but not for blinded teacher ratings ($B < 5.35$, $Z < 1.03$, $P > 0.31$). Several secondary outcome measures identified improvements following SSGT.
Conclusions: SSGT (Kontakt) is feasible in naturalistic clinical settings; has a notable effect on social cognition and adaptive skills and abilities, better every day functioning, and decreased symptom severity in both groups; works predominantly in adolescents with HFASD; and has decreased perceived stress in parents, but not in participants (Clinical Trials.gov Identifier: NCT01854346).

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1.9 THE ASSOCIATION OF PARENTAL PSYCHIATRIC SYMPTOMS AND PARENT–CHILD RELATIONSHIPS WITH BEHAVIORAL AND EMOTIONAL PROBLEMS AND SOCIOEMOTIONAL COMPETENCE IN NEWLY DIAGNOSED YOUNG CHILDREN WITH AUTISM SPECTRUM DISORDER

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Objectives: The frequency of emotional and behavioral problems are high in children with ASD. These problems are related with certain risk factors, such as parental psychopathology and family environment in older children and adolescents. However, limited information exists on these phenomena in toddlers and preschool-aged children. This cross-sectional study evaluated the association of maternal and paternal psychiatric symptoms and mother-child relationships with emotional and behavioral problems and socioemotional competence of newly diagnosed toddlers and preschool-aged children with ASD.
Methods: Participants included 35 children with ASD aged 18−53 months, referred to an infant mental health clinic. Autistic symptoms, developmental level, and mother-child relationship of children were evaluated. Parents completed a checklist on child behavioral and emotional problems and socioemotional competence, and individual questionnaires on their own mental health.
Results: Maternal hostility and mother-child relationships have been found to be independently associated with emotional and behavior problems of children with ASD ($\beta = 0.41$, $t = 2.73$, $P = 0.010$ and $\beta = -0.31$, $t = -2.04$, $P = 0.049$, respectively). With regard to socioemotional competence of children, only the severity of ASD showed a significant regression relationship ($\beta = -0.58$, $t = -4.10$, $P < 0.001$).
Conclusions: These results propose that the assessment of the maternal mental health and mother-child relationships may be valuable while taking into account coexisting emotional and behavioral disturbances in very young children with ASD.

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1.10 THALAMIC METABOLITE LEVELS AND SENSORY PROCESSING IN TWINS WITH AUTISM SPECTRUM DISORDER

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Objectives: Sensory processing abnormalities are commonly reported in individuals with ASD, and nearly all sensory systems are filtered through the thalamus. The goal of this investigation was to examine neurochemical profiles of the thalamus in twins with and without ASD to determine whether or not thalamic perturbations are related to sensory processing abnormalities.
Methods: Data were acquired from participants in a neuroimaging study of same-sex twin pairs with and without ASD. Sensory processing abnormalities were assessed with the Sensory Profile Caregiver Questionnaire (SPQ), and metabolites of interest were acquired with a magnetic resonance spectroscopy chemical shift imaging slab that covered the left and right thalami. Independent sample t tests were used to compare differences between individuals from each ASD twin pair exhibiting the highest symptom severity (based on the Autism Diagnostic Interview/Autism Diagnostic Observation Schedule) and individuals from each control twin pair exhibiting the lowest social-communication impairments (based on the Social Responsiveness Scale). Twin pairs discordant for ASD were compared using paired sample t tests.
Results: Compared with control subjects ($N = 29$), individuals with ASD ($N = 43$) exhibited greater multisensory processing abnormalities [$t(70) = 6.60$, $P < 0.001$], and lower N-acetyl-aspartate (NAA) levels in the left thalamus [$t(70) = 3.036$, $P = 0.003$], which were significantly correlated ($r = 0.39$, $P = 0.001$). Monozygotic twins discordant for ASD ($N = 3$) did not exhibit a significant difference in multisensory processing, whereas dizygotic (DZ) twins discordant for ASD ($N = 10$) exhibited greater sensory processing abnormalities [$t(9) = 4.76$, $P = 0.001$] and lower NAA levels [$t(9) = 2.45$, $P = 0.04$] compared with unaffected twins. The difference in sensory processing abnormalities and NAA levels between discordant DZ twins were significantly correlated ($r = 0.74$, $P = 0.02$).
Conclusions: The present study provides further evidence of a relationship between thalamic perturbations and sensory processing abnormalities in individuals with ASD. Reduced neuronal viability in the thalamus in individuals with ASD may confer increased risk for sensory processing abnormalities. Finally, further examination of thalamic abnormalities in twins will help shed light on the heritability of sensory processing-related alterations in ASD.

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1.11 ADULTHOOD GENDER VARIANCE IN MALES AND FEMALES WITH AUTISM SPECTRUM DISORDER

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Objectives: The goal of this session is to investigate adulthood gender identity and gender role variations in individuals with autism.
Methods: Participants included 34 biological males and 48 females with autism and 46 neurotypical control males and 39 females. Self-report gender variance was measured by the Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults and Lippa's gender-stereotyped occupation/hobby preference questionnaires. Implicit self-gender association was measured using an Implicit Association Test (IAT).
Results: Men with autism reported more variant gender identity than control men (Mann–Whitney $U = 261.5$, $P < 0.001$), as did women with autism compared with control women (Mann–Whitney $U = 493$, $P < 0.001$); no sex difference was noted in the control or autism group. Across diagnosis, men consistently showed stronger preference for gender-stereotyped masculine hobbies/occupations than women (hobbies: $F_{1,158} = 60.2$, $P < 0.001$; occupations: $F_{1,158} = 32.4$, $P < 0.001$). Women with autism reported stronger preference for masculine hobbies/occupations than control women (hobbies: $T_{82} = 5.0$, $P < 0.001$; occupations: $T_{82} = 4.3$,

$P < 0.001$); effects were in the same direction but less strong (occupations: $T_{72} = 2.6$, $P = 0.01$) or nonsignificant (hobbies: $T_{72} = 0.4$, $P = 0.72$) in men with autism compared with control men. IAT showed strong implicit associations between self and gendered terms of one's natal sex in both sexes, irrespective of diagnosis. There was no difference between men with and without autism ($T_{76} = 0.2$, $P = 0.82$), but women with autism showed weaker implicit association between self and female gender than control women ($T_{83} = 2.5$, $P = 0.01$). Correlations between IAT effect and self-report gender identity were significant in women with autism (Spearman's $\rho = 0.28$, $P = 0.03$) but minimal in other groups.

