
Abstract

Emerging findings from studies with infants at familial high risk for autism spectrum disorder (ASD), owing to an older sibling with a diagnosis, suggest that those who go on to develop ASD show early impairments in the processing of stimuli with both social and non-social content. Although ASD is defined by social-communication impairments and restricted and repetitive behaviours, the majority of cognitive theories of ASD posit a single underlying factor, which over development has secondary effects across domains. This is the first high-risk study to statistically differentiate theoretical models of the development of ASD in high-risk siblings using multiple risk factors. We examined the prediction of ASD outcome by attention to social and non-social stimuli: gaze following and attentional disengagement assessed at 13 months in low-risk controls and high-risk ASD infants (who were subsequently diagnosed with ASD at 3 years). When included in the same regression model, these 13-month measures independently predicted ASD outcome at 3 years of age. The data were best described by an additive model, suggesting that non-social attention, disengagement, and social attention as evidenced by gaze following, have a cumulative impact on ASD risk. These data argue against cognitive theories of ASD which propose that a single underlying factor has cascading effects across early development leading to an ASD outcome, and support multiple impairment models of ASD that are more consistent with recent genetic and neurobiological evidence.


Abstract

Increased male prevalence has been repeatedly reported in several neurodevelopmental disorders (NDs), leading to the concept of a “female protective model.” We investigated the molecular basis of this sex-based difference in liability and demonstrated an excess of deleterious autosomal copy-number variants (CNVs) in females compared to males (odds ratio [OR] = 1.46, p = 8 × 10−10) in a cohort of 15,585 probands ascertained for NDs. In an independent autism spectrum disorder (ASD) cohort of 762 families, we found a 3-fold increase in deleterious autosomal CNVs (p = 7 × 10−4) and an excess of private deleterious single-nucleotide variants (SNVs) in female compared to male probands (OR = 1.34, p = 0.03). We also showed that the deleteriousness of autosomal SNVs was significantly higher in female probands (p = 0.0006). A similar bias was observed in parents of probands ascertained for NDs. Deleterious CNVs (>400 kb) were maternally inherited more often (up to 64%, p = 10−15) than small CNVs < 400 kb (OR = 1.45, p = 0.0003). In the ASD cohort, increased maternal transmission was also observed for deleterious CNVs and SNVs.
Although ASD females showed higher mutational burden and lower cognition, the excess mutational burden remained, even after adjustment for those cognitive differences. These results strongly suggest that females have an increased etiological burden unlinked to rare deleterious variants on the X chromosome. Carefully phenotyped and genotyped cohorts will be required for identifying the symptoms, which show gender-specific liability to mutational burden.


Abstract
BACKGROUND:
Previous research on clinical and high-risk samples suggests that signs of autism spectrum disorder (ASD) can be detected between 1 and 2 years of age. We investigated signs of ASD at 18 months in a population-based sample and the association with later ASD diagnosis.

METHODS:
The study sample includes 52,026 children born 2003 through 2008 and is a subset of children that participated in the Norwegian Mother and Child Cohort (MoBa), a population-based longitudinal study, and the Autism Birth Cohort (ABC), a sub-study on ASD. Parents completed all 23 items from the Modified Checklist for Autism in Toddlers (M-CHAT) at 18 months.

RESULTS:
The M-CHAT 6-critical-item criterion and the 23-item criterion had a specificity of 97.9% and 92.7% and a sensitivity of 20.8% and 34.1%, respectively. In the 173 children diagnosed with ASD to date, 60 children (34.7%) scored above the cut-off on either of the screening criteria. The items with the highest likelihood ratios were 'interest in other children', 'show objects to others' and 'response to name'.

CONCLUSION:
Even though one-third of the children who later received an ASD diagnosis were identified through M-CHAT items, the majority scored below cut-off on the screening criteria at 18 months. The results imply that it might not be possible to detect all children with ASD at this age.


Abstract
This paper provides a systemic review of the available literature on people with autism spectrum disorder (ASD) in the criminal justice system (CJS). The review considers two main types of study: those that examined the prevalence of people with ASD in the CJS and those that examined the prevalence of offending in populations with ASD. In addition, types
of offences in people with ASD, co-morbid psychiatric diagnoses, and characteristics of people with ASD who commit offences (including predisposing factors) are considered. A combination of search terms was used in a variety of databases in order to find all of the available literature on this topic, and research studies were included based on specified inclusion and exclusion criteria. It was found that whilst there is an emerging literature base on this topic, there are a wide variety of methodologies used, making direct comparison difficult. Nevertheless it can be concluded so far that people with ASD do not seem to be disproportionately over-represented in the CJS, though they commit a range of crimes and seem to have a number of predisposing features. There is poor evidence of the presence of comorbid psychiatric diagnoses (except in mental health settings) amongst offenders with ASD, and little evidence of the oft-asserted over-representation of certain kinds of crimes. It is recommended that further research of good quality is required in this area, rather than studies that examine populations that are not representative of all those with ASD.


