

Autism Research Review

I N T E R N A T I O N A L

A quarterly publication of the Autism Research Institute—www.Autism.org

Reviewing biomedical and educational research in the field of autism and related disorders

New research points to alterations in BPA excretion pathway in children with autism, ADHD

Children with autism spectrum disorders (ASD) may have a reduced ability to detoxify the chemical bisphenol A (BPA), according to new research.

BPA is an industrial “plasticizer” used in plastic water bottles, food can linings, water supply pipelines, and other applications. BPA can affect the developing brain, and

previous research has suggested a link between prenatal exposure to BPA and autistic symptoms in young children.

In the new study, T. Peter Stein and colleagues investigated the efficiency of glucuronidation—a process that removes toxins from the body—in 66 children with ASD, 46 children with attention-deficit/hyperactivity disorder (ADHD), and 37 controls. Performing multiple mass spectrometric analyses on urine samples from the children, they studied the efficacy of glucuronidation in 12 different pathways, including those for BPA and metabolites of another plasticizer (DEHP).

The researchers report that the three groups were metabolically different from each other. “Of the 12 pathways examined,” they say, “only the BPA and DEHP pathways discriminated between the three

groups. Glucuronidation efficiencies for BPA were reduced by 11 percent for ASD and 17 percent for ADHD compared to controls.” DEHP showed similar trends, but these were not significant.

The researchers say, “How important plasticizer originated neurodevelopmental disorder is in the overall occurrence of these disorders is not known, but it must account for a significant proportion or it would not have been so easy to detect in a metabolic study of moderate size such as this study.”

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“Bisphenol-A and phthalate metabolism in children with neurodevelopmental disorders,” T. Peter Stein, Margaret D. Schluter, Robert A. Steer, and Xue Ming, *PLoS One*, September 13, 2023 (online). Address: T. Peter Stein, Department of Surgery, Rowan University School of Osteopathic Medicine, Stratford, NJ 08084, tpstein@rowan.edu.

Prevalence of ASD in adults increasing rapidly in the U.S.

The prevalence of autism spectrum disorders (ASD) among adults in the United States is rising rapidly, according to a new study.

Eric Rubenstein and colleagues analyzed a random sample of Medicaid records from 2011 through 2019, identifying individuals 18 years of age or older with a diagnosis of autism. They report, “In this cohort study of 403,028 Medicaid enrollees with autism claims over nine years of claims data, autism prevalence increased from 4.2 per 1,000 enrollees in 2011 to 9.5 per 1,000 enrollees in 2019. The largest increase was observed in the 25- to 34-year age group and the smallest increase in the 55- to 64-year age group.” The percentage of Medicaid enrollees with ASD who also had intellectual disability (ID) dropped from 62 percent in 2011 to 46 percent in 2019, potentially indicating a greater awareness of autism in individuals without ID.

The researchers conclude, “These findings suggest that despite difficulties in identifying autism in adults, there is a considerable and growing population of autistic adults among Medicaid enrollees, which may have future implications for the Medicaid system and understanding the needs of the autistic population.”

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“Prevalence of autism among Medicaid-enrolled adults,” Eric Rubenstein, Salina Tewolde, Amy Michals, Matthew Fox, and Na Wang, *JAMA Psychiatry*, October 4, 2023 (online). Address: Eric Rubenstein, Department of Epidemiology, Boston University School of Public Health, Boston, Massachusetts 02121, erubens@bu.edu.

—and—
“In less than a decade, autism prevalence among adults more than doubled,” Michelle Diamond, *Disability Scoop*, October 30, 2023.

Study shows impact of inflammation on the developing brain

Inflammation of the brain during early development is strongly linked to autism spectrum disorders (ASD), and a new study points to specific brain cells that appear to be impacted to the greatest degree.

Seth Ament and colleagues studied post-mortem brain tissues from 17 children who died when they were between one and five years of age. Eight of the children died as a result of conditions involving inflammation, and nine died as a result of accidents. The donors were similar in age, gender, ethnicity, and time since death, and none had been diagnosed with a neurological disorder prior to death.

The researchers used a technology called single-cell genomics to look at the effects of inflammation on the cellular level. They discovered that inflammation in early childhood prevents two specific types of neurons in the cerebellum, the Golgi and Purkinje neurons, from maturing fully. The cerebellum is a brain region involved in motor function and cognitive skills including language, social skills, and emotional regulation. Multiple studies have linked abnormalities of this region to ASD.

Ament says, “We looked at the cerebellum because it is one of the first brain re-

gions to begin developing and one of the last to reach its maturity, but it remains understudied.” He adds, “The gene expression in the cerebella of children with inflammation were remarkably consistent.”

