

Causes, Classification, Diagnosis And Treatment Of Intellectual Disability

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ABSTRACT

In India, about 75 per cent of all cases diagnosed, doctors are not able to discover a specific reason for the disability. The causes of intellectual disability are repeatedly unknown, even among those who have been identified; the majorities are excluded by the rest of society. So, the present study discussed the various causes of intellectual disability and how to diagnosis or what kind of symptoms where we can realize the intellectual disability. The diagnosis of intellectual disability requires clinical evaluation and judgment as well as a formal testing of the cognitive and adaptive functions. Such formal testing is done by individually administered standardized tests such as; the Stanford Binet Intelligence Test, Behavior assessment scales in Indian setting, Seguin Form a Board test, Bayley Scales of Infant Development, Gesell Developmental Schedules, Madras Developmental Programming System etc. The clear and easy idea of classification of ID given by the DSM-5 diagnosed the satisfaction of three criteria: mild, moderate, severe, and profound have been used to describe the severity of the condition. This approach has been helpful in that aspects of mild to moderate ID differ from severe to profound ID. The DSM-5 retains the grouping with more focus on daily skills than on specific IQ range. The research paper also discussed how to treatment of an individual with intellectual disability depends on the identified underlying cause and appropriate support to allow optimal functioning and independent living. Persons who have severe intellectual disability require life-long intensive supports.

Keywords: Causes, Diagnosis, Intellectual Disability, Treatment

INTRODUCTION

Disability can be defined as disturbances in overall performance of social roles that could commonly be predicted of an individual within the habitual environment, arising in association with diagnosable mental disorder (Singh et al, 2019). Intellectual disability includes problems with general intellectual skills that have an effect on functioning in two areas. (1) Intellectual functioning such as learning, problem solving, and judgment. (2) Adaptive function is activities of every day existence including communication and independent living (APA, 2013). All individual with ID have considerably low intellectual functioning. The experiencing problem perceiving and processing new information, getting to know quickly and efficiently, applying knowledge and skills to solve novel problems, thinking

creatively and flexibly and responding quickly and accurately. According to WHO (2007), disability is described as any limit or loss of capability to perform an activity in the manner or within the range considered normal for a human being. Intellectual disability (ID), once called mental retardation, is characterized by below-average intelligence or intellectual capacity and lack of skills necessary for daily living. People with intellectual disabilities will and do learn new skills, however they learn more slowly (Shree and Shukla, 2016).

The term intellectual disability is increasingly being employed rather than mental retardation due to following reasons:

- Reflects the modification construct of disability described by the AAIDD and WHO.
- Aligns better with current professionals practices that focus on functional behavior and related factors.
- Is less unpleasant to persons with disability.
- Is more reliable with international terminology (Shree and Shukla, 2016).

There are few definitions of intellectual disability. Among them, one of definition given through the American Association on Intellectual and Developmental Disability that is generally accepted; “intellectual disability is characterized by significant restrictions both in intellectual functioning (reasoning, trouble solving, learning) and in adaptive behavior, which covers everyday social and practical skills. This disability originates earlier than the age of eighteen (18) (Katz and Lazcano-Ponce, 2012).

Presently, most people with ID in India have now no longer officially diagnosed or even amongst the ones who've been diagnosed, the majorities are excluded by the rest of society. According to census of India (2011), 1,505,624 people are found intellectually disabled. Among them, 870,708 have been male and 634,916 have been females. As a result, people with ID aren't afforded the equal opportunities as individuals without disabilities. Further, there is clearly a lack of information regarding the clear data about the individuals with ID within India. Studies depicted that in India 1.67% of the 0-19 population has a disability. Some research illustrated that there are 31 million people who are intellectually disabled (ID). Among them, 35.29% of all us residing with disabilities are kids. Other estimates say that India has 12 million children living with disabilities. Only 1% of children with disabilities have admission in schools and one third (0.33) of maximum disabilities are preventable (Singh, 2014). The National Sample Survey Organization (NSSO) determines that currently 1.8% of the entire Indian population is disabled, but the information might not be absolutely accurate. The prevalence of intellectual disability has been predicted at 1 to 4% i.e. approximately 20 individuals per 1000 within the population (Soo News, 8 June, 2017). The most of the previous researches have been focused on stress, anxiety, social and economic problem faced by individuals who have ID especially in India. Some of the studies have worked on comparison study between normal and intellectual disability persons. But, hardly studies focused on causes, diagnosis and treatment of ID. The main problems were missing in every study especially by Indian researchers. So, the researchers will first to investigate the main causes and classification of intellectual disability. Besides, the study will discuss, how to diagnosis or identify the symptoms of an intellectual disability. Based upon causes and symptoms, the researchers will describe how to treatment is possible in India where intellectual disabled population will get benefit.

