Social-communicative abilities as treatment goals for preschool children with autism spectrum disorder: the importance of imitation, joint attention, and play

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ABBREVIATIONS

ASD Autism spectrum disorder

[abstract]

Autism spectrum disorder (ASD) is a pervasive developmental disorder, with a lifelong impact in multiple domains of functioning. Often, a diagnosis is possible by the age of 3. Given the benefits of early intervention, it is advisable to start intervention as soon as possible after the diagnosis is made.

This intervention should focus, amongst others, on social-communicative abilities such as imitation, joint attention, and play. The typical developmental course and functions of these social-communicative abilities are described, and the problems young children with ASD experience in this domain. In addition, different approaches to promoting these abilities are described. The authors recommend the inclusion of imitation, joint attention, and play as treatment goals in community settings

What this paper adds

- Imitation, joint attention, and play are pivotal abilities in early development
- In young children with ASD, social-communicative abilities should be promoted

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Review

[main text]

Autism spectrum disorder (ASD) is a pervasive developmental disorder, with a lifelong impact on multiple domains of functioning. Although diagnosis is often delayed because of waiting lists, insufficient knowledge of the early signs of the disorder in first-line health care, and other practical factors, there is international consensus that the diagnosis of ASD in most cases can be made before the age of 3 years.¹ After a diagnosis is made, it is important that intervention starts as early as

possible as there is growing evidence that early intervention leads to a better prognosis.² Targets for early intervention should be ‘pivotal’ skills, or abilities that have an impact on several developmental domains such as language and social functioning. Three abilities that are especially important in the development of infants, toddlers, and preschool children are imitation, joint attention, and play.

IMITATION

Imitation is (identical) repetition of facial expressions, movements, actions (with or without objects), of someone else (the model). The imitator uses the same behaviour as the model to reach the same goal. Although there is no consensus on whether the capacity to imitate is inborn or not,^{3,4} imitation of facial expression, body movements, and even actions on objects is clearly present in the first year of life. In children with typical development, imitation serves as a learning and a social function.⁵ In particular in preverbal children, imitation is often used as a means of communication, both with peers and in parent-child interaction.^{6,7} By means of imitation, deferred imitation, and recognition of being imitated, children increasingly gain experience about other people and the world, and they become aware gradually of the mental states of other people, such as their intentions.⁸ In addition, early imitation has been linked to expressive and receptive language development.^{9,10}

By the age of 18 months, problems with imitation can discriminate infants with a later ASD diagnosis from infants with typical development.¹¹ Although not all aspects of imitation are impaired, and the imitation problems seem to reflect a delay rather than a deficit, most, but not all, preschool children with ASD have problems with imitation to a certain extent.¹² In addition, similar to children with typical development, a positive association has been found between imitation and subsequent language and play development in children with ASD.^{13,14}

Given the importance of imitation to the social functioning and wellbeing of young children, as well as their subsequent language and cognitive development, it is evident that enhancing imitation is an indispensable target of early intervention for children with ASD.

JOINT ATTENTION

Joint attention is the triadic coordination of attention among the child, a second person, and a third event, object, or person, with both the child and the second person aware of each other’s focus of attention.¹⁵ Generally, a distinction is made between imperative (or requesting) joint attention, which serves an instrumental function, and declarative joint attention, which has the social function

of sharing an interest in something with someone. In addition, a child can initiate (active) joint attention, or follow the joint attention bid (passive joint attention) of someone else. In typical development, joint attention emerges initially in the form of gaze following (passive) in the second half of the first year of life. Shortly thereafter, infants also actively try to involve others in bouts of joint attention, by gaze alternation, pointing, and/or vocalizing.^{16,17} Sharing attention offers the child a possibility to share experiences and emotions with another person, meanwhile building and maintaining a relationship with that person. In addition, several authors have found a longitudinal association between early joint attention skills and later language and theory of mind.^{14,18}

By their first birthday, absence of pointing and showing discriminates infants with ASD from infants with typical development.¹⁹ Although passive joint attention seems to be easier to achieve for children with ASD, and imperative joint attention may also be present, it is generally accepted that children with ASD have joint attention impairments.²⁰ In addition, Warreyn and colleagues²¹ showed that, although the frequency of gaze following and imperative joint attention may be relatively high in preschool children with ASD, the exact form and quality of their behaviour is atypical. However, the deficit in initiation of declarative joint attention seems to be the most serious and persisting joint attention problem in children with ASD.²¹ The presence of joint attention in children with ASD is associated with a less severe symptomatology, better language abilities, and better social competence in interaction with their peers.^{13,22,23}

Thus, similar to imitation, joint attention plays an important role in typical as well as atypical development, and is seen as an important intervention goal for children with ASD.