Ament notes, “During development, Purkinje neurons form synapses connecting the cerebellum to other brain regions involved in cognition or emotional control, while Golgi neurons coordinate communication between cells within the cerebellum. Disruption of either of these developmental processes could explain how inflammation contributes to conditions like ASD and schizophrenia.”

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“A single-cell genomic atlas for maturation of the human cerebellum during early childhood,” Seth A. Ament, Marcia Cortes-Gutierrez, Brian R. Herb, Evelina Mocchi, Carlo Colantuoni, and Margaret M. McCarthy, *Science Translational Medicine*, October 12, 2023. Address: Seth Ament, Institute for Genome Sciences, University of Maryland School of Medicine, Baltimore, MD 21201, sament@som.umaryland.edu.

—and—
“New research shows how brain inflammation in children may cause neurological disorders such as autism or schizophrenia,” news release, University of Maryland School of Medicine, October 12, 2023.

More evidence of elevated rate of health problems in ASD detected by survey

A new study adds to evidence that rates of physical illness are elevated in adults with autism spectrum disorders (ASD).

John Ward and colleagues analyzed data from an online survey of 2,305 autistic and non-autistic adults. The survey asked participants for information about their demographics, autism diagnosis, diet, exercise, sleep, sexual health, substance use, personal medical history, and family medical history.

The researchers report, “There were significantly elevated rates of non-communicable conditions across all organ systems in autistic people, including gastrointestinal, neurological, endocrine, visual, ear/nose/throat, skin, liver and kidney, and hematological conditions.”

The researchers also report that Ehlers Danlos Syndrome, a group of connective tissue disorders, was more likely to occur among autistic females compared to non-autistic females. In addition, they detected a higher prevalence of celiac disease among autistic individuals, although this result was non-significant after they accounted for family history.

They conclude, “Healthcare professionals must be made aware of the range of co-occurring physical health conditions that may be more common among autistic people.”

The researchers note that their study includes the largest sample to date related to the health status of autistic individuals across the lifespan. They caution, however, that participation in the survey was biased toward females, white individuals, highly educated people, and United Kingdom residents, which may affect their findings.

“Increased rates of chronic physical health conditions across all organ systems in autistic adolescents and adults,” John H. Ward, Elizabeth Weir, Carrie Allison, and Simon Baron-Cohen, *Molecular Autism*, September 20, 2023 (free online). Address: Elizabeth Weir, emw60@cam.ac.uk

Free newsletters from ARI

Our monthly ARI newsletter includes news, webinar updates, and autism-related information and articles. You can also opt in to subscribe to ARI’s Clinical Research newsletter. This newsletter, published in collaboration with the Schafer Autism Report, provides online links to up-to-date clinical research related to patient care, and is designed primarily for pediatricians, nurses and obstetricians. You can subscribe to either newsletter at autism.org.

Visual processing variations seen in children with ASD traits

A new study suggests that there are significant differences in how male and female children with high autistic traits process visual information.

Andrew Silva and colleagues asked 381 nine-year-old children who exhibited a range of autistic traits on the Autism Spectrum Quotient (AQ) to perform tests involving dorsal or ventral processing of visual input to the brain. The dorsal stream is involved in motion and visuo-motor process-

ing, while the ventral stream is involved in object recognition.

The researchers found that both male and female children with high autistic traits exhibited difficulties on tests of dorsal stream processing. “These associations were observed in a large group of children with a range of AQ scores,” they say, “demonstrating a range of visual function across the full spectrum of autistic traits.” However, only males tended to do worse on tests of ventral stream processing.

Silva comments, “The part of the visual system that handles object recognition is also connected to face recognition, recognizing nonverbal communication and facial expressions. The fact that this system was not impacted in our sample of females with high autistic traits is consistent with the idea that this system allows females to better navigate social situations and mask neurodivergence.” However, he says, it is not clear whether this visual processing difference is innate or stems from differences in how male and female children are raised.

He adds, “In the end, these results highlight that human neurodiversity is not a singular concept—different sexes, and indeed different people, express autistic traits in their own unique way.”

“Associations between Autism Spectrum Quotient and integration of visual stimuli in 9-year-old children: preliminary evidence of sex differences,” Andrew E. Silva, Jane E. Harding, Arijit Chakraborty, Darren W. Dai, Greg D. Gamble, Christopher J.D. McKinlay, Samson Nivins, and Rajesh Shah, *Journal of Autism and Developmental Disorders*, July 21, 2023 (online). Address: Andrew Silva, School of Optometry and Vision Science, University of Waterloo, Waterloo, ON, Canada, andrew.silva@uwaterloo.ca.

