models the change in the risk of the outcome from baseline to end of first-line treatment.

Correspondingly, our model included the predictors of time (e.g., baseline and end of treatment), intervention group, the interaction of time, and intervention group. Results are described in terms of relative risks, and, for the interaction, ratios of relative risks with corresponding confidence intervals. The primary test of interest is the time by group interaction.

Secondary outcomes (BDI-2, PCL-5 continuous scores) were numeric, continuous variables. For these analyses we used GEE methods to fit a linear regression model with robust standard errors and a working exchangeable correlation structure. As before, our model included the predictors of time (baseline, end of treatment), intervention group and the interaction of time and intervention group. Results are described in terms of differences in mean values and, for the interaction, differences of differences with corresponding confidence intervals. The primary test of interest is the time by group interaction.

Participants who were not in remission at end of first line treatment were re-randomized to either treatment switch or treatment combination. These randomized comparisons were conducted using Fisher's exact test for MDD or PTSD or an exact Wilcoxon rank-sum test for BDI-2 score or PCL-5 score.