

Preschool-Based Social Communication Treatment for Children With Autism: 12-Month Follow-Up of a Randomized Trial

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Objective: This study reports 12-month follow-up data from a randomized controlled trial of preschool-based social communication treatment for young children with autism. **Method:** A total of 61 children (48 males) with autism, 29 to 60 months of age, had earlier been randomized either to 8 weeks of preschool-based social communication treatment in addition to standard preschool program ($n = 34$) or to standard preschool program only ($n = 27$). Significant short-term effects on targeted social communication skills have previously been published. Long-term gains in social communication, language and global social functioning and communication were assessed from video-taped preschool teacher-child and mother-child interactions, Early Social Communication Scales, Reynell Developmental Language Scale, and Social Communication Questionnaire. **Results:** Compared with those in the control group, the treated children achieved significantly larger improvements in joint attention and joint engagement from baseline to 12-month follow-up. However, no effects were detected on language and global ratings of social functioning and communication. The treatment effect on child initiation of joint attention increased with increasing level of sociability at baseline, whereas nonverbal IQ and expressive language had no moderating effect. **Conclusions:** This study is the first to show that, similar to specialist-delivered treatment, preschool-based treatment may produce small but possibly clinically important long-term changes in social communication in young children with autism. The treatment did not affect language and global ratings of social functioning and communication. More studies are needed to better understand whether treatment effects may be improved by increasing the intensity and duration of the treatment. Clinical trial registration information—Joint Attention Intervention and Young Children With Autism; <http://clinicaltrials.gov/>; NCT00378157. *J. Am. Acad. Child Adolesc. Psychiatry*, 2014;53(2):188–198. **Key Words:** autism, follow-up, language, preschool-based treatment, social communication

The ability to share focus on objects or events with others is essential for the development of social communication. Social communicative acts, such as use of joint attention skills (i.e., coordinated looking between persons and objects, pointing to share, and showing objects), enable young children to establish a shared focus with their social partners. Children with typical development obtain these types of skills within the first 2 years of life, whereas the attainment of joint attention skills, especially initiation of joint attention, is delayed and atypical in children with autism.^{1,2}

Children with autism are also less likely to spend time in joint engagement,³ a state in which the child and the social partner are involved with the same object or event.⁴ Children who often engage in joint attention and joint engagement may create more optimal early social learning opportunities for themselves. Interestingly, children with autism with more joint attention skills and longer time in joint engagement are found to acquire language faster^{3,5,6} and to develop better social skills.^{7,8} In this sense, joint attention and joint engagement may be considered pivotal skills that may lead to interactions fostering better language development, even when language is not specifically targeted.⁹ Therefore, joint attention and joint engagement are important targets in treatment of young children with autism.



This article is discussed in an editorial by Dr. Connie Kasari on page 133.

The effects of treatments aiming to increase social communication, such as joint attention skills and joint engagement, have been assessed in randomized controlled trials (RCT). Kasari *et al.*¹⁰ found an increase in joint attention skills and longer joint engagement after specialist-delivered treatment in a university-based preschool program, and Landa *et al.*¹¹ found an increase in socially engaged imitation in a similar setting. Significant effects have also been found in joint engagement, children's social communication initiation, and shared attention after parent-delivered treatments.^{12,13}

More recent studies have moved to mainstream and special education preschool classrooms. This is an important step, as most young children with autism attend preschool. Thus, testing the effect of social communication treatments when delivered in the preschool setting is essential. Lawton and Kasari¹⁴ reported longer duration of joint engagement and more initiation and response to joint attention after 6 weeks of social communication treatment in public preschools. Goods *et al.*¹⁵ reported a decrease in time unengaged, and more responses to joint attention after 12 weeks of treatment in autism speciality preschools. Kaale *et al.*¹⁶ showed an effect on children's initiation of joint attention with preschool teachers and generalization to more joint engagement with mothers after 8 weeks of social communication treatment for 2- to 4-year-old children with autism in mainstream preschools. Altogether these studies suggest that there is an effect of relatively brief preschool-based treatments. However, the studies focus only on short-term effects on directly targeted social communication abilities. Although this is important, information is also needed about course in a longer time perspective and collateral effects on nontargeted abilities.

Language has been 1 of these nontargeted abilities. It is plausible that social communication treatment could facilitate language growth, as the success of adult-child dyads in establishing a shared context is related to later language development.^{3,5} Actually, the specialist-delivered treatment assessed by Kasari *et al.*^{17,18} showed effects on both targeted social communication skills and expressive language 1 and 5 years after the end of treatment. However, collateral effects on language development have not been demonstrated in other studies of specialist-delivered treatment¹¹ or in studies of parent-delivered treatments.^{12,19,20}

No type of treatment works for all children with autism. Therefore, it is essential to investigate

for whom preschool-based social communication treatment may be effective. Children's cognitive^{21,22} and expressive language level^{17,23} have been suggested to moderate treatment outcome, but we do not know whether sociability affects treatment results.

To explore the long-term effects of preschool-based social communication treatment, we extended a previously published RCT¹⁶ in which we assessed the short-term effects the treatment. The first aim of the present study was to investigate the effects at 12 months on joint attention skills and time in joint engagement. The second aim was to examine collateral long-term effects on language and global ratings of social functioning and communication. The third aim was to investigate potential treatment moderators, with a focus on expressive language, nonverbal IQ, and sociability. Our a priori hypothesis was that, relative to the children in the control group, the children in the treatment group would show greater long-term gains in social communication, language, and social functioning and communication.

METHOD

Study Design

This study reports on the preplanned 12-month follow-up data from an RCT of a preschool-based social communication treatment for children with autism.¹⁶ All randomized participants were included in the statistical analyses whenever possible.

Participants

The original RCT consisted of 61 children identified by child and adolescent mental health clinics (CAMHCs) from 2006 to 2008, meeting the following inclusion criteria: chronological age of 24 to 60 months; ICD-10 diagnosis of childhood autism; and attendance in preschool. Exclusion criteria were CNS disorders (e.g., epilepsy, cerebral palsy) and non-Norwegian-speaking parents. All participants were diagnosed with childhood autism by a multi-disciplinary CAMHC team, based on a comprehensive clinical evaluation (interviews and multiple observations by different professionals). A total of 49 children (80%) were tested with Autism Diagnostic Observation Schedule (ADOS)²⁴ and/or Autism Diagnostic Interview-Revised (ADI-R).²⁵ Missing ADOS/ADI-R were due to site diagnostic practices, not child characteristics. The study was approved by the Norwegian National Committees for Research Ethics. Written consent was obtained from parents and preschools.

Randomization and Treatment

The majority of the participants were in mainstream community preschools, typically serving only 1 child

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