Abstract
Despite high rates of clinically elevated anxiety difficulties in children and adolescents with autism spectrum disorders (ASDs), very few studies have systematically examined the usefulness of commonly used caregiver report anxiety screening tools with this population. This study investigated the use of the Spence Children’s Anxiety Scale-Parent version (SCAS-P) as a screening tool for anxiety disorders when compared to a standardized DSM-IV-TR-based clinical interview, the Kiddie-Schedule for Schizophrenia and Affective Disorders-Present and Lifetime version (K-SADS-PL). Thirty-two caregivers of youth with a clinical diagnosis of ASD (mean age 10.3 years) attending a specialist autism school participated in this study. They first completed the SCAS-P, a measure of adaptive functioning and a checklist of other emotional and behavioral difficulties. They were then interviewed with the K-SADS-PL. Internal consistency for the SCAS Total score was .88, but Cronbach’s alphas were <.70 in three of the six SCAS-P subscales. The sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of the SCAS-P against K-SADS diagnosis were .75, .71, .27, and .95, respectively. All values were >.70, except for the PPV. Evidence of convergent validity between the SCAS-P, K-SADS-PL and DBC anxiety subscale was also found. The high false positive rates notwithstanding, the preliminary data of acceptable to excellent sensitivity, specificity and NPV values tentatively suggest that the SCAS-P may be useful for screening non-help seeking young people with ASD for elevated anxiety symptoms. Further replication in larger studies is needed and ways in which the SCAS-P could be further developed and investigated for use with youth with ASD are discussed.

Abstract

Objective
Disorders on the autism spectrum, as well as autistic traits in the general population, have been found to be both highly stable across age and highly heritable at individual ages. However, little is known about the overlap in genetic and environmental influences on autistic traits across age and the contribution of such influences to trait stability itself. The present study investigated these questions in a general population sample of twins.

Method
More than 6,000 twin pairs were rated on an established scale of autistic traits by their parents at 8, 9, and 12 years of age and by their teachers at 9 and 12 years of age. Data were analyzed using structural equation modeling.

Results
The results indicated that, consistently across raters, not only were autistic traits stable, and moderately to highly heritable at individual ages, but there was also a high degree of overlap in genetic influences across age. Furthermore, autistic trait stability could largely be accounted for by genetic factors, with the environment unique to each twin playing a minor role. The environment shared by twins had virtually no effect on the longitudinal stability in autistic traits.

Conclusions
Autistic traits are highly stable across middle childhood, and this stability is caused primarily by genetic factors.


Abstract

The recently published Autism Diagnostic Observation Schedule, 2nd edition (ADOS-2) includes revised diagnostic algorithms and standardized severity scores for modules used to assess younger children. A revised algorithm and severity scores are not yet available for Module 4, used with verbally fluent adults. The current study revises the Module 4 algorithm and calibrates raw overall and domain totals to provide metrics of autism spectrum disorder (ASD) symptom severity. Sensitivity and specificity of the revised Module 4 algorithm exceeded 80% in the overall sample. Module 4 calibrated severity scores provide quantitative estimates of ASD symptom severity that are relatively independent of participant characteristics. These efforts increase comparability of ADOS scores across modules and should facilitate efforts to examine symptom trajectories from toddler to adulthood.

**Abstract**

Objective: This study had 3 goals, which were to examine the following: the frequency of atypical development, consistent with the broader autism phenotype, in high-risk infant siblings of children with autism spectrum disorder (ASD); the age at which atypical development is first evident; and which developmental domains are affected.  

Method: A prospective longitudinal design was used to compare 294 high-risk infants and 116 low-risk infants. Participants were tested at 6, 12, 18, 24, and 36 months of age. At the final visit, outcome was classified as ASD, Typical Development (TD), or Non-TD (defined as elevated Autism Diagnostic Observation Schedule [ADOS] score, low Mullen Scale scores, or both).  

