
**Abstract**

Visual-spatial strengths observed among people with autism spectrum disorder (ASD) may be associated with increased efficiency of selective attention mechanisms such as visual search. In a series of studies, researchers examined the visual search of targets that share features with distractors in a visual array and concluded that people with ASD showed enhanced performance on visual search tasks. However, methodological limitations, the small sample sizes, and the lack of developmental analysis have tempered the interpretations of these results. In this study, we specifically addressed age-related changes in visual search. We examined conjunctive visual search in groups of children with (n = 34) and without ASD (n = 35) at 7–9 years of age when visual search performance is beginning to improve, and later, at 10–12 years, when performance has improved. The results were consistent with previous developmental findings; 10- to 12-year-old children were significantly faster visual searchers than their 7- to 9-year-old counterparts. However, we found no evidence of enhanced search performance among the children with ASD at either the younger or older ages. More research is needed to understand the development of visual search in both children with and without ASD.


**Abstract**

Stereotyped behaviors are prominent in both the ASD and ID populations; stereotypies can impede social skill acquisition, interfere with learning, and adversely affect an individual's quality of life. The current study explored the effect of cognitive skills and autism spectrum disorder (ASD) on the rate of stereotypies in 2019 children aged 17–39 months. Cognitive abilities were assessed using the cognitive developmental quotient (DQ) on the *Battelle Developmental Inventory, Second Edition (BDI-2)*; two levels of cognitive skill were used: (1) low (cognitive DQ less than or equal to 70), and (2) typical (cognitive DQ greater than 70). Stereotypies were examined utilizing the *Baby and Infant Screen for Children with Autism Traits, Part 3 (BISCUIT-Part 3)*. Children with ASD were found to have greater rates of overall stereotyped behaviors compared to children with atypical development, regardless of cognitive level; however, children with ASD and typical cognitive ability evinced the highest rate of stereotypies. An examination of specific stereotyped behaviors (i.e., unusual play with objects, repeated and unusual vocalizations, repeated and unusual body movements) revealed disparate results. Research and clinical implications regarding these findings are discussed.

**Abstract**

This review examines ethnicity reporting in three autism-related journals (*Autism, Focus on Autism and Other Developmental Disabilities*, and *Journal of Autism and Developmental Disorders*) over a 6-year period. A comprehensive multistep search of articles is used to identify ethnicity as a demographic variable in these three journals. Articles that identified research participants’ ethnicity were further analyzed to determine the impact of ethnicity as a demographic variable on findings of each study. The results indicate that ethnicity has not been adequately reported in these three autism related journals even though previous recommendations have been made to improve inadequacies of descriptive information of research participants in autism research (Kistner and Robbins in *J Autism Dev Disord* 16:77–82, 1986). Implications for the field of autism spectrum disorders are discussed in addition to further recommendations for future research.


**Abstract**

**Background**

Recent evidence suggests that restricted and repetitive behaviors may differentiate children who develop autism spectrum disorder (ASD) by late infancy. How these core symptoms manifest early in life, particularly among infants at high risk for the disorder, is not well characterized.

**Methods**

Prospective, longitudinal parent-report data (Repetitive Behavior Scales-Revised) were collected for 190 high-risk toddlers and 60 low-risk controls from 12 to 24 months of age. Forty-one high-risk children were classified with ASD at age 2. Profiles of repetitive behavior were compared between groups using generalized estimating equations.

**Results**

Longitudinal profiles for children diagnosed with ASD differed significantly from high- and low-risk children without the disorder on all measures of repetitive behavior. High-risk toddlers without ASD were intermediate to low risk and ASD positive counterparts. Toddlers with ASD showed significantly higher rates of repetitive behavior across subtypes at the 12-month time point. Repetitive behaviors were significantly correlated with adaptive behavior and socialization scores among children with ASD at 24 months of age, but were largely unrelated to measures of general cognitive ability.

