

# AUTISM SPECTRUM DISORDERS – FIRST INDICATORS AND SCHOOL AGE OUTCOME

## AKADEMISK AVHANDLING

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av

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Fakultetsopponent: Professor Bruno Hägglöf  
Umeå Universitet

Avhandlingen baseras på följande arbeten:

### I

Barnevik Olsson M, Höglund Carlsson L, Westerlund J, Gillberg C, Fernell E.  
Autism before diagnosis: crying, feeding and sleeping problems in the first two years of life.  
*Acta Paediatrica* 2013; 102: 635–39

### II

Barnevik Olsson M, Lundström S, Westerlund J, Giacobini MB, Gillberg C, Fernell E.  
Preschool to school in autism: neuropsychiatric problems 8 years after diagnosis  
at 3 years of age. *Manuscript*.

### III

Barnevik Olsson M, Holm A, Westerlund J, Hedvall Å, Gillberg C, Fernell E.  
Children with Autism Spectrum Disorder of below average IQ: developmental trajectories  
from 3 to 11 years of age. *Submitted*.

### IV

Barnevik Olsson M, Westerlund J, Lundström S, Giacobini MB, Fernell E, Gillberg C.  
”Recovery” from the diagnosis of autism – and then?  
*Neuropsychiatric Disease and Treatment* 2015; 11: 999–1005.

Handledare: Professor Elisabeth Fernell  
Biträdande handledare: Professor Christopher Gillberg,  
med. dr MaiBritt Giacobini



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# AUTISM SPECTRUM DISORDERS – FIRST INDICATORS AND SCHOOL AGE OUTCOME

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## ABSTRACT

**BACKGROUND:** Studies of early indicators, diagnostic stability and outcome at mid-school age in children referred early in life for a suspected autism spectrum disorder (ASD) have been few.

**AIMS:** To examine early indicators of ASD and eight-year stability of ASD diagnoses, comorbidity, cognitive levels and overall clinical profiles, in children diagnosed with ASD in preschool age after receiving early intervention.

**METHODS:** A community-based cohort of 208 preschool children with ASD were followed prospectively. Records from Child Healthcare Centers were reviewed regarding regulatory problems (RP) during infancy. When the children were about 11 years, parents of 128 of the children participated in the Autism-Tics, AD/HD and other Comorbidities (A-TAC) Telephone Interview. A subgroup of 50 children with ASD who had had borderline intellectual functioning (BIF) – were targeted for a new cognitive test. Another subgroup of 17 children who had “grown out of autism” (i.e. had no longer met diagnostic criteria for ASD at a previous follow-up) were separately targeted for follow-up. Parental telephone interviews in these subgroups also included the Vineland Adaptive Behavior Scales and a semi-structured interview regarding the child’s daily functioning.

**RESULTS:** Early RP had been significantly more common in children later diagnosed with ASD. Approximately 90% of children with an early diagnosis of ASD still met criteria for ASD at mid-school age. A similar rate also had combinations of other developmental/neuropsychiatric disorders; attention problems, speech-/language difficulties and/or learning problems. Co-occurring disorders were particularly prevalent in children with ASD and intellectual disability. Half of the children in the group still met criteria for BIF, 20% had mild ID (intellectual disorder), while 30% had cognitive results in the average IQ range. The vast majority of the children who had “grown out of autism” still had major problems at follow-up, and some of them had indications of again meeting full criteria for a diagnosis of ASD.

**CONCLUSION:** Early RP should be considered a possible marker for ASD. Almost all children with a preschool diagnosis of ASD had remaining neurodevelopmental problems eight years later, findings that support the concepts of ESSENCE (Early Symptomatic Syndromes Eliciting Neurodevelopmental Clinical Examinations) and Autism Plus. The results underscore the need for follow-up assessments, educational adaptations and longer-term parental support targeted to this patient group.

**KEYWORDS:** Autism spectrum disorder, autistic traits, neurodevelopmental disorders, attention-deficit/hyperactivity disorder, language impairment, regulatory problems, A-TAC, adaptive behavior, borderline intellectual functioning, intellectual disability, outcome, ESSENCE, Autism Plus.