

## **Theory of Mind Part I: Social Thinking in Autism Spectrum Disorders**

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Since autism was first discovered in the 1940s, researchers have been trying to determine what the core deficit of the disorder is. Initially, researchers pointed to the deviant and delayed language development as the essential feature. And while such deficits remain a part of the diagnostic criteria for Autism Spectrum Disorders (ASD), the most current literature is looking at the difficulties in social thinking, or Theory of Mind, as the core deficit in ASD.

Theory of Mind refers to a human's ability to infer mental state in others. It is the ability to explain observable events based on desires or emotions, knowing that other people think differently from you, being able to take another person's perspective, being able to put other people's feelings before your own and thinking about the consequences of your actions before engaging in them. The development of theory of mind is critical since success in life is not just based on ability; more so it is a factor of one's social functioning and reasoning. When we can "mind-read" other people, we can become significantly more effective in our interactions with everyone we encounter.

Research on the development of Theory of Mind in neurotypical children has shown that as early as 10 months of age, infants show awareness and interest in other children who are crying. When a baby cries, the infant will orient toward the sounds and the baby itself. By 18 months of age, children will attempt to comfort a crying person by patting them or sharing a toy with them. Around 2 years of age, children begin to use emotion words, such as "happy" and "sad," and desire words, such as "want" and "need." And by 3 years of age, children are able to attribute their own feelings and motives to others. For example, they may say that Mommy is sad when they feel sad themselves. At this age, children have a large vocabulary of emotion words. They begin to use words and understand concepts, such as "know, think and pretend." When they start preschool, most children have a good understanding of other's emotions, even if they can't act upon this knowledge appropriately.

At about the age of 4, theory of mind begins to develop quite rapidly. Children understand that the same world can be experienced in different ways by different people ("I like hot dogs but Daddy doesn't"). They become interested in why people feel a certain way, such as asking "Why is Simba scared?" Children comment on other's motives and can infer some mental states — "I kiss you, you all better." Also at 4, children are able to explain events by attributing them to unobservable entities, such as beliefs or desires. They can represent people's conflicting views (going to Daddy for candy, when Mommy has told them "no"). At this point, one of the most essential features of Theory of Mind develops; understanding false beliefs. Children are able to understand the absence of knowledge and the fact that people can think something that isn't true. By the age of 8, Theory of Mind becomes complex social thinking. Children have the ability to think about how another person will feel or react

to a situation, are able to put other's needs before their own, have an interest in how other people think and are beginning to develop empathy.

While we still do not know why children with ASDs do not develop social thinking in these patterns, we do have good understanding of what the Theory of Mind deficits are. From very early on, children with ASD do not show the initial components of social interest. They often do not show an interest in other children's crying, and it is not until much later (around 3 to 4) that they may show a desire to comfort someone who is crying. The use of emotion words and the ability to identify emotions both in themselves and others is significantly delayed. Often this skill must be taught to children with ASD, as it may not develop intuitively. Understanding pretend play and false beliefs are prerequisites for developing Theory of Mind, and this skill is generally delayed in ASD. Many children do not begin to pretend play until they are elementary school age. Without this critical skill, more complex levels of social thinking cannot develop.

Other areas of difficulty for children with ASD involve their inability to take another person's feelings or their level of knowledge into account. They cannot read a listener's level of interest well. This tends to lead to pedantic, perseverative language, comments that seem insensitive and the inability to negotiate friendships by reading and responding to intentions. Children with ASD also have difficulty understanding misunderstanding. Because they lack a representation for the various ways that statements and actions can be interpreted, they do not understand how their words or actions could have been misperceived. In addition, problems develop in determining other people's motivation, predicting other's behaviors and in explaining the motives for their own behaviors.

There is now a good understanding of the deficits in social thinking and Theory of Mind within individuals with ASD. This essential knowledge allows for the design of more effective intervention strategies in the treatment of ASD.

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