**Conclusions**
These findings suggest that as early as 12 months of age, a broad range of repetitive behaviors are highly elevated in children who go on to develop ASD. While some degree of repetitive behavior is elemental to typical early development, the extent of these behaviors among children who develop ASD appears highly atypical.


**Abstract**

**Background**

To determine whether familial transmission is shared between autism spectrum disorders and attention-deficit/hyperactivity disorder, we assessed the prevalence, rates of comorbidity, and familial transmission of both disorders in a large population-based sample of children during a recent 7 year period.

**Methods**

Study participants included all children born to parents with the Kaiser Permanente Northwest (KPNW) Health Plan between 1 January 1998 and 31 December 2004 ($n = 35,073$). Children and mothers with physician-identified autism spectrum disorders (ASD) and/or attention-deficit/hyperactivity disorder (ADHD) were identified via electronic medical records maintained for all KPNW members.

**Results**

Among children aged 6–12 years, prevalence was 2.0% for ADHD and 0.8% for ASD; within those groups, 0.2% of the full sample (19% of the ASD sample and 9.6% of the ADHD sample) had co-occurring ASD and ADHD, when all children were included. When mothers had a diagnosis of ADHD, first born offspring were at 6-fold risk of ADHD alone (OR = 5.02, $p < .0001$) and at 2.5-fold risk of ASD alone (OR = 2.52, $p < .01$). Results were not accounted for by maternal age, child gestational age, child gender, and child race.

**Conclusions**

Autism spectrum disorders shares familial transmission with ADHD. ADHD and ASD have a partially overlapping diathesis.

Abstract

Background

Although increasing numbers of children diagnosed with Autism Spectrum Disorders (ASD) are now entering adolescence and adulthood, there is limited research on outcomes post childhood. A systematic review of the existing literature was conducted.

Method

PsycINFO, PubMed, MedLine and CINAHL were systematically searched using keywords related to ASD and adolescent and adult outcomes. Studies of individuals diagnosed with ASD in childhood and followed up into adulthood were identified and reviewed. Only studies with samples sizes > 10, mean age at outcome > 16 years and at least one previous assessment in childhood (< 16 years) were included.

Results

Twenty-five studies meeting criteria were identified. Reported outcomes in adulthood were highly variable across studies. Although social functioning, cognitive ability and language skills remained relatively stable in some studies, others reported deterioration over time. Adaptive functioning tended to improve in most studies. Diagnosis of autism or ASD was generally stable, although severity of autism-related behavioural symptoms was often reported to improve. Childhood IQ and early language ability appeared to be the strongest predictors of later outcome, but few studies examined other early variables associated with adult functioning.

Discussion

Implications of the findings are discussed in relation to methodological challenges in longitudinal outcome research and future research directions.

Abstract

This study follows 40 children who were participants in a randomized controlled early intervention trial (Kasari et al.) from early childhood (2–5 years of age) to elementary school age (8–10 years). To fully utilize the available longitudinal data, the general linear mixed model was the primary analytical approach. The growth trajectories of joint attention skills (pointing, coordinated joint looking, and showing) and expressive language outcomes in these children were estimated based on five time points during the measurement period. The children were grouped by diagnosis at the last follow-up (autism, autism spectrum disorder (ASD), no diagnosis) and by their original treatment group assignment (joint attention, symbolic play, control), and differences between these groups were evaluated. Results showed that joint attention skills of coordinated joint looking and showing increased over time, and pointing to share interest increased over the first year measured and decreased thereafter. These trajectories were influenced by both original treatment assignment and diagnostic status at follow-up. In addition, a cross-lagged panel analysis revealed a causal relationship between early pointing and later language development. This study highlights the longitudinal and developmental importance of measures of early core deficits in autism, and suggests that both treatment and ASD symptomatology may influence growth in these skills over time.


