Intellectual Disability

Intellectual disability (ID), previously referred to as mental retardation, encompasses a broad range of neurodevelopmental disorders characterized by limited intellectual and adaptive capabilities. Learning, social, conceptual, communication, and practical skills are affected in individuals with ID. ID disorders can be categorized as nonsyndromic, where intellectual impairment is the only clinical symptom, or syndromic, where there are other clinical manifestations. About 30-50% of ID cases are nonsyndromic. Onset of ID is usually before the age of 18. Depending on the severity, there may be early signs of ID such as delays in learning how to sit, talk or crawl during infancy. But often, in nonsyndromic cases of ID, intellectual impairment is not noticed until a child starts school.

ID is found in 2-3% of the population and it often occurs with other neurological disorders, such as autism and epilepsy. The prevalence of each ID disorder varies. Some occur equally in males and females, while others are more common in males.

Risk Factors

ID may develop due to environmental factors such as birth complications, maternal alcohol consumption during pregnancy, malnutrition, infections, and prenatal or infancy illnesses. Almost half of ID cases however, are due to genetic factors. Some of these genetic ID conditions are caused by chromosomal abnormalities, which include changes in the number or structure of chromosomes. Such cases include Patau syndrome (trisomy 13), Edwards' syndrome (trisomy 18), Down syndrome (trisomy 21), and Miller-Dieker syndrome. Down syndrome is the most common genetic form, comprising 6-8% of all genetic ID syndromes.

Other cases of genetic ID are due to defects in the DNA sequence of specific genes. In some of these cases, inheriting a single defective copy of the gene from either of the parents is enough to cause the condition (dominant disorders). These include conditions like Schinzel–Giedion syndrome, Kabuki syndrome and Bohring–Opitz syndrome. On the other hand, some conditions occur only if both copies of the gene inherited from the parents are defective (recessive disorders). These disorders include Sjogren-Larsson syndrome and Canavan Disease. Many of the genes implicated in ID tend to be located on the X-chromosome, as in the case of the FMR1 gene, which is implicated in Fragile X syndrome. Many of the genes implicated in ID are yet to be identified. Other ID syndromes, such as Angelman syndrome and Prader-Willi syndrome are caused by external factors that modify gene activity without altering its DNA sequence

Diagnosis and Management

ID is typically diagnosed by IQ (intelligence quotient) assessment. A score below 70 is indicative of ID. Moreover, the severity of ID is assessed by the IQ score also: mild (50 to 70), moderate (40 to 50), severe (20 to 40) or profound (below 20). Pharmacological treatment for different ID cases varies and depends on the underlying cause for ID. Medications may improve behavioral and intellectual skills. For many ID disorders however, treatment has not yet been

developed. Behavioral intervention and special education help ID patients slowly acquire language and social skills. Individuals with ID often require supervision and help in everyday activities.

ID in the Arab World

Various forms of ID have been reported across the Arab world. ID is more prevalent in Arabs (5%) compared to other populations, mainly due to the prevalence of consanguinity. It is thus not surprising that the most common form of ID in Arabs is of the recessive form. Because of the lack of awareness and the social stigma around ID in Arab countries, many individuals with ID do not get proper treatment. Special education facilities are either not available or too expensive. However, several countries have made inclusion efforts to allow individuals with ID to become active members of Arab societies.

Mild **85% of ID Population**	Can generally learn reading, writing, and math skills between third-and sixth-grade levels. May have jobs and live independently.
Moderate **10% of ID Population**	May be able to learn some basic reading and writing. Able to learn functional skills such as safety and self-help. Require some type of oversight/supervision.
Severe **5% of ID Population**	Probably not able to read and write, although they may learn self-help skills and routines. Require supervision in their daily activities and living environment.
Profound **1% of ID Population**	Require intensive support. May be able to communicate by verbal or other means. May have medical conditions that require ongoing nursing and therapy