Conclusions: Adults with autism reported more variant gender identity than control adults. Women with autism reported stronger preference for gender-stereotyped masculine hobbies/occupations, weaker implicit association between self and female gender, and stronger implicit-explicit correlation in gender identity than control women. These effects were not evident in males. Gender variance in autism may reflect phenotypic overlap between the autistic and gender spectra and common biological and gender socialization underpinnings.

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1.12 AUTISM SPECTRUM DISORDER IN THE EMERGENCY DEPARTMENT

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Objectives: Youth with ASD may present to the emergency department as a result of behavioral issues that are uncontrollable or dangerous to the individual or those around them. This comprehensive literature review summarizes reports that characterize or describe emergency department service use by individuals with ASD.

Methods: We conducted a comprehensive database search using keywords related to ASD and the emergency department. Publications that had reported on emergency department use by youth with ASD and were related to behavioral and/or psychiatric presentations were included. Case reports and review articles were excluded.

Results: Our search found 214 articles, of which 11 were found to be relevant and addressed emergency department service in ASD youth. These studies included a retrospective chart review of youth with ASD under the age of 18 years in a tertiary care pediatric emergency department, a retrospective study of patients presenting to an urban teaching hospital, database analyses (including state and national), and a parent survey. Several studies compared emergency department use for youth with and without ASD. Youth with ASD were five times more likely to present to the emergency department compared with youth without ASD. Among youth with ASD who visit the emergency department, 10 to 13 percent of visits are for behavioral issues or psychiatric problems, whereas for youth without ASD, less than 2 percent were admitted for these reasons. In youth aged 12–15 years with ASD, psychiatric problems, including self-injurious behaviors and aggression, were the most common reasons to present to the emergency department. In youth aged 16–18 years with ASD, epilepsy and psychiatric disorders were the most common reasons for emergency department visits. Individuals with ASD were more likely to be medically admitted in the emergency department or on a medical floor than individuals without ASD, suggesting that inpatient psychiatric placement was not available.

Conclusions: Psychiatric problems are a major cause of emergency department visits in youth with ASD and may result in suboptimal disposition. This literature review on emergency department service use among youth with ASD suggests that there are multiple important gaps in knowledge, including what events typically lead up to emergency department visits, what complicating factors can arise in the emergency department, and how best to provide services that lead to optimal disposition and outcomes. To best inform care planning for youth with ASD, more data are needed on ways to prevent or minimize emergency department use and ways to use emergency department services most efficiently for young people who do present in these settings.

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1.13 IDENTIFYING GENETIC SOURCE OF CHILDHOOD DISINTEGRATIVE DISORDER BY WHOLE EXOME SEQUENCING

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Objectives: Childhood disintegrative disorder (CDD), which is known as a subtype of ASDs, is a rare progressive neurological disorder. However, the pathogenesis and etiology of CDD are not clear. Two brothers with the same regression pattern, who both lost ability in language and life skills gradually after age 4 years, were diagnosed strictly with CDD by a pediatric psychiatrist. The aim of our study is to explore the possible etiology of CDD from the siblings.

Methods: Whole-exome sequencing first was used to screen the whole family members, including the healthy parents. Clinical scales, including Autism Diagnostic Interview–Revised, the Child Autism Rating Scale score, and the Autism Behavior Checklist, were applied to assess their clinical features. Further MRI scan was performed to exam the families' brain structures and functions. Finally, to verify the genetic results, we added biochemical and metabolic detection, including a uGAG assay and enzyme activity test.

Results: We found that a new mutation, c.302T>C (p.F101S), in the gene *SGSH* fits the homozygous recessive genetic model; the siblings were homozygous mutants, and their parents were heterozygous carriers. By MRI scanning, we found that cerebral atrophy was considered general where gray matter became thinner with expanded sulcus in bilateral frontal and temporal lobe compared with occipital lobe and the white matter exhibited degenerative matter, especially in the corpus callosum. Excess GAGs were noted in urine; only the activity of heparan *N*-sulfatase was much lower, whereas the others were normal.

Conclusions: We report the new mutation, F101S, in disease-causing gene *SGSH* in the siblings with CDD. *SGSH* encodes for heparan *N*-sulfatase, and mutations in *SGSH* result in impaired degradation of heparan sulfate, classically cause mucopolysaccharidosis IIIA. The siblings' neurodegeneration symptoms were highly possible due to undegraded heparan sulfate accumulation in the central nervous system. Thus, this case offers a possible etiology of CDD. Furthermore, child psychiatrists should be aware of these metabolic diseases, particularly when a patient is coupled with highly inherited tendency or the specific regressive pattern. A genetic investigation and biochemical test should be considered when we want to clarify diagnoses and nosogenesis, the importance of which has been proved in this study.

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1.14 BIPOLAR DISORDER IN CHILDREN WITH AUTISM SPECTRUM DISORDER: CLINICAL STUDY OF THREE-YEAR FOLLOW-UP

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