Abstract

Studies have shown an increased head circumference and the absence of the head tilt reflex as possible risk factors for autism spectrum disorder, allowing for early detection at 12 months in typically developing population of infants. Our aim was to develop a screening tool to identify infants prior to 12 months at risk for autism spectrum disorder and developmental learning delay, not affected by literacy or primary parental language, and provide immediate determination of risk for autism spectrum disorder. An abrupt head circumference acceleration and the absence of head tilt reflex by 9 months were used to identify infants at risk for autism spectrum disorder. Stability of early findings was then investigated when compared to comprehensive standardized neurodevelopmental assessment results and complete neurological and genetics evaluations. A total of 1024 typically developing infants were enrolled by 9 months, with 14 identified as at risk for autism spectrum disorder and 33 for developmental learning delay. There was a good positive predictive value for the identification of autism spectrum disorder prior to 12 months. This study demonstrates an efficient means to identify infants at risk for autism spectrum disorder by 9 months of age and
serves to alert primary care providers of infants who are vulnerable for autism spectrum disorder before symptoms are discernible by clinical judgment of primary care providers, parental concerns, or by screening questionnaires.


Abstract

Path analysis within a structural equation modeling framework was employed to examine the relationships between two types of parent stress and children’s externalizing and internalizing behaviors over a 4-year period, in a sample of 184 mothers of young children with autism spectrum disorder. Parent stress was measured with the Parenting Stress Index-Short Form and child behavior was measured with Child Behavior Checklist/1.5–5. Across all time points, parent general distress predicted both types of child behaviors, but not vice versa. In addition, there was modest evidence of a bidirectional relationship between parenting distress and both types of child behaviors from 12 months post-diagnosis to age 6. Results are compared to previous work in this area, with implications for early intervention.


Abstract

We conducted a systematic review and meta-analysis to determine the effect of changes to the Diagnostic and Statistical Manual (DSM)-5 on autism spectrum disorder (ASD) and explore policy implications. We identified 418 studies; 14 met inclusion criteria. Studies consistently reported decreases in ASD diagnosis (range 7.3–68.4 %) using DSM-5 criteria. There were statistically significant pooled decreases in ASD [31 % (20–44), p = 0.006] and DSM-IV-TR subgroups of Autistic disorder [22 % (16–29), p < 0.001] and pervasive developmental disorder-not otherwise specified (PDD-NOS) [70 % (55–82), p = 0.01]; however, Asperger’s disorder pooled decrease was not significant [70 % (26–94), p = 0.38]. DSM-5 will likely decrease the number of individuals diagnosed with ASD, particularly the PDD-NOS subgroup. Research is needed on policies regarding services for individuals lacking diagnosis but requiring assistance.

Abstract

Despite the emphasis of autism spectrum disorders as a continuum of social communication disabilities and the sexual heterogeneity of phenotypic manifestations, whether gaze processing constitutes an autistic endophenotype in both sexes remains unclear. Using the Autism-Spectrum Quotient and a psychophysical approach in a normal population (N = 128), here we demonstrated that individual differences in autistic traits predicted direct-gaze perception for males, but not for females. Our findings suggest that direct-gaze perception may not be taken as a definitive indicator of autistic spectrum, and highlight the importance of sex differences when considering relationships between autistic traits and behaviors.


Abstract

Understanding of false belief has long been considered to be a crucial aspect of “theory of mind” that can be explained by a domain-specific mechanism. We argue against this claim using new evidence from a nonverbal false representation task (false-sign task) with typically developing children and children with autism spectrum disorders (ASD). Experiments 1 and 2 showed that typically developing children (mean age = 62.67 months) were equivalent in their performance across nonverbal and verbal forms of both the false-belief and false-sign tasks. Results for these two misrepresentation tasks differed from the results of an outdated representation task (“false”-photograph task). Experiment 3 showed that children with ASD had difficulties with the false representation tasks, and this could not be explained by executive functioning or language impairments. These findings support the view that children with ASD might not have a specific theory-of-mind deficit.
Abstract

Background

Restricted interests are a class of repetitive behavior in autism spectrum disorders (ASD) whose intensity and narrow focus often contribute to significant interference with daily functioning. While numerous neuroimaging studies have investigated executive circuits as putative neural substrates of repetitive behavior, recent work implicates affective neural circuits in restricted interests. We sought to explore the role of affective neural circuits and determine how restricted interests are distinguished from hobbies or interests in typical development.