—and—

“Can a simple eye exam help diagnose autism?” news release, University of Waterloo, September 25, 2023.

NAC may help to reduce several core symptoms in young children with ASD

A new study from Turkey suggests that supplementation with n-acetylcysteine, the synthetic form of the amino acid cysteine, may lead to improvements in a number of symptoms of autism spectrum disorder (ASD) in young children.

Kevser Nalbant and Semih Erden reviewed the medical records of 37 children with ASD who regularly took oral NAC (in two doses totalling 400 to 600 mg per day) for eight weeks, as well as a control group of 21 children with ASD who did not take NAC. All of the children were between three and six years of age. Using multiple assessments, the researchers evaluated the children’s symptoms at baseline and at the end of the eight weeks.

The researchers say, “Our findings suggested that oral NAC alleviated the intensity of cardinal autistic symptoms in areas of social withdrawal, interpersonal relationships, body use, listening response, and verbal communication. Corresponding problem behaviors such as irritability, stereotypic behavior, and hyperactivity were reduced.” However, they saw no difference between the two groups in terms of eating behaviors and sleeping habits.

The researchers caution that limitations of their study include its retrospective design and the lack of a placebo control, and they say that larger controlled studies on the use of NAC in ASD are needed. However, they note that several other studies have shown beneficial effects of NAC for children with ASD, especially in reducing irritability.

“Possible effects of N-acetylcysteine in autism spectrum disorders: major clinical aspects, eating behaviors, and sleeping habits,” Kevser Nalbant and Semih Erden, *Turkish Journal of Pediatrics*, September-October 2023 (free online). Address: Kevser Nalbant, drkevser@yahoo.com.

Did you know? The Autism Research Institute recently received its fifth annual four-star rating—the highest possible rating—from Charity Navigator.

Dealing with self-injurious behaviors?

Research points to numerous reasons for self-injurious behavior (SIB). ARI’s free online tool assists professionals and parents in identifying potential treatments that may reduce or eliminate SIB. Responses to the survey questions may provide insight into one or more possible reasons why an individual engages in SIB. Links to published studies on causes and appropriate interventions are also offered based on each user’s responses to survey questions.

autism.org/self-injury

EDITORIAL: Stephen M. Edelson, Ph.D.

Addressing delays: proactive parent-led interventions during waiting periods

The wait for an autism diagnosis and subsequent intervention can be highly stressful for many families, especially when access to needed health and educational services also hinges on the approval of insurance and government agencies.

In a media release this year, the U.K.'s National Autistic Society announced that more than 150,000 children were awaiting assessment (1). Waiting lists are also relatively high in the United States (2). This can be attributed to factors such as a lack of healthcare professionals specializing in autism, challenges brought on by the COVID pandemic, and escalating rates of autism diagnosis (3). It may also be due to primary care physicians' lack of knowledge or resources pertaining to autism.

Critical need for early action

The benefits of early intervention are profound and can greatly influence a child's prognosis (4). A recent study, reported in the ARRI, indicated that children who received early intervention beginning at 18 months displayed enhanced communication abilities compared to those who started at 27 months (5). The impact of these critical early months cannot be overstated.

Parents taking charge

Aware of the pressing need, many parents choose to take charge of the initial assessment and begin therapy while waiting for professional guidance and support. For those navigating the wait, several valuable resources are available.

Screening for autism: Several reliable autism screening tools are available online, such as the Modified Checklist for Autism in Toddlers (MCHAT) on the Autism Speaks website (7), and ASDetect (8). These screening assessments can be useful in guiding and supporting parents and caregivers who seek professional guidance but should not be seen as a diagnosis of autism.

Intervention: There are numerous interventions available for autistic individuals, including various forms of Applied Behavior Analysis (ABA), occupational therapy techniques, communication strategies, and more. Based on my 45 years of experience in the autism field, the common success factor across interventions is brain engagement as opposed to passive activities such as TV or repetitive computer games (9).

Early intervention and adapted ABA are proactive, parent-driven interventions that are especially useful for parents looking for immediate help (10, 11). The early phase of

UCLA's Young Autism Clinic stressed community engagement in providing basic ABA exercises and included relatives, friends, neighbors, siblings, and even acquaintances from church. Comprehensive teaching guides provide extensive instructions (12-14) and are available for online purchase at Amazon, eBay, and other booksellers. Having occasional expert consultants can also yield very positive results.

Approaches focusing specifically on language can be beneficial as well. For instance, one study that gained widespread attention from the autism community evaluated an intervention known as the "British Autism Study of Infant Siblings' Video Interaction for Promoting Positive Parenting" or iBASIS-VIPPP. This technique focuses on helping parents understand their infant's distinct communication signals and adjust their reactions in response to these signals.

The study involved 54 infants, ranging in age from nine to 14 months, who had siblings with autism and were therefore at high risk for developing autism themselves (15). Roughly half of these infants underwent 12 sessions of iBASIS-VIPPP, while the remainder did not receive any intervention. When evaluated at three years of age, the children in the intervention group displayed enhanced social communication abilities and a stronger sense of attachment security compared to those in the control group.

Another study focusing on the iBASIS-VIPPP approach was conducted in Australia (16). It included 50 infants between nine and 14 months of age, all of whom showed early signs of autism. Over a five-month period, these infants participated in 10 iBASIS-VIPPP sessions. Afterward, they were less likely to be diagnosed with autism by three years of age compared to 44 infants who received "usual care" in the control group.

Techniques providing vestibular stimulation, such as a platform swing, may also be beneficial (17, 18). Theoretically, these activities may activate parts of the brain such as the posterior cerebellum, linked to cognitive functions including language processing (19). It is important to consult with an occupational therapist for proper guidance, especially if your child has seizures.

To promote social interaction, I often encourage parents to facilitate connections with children in their neighborhood (20). Typically, peers slightly older or younger are more receptive. Incentives, even if nominal, can nurture friendships.

In an ideal world, no child should face delays in receiving essential services. How-

ever, financial constraints and staffing shortages pose a challenge, and a remedy appears elusive at this point in time. If you are one of the many parents waiting for a diagnosis and professional intervention, I hope the approaches I have discussed here will help you turn frustrating wait time into valuable teaching time.

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Research Updates

Esophagitis may be more common in kids with ASD

A new study reports that children with autism spectrum disorders (ASD) have a higher rate of esophagitis, or inflammation of the esophagus, than their neurotypical peers.

In the study, Sonia Ballal and colleagues analyzed esophagogastroduodenoscopy (EGD) test results for 2,104 patients matched for age and gender. EGD is a test used to examine the lining of the esophagus, stomach, and duodenum (the first part of the intestine).

Of the group of children who were tested, 526 children had ASD, 526 had developmental delays, and 1,052 were typically developing children. The most common reason for testing was reflux.

The researchers say that while an ASD diagnosis was not an independent predictor of abnormal microscopic findings in the stomach or duodenum, it was a significant independent predictor of abnormal findings in the esophagus. They conclude, “These results underscore the importance of upper endoscopy in children with ASD.”

“Comparing gastrointestinal endoscopy findings in children with autism, developmental delay or typical development,” Sonia A. Ballal, Saige Greenwell, Enju Liu, Timothy Buie, Jocelyn Silvester, Mckenzie Leier, Maura Filippelli, Athos Bousvaros, and Bridget Hron, *Journal of Pediatrics*, September 15, 2020 (online). Address: Sonia A. Ballal, Boston Children’s Hospital, 300 Longwood Avenue, Boston, MA 02115, sonia.ballal@childrens.harvard.edu.

Children with albinism may be more likely to have ASD

Children with oculo-cutaneous albinism, or OCA—the most common form of albinism—appear to have an increased likelihood of having autism spectrum disorders (ASD), according to a study from Israel.

OCA is an inherited condition that involves the partial or complete lack of pigment in the hair, skin, and eyes. Vision problems in OCA include decreased visual acuity, light sensitivity, abnormal eye movements, strabismus, significant refractive errors, under-development of the fovea, and misrouting of the optic nerve.

In the study, Stav Gunz and colleagues compared children with visual impairment due to OCA to children with visual impairment due to other causes. The researchers analyzed data from 708 children and teens. Of the group, 401 had a diagnosis of OCA, while 307 were vision-impaired controls matched for age and visual range.

The researchers report that 14 of the children with OCA (or 1 in 28) had a diagnosis of autism, while only 3 of the children in the control group (or 1 in 102) were diagnosed with autism. This shows, the researchers say, that the association of autism with albinism was not explained by visual impairment alone.

They conclude, “Raised awareness of the extent to which ASD may be a co-occurring diagnosis in children with albinism can guide professional practice ensuring that individuals with albinism and suspected ASD receive early diagnosis and possible better outcome over time.”

“The prevalence of autism among children with albinism,” Stav Gunz, Irit Rozen-Knisbacher, Anat Blumenfeld, Karen Hendler, and Claudia Yahalom, *European Journal of Ophthalmology*, October 3, 2023 (free online). Address: Claudia Yahalom, Department of Ophthalmology, Hadassah Medical Center, Kiryat Hadassah, POB 12000, Jerusalem, Israel, 91120, kloudia@hadassah.org.il.