Results: Of the high-risk group, 28% were classified as Non-TD at 36 months of age. Growth curve models demonstrated that the Non-TD group could not be distinguished from the other groups at 6 months of age, but differed significantly from the Low-Risk TD group by 12 months on multiple measures. The Non-TD group demonstrated atypical development in cognitive, motor, language, and social domains, with differences particularly prominent in the social-communication domain.  

Conclusions: These results demonstrate that features of atypical development, consistent with the broader autism phenotype, are detectable by the first birthday and affect development in multiple domains. This highlights the necessity for close developmental surveillance of infant siblings of children with ASD, along with implementation of appropriate interventions as needed.


**Abstract**

Utilizing a cohort sequential design and multilevel modeling on a sample of 113 mothers, the effects of four coping strategies (engagement, disengagement, distraction, and cognitive reframing) on multiple measures of maternal adjustment were assessed over a 7 years period when children with autism spectrum disorders in the study were approximately 7-14 years old. Findings indicated increased use of disengagement and distraction to be related to increased maternal maladjustment over time, while increased use of cognitive reframing was linked to improved maternal outcomes (findings regarding engagement's effects on adjustment measures were mixed). In addition, results indicated that use of different coping strategies at times moderated the effects of child behavior on maternal adjustment. Study findings are discussed in light of prior research and study limitations and clinical implications are highlighted.

Abstract
Background: Four times as many males are diagnosed with high functioning autism compared to females. A growing body of research that focused on females with autism spectrum disorder (ASD) questions the assumption of gender invariance in ASD. Clinical observations suggest that females with ASD superficially demonstrate better social and emotional skills than males with ASD, which may camouflage other diagnostic features. This may explain the under-diagnosis of females with ASD.

Methods: We hypothesised that females with ASD would display better social skills than males with ASD on a test of friendship and social function. One hundred and one 10- to 16-year-olds (ASD females, n = 25; typically developing (TD) females, n = 25; ASD males, n = 25; TD males, n = 26) were interviewed (using the friendship questionnaire (FQ)) with high scores indicating the child has close, empathetic and supportive relationships. One parent of each child completed the FQ to assess whether there are differences in perception of friendships between parents and children.

Results: It was found that, independent of diagnosis, females demonstrated higher scores on the FQ than males. Further, regardless of gender, children with ASD demonstrated lower scores than TD children. Moreover, the effect of ASD was independent of gender. Interestingly, females with ASD and TD males displayed similar scores on the FQ.

Conclusions: This finding is supported by clinical reports that females with ASD have more developed social skills than males with ASD. Further research is now required to examine the underlying causes for this phenomenon in order to develop gender-appropriate diagnostic criteria and interventions for ASD.


Abstract
A family member with an autism spectrum disorder presents pervasive and bidirectional influences on the entire family system, suggesting a need for family-focused autism spectrum disorder research. While there has been increasing interest in this research area, family-focused autism spectrum disorder research can still be considered relatively recent, and there are limitations to the existing literature. The purpose of this article is to provide theoretical and methodological directions for future family-focused autism spectrum disorder research. In particular, this article proposes Family Systems approaches as a common theoretical framework for future family-focused autism spectrum disorder research by considering theoretical concepts such as Boundaries, Ambiguous Loss, Resilience and Traumatic Growth. We discuss reasons why these concepts are important to researching families living with autism spectrum disorder and provide recommendations for future research. The potential for
research grounded in Family Systems approaches to influence clinical support services is also discussed.


**Abstract**

This study examined the relations among loneliness, friendship, and emotional functioning in adults (*N* = 108) with autism spectrum disorders. Participants completed self-report measures of symptoms of autism spectrum disorders, loneliness, number and nature of friendships, depression, anxiety, life satisfaction, and self-esteem. The results indicated that loneliness was associated with increased depression and anxiety and decreased life satisfaction and self-esteem, even after controlling for symptoms of autism spectrum disorders. In addition, greater quantity and quality of friendships were associated with decreased loneliness among adults with autism spectrum disorders. Multivariate models indicated that friendship did not moderate the relationship between loneliness and well-being; however, number of friends provided unique independent effects in predicting self-esteem, depression, and anxiety above and beyond the effects of loneliness. This was the first study to examine the relations among these aspects of social and emotional functioning in adults with autism spectrum disorders, and the results indicate that this topic warrants further clinical and research attention.


**Abstract**

Facial recognition is a complex skill necessary for successful human interpersonal and social interactions. Given that the most prevalent disorder of social interaction is autism spectrum disorder (ASD), a number of studies have investigated and found impaired facial recognition abilities in people with ASD. Further, this impairment may be critically involved in mediating the deficits in interpersonal and social interactions in people with ASD. We sought to address the question of whether face processing is impaired in children with ASD in the current study. While there were a number of differences in visual search behaviours between the 19 children with ASD and the 15 controls, this did not manifest in deficits in facial recognition accuracy. In addition, there were notable differences with respect to eye fixation behaviours and recognition accuracy in this study compared to the findings in a previous similar study conducted in adults with ASD. These differences suggest a performance enhancing developmental trajectory in facial processing in controls that may not be present in individuals with ASD.

Abstract

Although all intellectually high-functioning children with autism spectrum disorder (ASD) display core social and communication deficits, some develop language within a normative timescale and others experience significant delays and subsequent language impairment. Early attention to social stimuli plays an important role in the emergence of language, and reduced attention to faces has been documented in infants later diagnosed with ASD. We investigated the extent to which patterns of attention to social stimuli would differentiate early and late language onset groups. Children with ASD (mean age = 10 years) differing on language onset timing (late/normal) and a typically developing comparison group completed a task in which visual attention to interacting and noninteracting human figures was mapped using eye tracking. Correlations on visual attention data and results from tests measuring current social and language ability were conducted. Patterns of visual attention did not distinguish typically developing children and ASD children with normal language onset. Children with ASD and late language onset showed significantly reduced attention to salient social stimuli. Associations between current language ability and social attention were observed. Delay in language onset is associated with current language skills as well as with specific eye-tracking patterns.


Abstract

Background

People with autism spectrum disorders (ASD) are known to have enhanced auditory perception, however, acoustic startle response to weak stimuli has not been well documented in this population. The objectives of this study are to evaluate the basic profile of acoustic startle response, including peak startle latency and startle magnitude to weaker stimuli, in children with ASD and typical development (TD), and to evaluate their relationship to ASD characteristics.

Methods

We investigated acoustic startle response with weak and strong acoustic stimuli in 12 children with ASD and 28 children with TD, analyzing the relationship between startle measures and quantitative autistic traits assessed with the Social Responsiveness Scale (SRS). The electromyographic activity of the left orbicularis oculi muscle to acoustic stimuli of 65 to 115 dB sound pressure level (SPL), in increments of 5 dB, was measured to evaluate acoustic startle response. The average eyeblink magnitude for each acoustic stimuli intensity and the average peak startle latency of acoustic startle response were evaluated.

Results
The magnitude of the acoustic startle response to weak stimuli (85 dB or smaller) was greater in children with ASD. The peak startle latency was also prolonged in individuals with ASD. The average magnitude of the acoustic startle response for stimulus intensities greater than 85 dB was not significantly larger in the ASD group compared with the controls. Both greater startle magnitude in response to weak stimuli (particularly at 85 dB) and prolonged peak startle latency were significantly associated with total scores, as well as several subscales of the SRS in the whole sample. We also found a significant relationship between scores on the social cognition subscale of the SRS and the average magnitude of the acoustic startle response for stimulus intensities of 80 and 85 dB in the TD group.

Conclusions
Children with ASD exhibited larger startle magnitude to weak stimuli and prolonged peak startle latency. These startle indices were related to several characteristics of ASD. A comprehensive investigation of acoustic startle response, including the magnitude of startle responses to weak stimuli and peak startle latency, might further our understanding of the neurophysiological impairments underlying ASD.


Abstract
Parents of children with autism spectrum disorders (ASD) use a wide range of interventions including poorly evidenced dietary interventions. To investigate parents’ and professionals’ experience of dietary interventions and attitudes towards a proposed trial to evaluate the gluten free casein free diet (GFCFD). Survey of UK parents of children with ASD, and professionals. 258 parents and 244 professionals participated. 83% of children had received a range of dietary manipulations; three quarters of professionals have been asked for advice about GFCFD. Respondents identified an inadequate evidence base for dietary interventions in ASD and suggested modifications to a proposed trial design. Both parents and professionals supported the need for further evaluation of dietary interventions in ASD.


Abstract
This study examines whether sensory differences can be used to classify meaningful subgroups of children with autism spectrum disorder (ASD). Caregivers of children with ASD aged 2–10 years (n = 228) completed the Short Sensory Profile. Model-based cluster analysis was used to extract sensory subtypes. The relationship of these subtypes to age, gender, autism symptom severity, and nonverbal intelligence quotient (IQ) was further explored. Four distinct sensory subtypes were identified: (a) sensory adaptive; (b) taste smell
sensitive; (c) postural inattentive; and (d) generalized sensory difference. The sensory subtypes differ from each other on two dimensions: (a) the severity of reported sensory differences; and (b) the focus of differences across auditory, taste, smell, vestibular and proprioceptive domains. Examination of the clinical features of each subtype reveals two possible mechanisms of sensory disturbance in autism: (a) sensory hyperreactivity; and (b) difficulties with multisensory processing. Further, the sensory subtypes are not well explained by other variables such as age, gender, IQ, and autism symptom severity. We conclude that classification of children using sensory differences offers a promising method by which to identify phenotypes in ASD. Sensory-based phenotypes may be useful in identifying behavioral features responsive to specific interventions thereby improving intervention effectiveness. Further validation of the sensory-based phenotypes by establishing neural and physiological correlates is recommended.


**Abstract**
We examined the efficacy of cognitive behavioural therapy (CBT) delivered in groups on the reduction of symptoms of depression, anxiety and stress in young people on the autism spectrum. Utilising a quasi-experimental design, comparisons were made between individuals allocated to a group intervention program and individuals allocated to a waitlist. Following the intervention program, participants who were initially symptomatic reported significantly lower depression and stress scores on the Depression Anxiety Stress Scales in comparison to individuals on the waitlist. There was no significant change in anxiety related symptoms. The benefits were maintained at 3 and 9 month follow-up. Our findings demonstrate the potential of CBT in a small group setting for assisting young people with ASD who have symptoms of depression and stress.


**Abstract**
Anxiety difficulties and disorders are common in children and youth people with Autism Spectrum Disorders (ASD), but only a few studies have specifically examined informant agreement in non-referred samples. The present study examined informant agreement between 38 Singaporean caregiver–child dyads using the Spence Children's Anxiety Scale Parent Version (SCAS-P) and the SCAS Child self-report (SCAS-C) respectively. The young people with ASD (mean age 12 years 10 months) completed the SCAS-C, while their caregivers completed the SCAS-P, the Scales of Independent Behavior-Revised and the
Developmental Behavior Checklist. There was overall moderately good agreement between caregivers and children's reporting of anxiety symptoms. Intra-class correlations were highest in the Separation Anxiety, Generalized Anxiety and Physical Injury subscales. Fourteen of the 38 SCAS items, most of which described overt anxiety symptoms, showed strong or moderate inter-rater agreement. Higher severity of autism symptoms was associated with poorer agreement in the Generalized Anxiety, Panic and Obsessions/Compulsions SCAS subscales. These preliminary findings suggest that the SCAS may be a useful measure for reporting anxiety symptoms in terms of satisfactory agreement between caregivers and young people in non-referred settings. Implications for screening for anxiety in non-referred young people with ASD are also discussed.


Abstract
The study of comorbid psychopathology among persons with autism spectrum disorder (ASD) is picking up steam. The purpose of this paper was to review and describe important characteristics of existing studies. Among the current crop of papers, depression, anxiety, and attention-deficit/hyperactivity disorder (ADHD) have been frequently evaluated. Groups studied have most frequently been children. Persons with ASD and normal intelligence quotient (IQ) scores have been studied more often than individuals with ASD and intellectual disability. Additional characteristics are discussed, and the implications of these data for future developments in the field are reviewed.


Abstract
The goals of our study were to (a) compare agreement between autism spectrum disorder diagnosis and outcome of the Modified Checklist for Autism in Toddlers and Parents Evaluation of Developmental Status in a sample of toddlers and (b) examine specific concerns noted for toddlers who screened negative on the Modified Checklist for Autism in Toddlers or Parents Evaluation of Developmental Status but were later diagnosed with autism spectrum disorder. Participants were administered the Modified Checklist for Autism in Toddlers and Parents Evaluation of Developmental Status during well-child visits. Families were invited for a clinical evaluation if autism spectrum disorder symptoms were noted on the Modified Checklist for Autism in Toddlers or Modified Checklist for Autism in Toddlers Follow-Up Interview or if autism spectrum disorder concerns were noted by the pediatrician. Fifty-two children completed the Modified Checklist for Autism in Toddlers, Parents Evaluation of Developmental Status, and a clinical evaluation, and 30 of these children were diagnosed with an autism spectrum disorder. Modified Checklist for Autism in Toddlers results showed higher agreement with autism spectrum disorder diagnosis than any
individual Parents Evaluation of Developmental Status screen result, although the latter detected many children with other developmental concerns. Children who screened negative on the Modified Checklist for Autism in Toddlers or Parents Evaluation of Developmental Status but were diagnosed with autism spectrum disorder had concerns noted in sensory response and proto-declarative pointing that can be considered in the context of screen results. In sum, our findings support universal autism spectrum disorder–specific screening in addition to general developmental screening and offer considerations to encourage early identification of toddlers with autism spectrum disorder.