Methods

We compared a group of children with ASD to a typically developing (TD) group of children with strong interests or hobbies, employing parent report, an operant behavioral task, and functional imaging with personalized stimuli based on individual interests.

Results

While performance on the operant task was similar between the two groups, parent report of intensity and interference of interests was significantly higher in the ASD group. Both the ASD and TD groups showed increased BOLD response in widespread affective neural regions to the pictures of their own interest. When viewing pictures of other children's interests, the TD group showed a similar pattern, whereas BOLD response in the ASD group was much more limited. Increased BOLD response in the insula and anterior cingulate cortex distinguished the ASD from the TD group, and parent report of the intensity and interference with daily life of the child's restricted interest predicted insula response.

Conclusions

While affective neural network response and operant behavior are comparable in typical and restricted interests, the narrowness of focus that clinically distinguishes restricted interests in ASD is reflected in more interference in daily life and aberrantly enhanced insula and anterior cingulate response to individuals’ own interests in the ASD group. These results further support the involvement of affective neural networks in repetitive behaviors in ASD.

Abstract

First-person perspectives of children with autism spectrum disorder are rarely included in research, yet their voices may help more clearly illuminate their needs. This study involved phenomenological interviews with children with autism spectrum disorder (n = 12, ages 4–13) used to gain insights about their sensory experiences. This article addresses two study aims: determining the feasibility of interviewing children with autism spectrum disorder and exploring how they share information about their sensory experiences during the qualitative interview process. With the described methods, children as young as 4 years old and across a broad range of autism severity scores successfully participated in the interviews. The manner with which children shared information about their sensory experiences included themes of normalizing, storytelling, and describing responses. The interviews also revealed the importance of context and the multisensory nature of children’s experiences. These findings contribute strategies for understanding the sensory experiences of children with autism spectrum disorder with implications for practice and future research.


Abstract

Autism Spectrum Disorders (ASDs) and childhood obesity (OBY) are rising public health concerns. This study aimed to evaluate the prevalence of overweight (OWT) and OBY in a sample of 376 Oregon children with ASD, and to assess correlates of OWT and OBY in this sample. We used descriptive statistics, bivariate, and focused multivariate analyses to determine whether socio-demographic characteristics, ASD symptoms, ASD cognitive and adaptive functioning, behavioral problems, and treatments for ASD were associated with OWT and OBY in ASD. Overall 18.1% of children met criteria for OWT and 17.0% met criteria for OBY. OBY was associated with sleep difficulties, melatonin use, and affective problems. Interventions that consider unique needs of children with ASD may hold promise for improving weight status among children with ASD.
Abstract

Autism Spectrum Disorders (ASDs) have traditionally been considered a lifelong condition; however, a subset of people makes such significant improvements that they no longer meet diagnostic criteria for an ASD. The current study examines whether these “optimal outcome” (OO) children and adolescents continue to have subtle pragmatics deficits. The narratives of 15 OO individuals, 15 high-functioning individuals with an ASD (HFA), and 15 typically developing (TD) peers were evaluated. Despite average cognitive functioning, the ASD group produced narratives with fewer central “gist” descriptions, more ambiguous pronominal referents, idiosyncratic language, speech dysfluency (more repetitions and self-corrections), and were less likely to name story characters. The OO participants displayed only very subtle pragmatic and higher-level language deficits (idiosyncratic language and self-correction dysfluency).

