Multi-Method Predictors of Treatment Response in the Turtle Program for Children High in Behavioral Inhibition

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Behavioral inhibition (BI) is a temperament trait characterized by fear in response to novelty (Kagan, 2018). Stable, high BI is a risk factor for later social anxiety (SA; Chronis-Tuscano et al., 2009). Effective treatments have been developed; yet, it is critical to identify factors that predict greater treatment response and foster social engagement in peer contexts, especially within an at-risk population.

Researchers have found that child factors are predictive of change in anxiety symptomatology following treatment (Wergeland et al., 2016). In addition, social processes, such as peer exclusion, have been shown to predict later internalizing symptoms (Gazelle & Ladd, 2003). While researchers have examined child anxiety and peer relationships as a predictor of later social anxiety, researchers have yet to examine these factors as predictors of treatment response in a sample of preschoolers with high BI.

We examined predictors of change in social interaction over the course of an 8-week treatment, the Turtle Program, which is an adaptation of Parent-Child Interaction Therapy and Social Skills Facilitated Play (Chronis-Tuscano et al., 2015). This multi-modal early intervention is aimed at reducing BI and anxiety symptoms as well as improving parenting and peer relationships. Specifically, we focused on children's SA and school functioning as predictors of observed peer interaction over the course of treatment, hypothesizing that children with lower SA and fewer peer difficulties would show larger increases in group play.

Participants were 70 children with BI (43% male, M$_{age}$ = 53 months) and their parents (11% male) who participated in a larger randomized controlled trial and were randomly assigned to the Turtle Program treatment arm. Observers used the Play Observation Scale (Rubin, 2001) to code children's group play continuously during a 10-minute free-play period prior to each of 8 weekly Turtle child group sessions. Teachers reported on baseline child anxiety, asocial/socially withdrawn behavior, and peer exclusion on the Child Behavior Scale (Ladd & Profilet, 1996).

Child SA clinician severity ratings were assigned using the Anxiety Disorders Interview Schedule for DSM-5 administered to parents at baseline.

A linear latent growth model fit the group play data well (CFI = 1.00, RMSEA = .00, SRMR = 0.058) and revealed that on average, children increased in group play over the course of Turtle (slope = 0.047, $p < .001$). Baseline SA was negatively related to the slope of group play ($B = -0.025$, $p = .001$), suggesting that children with lower initial SA symptoms increased their group play more. Teacher-rated anxiety ($B = -0.051$, $p = .026$), asocial behavior ($B = -0.049$, $p = .019$), and peer exclusion ($B = -0.076$, $p = .044$) were negatively related to the slope of group play, such that less anxious, asocial, and excluded children increased their group play more.

