

Mini-Review

Signs, Symptoms, Diagnosis, Causes, Risk Factors, Treatment and Prevention of Autism with Special Reference to African Americans

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ABSTRACT

Autism is a neurodevelopmental condition that affects social interaction, behavior, and communication. Autism spectrum disorder (ASD) is a condition related to brain development that impacts how a person perceives and socializes with others, causing problems in social interaction and communication. ASD is an umbrella term that includes a range of neurodevelopmental features. The disorder also includes limited and repetitive patterns of behavior. The term "spectrum" in autism spectrum disorder refers to the wide range of symptoms and severity. ASD begins in early childhood and eventually causes problems functioning in society, in school and at work, for example. Often children show symptoms of autism within the first year. A small number of children appear to develop normally in the first year, and then go through a period of regression between 18 and 24 months of age when they develop autism symptoms. While there is no cure for ASD, intensive, early treatment can make a big difference in the lives of many children.

Keywords: Autism spectrum disorder, African American, Diagnosis, Causes, Risk factors

INTRODUCTION

Autism is not a disease, but it can have a significant impact on a person's life. ASD is a broad term used to describe a group of neurodevelopmental disorders with strong genetic liability. ASD is a complex developmental disability, typically appearing during childhood and affecting a person's ability to communicate and interact with others. ASD refers to a broad range of conditions characterized by challenges with social skills, repetitive behaviors, speech and nonverbal communication. According to the Centers for Disease Control, autism affects an estimated 1 in 54 children in the United States today. We know that there is not one autism but many subtypes, most influenced by a combination of genetic and environmental factors. Because autism is a spectrum disorder, each person with autism has a distinct set of strengths and challenges. The ways in which people with autism learn, think and problem-solve can range from highly skilled to severely challenged. Some people with ASD may require significant support in their daily lives, while others may need less support and, in some cases, live entirely independently. The Diagnostic and Statistical Manual of Mental Disorders (DSM) is published by the American Psychiatric Association (APA) and is used by clinicians to diagnose a variety of psychiatric disorders. The fifth and most recent edition of the DSM was released in 2013. The DSM-5 currently recognizes five different ASD subtypes, or

specifiers. They are with or without accompanying intellectual impairment, with or without accompanying language impairment, associated with a known medical or genetic condition or environmental factor, associated with another neurodevelopmental, mental, or behavioral disorder, with catatonia [1].

Several factors may influence the development of autism, and it is often accompanied by sensory sensitivities and medical issues such as gastrointestinal (GI) disorders, seizures or sleep disorders, as well as mental health challenges such as anxiety, depression and attention issues.

Signs of autism usually appear by age 2 or 3. Some associated development delays can appear even earlier, and

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often, it can be diagnosed as early as 18 months. Research shows that early intervention leads to positive outcomes later in life for people with autism. In 2013, the American Psychiatric Association merged four distinct autism diagnoses into one umbrella diagnosis of autism spectrum disorder. They included autistic disorder, childhood disintegrative disorder, pervasive developmental disorder-not otherwise specified (PDD-NOS) and Asperger syndrome. Autism spectrum disorder is a developmental disability that can cause significant social, communication and behavioral challenges. There is often nothing about how people with ASD look that sets them apart from other people, but people with ASD may communicate, interact, behave, and learn in ways that are different from most other people. The learning, thinking, and problem-solving abilities of people with ASD can range from gifted to severely-challenged. Some people with ASD need a lot of help in their daily lives; others need less. A diagnosis of ASD now includes several conditions that used to be diagnosed separately: autistic disorder, pervasive developmental disorder not otherwise specified (PDD-NOS), and Asperger syndrome.

SIGNS AND SYMPTOMS

People with ASD often have problems with social, emotional, and communication skills. They might repeat certain behaviors and might not want change in their daily activities. Many people with ASD also have different ways of learning, paying attention, or reacting to things. Signs of ASD begin during early childhood and typically last throughout a person's life.

Children with autism may be sensitive to touch, certain smells, loud noises, temperature extremes, and even certain colors. Children or adults with ASD might:

- not point at objects to show interest (for example, not point at an airplane flying over)
- not look at objects when another person points at them
- have trouble relating to others or not have an interest in other people at all
- avoid eye contact and want to be alone
- have trouble understanding other people's feelings or talking about their own feelings
- prefer not to be held or cuddled, or might cuddle only when they want to
- appear to be unaware when people talk to them, but respond to other sounds
- be very interested in people, but not know how to talk, play, or relate to them
- repeat or echo words or phrases said to them, or repeat words or phrases in place of normal language

- have trouble expressing their needs using typical words or motions
- not play "pretend" games (for example, not pretend to "feed" a doll)
- repeat actions over and over again
- have trouble adapting when a routine change
- have unusual reactions to the way things smell, taste, look, feel, or sound
- lose skills they once had (for example, stop saying words they were using)

DIAGNOSIS

Diagnosing ASD can be difficult since there is no medical test, like a blood test, to diagnose the disorders. Doctors look at the child's behavior and development to make a diagnosis. ASD can sometimes be detected at 18 months or younger. By age 2, a diagnosis by an experienced professional can be considered very reliable.¹ However, many children do not receive a final diagnosis until much older. This delay means that children with ASD might not get the early help they need. About 40% of kids with ASD don't talk at all, and between 25% and 30% develop some language skills during infancy but then lose them later. Some children with ASD start talking later in life. Most have some problems with communication, including delayed speech and language skills, flat, robotic speaking voice, or singsong voice, echolalia (repeating the same phrase over and over), problems with pronouns (saying "you" instead of "I," for example), not using or rarely using common gestures (pointing or waving), and not responding to them, inability to stay on topic when talking or answering questions, not recognizing sarcasm or joking. It is estimated that ASD affect 1 in 500 live births per year.