Study finds that employees with ASD are less likely to exhibit “bystander” effect

Employees with autism spectrum disorders (ASD) may contribute to businesses in a unique way because they are less likely than neurotypical individuals to exhibit the “bystander” effect, according to a new study.

The bystander effect refers to the fact that people are more hesitant to identify problems and intervene to solve them if there are other people present. The greater the number of other people, the less likely it is that one individual will step forward.

Study Participants Sought

Dr. Lauren Moskowitz is seeking participants for a research study on the effectiveness of an online training program for parents of children with autism spectrum disorder (ASD) and co-occurring intellectual disability. The program is designed to help parents teach their children to overcome or cope with their fears or phobias. To learn more, contact Dr. Moskowitz at moskowl@stjohns.edu.

Moving?

Please let us know well in advance, so your next issue will reach you on time!

Lorne Hartman and colleagues asked 33 employed adults with ASD and 34 controls to complete an online survey. Participants answered questions designed to determine how likely they would be to speak out if they saw inefficient or dysfunctional processes in their company, and whether their decision would be affected by the number of other people present.

Hartman says the study showed that “to the extent that they would act if they saw something wrong, employees with autism were much more likely to intervene, regardless of the number of people present.” He adds that “in situations where they would not intervene, they were more likely to identify the influence of others as the reason, whereas neurotypical employees were more reluctant to acknowledge this.”

Hartman and colleagues conclude that “autistic employees may contribute to improvements in organizational performance because they are more likely to identify and report inefficient processes and dysfunctional practices when they witness them.”

Hartman, whose primary area of research involves unethical behavior in corporations, says that in all of the cases he explored, “there were hundreds, maybe thousands of people who may not have actually been involved in the wrongdoing, but they should have been aware that it was going on. So having people around who are willing to blow the whistle, so to speak, is very important for organizations.”

“Organizational benefits of neurodiversity: Preliminary findings on autism and the bystander effect,” Lorne M. Hartman, Mehrdad Farahani, Alexander Moore, Ateeya Manzoor, and Braxton L. Hartman, *Autism Research*, October 2023 (free online). Address: Lorne Hartman, Schulich School of Business, York University, 4700 Keele Street, Toronto, ON M3J 1P3, Canada, lhartman@schulich.yorku.ca.

—and—

“People with autism less likely to succumb to bystander effect, research finds,” news release, York University, October 26, 2023.

Need help or information?

If so, the Autism Research Institute has valuable information on seeking appropriate medical care. For a list of important questions to ask a potential medical provider, see:

<https://www.autism.org/finding-a-clinician>

The Autism Research Institute also maintains a toll-free calling center:

833-281-7165

Research Updates

Eye-tracking assessment may aid in diagnosing ASD in very young children

An eye-tracking assessment that measures social visual engagement may be useful in diagnosing autism spectrum disorders (ASD) in children under three years of age, according to two separate studies.

The assessment, developed by Warren Jones and Ami Klin, involves having children watch videos of other children interacting socially. Based on measurements of the children's eye movements, the assessment indicates whether they are likely to have ASD or not.

The researchers and their team conducted a multisite, double-blind study of their technology involving 475 children between the ages of 16 and 30 months. They found that measurements of social visual engagement had 71.0 percent sensitivity (meaning the accurate identification of cases of ASD) and 80.7 percent specificity (meaning the avoidance of false positives). In a subgroup of 335 children whose ASD diagnosis was certain, the test had 78.0 percent sensitivity and 85.4 percent specificity.

Klin comments, "The far-reaching implications of these results may mean that children who currently have limited access to expert care, and face two or more years of waiting and referrals before finally being diagnosed at age four or five, may now be eligible for diagnosis between the ages of 16 and 30 months. In addition, this technology measures each child's individual levels of social disability, verbal ability, and non-verbal learning ability, which is critical information for clinicians when developing personalized treatment plans to help each child make the greatest gains."

The researchers add, "It is important to note that the test results derived from measurements of social visual engagement are not intended to replace clinicians with expertise in developmental disabilities; to the contrary, a tool like this could be used by expert clinicians to aid in accurately and efficiently diagnosing autism as well as quantifying children's strengths and vulnerabilities."

"Eye-tracking-based measurement of social visual engagement compared with expert clinical diagnosis of autism," Warren Jones, Cheryl Klaiman, Shana Richardson, Christa Aoki, Christopher Smith, Mendy Minjarez, Raphael Bernier, Ernest Pedapati, Somer Bishop, Whitney Ence, Allison Wainer, Jennifer Moriuchi, Sew-Wah Tay, and Ami Klin, *Journal of the American Medical Association*, September 5, 2023. Address: Warren Jones, Marcus Autism Center, Children's Healthcare of Atlanta, 1920

Briarcliff Rd NE, Atlanta, GA 30329, warren.jones@emory.edu.

