Title: Mediation of Treatment Effect in a Teacher-Implemented Social Communication Intervention for Preschool Children with Autism: Teachers’ Strategy Adoption

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Introduction: There have been more evidence-based interventions addressing core deficits in children with autism in the past few years. However, very few of these interventions have been teacher-implemented; of the few, they have mostly been 1:1 intervention sessions (Kaale, Smith, & Sponheim, 2012; Lawton & Kasari, 2012). Chang, Shire, Shih, Gelfand, and Kasari (2016) found that teachers could implement evidence-based interventions at high fidelity with preschool children with autism. The aim of this study was to extend the previous study and examine whether teachers’ strategy adoption mediated children’s joint engagement treatment outcome, specifically joint engagement.

Method: Participants. Sixty-six preschool students with autism (ages 3-5) were recruited from six preschools across the greater Los Angeles area. A randomized waitlist control design was used. The preschools were matched in pairs based on socioeconomic status and location. Pairs were randomized to either immediate treatment or an 8-week waitlist.

Intervention. Over the course of 8 weeks, teachers in the treatment condition received 30 x 30-minute Joint Attention Symbolic Play Engagement Regulation (JASPER; Kasari et al., 2006, 2014) coaching sessions within their existing classroom play rotations with their students. Teachers in the waitlist condition continued to provide their regular class curriculum to their students. At both entry and exit of the study, teachers were videotaped and rated for their strategy adoption and implementation in the classrooms during free play.

Ten-minute Teacher-child play interactions (TCX). Teachers’ accurate implementation of JASPER strategies was coded from TCX. The strategy adoption measure included seven main components of the intervention: Basic Strategies, Setting up the Environment, Following Child’s Lead, Establishing Play Routines, Expanding Play Routines, Joint Attention and Requesting Skills, and Language Strategies. Each item was rated on a scale of 0 to 5 where “0” reflected incorrect or lack of implementation of the strategy, a “3” described mixed strategy implementation where up to 50% of opportunities to use a strategy were missed, and a “5” represented accurate and developmentally appropriate implementation of the strategies at least 80% of the time. Three reliable raters scored the teachers’ strategy implementation (α=0.963).

Children’s joint engagement was also coded from the TCX at entry and exit. During the 10-minute TCX, children’s interaction with their teachers were coded as “unengaged”, “person engaged”, Object engaged/ Parallel Play”, or “Joint engagement”. Children’s engagement state was coded as proportion of time in each engagement state.

Results: Mediation analyses with linear mixed models (Baron & Kenny, 1986, The Four Steps) were used to explore the potential mediating effect of teachers’ strategy adoption on students’ joint engagement. There was a significant treatment difference between JASPER and Waitlist from baseline to exit in teachers’ adoption of strategies (Path A: β= 0.262, p<0.001) and students’ joint engagement (Path C: β= 0.226, p=0.019) where children in the JASPER intervention made significantly more improvements compared to children in the Waitlist group. After adjusting for teachers’ strategy adoption, the treatment effect diminished to non-significance (β= 0.08, p=0.459) while teachers’ strategy adoption remained significantly associated with joint engagement (Path B: β = 6.13, p=0.003). Consequently, teachers’ adoption of intervention strategies mediated the effect of treatment on students’ joint engagement.

Discussion: The results from this study emphasize the importance of teachers’ accurate implementation of evidence-based interventions. Students with autism will be able to benefit more if teachers are implementing strategies at a high fidelity. Future studies will need to collaborate more with teachers to determine areas of interventions that may be more difficult to implement in a school setting to achieve better social communication outcomes for students with autism.
References/Citations: