

**Preschool Peer Social Intervention for the Development of
Social Play Among Children with HFASD**

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Ph.D. Thesis

Submitted to the Senate of Bar-Ilan University

Ramat –Gan, Israel

March 2018

Abstract

Background

Social play and social pretend play with peers in early childhood significantly contribute to the development of the social abilities through which children communicate in a social context (Coplan & Arbeau, 2009). The play domain develops atypically in children with autism spectrum disorder (ASD); they exhibit significant delays and deficits in their development of play skills, particularly in their ability to engage in spontaneous social or pretend play with peers. This core deficit in social play and social pretend play skills hinders their ability to engage in normative social interactions with peer partners and later impacts the social isolation that they experience (Jordan, 2003; Schuler & Wolfberg, 2000). Therefore, focused intervention, directed at improving play skills and their social aspects, is very important for children with ASD.

Despite these children's marked difficulty in this important area, very few intervention programs have been documented in the literature focusing specifically on improving social play abilities for young children with ASD and their peers. To date, most intervention programs that have been developed and tested focused on promoting functional play ability, and most did not include peer play. The studies that did incorporate peer intervention usually included a very small sample without a control group, limiting the generalizability of their results. This called for the design of an ecological developmental intervention program for preschoolers diagnosed with high-functioning ASD (HFASD; $IQ \geq 75$) and their peers, focusing on the facilitation of social play and social pretend play skills in order to improve their social skills, to be empirically tested using a randomized control trial (RCT).

Research Aims

This study aimed to test the effectiveness of an innovative developmental Social intervention program that was developed to enhance the social play and social pretend play skills with peers among children with HFASD during early childhood. The program aimed to advance the quality of preschoolers' social abilities during play and also the complexity of preschoolers' social play and social pretend play. Additional aims were to assess the degree to which the children generalized those skills acquired in the program to their natural environment, and to assess the impact of the program on preschoolers' adaptive social behavior. The intervention's effects on children with HFASD were

assessed using an RCT design comparing the experimental group (play intervention) with two control groups: one that received a different social intervention (conversation group) and another that received delayed intervention (control group).

Method

The sample comprised 50 children ages 3-6 years, diagnosed with HFASD and with language ability corresponding to chronological age. Participants were randomly assigned to the three groups: the experimental group ($n = 20$) that received intervention to improve play skills; a control group ($n = 15$) that received a different social intervention program (to improve social discourse skills – the conversation group), and a control group ($n = 15$) that received no intervention. Groups were matched for background variables.

The content of the intervention program was followed Howes's (1980; 1988; 1992) developmental model of Social Play (parallel, parallel aware, simple SP, complementary, and reciprocal play) and stages of Social Pretend Play (isolated pretend play, coordinated SPP, simple SPP, cooperative SPP, and complex SPP). The developmentally oriented curriculum included learning of major concepts for each play stage and practicing within the small peer group.

The intervention program incorporated the following principles: ecological context, peer mediation, and comprehensive integration of acquisition and practice of social play abilities. Also, to enhance the program's effectiveness and implementation potential, it was designed based on criteria characterizing prior effective social intervention programs. The program was administered by a permanent preschool team member – the social skills therapist – who underwent training to implement the intervention in the preschool. The program consisted of three 45-minute sessions per week over a 6-month period. Each week, one session was a skill instruction encounter between the target child and the therapist, while the other two comprised practice sessions in play groups together with peers. The program was manualized and accompanied by supervision and ongoing fidelity checks by the researcher.