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"Development and replication of objective measurements of social visual engagement to aid in early diagnosis and assessment of autism," Warren Jones, Cheryl Klaiman, Shana Richardson, Meena Lambha, Morganne Reid, Taralee Hamner, Chloe Beacham, Peter Lewis, Jose Paredes, Laura Edwards, Natasha Marrus, John N. Constantino, Sarah Shultz, and Ami Klin, *JAMA Network Open*, September 5, 2023 (free online). (See address above.)

—and—

"Tablet-based tool to spot autism validated in two studies," Charles Q. Choi, *Spectrum News*, September 5, 2023.

—and—

"Measuring children's looking behavior yields new tool to help diagnose autism earlier, research shows," news release, Children's Healthcare of Atlanta, September 5, 2023.

Autism often undiagnosed in males with fragile X

A new study indicates that autism spectrum disorders (ASD) often go undiagnosed in males with fragile X syndrome (FXS).

FXS, which affects approximately one in 7,000 males and about 1 in 11,000 females, is one of the most common inherited intellectual disabilities. Typically, males with FXS are much more seriously affected than females.

Jessica Klusek and colleagues evaluated 49 males with FXS who were between 15 and 24 years of age. Using clinical assessments by a multidisciplinary team as well as scores on two scales (the Autism Diagnostic Observation Schedule-2 and the Autism Diagnostic Interview-Revised), the researchers found that 75 percent of their participants met criteria for ASD. However, only 31 percent had received an ASD diagnosis.

"Moreover," the researchers say, "community diagnoses were poorly aligned with the presence of ASD symptoms as perceived by parents and professionals" and were not associated with cognitive, behavioral, or language features.

They conclude, "Findings highlight under-identification of ASD in community settings as a significant barrier to service access for male youth with FXS. Clinical recommendations should emphasize the benefits of seeking a professional ASD evaluation for children with FXS who are noted to display key ASD symptoms."

Klusek comments, "Individuals with both fragile X syndrome and autism spectrum disorder are at risk for poorer education, medical, employment and independent living outcomes, so early diagnosis is essential to providing access to services that

improve their success and quality of life in these areas."

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"Predictors, parental views, and concordance across diagnostic sources of autism in male youth with fragile X syndrome: Clinical best estimate and community diagnoses," Jessica Klusek, Elizabeth Will, Carly Moser, Kimberly Hills, Angela John Thurman, Leonard Abbeduto, and Jane E. Roberts, *Research on Child and Adolescent Psychopathology*, March 3, 2023. Address: Jessica Klusek, Department of Communication Sciences and Disorders, Arnold School of Public Health, University of South Carolina, 1705 College Street, Columbia, SC, 29208, klusek@sc.edu.

—and—

"Underdiagnosis of autism in children with fragile X syndrome reveals need for better education, early screening," news release, Erin Bluvus, University of South Carolina, August 29, 2023.

More than one-third of kids may outgrow ASD diagnosis

More than one-third of children diagnosed with autism spectrum disorder (ASD) as toddlers no longer meet diagnostic criteria for the condition by the time they are around six years of age, according to a new study.

In the study, conducted by Elizabeth Harstad and colleagues, 213 children who received a clinical diagnosis of ASD at 12 to 36 months of age underwent a new assessment when they were between five and seven years of age. Of the group, 79 children, or 37.1 percent, did not continue to meet diagnostic criteria for ASD. After controlling for multiple variables, the researchers found that the only variables associated with increased odds of no longer having an ASD diagnosis at the second assessment were female sex and a higher level of adaptive skills at baseline.

Harstad comments, "Our research shows how important it is that we monitor kids over time, because some children may really have changes in their social communication and behavioral function. This underscores the need for continuous assessments and adaptable intervention strategies."

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"Persistence of autism spectrum disorder from early childhood through school age," Elizabeth Harstad, Ellen Hanson, Stephanie J. Brewster, Rafael DePillis, Anna L. Milliken, Gabriella Aberbach, Georgios Sideridis, and William J. Barbaresi, *JAMA Pediatrics*, October 2, 2023 (online). Address: William Barbaresi, Division of Developmental Medicine, Boston Children's Hospital, Boston, Massachusetts 02115, william.barbaresi@childrens.harvard.edu.

—and—

"New insights into the developmental trajectory of autism," news release, Children's Hospital Boston, October 2, 2023.