African Americans tend to suffer disproportionate rates of disability and disease when compared to other racial and ethnic groups due to access to preventive and curative care. Diagnosis in African American children occurs later than in White children [2].

Cultural factors such as health care access and ASD symptom interpretations have been proposed as impacting delayed diagnosis and treatment for African American children with ASD [3]. As a result, African American children may require longer and more intensive intervention [4].

CAUSES AND RISK FACTORS

We do not know all of the causes of ASD. However, we have learned that there are likely many causes for multiple types of ASD. There may be many different factors that make a child more likely to have an ASD, including environmental, biologic and genetic factors. Most scientists agree that genes are one of the risk factors that can make a

person more likely to develop ASD. Data from whole-genome screens in multiplex families suggest interactions of at least 10 genes in the causation of autism. A putative speech and language region at 7q31-q33 seems most strongly linked to autism [5]. Children who have a sibling with ASD are at a higher risk of also having ASD. Individuals with certain genetic or chromosomal conditions (duplication of chromosomes 15q11-13, duplication and deletion of 16p11, and deletion of 22q11-13), such as fragile X syndrome or tuberous sclerosis, can have a greater chance of having ASD. The first comprehensive gene-expression analysis of brains of patients with ASD reported differences in transcriptome organization between autistic and normal brain [6]. When taken during pregnancy, the prescription drugs valproic acid and thalidomide have been linked with a higher risk of ASD. There is some evidence that the critical period for developing ASD occurs before, during, and immediately after birth. Children born to older parents are at greater risk for having ASD. It is about 4 times more common among boys than among girls. Some of the suspected risk factors for autism include being born to older parents, low birth weight, metabolic imbalances, exposure to heavy metals and environmental toxins, a history of viral infections, fetal exposure to the medications valproic acid (Depakene) or thalidomide (Thalomid). According to the National Institute of Neurological Disorders and Stroke (NINDS), both genetics and environment may determine whether a person develops autism [7]. Several studies have found increased brain size, brain structure differences, and reduced numbers of neurons in children with ASD, compared with control subjects [8-10].

TREATMENT

There is currently no cure for ASD. However, research shows that early intervention treatment services can improve a child's development. Early intervention services help children from birth to 3 years old (36 months) learn important skills. Services can include therapy to help the child talk, walk, and interact with others. Therefore, it is important to talk to child's doctor as soon as possible if one thinks a child has ASD or other developmental problem. Even if your child has not been diagnosed with an ASD, he or she may be eligible for early intervention treatment services. The Individuals with Disabilities Education Act (IDEA) external icon says that children under the age of 3 years (36 months) who are at risk of having developmental delays may be eligible for services. These services are provided through an early intervention system. Through this system, one can ask for an evaluation. In addition, treatment for particular symptoms, such as speech therapy for language delays, often does not need to wait for a formal ASD diagnosis.

Treatment for ASD should begin as soon as possible after diagnosis. Early treatment for ASD is important as proper care can reduce individuals' difficulties while helping them

learn new skills and make the most of their strengths. The wide range of issues facing people with ASD means that there is no single best treatment for ASD. Working closely with a doctor or health care professional is an important part of finding the right treatment program. A doctor may use medication to treat some symptoms that are common with ASD. With medication, a person with ASD may have fewer problems with irritability, aggression, repetitive behavior, hyperactivity, attention problems, anxiety and depression. People with ASD may be referred to doctors who specialize in providing behavioral, psychological, educational, or skill-building interventions.

These programs are typically highly structured and intensive and may involve parents, siblings, and other family members. Programs may help people with ASD: Learn life-skills necessary to live independently, reduce challenging behaviors, increase or build upon strengths, learn social, communication, and language skills.

PREVENTION

There's no way to prevent ASD, but there are treatment options. Early diagnosis and intervention are most helpful and can improve behavior, skills and language development.

However, intervention is helpful at any age. Though children usually don't outgrow ASD, they may learn to function well. Having a child with ASD affects the whole family. It can be stressful, time-consuming and expensive. Paying attention to the physical and emotional health of the whole family is important. Many national and local advocacy organizations provide information, resources and support to individuals with ASD and their families.

CONCLUSION

Although the media have focused attention on the measles-mumps-rubella (MMR) vaccine and, more recently, mercury poisoning as potential causes of autism, epidemiologic studies to date have shown no correlative associations. Begin early intervention which include speech, behavioral, occupational and even music therapy. Create opportunities for the child to interact with parents, and encourage a child to try new things and celebrate even small accomplishment, use rewards to motivate a child to be independent. Careful physical and neurological examination, genetic testing for fragile-X, high-resolution DNA microarray comparative genomic hybridization should be performed to evaluate ASD.

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