Abstract

The effect of daily work stress on the next morning's awakening cortisol level was determined in a sample of 124 mothers (M age = 49.89, SD = 6.33) of adolescents and adults with developmental disabilities and compared to 115 mothers (M age = 46.19, SD = 7.08) of individuals without disabilities. Mothers participated in 8 days of diary telephone interviews and provided saliva samples. Multilevel models revealed that mothers of individuals with developmental disabilities had lower awakening cortisol levels than comparison mothers. Work stress interacted with parental status to predict the awakening cortisol level on the following morning. When mothers of individuals with developmental disabilities experienced a work stressor, their awakening cortisol level was significantly higher on the subsequent morning, but for comparison mothers, work stressors were not significantly associated with cortisol level. Findings extend understanding of the differential impacts of specific types of stressors on physiological functioning of mothers of individuals with and without developmental disabilities.
Abstract

The purpose of this review is to provide an overview of the research on epilepsy in autism spectrum disorder (ASD). Topics explored are the prevalence of epilepsy in ASD, the importance of studying epilepsy, as well as the questionnaire measures used to assess epilepsy side-effects. Research on the relationships between epilepsy and parental stress and psychological distress, developmental regression, language and communication, adaptive behavior, social skills, autism severity, challenging behavior, comorbid psychopathology, gastrointestinal symptoms, sleep problems, sensory issues and quality of life are also discussed. Finally, recommendations for treatment are given as well as areas where future research is needed.


Abstract

Canonical babbling is a critical milestone for speech development and is usually well in place by 10 months. The possibility that infants with autism spectrum disorder (ASD) show late onset of canonical babbling has so far eluded evaluation. Rate of vocalization or “volubility” has also been suggested as possibly aberrant in infants with ASD. We conducted a retrospective video study examining vocalizations of 37 infants at 9–12 and 15–18 months. Twenty-three of the 37 infants were later diagnosed with ASD and indeed produced low rates of canonical babbling and low volubility by comparison with the 14 typically developing infants. The study thus supports suggestions that very early vocal patterns may prove to be a useful component of early screening and diagnosis of ASD.

Abstract

IMPORTANCE There has been recent interest in the findings that the offspring of older fathers have an increased risk of both de novo mutations and neuropsychiatric disorders. However, the offspring of younger parents are also at risk for some adverse mental health outcomes. OBJECTIVE To determine the association between maternal and paternal age and a comprehensive range of mental health disorders. DESIGN, SETTING, AND PARTICIPANTS A comprehensive, population-based record linkage study using the Danish Psychiatric Central Research Register from January 1, 1995, through December 31, 2011. A total of 2 894 688 persons born in Denmark from January 1, 1955, through December 31, 2006, were followed up during the study period. EXPOSURES Maternal and paternal age at the time of offspring's birth. MAIN OUTCOMES AND MEASURES We examined a broad range of International Classification of Diseases-defined mental disorders, including substance use; schizophrenia and related disorders; mood disorders; neurotic, stress-related, and somatoform disorders; eating disorders; specific personality disorders; and a range of developmental and childhood disorders. The incidence rate ratios for each mental disorder outcome were estimated by log linear Poisson regression with adjustments for the calendar period, age, sex, and age of the other parent. RESULTS The cohort was observed for 42.7 million person-years, during which 218 441 members of the cohort had their first psychiatric contact for any psychiatric disorder. Based on the overall risk of psychiatric disorders, the offspring of younger and older parents were at increased risk compared with those of parents aged 25 to 29 years. When the offspring were examined for particular disorders, the nature of the relationship changed. For example, the offspring of older fathers were at an increased risk of schizophrenia and related disorders, mental retardation, and autism spectrum disorders. In contrast, the offspring of young mothers (and to a lesser extent young fathers) were at an increased risk for substance use disorders, hyperkinetic disorders, and mental retardation. CONCLUSIONS AND RELEVANCE The offspring of younger mothers and older fathers are at risk for different mental health disorders. These differences can provide clues to the complex risk architecture underpinning the association between parental age and the mental health of offspring.
Abstract

Background: The objectives of this study were to examine the independent and dependent associations of maternal and paternal age and risk of offspring autism spectrum disorders (ASD), with and without intellectual disability (ID).

