Introduction

Various authors have described groups of children with severe social interactive and communicative problems who do not meet strict criteria for autistic disorder (2). Here the term “lesser variants” of autism is used, which does not, however, imply that these individuals are less handicapped in their daily functioning. The consequences of the social and communicative deficits as shown by this group can be as severe as for those children who have the same level of ability and typical autism. In this context “lesser” only refers to the severity or the amount of symptoms and not to the consequences of these symptoms for daily functioning. Examples of such lesser variants of autism include Wing’s ‘active-but-odd’ and ‘over-formal, stilted’ groups (43, 44), children with Multiple Complex Developmental Disorder (16, 40), or children with Asperger’s syndrome (3, 42). Other groups may not have been described as being part of the autistic spectrum (44), but may have many characteristics in common with these disorders. Examples include children with disorders in attentional, motor and perceptual control – DAMP – (18) or children with non-verbal learning disorders (36).

The groups described above (except for the Asperger’s syndrome which is included as a separate diagnostic category in the DSM-IV) may all meet DSM-III-R (1) or DSM-IV (2) criteria for Pervasive Developmental Disorders Not Otherwise Specified (PDD-NOS). This category provides a diagnostic holding place for a large group of children whose problems are not well captured by the available disorders (41). The criteria for this subthreshold category are very broad and mainly negatively formulated. As a result, children with problems classified as PDD-NOS often differ with respect to the quantity or seriousness of social, communicative and associated problems.

Theory of Mind

Despite the heterogeneity and the current lack of diagnostic validity for this clinically relevant group of children a rather specific hypothesis has been formulated...
concerning the underlying common cause of their social and communicative problems. Gillberg (19, 20) argues that problems in understanding other people’s psychological or mental states may be the underlying cause of the social problems of children with lesser variants of autism.

Several authors have presumed that autistic children lack an innate, cognitive ability to attribute mental states (e.g. thoughts, intentions, emotions) to others. These so-called Theory-of-Mind deficits (7) are supposed to account for social and communicative problems of autism. Most experiments carried out within the Theory-of-Mind approach focus on the attribution of beliefs to others. Support has been found for the presence of belief-attribute deficits in mentally handicapped children with autism. These children seem to be less able than control subjects to understand that other people can have beliefs which are not in accordance with reality (i.e. ‘false beliefs’) (4–8).

There is also evidence that many autistic children have an impaired understanding of other people’s knowledge (30, 34), perception (25, 34) and belief-based emotions (9). However, Baron-Cohen (6) and Tan and Harris (39) demonstrate that autistic subjects are able to understand certain aspects of desires. Thus, studies with mentally retarded autistic subjects generally support the hypothesis that these subjects have problems in understanding representational mental states, such as beliefs. The results of studies on Theory-of-Mind abilities of higher functioning autistic children or adolescents are more variable and more difficult to interpret. Among other things, this may be due to the lack of diagnostic consensus considering the distinction between high-functioning autism and Asperger’s syndrome. The results seem to vary depending on whether or not subjects with Asperger’s syndrome are included. Ozonoff and colleagues demonstrated that high-functioning autistic children or adolescents perform worse than normal and clinical controls on both simple and complex belief-attribute tasks (33). Also, subjects with high-functioning autism seemed to have less optimal abilities to infer and understand emotional mental states in others (15, 31, 45). Several authors have not found any significant differences between people with Asperger’s syndrome and normal and psychiatric controls. Children with Asperger’s syndrome were able to solve even complex belief-attribute tasks (13, 33, 35). Fine et al. (17) demonstrated Theory-of-Mind problems in children with Asperger syndrome, but they used a more naturalistic task-situation.

Gillberg (19, 20) extends the Theory-of-Mind hypothesis and suggests that problems in the development of adequate Theory-of-Mind skills or an inability to ‘empathise’ could not only be the underlying causal factor in autism, but also of lesser variants of autism. Empirical studies that include children with ‘milder’ social and communicative problems are rare. Buitelaar et al. (14) found impaired performance on standard Theory-of-Mind tasks in normally intelligent children with PDD-NOS. Using tasks measuring the ability to predict and recognize emotional mental states, Serra et al. found less optimal performance on some of these tasks in normally intelligent children with PDD-NOS (37).

In sum, there is at least some evidence for Theory-of-Mind deficits in children with lesser variants of autism, but given the lack of research data, no firm conclusions can be made. In addition, most studies focus on the attribution of beliefs. Inference and understanding of emotions has generally been neglected, although the importance of these skills has been stressed by many authors (24, 28, 29).

Theory of Mind: absence of skills or failure to apply them?

Apparently, not all children with disorders in the autistic spectrum have severe and demonstrable Theory-of-Mind deficits. As a result, additional hypotheses need to be formulated in order to explain the social deviant behaviour of such children. An example concerns the hypotheses that the social-interactive and communicative problems of children who do possess adequate Theory-of-Mind skills might be caused by an inability to apply these skills in a spontaneous and effective manner (12, 13). Thus, their deviant social behaviour is explained by a ‘failure in performance’ rather than by an ‘absence of skills’.

Studies using unstructured and naturalistic tasks have provided some preliminary support for this suggestion. Happé (27) used an advanced test of Theory of Mind in which understanding of other people’s intentions was needed to grasp, for example, white lies, jokes, pretence or irony. Happé found that even those children who were able to solve complex, standard Theory-of-Mind tasks, failed to understand irony, jokes etc. Fine et al. (17) studied conversational abilities of high-functioning autistic individuals and individuals with Asperger’s syndrome. They found that both groups were less able to adjust their conversation to the needs (e.g. knowledge, interests) of the listener.

Both studies suggest that the children who participated might have had problems in using their Theory-of-Mind knowledge in daily-life situations. However, in none of the studies described above it is clear whether the children did not possess the skills to infer intentions, interests or knowledge of other persons, or whether they were only unable to apply them. To really study this issue it is necessary to investigate both skills and application of these skills in the same situation. No such studies appear to have been carried out.