Abstract
Autism is a lifelong neurodevelopmental disorder, with a known impact on quality of life. Yet the developmental trajectory of quality of life is not well understood. First, the effect of age on quality of life was studied with a meta-analysis. Our meta-analysis included 10 studies (published between 2004 and 2012) with a combined sample size of 486 people with autism and 17,776 controls. Second, as there were no studies on quality of life of the elderly with autism, we conducted an empirical study on quality of life of the elderly (age range 53–83) with autism (N = 24) and without autism (N = 24). The meta-analysis showed that quality of life is lower for people with autism compared to people without autism, and that the mean effect is large (Cohen’s d = −0.96). Age did not have an effect on quality of life. The study concerning the elderly with autism showed that the difference in quality of life is similar in the elderly. Age, IQ and symptom severity did not predict quality of life in this sample. Across the lifespan, people with autism experience a much lower quality of life compared to people without autism. Hence, the quality of life seemed to be independent of someone’s age.


Abstract
A systematic review was conducted to examine the efficacy of a range of treatments for autistic catatonia. The review identified 22 relevant papers, reporting a total of 28 cases including both adult and paediatric patients. Treatment methods included electroconvulsive therapy (ECT), medication, behavioural and sensory interventions. Quality assessment found the standard of the existing literature to be generally poor, with particular limitations in treatment description and outcome measurement. There is some limited evidence to support the use of ECT, high dose lorazepam and behavioural interventions for people with autistic catatonia. However, there is a need for controlled, high-quality trials. Reporting of side effects and adverse events should also be improved, in order to better evaluate the safety of these treatments.

**Abstract**

This study evaluated the predictive validity of the Autism Detection in Early Childhood (ADEC; Young, Autism detection in early childhood: ADEC. Australian Council of Educational Research, Camberwell, VIC 2007) and a well-established screening tool, the Childhood Autism Rating Scale (CARS; Schopler et al. The childhood autism rating scale (CARS). Western Psychological Services, Los Angeles 1988), for long term outcomes of children with ASD engaged in an early intervention program. Participants were 55 children (44 male, 11 female) aged 19–42 months (M = 33.5, SD = 5.6) at initial assessment who were followed up 2 and 6 years after their initial assessment. The ADEC and the CARS performed similarly when predicting long term outcomes such as clinical diagnostic outcome and overall adaptive functioning level. However, only the ADEC score was significantly correlated with ASD symptom severity at the 6-year follow up. Although these findings need to be replicated with additional and larger samples, this study extends our understanding of the psychometric properties of both the ADEC and the CARS.


**Abstract**

**Objective**

This study tested the effect of beginning treatment with a speech-generating device in the context of a blended, adaptive treatment design for improving spontaneous, communicative utterances in school-aged, minimally verbal children with autism.

**Method**

Sixty-one minimally verbal children with autism, aged 5 to 8 years, were randomized to a blended developmental/behavioral intervention (JASP+EMT) with or without the augmentation of a speech-generating device (SGD) for 6 months with a 3-month follow-up. The intervention consisted of two stages. In Stage 1 all children received two sessions per week for 3 months. Stage 2 intervention was adapted (increased sessions or adding the SGD) based on the child’s early response. The primary outcome was the total number of spontaneous communicative utterances; secondary measures were total number of novel words and total comments from a natural language sample.

**Results**

Primary aim results found improvements in spontaneous communicative utterances, novel words, and comments that all favored the blended behavioral intervention that began by including an SGD (JASP+EMT+SGD) as opposed to spoken words alone (JASP+EMT). Secondary aim results suggest that the adaptive intervention beginning with
JASP+EMT+SGD and intensifying JASP+EMT+SGD for children who were slow responders led to better post-treatment outcomes.

Conclusion
Minimally verbal school-aged children can make significant and rapid gains in spoken spontaneous language with a novel, blended intervention that focuses on joint engagement and play skills and incorporates an SGD. Future studies should further explore the tailoring design used in this study to better understand children’s response to treatment.


