

Unraveling Autism: The Environment's Role in the Puzzle

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Introduction

Autism is a condition characterized by early-onset challenges in social interaction and communication, alongside inflexible and repetitive behaviors and interests, forming the basis for diagnosis. The disease typically begins to show or is diagnosed around age two. Early signs may include hyperactivity, lack of focus, and tantrums that music can alleviate. In adulthood, individuals with this condition often struggle to cope with the responsibilities of daily life, find it challenging to socialize and may feel isolated and lacking in friendships. They may develop addictions or strong attachments to specific objects or routines. These symptoms align with the diagnostic criteria, including qualitative impairments in social interaction and communication and restricted and repetitive interests and activities. It's crucial to recognize the non-social aspects of the condition, such as narrow interests, preference for routine, and heightened attention to detail.¹

Furthermore, children's behavior may appear unpredictable and alarming. Autistic children commonly struggle with expressing thoughts and emotions, engaging in imaginative play, and forming relationships. Challenges with mental development and language disorders are also prevalent among them. Autism manifests with varying degrees of symptom severity, age of onset, and language development delays. However, there isn't one singular behavior that typifies autistic behavior. Rett's disorder, while sharing similarities with autism, is distinct due to its specific characteristics, setting it apart from the classification of Autism Spectrum Disorder.²

Autism serves as an umbrella term encapsulating a broad spectrum of disorders, sometimes termed as "Autism Spectrum Disorders" or "Pervasive Developmental Disorders." This spectrum ranges from severe infantile forms to milder variations like Asperger syndrome. Within this spectrum, various speech, attention deficit, and hyperactivity disorders are also categorized. Although these conditions may not always share the same genetic background, they often exhibit symptomatology akin to typical autism. Autism primarily impacts three core areas of behavior: social skills, communication, and patterns of interest. Initial signs typically

emerge by age three, although there may be warning indications even earlier.³

A hallmark of autism is a significant withdrawal from environmental stimuli. The disorder is characterized by deficits in social reciprocity, with these deficits being most pronounced in classical infantile autism and milder in Asperger syndrome. Classical autism often co-occurs with mental retardation in 40 to 75% of cases, while Asperger syndrome typically preserves language and intelligence. However, individuals with Asperger syndrome may exhibit sparse speech, prefer solitude, avoid social interaction, and respond tangentially.

Classical autism is often marked by repetitive body movements, gestures, and rigid play patterns, with affected individuals showing little attention to conversation despite not being deaf. Ritualistic and obsessive behaviors provide comfort due to their predictable routine. For example, an autistic child may insist on arranging toys in a specific order rather than engaging in imaginative play. Any deviation from their established routine can trigger anger outbursts, tantrums, and strong resistance. Additionally, autistic individuals may exhibit either hypersensitivity or hyposensitivity to sounds.⁴

Early diagnosis is crucial, with attentive and educated parents often able to recognize classical manifestations of autism, such as a lack of anticipation for being picked up, diminished eye contact for social signaling, absence of joint attention, failure to reach for familiar individuals, and inability to imitate others' actions (e.g., waving goodbye or clapping hands).⁵

Several environmental factors, such as exposure to vaccines containing thiomersal as a preservative or organophosphate poisoning from pesticide ingestion, have been implicated as potential causes of autism. While autism has a strong genetic component, the increasing incidence suggests that epigenetic factors and environmental influences may also play significant roles in altering gene function. Currently, no medical treatments are available for autism, but behavioral interventions have proven effective, particularly in high-functioning cases, before maladaptive behaviors become ingrained. Autism's rising prevalence

poses a considerable healthcare challenge across societies, emphasizing the urgent need for improved understanding and intervention strategies.^{6,7}

The core symptoms of autism are defined by three primary behavioral characteristics: impaired social interactions, communication difficulties, and repetitive behaviors. Individuals with autism often struggle to engage socially, avoiding eye contact and failing to comfort or seek comfort from others. They may use their caregivers as tools to access desired objects rather than sharing interests or engaging in imaginative play. Reciprocal communication, including speech, gestures, and facial expressions, is notably impaired, with limited use of eye gaze or pointing to direct attention. Early language development is often restricted, with reduced social interaction and joint attention rates but more typical rates of requesting. Repetitive body movements, such as spinning or running back and forth, are often accompanied by visual behaviors like observing fingers held to the face. These repetitive behaviors may serve to calm the individual, particularly during times of stress.^{8,9,10}

Children with autism often exhibit a rigid adherence to routines and may develop elaborate rituals that must be followed precisely. Deviations from these routines can lead to outbursts or distress. Additionally, they may display symptoms such as meltdowns, aggression, or self-injurious behaviors in response to changes in routine or sensory sensitivities. Some individuals may exhibit extreme hypersensitivity to certain sounds or textures while ignoring painful stimuli. Unusual behaviors around food, such as accepting only specific foods or exhibiting strong preferences, can also impact nutrition and daily functioning. These symptoms, while not diagnostic on their own, are common in individuals with autism and can significantly affect their quality of life.^{11,12,13,14}

Neurological symptoms associated with autism spectrum disorders (ASD) often include seizures, intellectual disability, and various motor impairments. These motor impairments can manifest as prolonged toe walking, low muscle tone (hypotonia), general clumsiness, difficulties with handwriting, and an inability to ride a two-wheel bicycle.¹⁵

In addition to neurological symptoms, individuals with ASD may also experience gastrointestinal issues. These can include constipation, diarrhea, bloating, belching, abdominal pain, acid reflux, vomiting, and excessive flatulence. These gastrointestinal symptoms are not uncommon among individuals with ASD and can contribute to overall discomfort and health challenges.

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