

Cover Page

Official Title: Basic and Clinical Studies in Reinforcing Positive Behaviors in Intellectual and Developmental Disabilities

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Statistical Plan

Experiment 1

We will collect interobserver agreement on at least 33% of all sessions and ensure that the second data collector is blind to the study aims and hypotheses on one half of those observations. For Exp. 1, we will compare magnitudes of resurgence for the three treatment durations observed during the first five sessions of each resurgence test. We will report findings for each sex, in addition to reporting our aggregated data across sexes. We will apply a general linear model with two within-subject variables (individual session number and treatment duration) and one between-groups variable (treatment-duration sequence). We expect large differences between the extended-DRA condition and the short-DRA condition and a small-to-nonsignificant effect for the other paired comparisons (i.e., short vs. moderate and moderate vs. extended). Finally, model fits and comparisons for RaC and BMT will be conducted.

Experiment 2

We will compare the prevalence and magnitude of resurgence during this RaC-informed schedule-thinning progression to that observed in the control group. We will calculate odds ratios for the likelihood of resurgence with and without RaC information on a per-case and on a per-schedule-step basis. We will apply Fisher's exact-probability statistic to test the significance of the odds ratios. With a minimum expected reduction in the per-case prevalence of 50% across 12 participants, we estimate a power of 0.89 with $\alpha=0.05$. In addition, on a per schedule-step basis, the power increases to 0.98 with $\alpha=0.05$. We will assess the adequacy of RaC and BMT in describing the data. Because BMT is not equipped to incorporate dynamic changes in DRA, we expect this model to poorly describe the data. RaC, however, easily incorporates such dynamic changes, and we expect the model to provide a good description of the data.