METHODS: The sample consisted of 417,303 Swedish children born 1984-2003. ASD case status (N = 4746) was ascertained using national and regional registers. Smoothing splines in generalized additive models were used to estimate associations of parental age with ASD.

RESULTS: Whereas advancing parental age increased the risk of child ASD, maternal age effects were non-linear and paternal age effects were linear. Compared with mothers at the median age 29 years, those <29 had similar risk, whereas risk increased after age 30, with an odds ratio (OR) of 1.75 [95% (CI): 1.63-1.89] at ages 40-45. For fathers, compared with the median age of 32 years, the OR for ages 55-59 was 1.39 (1.29-1.50). The risk of ASD was greater for older mothers as compared with older fathers. For example, mothers aged 40-45 (≥97.2th percentile) had an estimated 18.63 (95% CI: 17.25-20.01) ASD cases per 1000 births, whereas fathers aged 55-59 (≥99.7th percentile) had 16.35 (95% CI: 15.11-17.58) ASD cases per 1000 births. In analyses stratified by co-parental age, increased risk due to advancing paternal age was evident only with mothers ≤35 years. In contrast, advancing maternal age increased risk regardless of paternal age. Advancing parental age was more strongly associated with ASD with ID, compared with ASD without ID.

CONCLUSIONS: We confirm prior findings that advancing parental age increases risk of ASD, particularly for ASD with ID, in a manner dependent on co-parental age. Although recent attention has emphasized the effects of older fathers on ASD risk, an increase of n years in maternal age has greater implications for ASD risk than a similar increase in paternal age.

Abstract

This study examined the differential effect of a highly structured adult-directed behavioral treatment condition and a more flexible child-oriented blending of behavioral and developmental treatment strategies in a clinical group setting with autistic children. The children with autism following the more flexible child-oriented treatment condition engaged significantly more in higher-order play activities allowing for peer proximity and demonstrated better social functioning during activities with other autistic peers. A relation of child-oriented teaching utilizing less intrusive prompting to more developmentally appropriate play as well as social functioning was found. The findings suggest that child-oriented play and social skill interventions in the clinical context, although being applied in a group of autistic children, may facilitate social functioning and engagement.


Abstract

Children with autism spectrum disorders often exhibit co-occurring sensory processing problems and receive interventions that target self-regulation. In current practice, sensory interventions apply different theoretic constructs, focus on different goals, use a variety of sensory modalities, and involve markedly disparate procedures. Previous reviews examined the effects of sensory interventions without acknowledging these inconsistencies. This systematic review examined the research evidence (2000–2012) of two forms of sensory interventions, sensory integration therapy and sensory-based intervention, for children with autism spectrum disorders and concurrent sensory processing problems. A total of 19 studies were reviewed: 5 examined the effects of sensory integration therapy and 14 sensory-based intervention. The studies defined sensory integration therapies as clinic-based interventions that use sensory-rich, child-directed activities to improve a child’s adaptive responses to sensory experiences. Two randomized controlled trials found positive effects for sensory integration therapy on child performance using Goal Attainment Scaling (effect sizes ranging from .72 to 1.62); other studies (Levels III–IV) found positive effects on reducing behaviors linked to sensory problems. Sensory-based interventions are characterized as classroom-based interventions that use single-sensory strategies, for example, weighted vests or therapy balls, to influence a child’s state of arousal. Few positive effects were found in sensory-based intervention studies. Studies of sensory-based interventions suggest that they may not be effective; however, they did not follow recommended protocols or target sensory processing
problems. Although small randomized controlled trials resulted in positive effects for sensory integration therapies, additional rigorous trials using manualized protocols for sensory integration therapy are needed to evaluate effects for children with autism spectrum disorders and sensory processing problems.