PLAY

In the first years of life, children develop increasingly complex play skills. Infants mainly explore the sensory characteristics of objects and develop more precise forms of object manipulation between the ages of 6 and 12 months.²⁴ In the last quarter of the first year of life, the ability to relate two or more objects emerges.²⁵ Examples of this type of play, called relational or combinational play, are putting one object into another or stacking objects. Functional play appears when a child is about 14 months old. At that age, the child can use (miniature) objects in the way they were intended (such as pushing a toy car). Three to 6 months later, the child is capable of symbolic play. From a theoretical point of view, symbolic play is defined as the ability to create imaginary events, and to invent multiple identities for objects, environments, and persons (including the self).²⁶ Implementing this into practice is not as simple: it is often very difficult to ascertain whether someone is really

‘pretending’. Leslie²⁷ described three different types of symbolic play: (1) substituting one object for another object or person, (2) attributing an imagined property to an object or person, and (3) reference to an absent object, person, or substance. First, substitution of similar objects, or of objects without a clear function emerges (e.g. using a sponge as bread [similarity], or using a block as a car [object without a clear function]). Later, the child’s play also incorporates object substitution of objects with a clear and dissimilar function (e.g. using a shoe as a bed), attributing of properties, and imagining something that is absent. By the age of 20 months, the child also combines instances of symbolic play into meaningful sequences.²⁸

Playing fulfils an important role in the life of a child: it is the activity on which young children spend most of their time. By exploring and manipulating objects, their knowledge of the world increases. In the process of playing, children also learn to think flexibly and creatively, which benefits their problem-solving abilities. Young children also practice and perfect their newly acquired language abilities in play, and they learn to represent objects, actions, and feelings by means of language. Apart from this cognitive and emotional function, play also has a social function, when children are playing together.²⁹

Children with ASD show deficits even in the most basic forms of play. Research found atypical patterns of exploration (e.g. spending a long time visually inspecting only a part of an object) and a general developmental delay in exploratory play.³⁰ Moreover, their functional play is less varied, elaborate, and integrated than found in children with typical development.³¹ However, the most extensively documented impairments are found in symbolic play.³² An early lack of symbolic play (combined with a deficit in joint attention) is highly predictive for a later diagnosis of ASD.³³ Symbolic play has also been found to discriminate between children with ASD and children with attention-deficit–hyperactivity disorder in the second year of life.³⁴ Nonetheless, the symbolic play deficit in ASD was not always replicated: several studies found no differences between children with ASD and age- and/or language-matched peers, especially in highly structured situations, or when it was specifically elicited.³⁵ The association between language and symbolic play has not always been replicated in ASD.¹³ However, other studies do suggest a concurrent association between pretend play and language,³⁶ or a longitudinal relationship between pretend play and the rate of communication development in ASD.³⁷

Given the importance of play in infancy and early childhood, and its possible relation to later language and theory of mind skills, it has been argued that play should be promoted in children with ASD.³⁸

INTERVENTION

Given the observation that imitation, joint attention, and (symbolic) play are often impaired in ASD, and because of the pivotal role of these social-communicative abilities in the child's further development and wellbeing, these abilities are considered as important treatment goals for the majority of young children with ASD. There is also evidence that these abilities can be stimulated or enhanced by a focused or more comprehensive training.

Imitation is incorporated in several comprehensive treatment programmes for young children with ASD, for example the Walden Toddler Program. This programme, based on an incidental teaching approach, includes a component for use in inclusive groups of children with and without autism, and a home-based component for parents.³⁹ Once established, imitation is often used as a means to teach the children other skills. Ingersoll⁵ distinguished this learning function of imitation from its social function. She stressed that treatment of children with autism should also explicitly address this social function, as children who learn to imitate in a structured situation do not generalize this to spontaneous imitation in other settings. Moreover, it seems that spontaneous imitation in a social context is more strongly related to social reciprocity and symbolic play than imitation in a structured context, although both forms of imitation are related to vocabulary development.⁴⁰

Joint attention is also frequently included in large early intervention programmes, for example in the Early Start Denver Model. This developmentally focused model uses techniques consistent with the method of Applied Behaviour Analysis, and combines a 20-hour per week therapist-led intervention with parent training.⁴¹ However, joint attention is also often specifically targeted as an isolated skill or one of a limited number of skills.^{42,43} Although it is recommended to target joint attention directly in autism interventions to obtain an increase in joint attention behaviour,⁴⁴ a review by White and colleagues suggests that joint attention can also increase when not targeted directly (e.g. as a collateral outcome in play interventions).⁴⁵ This may be especially true for the ability to respond to joint attention.⁴⁶ Successful teaching or promoting of joint attention often occurs in the context of play, combining a developmental approach with behavioural techniques, such as prompting and reinforcement.⁴⁵ Meindl and Cannella-Malone⁴⁶ report that a large number of studies have used tangible reinforcers or access to preferred activities to teach initiation of joint attention. They note that this may result in requests instead of declarative joint attention behaviour, and instead recommend the use of social attention or social interaction as the main reinforcer.