These findings suggest that the treatment was associated with the greatest increases in peer interaction for children low in baseline anxiety and peer difficulties. These findings can inform the tailoring of interventions to the needs of children with these characteristics and highlight the utility of observations in evaluating and improving intervention programs.
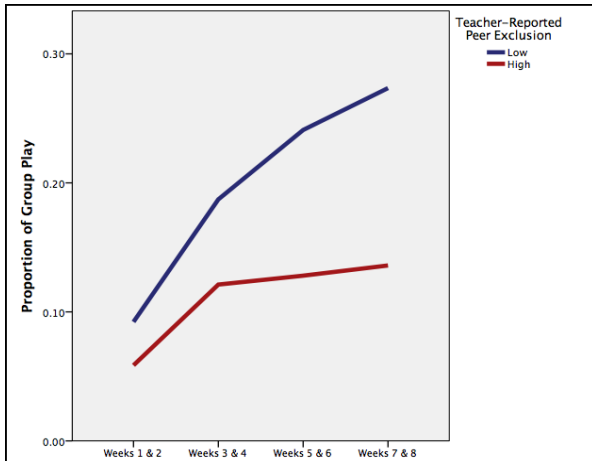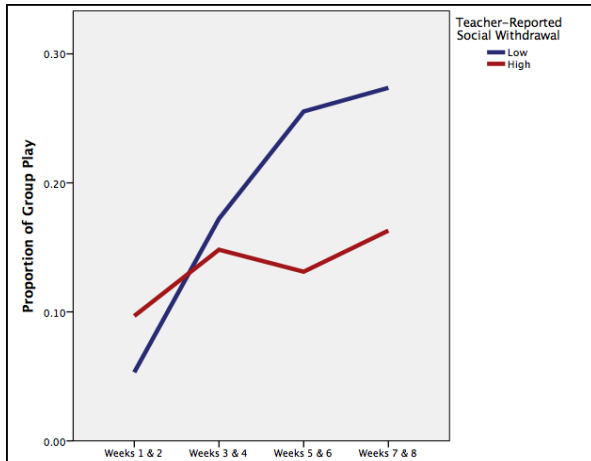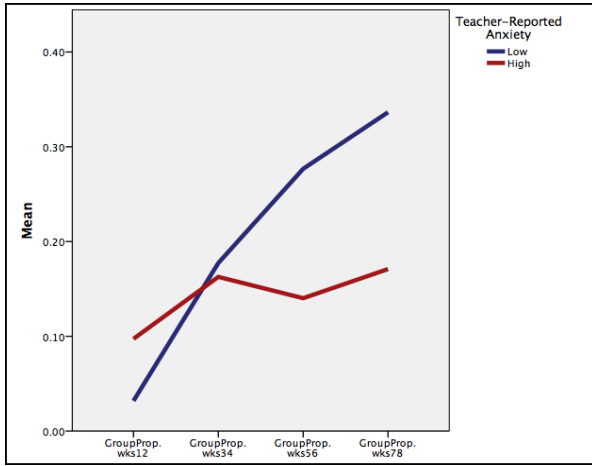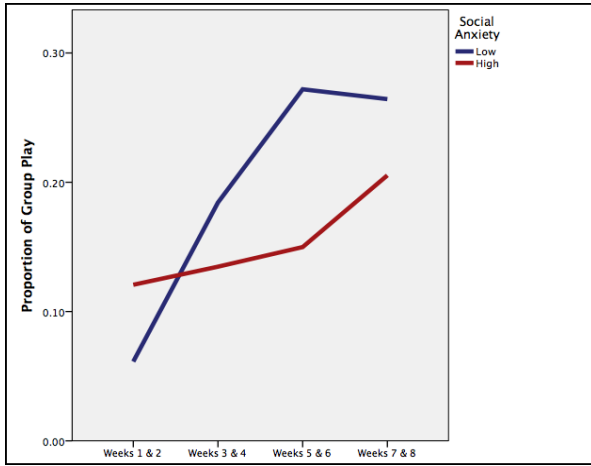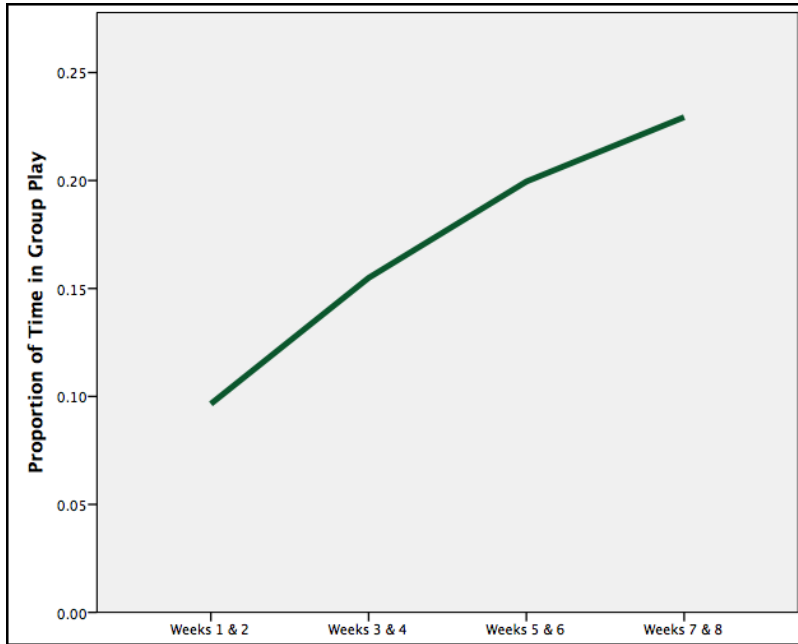
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