An Entirely Remote Study of an Attention Bias Modification Training "App" for Posttraumatic Stress Disorder (Remote RePS)

Statistical Analysis Plan

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Hypotheses:

- **H1:** More than 80% of participants will report that REPS is acceptable in multiple areas (e.g., ease of use, ability to maintain attention and motivation for training, enjoyment of the task) as measured by responses on a self-report questionnaire including Likert items and one open-ended question.
- **H2:** We will retain at least 68% of our sample for the duration of the study.
- **H3a:** Compared to the control group, patients in the ABM groups will show greater reductions in threat sensitivity from baseline to follow up, as indexed by less attention bias towards threat.
- **H3b:** Compared to the control group, patients in the ABM groups will show greater reductions in PTSD symptom severity over time, as indexed by PTSD Checklist scores.
- **H4a:** Compared to patients in the non-personalized ABM group, patients in the personalized ABM group will show greater reduction in threat sensitivity from baseline to follow up as indexed by less attention bias towards threat.
- **H4b:** Compared to patients in the non-personalized ABM group, patient in the personalized ABM group will show greater reductions in PTSD symptom severity from baseline to follow up as indexed by the PTSD Checklist scores.

Statistical Analysis: To test H1 and H2, we will examine usage of the app, participant retention data, and descriptive statistics on Likert-scale items regarding acceptability of the app (e.g., ease of use, ability to maintain attention and motivation for training, and enjoyment of the task) and will review participants' open-ended responses about their experience with the app to identify themes. To test H3a, H3b, H4a and H4b, we will use multi-level modeling, which accounts for repeated measurement within individuals and effectively handles missing data in intent-to-treat analyses. For H3a and H3b, the dependent variable will be attention bias (3a) and PCL scores (3b), predictors will be Group (ABM, Control), Time (Pre, Post, Follow-Up 1), and the Group X Time interaction, and we will examine the beta associated with the Group X Time interaction for significance and to calculate effect size. For H4a and H4b, the dependent variables will be attention bias (4a) and PCL scores (4b), and predictors will be Group (Personalized ABM, Non-Personalized ABM), Time (Pre, Post, Follow-Up), and the Group x Time interaction and we will examine the beta associated with the Group x Time interaction for significance and to calculate effect size. Additional measures will be examined as secondary outcomes using the same data analytic approach. We will account for confounding variables, including medication and treatment history, in our statistical analyses. These variables will be necessary to assess as it is possible that people who are completing treatment in addition to participating in the study will show benefit explained by the treatment as opposed to participation in the ABM training. Thus, it will be necessary for us to have these variables to include in our statistical analysis.