Adults with ASD show enhanced generosity toward strangers

Adults with autism spectrum disorders (ASD) tend to be more generous to strangers than their neurotypical peers are, according to new research.

In the study, Paul Forbes and colleagues explored differences in “social discounting” between individuals with and without ASD. Social discounting refers to the tendency for people to be less generous to people who are distant from themselves compared to those closer to them. In addition, the researchers explored the effects of framing a decision about generosity as a gain or a loss.

The researchers recruited 53 adults between 20 and 47 years of age to participate in their study. Of the group, 28 had ASD and 25 were neurotypical. The researchers asked the participants to imagine distributing money to other people at various social distances from them.

In the “gain” scenario, participants were told that the other person initially had no money. They were asked to choose between splitting a sum of money evenly between themselves and the other person, with each person getting 75 euros (the “generous” option), or giving nothing to the other person and keeping a larger amount for themselves (the “selfish” option). In the “loss” scenario, they were told that the other person already had 75 euros. Participants could choose to keep 75 euros for themselves (the generous option), or to have the other person lose 75 euros and thereby gain more money themselves (the selfish option). The researchers added incentives by telling participants that two of them would be randomly selected at the end of the experiment, and for each of these two, one choice would result in a real-life payout.

The researchers report, “We show that compared to a neurotypical group, autistic adults were more generous to other people, especially to those who were more socially distant.” They also were less influenced by the framing of the task as a gain or a loss for themselves.

In addition, the researchers say that in the group with ASD, “Greater self-reported difficulties in social interaction and commu-

nication as well as attention switching were associated with this increased generosity, suggesting that both social and non-social aspects of autism contributed to these effects.”

They conclude, “Our results support the view of ‘enhanced rationality’ in autism as participants’ prosocial decisions were less influenced by potential biasing information, such as the closeness of the recipient or how choices were framed. Therefore, the differences seen in autism, as well as posing certain challenges, can also have prosocial consequences.”

—
 “Autistic adults show enhanced generosity to socially distant others,” Paul A. G. Forbes, Irini Chaliani, Leonhard Schilbach, and Tobias Kalenscher, *Autism*, August 22, 2023 (online). Address: Paul Forbes, Institute of Experimental Psychology, Heinrich Heine University Düsseldorf, Germany, paul.forbes@hhu.de.

Visit the National Autism History Museum

To mark nearly a century of written history of autism, the Autism Research Institute (ARI) recently opened the National Autism History Museum—the first historical museum dedicated to autism. The four-room museum is located in the Kensington district in San Diego, California, adjacent to ARI’s main office.

Hours:

Monday-Thursday 10 a.m. to noon. or by appointment, To make an appointment, email us at NationalAutismHistoryMuseum@autism.org or call 833-281-7165.

“School distress” rates are elevated among those with ASD

Rates of “school distress”—or significant emotional distress related to attending school—are significantly elevated in children with autism spectrum disorders (ASD), according to a new study from the United Kingdom.

Sophie Connolly and colleagues compared questionnaire responses from 947 parents of children and young people who experienced school distress to responses from 149 parents of an age-matched control group. They report, “Notably, 92.1 percent of children and young people currently experiencing school distress were described as neurodivergent and 83.4 percent as autistic.” In comparison, only 16.8 percent of individuals in the “no school distress” group were autistic. Moreover, autistic individuals who displayed school distress exhibited distress at a significantly earlier age than non-autistic children, and this distress was more enduring.

The researchers add that sensory processing difficulties and attention-deficit/hyperactivity disorder (ADHD) were also linked to higher rates of school distress. In addition, they say that “clinically significant anxiety symptomology and elevated demand avoidance were also pervasive.”

They also note, “The majority of children and young people experiencing school distress either currently or previously attended a mainstream provision... posing the question of whether mainstream settings are suitable for all children and young people, and if not, which provisions may be more appropriate.”

The researchers note that their study included individuals currently undergoing

or awaiting assessments for ASD as well as those with official diagnoses. They say that because research typically shows no significant difference in ASD characteristics between adults with a confirmed ASD diagnosis and those awaiting diagnosis, and because waiting times for diagnosis are

The researchers report, “Notably, 92.1 percent of children and young people currently experiencing school distress were described as neurodivergent and 83.4 percent as autistic.” Moreover, autistic individuals who displayed school distress exhibited distress at a significantly earlier age than non-autistic children, and this distress was more enduring.

lengthy in the United Kingdom, “broader inclusion criteria are likely to provide a more accurate estimation of the prevalence of autism among children and young people with school distress.” However, they note that their study population was of limited diversity, which may influence their findings.