Abstract
Autism spectrum disorder (ASD) is often described as a disorder of aberrant neural connectivity. Although it is important to study the pathophysiology of ASD in the developing cortex, the functional connectivity in the brains of young children with ASD has not been well studied. In the present study, brain activity was measured non-invasively during consciousness in 50 young human children with ASD and 50 age- and gender-matched typically developing human (TD) children. We employed a custom child-sized magnetoencephalography (MEG) system in which sensors were located as close to the brain as possible for optimal recording in young children. We focused on theta band oscillations because they are thought to be involved in long-range networks associated with higher cognitive processes. The ASD group showed significantly reduced connectivity between the left anterior and the right posterior areas, exhibiting a decrease in the coherence of theta band (6 Hz) oscillations compared with the TD group. This reduction in coherence was significantly correlated with clinical severity in right-handed children with ASD. This is the first study to demonstrate reduced long-range functional connectivity in conscious young children with ASD using a novel MEG approach.


Abstract
BACKGROUND:
Previous research on clinical and high-risk samples suggests that signs of autism spectrum disorder (ASD) can be detected between 1 and 2 years of age. We investigated signs of ASD at 18 months in a population-based sample and the association with later ASD diagnosis.

METHODS:
The study sample includes 52,026 children born 2003 through 2008 and is a subset of children that participated in the Norwegian Mother and Child Cohort (MoBa), a population-based longitudinal study, and the Autism Birth Cohort (ABC), a sub-study on ASD. Parents completed all 23 items from the Modified Checklist for Autism in Toddlers (M-CHAT) at 18 months.
RESULTS:
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CONCLUSION:
Even though one-third of the children who later received an ASD diagnosis were identified through M-CHAT items, the majority scored below cut-off on the screening criteria at 18 months. The results imply that it might not be possible to detect all children with ASD at this age.


Abstract
Background
Unstuck and On Target (UOT) is an executive function (EF) intervention for children with autism spectrum disorders (ASD) targeting insistence on sameness, flexibility, goal-setting, and planning through a cognitive-behavioral program of self-regulatory scripts, guided/faded practice, and visual/verbal cueing. UOT is contextually-based because it is implemented in school and at home, the contexts in which a child uses EF skills.

Methods
To evaluate the effectiveness of UOT compared with a social skills intervention (SS), 3rd–5th graders with ASD (mean IQ = 108; UOTn = 47; SS n = 20) received interventions delivered by school staff in small group sessions. Students were matched for gender, age, race, IQ, ASD symptomotology, medication status, and parents' education. Interventions were matched for ‘dose’ of intervention and training. Measures of pre–post change included classroom observations, parent/teacher report, and direct child measures of problem-solving, EF, and social skills. Schools were randomized and evaluators, but not parents or teachers, were blinded to intervention type.

Results
Interventions were administered with high fidelity. Children in both groups improved with intervention, but mean change scores from pre- to postintervention indicated significantly greater improvements for UOT than SS groups in: problem-solving, flexibility, and planning/organizing. Also, classroom observations revealed that participants in UOT made greater improvements than SS participants in their ability to follow rules, make transitions, and be flexible. Children in both groups made equivalent improvements in social skills.

Conclusions
These data support the effectiveness of the first contextually-based EF intervention for children with ASD. UOT improved classroom behavior, flexibility, and problem-solving in children with ASD. Individuals with variable background/training in ASD successfully implemented UOT in mainstream educational settings.

**Abstract**

Despite the availability of several interventions designed to reduce engagement in vocal stereotypy, few studies have compared two or more interventions together. Consequently, practitioners have limited amount of data to make informed decisions on whether an intervention may be more suitable than another to begin treating vocal stereotypy. The purpose of the study was to address this limitation by examining the direct and collateral effects of multiple interventions in 12 individuals with autism and other developmental disabilities in order to guide the development of a sequential intervention model. Using single-case experimental designs, we conducted a series of four experiments which showed that (a) noncontingent music generally produced more desirable outcomes than differential reinforcement of alternative behavior, (b) differential reinforcement of other behavior reduced vocal stereotypy in two participants for whom noncontingent music had failed to do so, (c) the addition of simple prompting procedures may enhance the effects of the interventions, and (d) the effects of noncontingent music may persist during sessions with extended durations. Based on these results, we propose a sequential intervention model to facilitate the initial and subsequent selection of an intervention most likely to reduce vocal stereotypy while producing desired collateral outcomes.


