

The Abstruse Reality of Autism Spectrum Disorder (ASD) Worldwide

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Autism, or autism spectrum disorder (ASD) is a developmental disability that primarily affects the social interaction and communication skills for an individual. The disorder also includes limited and repetitive patterns of behavior that affects information processing by the brain by alternative nerve cells. Most ASD is diagnosed during early childhood, typically around three years old. Without proper continued treatment and support it can be life challenging and can continue into adulthood. Worldwide statistics suggest this affliction diagnosed in developing children of three years or more is advancing worldwide. Latest data suggest that this ASD is most prominent in Hong Kong (1 in 27 newborns), South Korea (1 in 38), United States (1 in 45), Japan (1 in 55), Ireland (1 in 65), Switzerland (1 in 69), Canada (1 in 94), Denmark (1 in 145), Singapore (1 in 149) and Belgium (1 in 167). ASD occurs in every racial and ethnic group across all socioeconomic levels. Boys are 4x more likely to develop ASD than girls. What causes this ASD?

It is a combination of genetic and environment factors that challenge an individual's verbal skills and the ability to respond. The first level cause is having an immediate family member with ASD. This is passed to the infant through genetic mutations. Fragile X syndrome (or Martin-Bell syndrome) is a genetic disorder characterized by mild-to-moderate intellectual disability. The average IQ in males is under 55 while about two thirds of affected females are disabled. This type of ASD also has unique physical characteristics such as protruding ears or long and narrow face. Infants born to older parents including low birth weight can create metabolic imbalances leading to ASD. Other possible causes of ASD are early exposure to contamination by heavy metals and environmental toxins. A history of early viral infections in the infant is also connected to ASD.

The progression of ASD is often confusing to the parent. A young individual may appear to show no signs of autism during the first year of life but then regress during the next 18 - 24 months and become withdrawn or aggressive while losing the language skills they have acquired during the first 12 - 18 months of life. There is often a unique mixture of symptoms in each child. Various social communication skills which reflect ASD presence are a failure to respond to his or her name or even not acknowledge hearing spoken words at times. Often the autistic individual has poor eye contact, lacks facial expressions, doesn't speak or has delayed speech, cannot start a conversation or keep one going and speaks with abnormal tone or rhythm and repeats words or phrases verbatim while not understanding how to use them. The individual does not appear to understand simple questions of directions. There are many patterns of behavior unique to the individual and can range from performing repetitive movements (rocking), showing developed specific routines and becoming disturbed at any change and has problems with coordination (clumsiness). A common behavioral characteristic or trait is that the individual does not engage in make-believe play.

As individuals with ASD begin to age research and investigation by worldwide scientists has defined that diagnosed ASD individuals may have various conditions develop such as Intellectual disability (31%), Dementia, including Alzheimer's disease (10%), Attention Deficit Hyperactivity Disease---ADHD---(33%), Schizophrenia (9%) and Anxiety (20%). This study conducted by John McGrath, Niels

Bohr Professor at Aarhus University in Denmark, reviewed 30,423 individuals with ASD and is the largest to focus on psychiatric and developmental conditions that occur together to this date.

It is not surprising that many different pharmacological therapies for ASD exist to treat symptoms of the various forms of ASD. These approaches or therapies are not a cure---they merely provide relief from the existing aggravations each unique individual may possess. Behavioral therapy is usually the first-line treatment, with pharmacological therapies added to help patients function in their daily activities. The pharmacologic therapies are typically aimed at reducing irritability and aggression, aberrant social behavior, hyperactivity and inattention, repetitive behaviors, cognitive disorders and insomnia. Some thirty different medications are used worldwide.

The latest research on ASD is exploring contributing factors linked to ASD. Recent investigations have shown an association between ASD and the mother's exposure to ozone pollution during the third trimester of pregnancy. Another study confirmed air pollution (particulate matter) during the infant's first year also increased the likelihood of the infant later receiving a diagnosis of ASD. DNA analysis of more than 35,000 people worldwide, including nearly 12,000 ASD individuals, identified variants in 102 genes linked with an increased probability of causing ASD. The gene variants mainly reside in the cerebral cortex, which is responsible for managing complex behaviors. These gene variants suggest a role in how the brain neurons connect and help turn other genes on or off contributing to ASD. Other studies investigating neurological factors has defined certain types of cell malfunctions contribute to ASD. One recent study in mice, with a syndromic form of ASD, discovered a decrease in the integrity of myelin, a protective sheath surrounding nerve cells in the brain. As with many other brain-digestive system links, the gut microbiome condition is now also being evaluated for factors that contribute to ASD, including nutritional intake.

Worldwide, many different organizations have joined INSAR, the International Society for Autism (ASD) Research, which just celebrated its 20th Anniversary, linking worldwide investigators committed to advancing ASD research. At the 67th world health assembly of the World Health Organization in Geneva in May 2014, it urged member states (countries) to give appropriate recognition to the specific needs of individuals affected by ASD and to support research and campaigns to raise public awareness through an approved resolution. In 2014 and ongoing, April 2 was declared World Autism (ASD) Day. There are 194 member states today involved with the World Health Organization who support this effort.

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