The researchers conclude, “Further research, ideally co-produced with autistic and otherwise neurodivergent individuals, is needed to determine best practices in education, and to ensure appropriate understanding of how neurodivergent pupils best learn.”

—
 “School distress and the school attendance crisis: a story dominated by neurodivergence and unmet need,” Sophie E. Connolly, Hannah L. Constable, and Sinéad L. Mullally, *Frontiers in Psychiatry*, September 22, 2023 (free online). Address: Sinéad L. Mullally, sinead.mullally@newcastle.ac.uk.

—www.Autism.Jobs—

A Free Resource for Job Seekers, Caregivers, Job Coaches, and Employers

At this site, you can discover the advantages of hiring individuals with autism, access practical information designed to help candidates with autism become “job ready,” and learn how to create autism-friendly workplaces.

Lower self-compassion may contribute to anxiety, depression in individuals on the spectrum

Poor self-compassion may play a powerful role in the elevated rates of anxiety and depression seen in individuals with autism

Editorial (continued from page 3)

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spectrum disorders (ASD), according to a new study from the United Kingdom.

John Galvin and colleagues surveyed autistic and non-autistic individuals at three separate times over the course of a year. (In the autistic group, 228 individuals completed the first survey, 156 completed the second, and 165 completed the third.) Participants provided demographic information and completed assessments measuring their autistic traits and levels of anxiety and depression. In addition, they completed an assessment measuring three aspects of self-compassion:

- *Self-kindness*, or treating themselves as kindly as others.
- *Common humanity*, or an understanding that all people face challenges and difficulties.
- *Mindfulness*, or the ability to be conscious of thoughts or emotions (including negative ones) without being overwhelmed by them.

The researchers report that while findings for neurotypical controls were mixed, autistic individuals consistently exhibited a correlation between lower self-compassion and subsequent anxiety or depression. Conversely, depression and anxiety did not predict future levels of self-compassion. In both autistic and non-autistic participants, autistic traits at the first period were linked to low self-compassion at the second period and anxiety or depression at the third period.

The researchers comment, “A clinically relevant interpretation of these findings is that the severity of autistic traits may exacerbate or lead to mental health problems via low self-compassion.” They speculate that factors such as trauma, bullying, the need to camouflage autistic traits, and a pervasive sense of non-acceptance from others may lead to low self-compassion in individuals with ASD.

In addition, the researchers say, their findings suggest the possibility of a missing or reduced feedback loop. “Without the self-regulating action of a negative feedback loop between self-compassion and psychopathology in autistic or high trait individuals,” they say, “low self-compassionate responses may spiral out of control and result in further escalation of symptoms.”

The researchers conclude that their findings “can inform the development of interventions that specifically target self-compassion as a means to enhance the mental well-being of both autistic and non-autistic adults with high levels of autistic traits.”

—
“Longitudinal associations between autistic traits, self-compassion, anxiety and depression in autistic and non-autistic adults without intellectual disability,” John Galvin, Abby Howes, and Gareth Richards, *Journal of Autism and Developmental Disorders*, October 24, 2023 (free online). Address: John Galvin, john.galvin@warwick.ac.uk.

Free Webinars

Free Certificates of Participation are available upon passing an online quiz for most webinars. Some events offer Continuing Education Units and/or Continuing Medical Education credits.

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1 p.m. Eastern time

Sensory Considerations for Social Communication

Vanessa Rentschler, Au.D., DDD-A, C.A.S.

—Wednesday, January 31, 2024—

1 p.m. Eastern time

Effective Coping Strategies for Sensory Differences and Executive Function

Greg Wallace, Ph.D., and Goldie McQuaid, Ph.D.

—Wednesday, February 7, 2024—

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Gender and Autism

Gray Atherton, Ph.D.

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The Autism Research Institute (ARI) is the oldest autism research organization in the world, founded by Dr. Bernard Rimland in 1967.

ARI'S WORK INCLUDES:

Conducting and sponsoring research on the causes of and best treatments for autism (more than \$475,000 in research grants awarded last year), with a focus on research that can translate rapidly into help for today's autistic children and adults and their families.

Networking researchers, physicians, and parents to speed the development and dissemination of safe and effective treatment methods.

Hosting webinars and one of the largest informational websites on autism in the world.

Sponsoring one or two major think tanks a year, involving researchers and experienced clinicians.

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The Autism Research Review International is a quarterly publication of the Autism Research Institute, Stephen M. Edelson, Ph.D., Director.

The Autism Research Institute is a non-profit organization.

Editor: Stephen M. Edelson, Ph.D. • www.Autism.org

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**Autism Research
 Review International
 Vol. 37, No. 4**

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