**Abstract**

Although it is suspected that anxiety modifies the clinical presentation of autism in fragile X syndrome (FXS), neuropsychiatric co-morbidity profiles of these two disorders have not been extensively studied. The National Fragile X Survey was completed for 1,027 males with FXS, for whom yes/no information regarding the presence of several disorders is provided. Although the survey exhibited limited depth and lacked validation by standardized measures, this exploratory study was conducted to take advantage of the data as an opportunity for identifying future lines of inquiry. We addressed the following questions: (i) how do the co-morbidity profiles of FXS males with both autism and anxiety compare to those without anxiety?; (ii) do individuals with autism exhibit specific co-morbidity profiles compared to FXS males with anxiety only, or without either autism or anxiety?; (iii) how do co-morbidity profiles in children ages 3-11 differ from profiles of individuals >12 years? The group with autism and anxiety reported the highest prevalence of attention problems, hyperactivity/impulsivity, self-injurious behavior and aggressiveness. In addition, the lowest prevalence rates of these conditions were often observed in non-anxious groups regardless of autism status. Overall, this exploratory analysis generated several hypotheses for further
study: (i) anxiety increases the severity of autism in FXS, particularly through additional behavioral abnormalities; (ii) some neuropsychiatric and behavioral conditions (i.e., attention problems, hyperactivity/impulsivity, aggressiveness) are primarily related to comorbid anxiety, not autism; (iii) prevalence of behavioral abnormalities increases with age. Future studies evaluating these hypotheses should incorporate validated neurobehavioral assessments, and control for cognitive level.


Abstract
Autism is an extensively studied disorder in which the gender disparity in prevalence has received much attention. In contrast, only a few studies examine gender differences in symptomatology. This systematic review and meta-analysis of 22 peer reviewed original publications examines gender differences in the core triad of impairments in autism. Gender differences were transformed and concatenated using standardized mean differences, and analyses were stratified in five age categories (toddlerhood, preschool children, childhood, adolescence, young adulthood). Boys showed more repetitive and stereotyped behavior as from the age of six, but not below the age of six. Males and females did not differ in the domain of social behavior and communication. There is an underrepresentation of females with ASD an average to high intelligence. Females could present another autistic phenotype than males. As ASD is now defined according to the male phenotype this could imply that there is an ascertainment bias. More research is needed into the female phenotype of ASD with development of appropriate instruments to detect and ascertain them.


Abstract
OBJECTIVE:
Children with autism spectrum disorders (CWASDs) have more difficulty tolerating hospital procedures than many other children. The aim of this study was to identify parent and provider perspectives on barriers and facilitators to procedural care for CWASDs.

METHODS:
Semistructured interviews were conducted with medical staff and parents of CWASDs. Those parents whose child with autism required a procedure in a tertiary care sedation unit and those whose child was enrolled in autismMatch (a research registry for individuals with autism) were recruited. Staff providing direct patient care in the tertiary care sedation unit were recruited. Participants were asked open-ended questions about factors contributing to or interfering with successful completion of medical procedures for CWASDs. Interviews were
audio-recorded, transcribed verbatim, coded, and analyzed using modified grounded theory techniques.

RESULTS:
Twenty mothers and 20 medical staff members were interviewed. Participants described 2 domains essential to care of CWASDs but in which barriers existed: (1) productive interactions between providers and families, largely dependent on advanced preparation and (2) modifications to healthcare organization and delivery in the areas of patient flow and clinical environment. Individualized care is essential to quality care in both domains.

CONCLUSIONS:
Children with autism spectrum disorders require individualized interventions to maximize the quality of procedural care. However, many hospitals and providers are not sufficiently equipped to accommodate these children's needs. This study suggests that targeted improvements in preparation and communication between providers and families as well as modifications in patient flow and clinical environments have the potential to improve the quality and successful completion of procedures.


Abstract
Many children with autism spectrum disorders (ASD) have co-occurring feeding problems. However, there is limited knowledge about how these feeding habits are related to other behavioral characteristics ubiquitous in ASD. In a relatively large sample of 256 children with ASD, ages 2-11, we examined the relationships between feeding and mealtime behaviors and social, communication, and cognitive levels as well as repetitive and ritualistic behaviors, sensory behaviors, and externalizing and internalizing behaviors. Finally, we examined whether feeding habits were predictive of nutritional adequacy. In this sample, we found strong associations between parent reported feeding habits and (1) repetitive and ritualistic behaviors, (2) sensory features, and (3) externalizing and internalizing behavior. There was a lack of association between feeding behaviors and the social and communication deficits of ASD and cognitive levels. Increases in the degree of problematic feeding behaviors predicted decrements in nutritional adequacy.