Predicting Treatment Response to GCMRT in Social Anxiety Disorder

Identifying which patients are most likely to benefit from specific treatments is a key step toward precision psychiatry. In the context of social anxiety disorder (SAD), treatment response remains highly variable, with some individuals showing significant improvement while others experience minimal change. This project focuses on identifying clinical, neurobiological, and demographic predictors of treatment outcome for individuals undergoing Gaze-Contingent Music Reward Therapy (GCMRT), a novel intervention designed to enhance attentional control and reward sensitivity.

This study aims to determine what types of patients—defined by clinical characteristics, neurocognitive markers, and demographic factors—are most likely to benefit from GCMRT. We specifically explore whether distinct subgroups or biotypes within the SAD population can be identified as treatment responders based on baseline features.

Data were drawn from an R61/R33 NIH-funded grant (PI: Frank), including a sample of 44 individuals with SAD (both responders and non-responders) and 20 healthy controls (HC). All participants completed a multimodal battery consisting of functional MRI tasks (attention control and SID at baseline), resting-state fMRI, structural MRI, and eye-tracking paradigms. The primary outcome variable is change in social anxiety symptoms, measured as the pre-to-post reduction on the Liebowitz Social Anxiety Scale (LSAS).

Predictor variables include:

- **Endophenotype measures**: Attention Control Scale (ACS) and anhedonia (measured via the Snaith-Hamilton Pleasure Scale [SHAPS] and the Revised Social Anhedonia Scale [RSAS])

- **Clinical variables**: Baseline depression severity (HAMD), baseline social anxiety severity (LSAS), and MDD diagnosis (yes/no)

- **Demographic variables**: Age, gender, marital status, employment status, and years of education

Preliminary results indicate null findings from resting-state MVPA at baseline, but meaningful early change-related patterns. Eye-tracking data and task-based fMRI (particularly in attention control and reward paradigms) are being examined as candidate predictors of treatment response.