The following instruments were used to evaluate the intervention's effectiveness. The Social Play Questionnaire (SPQ; Hoshmand & Bauminger-Zviely, 2013a) was completed by the preschool social skills therapist who implemented the intervention program (to measure outcomes) and also was completed by the preschool teacher (to measure generalization). Observations of preschoolers' free social play in the course of

peer interaction were conducted using the Social Play Observation instrument (SPO; Hoshmand & Bauminger-Zviely, 2013b), which enabled evaluation of intervention outcomes along two indices: *social play quality*, reflecting the ratio between the quality and frequency of core social abilities during play, and *social play development*, a hierarchical rating scale of peer play complexity based on the developmental stages of social and social pretend play (Howes, 1980, 1988, 1992). Children's overall adaptive behavior to their environment was assessed using the Vineland-II Adaptive Behavior Scales (VABS; Sparrow, Cicchetti, & Balla, 2005).

Main Results as per Research Hypotheses

The first study hypothesis related to the intervention program's effectiveness in promoting the quality and frequency of core social abilities in social and social pretend play among these preschoolers with HFASD. Children in the play intervention (experimental) group demonstrated significant improvement from pretest to posttest in all measures of quality (quality of overall play, social play and social pretend play), and they exhibited larger gains than both control groups (conversation intervention and no-intervention).

The second study hypothesis related to the intervention program's effectiveness in promoting preschoolers' play complexity (along developmental stages for social play and social pretend play). Children in the play intervention group demonstrated within-stage and between-stage gains from pretest to posttest, in both social play development and social pretend play development, and they exhibited larger gains than in both control groups. The play group demonstrated higher play complexity at each developmental stage and showed a significant between-stage increase.

The third study hypothesis related to classifying clusters of preschoolers with HFASD based on their ability to improve on the two developmental play complexity indices (for social play and for social pretend play) by group. Children who received the play intervention exhibited a better ability to progress along these developmental indices. Most children who did not exhibit progress on the developmental indices were in the conversation intervention or no-intervention groups.

The fourth study hypothesis related, first, to the extent to which children with HFASD were able to generalize their gains in both quality and developmental stage of social and social pretend play to their spontaneous natural play situations in the preschool setting, and, second, to the degree to which these children improved their overall

adaptive behavior to their environment. Children who received the play intervention program demonstrated generalization of their acquired play skills to natural, non-mediated, free-play preschool situations with peers, both in terms of quality and development stage for social play and social pretend play. Likewise, the play intervention contributed to larger gains in overall adaptive social behavior to the environment than did the conversation intervention or no intervention; moreover, contrary to expectations, the conversation intervention itself did not contribute to gains in adaptive social behavior.

The study fifth hypothesis related to the links between gains in social play and social pretend play abilities and preschoolers' developmental variables: IQ, VIQ, chronological age, and ASD severity. Findings showed that IQ correlated negatively with gains in overall adaptive behavior, and ASD severity correlated negatively with progress over social play development stages. The remaining variables showed no significant correlations with change indices for social play.

Conclusions

This innovative 6-month play intervention program demonstrated effectiveness for improving the social play and social pretend play skills of preschoolers with HFASD, in terms of both play quality and progress along developmental stages for play complexity. Likewise, this ecological intervention was found effective not only in promoting preschoolers' ability to generalize their acquired play skills to their natural preschool environment but also in improving their general adaptive behavior in the preschool, as measured using the Vineland. These findings emerged using an RCT study design, showing the clear benefit of the play intervention over another social intervention and in comparison to a no-intervention control group. Results pinpointed the effectiveness of this specific ecological play intervention model for young children with HFASD, which integrates social and social pretend play skill acquisition and practice with peers in the natural preschool environment.

These study findings hold both empirical and clinical implications. Empirically, this RCT research demonstrated the effectiveness of a systematic, long-term, skill-directed social play and social pretend play intervention program for comprehensively improving the quality and developmental complexity of preschoolers' peer play interactions, thereby contributing scientific rigor in order to narrow gaps in the literature on early childhood social interventions for children with ASD. Clinically, this study contributes novel knowledge to ASD therapists and educators for their work with high-functioning

children in early childhood, by presenting an intensive, structured, practical, evidence-based intervention for promoting a core deficit related to social communication in HFASD, as delivered individually and in peer groups in preschoolers' natural setting by a trained preschool team member.