Finally, there is also evidence that play skills can be promoted in young children with ASD.³⁸ A recent review concluded that the majority of the interventions targeting play employ a behavioural approach within a natural context in which the interests of the child are followed.⁴⁷ However, therapist-directed methods can be equally effective in improving play skills of children with ASD.⁴⁸ In several recently developed social communication intervention programmes, play is one of the main targets. Both the parent training programme, Project ImPACT (Improving Parents as Communication Teachers)⁴⁹ and the teacher-implemented ASAP (Advancing Social communication And Play),⁵⁰ use prompts and rewards in a natural context to teach play skills to children with ASD. Both interventions use typical development as a guideline to determine specific play goals. This implies that symbolic play is seen as a more advanced skill that children are taught a bit further down the line, when more basic skills such as exploratory and combinational play have been acquired.

Besides evidence that imitation, joint attention, and play can be promoted through intervention, there are also indications that there is an interaction between these social-communicative abilities, and between these abilities and other developmental domains. For example, training in imitation can also increase joint attention, pretend play, and language.⁵¹ Moreover, collateral effects have also been documented of joint attention intervention on imitation, play, and spontaneous speech.⁵² Third, interventions targeting joint attention or symbolic play both have an effect on language.⁴³

SOCIAL-COMMUNICATIVE ABILITIES AS INTERVENTION TARGETS IN COMMUNITY SETTINGS

In the above, we argued that imitation, joint attention, and play skills should be important treatment targets for the majority of young children with ASD. In the literature on early intervention, especially in the studies reported by North American researchers, this is often achieved by incorporating these goals in intensive, comprehensive treatment programmes (such as the Walden Toddler Program and the Early Start Denver Model mentioned above). A review by Warren and colleagues⁵³ indicates that there is evidence for positive outcomes from early intensive intervention. In addition, this review suggests that parent training is effective for improving, among other things, social communication. However, a recent Cochrane review on parent training did not find statistical evidence of gains from parent-mediated approaches on the domain of social communication.⁵⁴ This was partly a result of methodological problems, such as lack of blinding. Parent training did have positive effects on more proximal outcomes such as parent-child interaction, and to a lesser extent on child language and autism symptomatology. To conclude, both early intensive treatment programmes and parent training are viewed as approaches with high potential for improving social-communicative abilities in

young children with autism. However, in many countries, this is not feasible. For instance, in Belgium, preschool children with ASD receive 3 to 5 hours of one-on-one treatment per week.⁵⁵ We have, therefore, developed a small-scale, non-intensive, focused treatment programme, targeting both imitation and joint attention simultaneously. The intervention programme was carried out one-on-one by a speech language therapist, a psychologist, or a master in educational sciences. This was done in community settings, where the children were already receiving therapy. The intervention programme included developmental and more behavioural techniques, and placed an emphasis on motivation and naturalistic reinforcement of the children. We have shown that, by means of 24 sessions of 30 minutes (over a period of 12-18 weeks), both imitation and joint attention significantly improved in a group of preschool children with ASD.⁵⁵ Given the large heterogeneity between services in different countries, already within Europe,⁵⁶ we believe that small, focused intervention programmes may be a worthwhile complement to or, if needed, alternative for the large, comprehensive treatment programmes. However, we wish to emphasize that the decision of when and at what pace these programmes should be included in the children's treatment plans is not the same for all children. It should be preceded by careful assessment of the child's skills, for instance on the domains of communication, exploration, and engagement with the environment. Only by carefully synchronizing the treatment goals and methods with the individual skills and needs of the child, can optimal treatment effects be achieved.

In the above, we argued that imitation, joint attention, and play are pivotal abilities in early development, and that intervention for young children with autism should incorporate these abilities as treatment goals. We reviewed evidence that these social-communicative abilities can be enhanced by early intervention. Although a large proportion of the evidence shows the effectiveness of early intensive programmes or parent training on this domain, we suggest that small-scale, more focused interventions can also be beneficial, and should definitely be considered where more intensive approaches are not feasible.

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