CAUSES OF INTELLECTUAL DISABILITY

Not all causes of intellectual disability are known. Around 75% of all cases diagnosed, specialists aren't able to discover a specific reason for the disability. The causes of intellectual disability are constantly unknown on the ground that there are some reasons such as; lack of oxygen at birth, infections or other issues during work and birth, exposure to toxins such as mercury, lead, drugs, and fetal infection. Fetal alcohol syndrome, which result from intrauterine exposure to alcohol can also reason of ID. Factors like misuse, poverty, neglect, restricted incitement and poor parent-child communication yet, a few of the psychosocial factors that have been discovered related to intellectual functioning (AAMR, 2002).

Epidemiological investigations have consistently announced a remarkable connection between poverty and intellectual disability. The relation exists found between poverty and exposure to a wide scope of environmental and psychosocial factors (Leonard et al, 2005); it exhibits that families with individuals experience of ID have an increased risk of harmful expenses that significantly have an effect poverty levels. These factors are immediate causes of the unbalanced increase in the incidence of ID in developing countries (Emerson and Hatton, 2007). Communications have been accounted between insufficiency and poor prenatal, perinatal and postnatal health care, poor natal health care, adolescent maternity, family instability because of various and insufficient guardians and wellbeing experts, low degree of stimulation and schooling, in addition to infant mistreatment. For instance, there might be problem with the manner in which the baby's cells partition as it develops. A lady who drinks liquor or gets an infection like rubella during pregnancy may also have a child with an ID (NICHCY: <http://nichcy.org>). Realistic evaluations suggest that around 780 million children might be influenced between birth and 5 years old (Olness, 2003). The data addresses the increasing number of recognizable biological and environmental factors related with ID just as those conditions that place children at risk. Beyond the increasing number of hereditary and infectious causes for intellectual disabilities that are presently recognized, the list of well-documented biological conditions that can lead to intellectual disabilities includes malnutrition, head injuries, especially micronutrient deficiencies lead poisoning, low birth weight, malignancies and numerous others. The corresponding list of potential environmental reason for ID is similarly extensive and includes the pernicious impact of poverty, child abuse and child neglect (Guralnick, 2000). Although these environmental causes can and do make independent contributions to ID, they often work related with biological conditions (Fujiura & Yamaki, 2000; Park et al, 2002). Also, while considering potential causes or risk factors, it is the aggregate impact that produces the greatest threat to young children's intellectual development (Burchinal et al, 2000).

During the prenatal period, possible pregnancy complications exist like toxemia and uncontrolled diabetes, placenta previa, vaginal hemorrhages, intrauterine malnutrition and umbilical cord prolapsed (Juul-Dam et al, 2001). In peri-natal period, there are normal birth complications: delayed fetal suffering with neonatal anoxia and asphyxia related with suffocation (Siitonen et al, 2003), inadequate use of high forceps or a poorly applied Kristeller maneuver (Bouda and Bouda, 2005). When due to a complicated delivery, oxygen supply to the baby is reduced which can bring brain damage, as the brain is very sensitive to oxygen deprivation (brain asphyxia). Such infants may develop an ID or cerebral palsy. Respiratory challenges after birth, convulsions, and inability to create ordinary sucking movements can also cause ID. Premature birth, birth asphyxia, exceptionally low birth weight, and severe jaundice, hemorrhage of the brain at the time of birth are also causes of ID. Further, the post-natal period, complications are noticed such as encephalopathy from hyperbilirubinemia (Falcao et al, 2007), encephalic traumatism (Anderson et al, 2005) and infections (encephalitis and meningitis). Head injury,

chronic lead exposure, severe and protracted malnutrition were found. Emotionally disturbed children are viewed as oversensitive to psychological stress. Emotional deprivation and upset parents child reactions are some of the factors related with intellectual disabilities. Besides, brain infections such as tuberculosis, Japanese encephalitis, and bacterial meningitis infants who are generally typical suddenly develop fever, headache, convulsions, vomiting and loss of consciousness because of infection caused by bacteria or virus. If the infection is severe, there may be irreversible brain damage leading to ID. After recovery from acute illness, they may lose many skills which they have learned earlier.

The greatest number of cases are patients with Down syndrome, an anomaly that occurs in 15 of every 10 000 births and is due to chromosome 21 trisomy or the translocation of chromosomes 21 and 15. Other much less frequent chromosomal abnormalities are those of the fragile X chromosome syndrome (Reiss and Hall, 2007), Prader-Willi syndrome, Rett syndrome, neurofibromatosis, tuberous sclerosis (Raznahan et al; 2007), Lesch-Nyhan syndrome, adrenoleukodystrophy and other very rarely occurring related conditions. Down's syndrome or Mongolism is caused by chromosomal aberrations. It was Langdon Down who first discovered this syndrome in 1886. Due to biological error around the time of conceptions, the cells come to have one extra chromosome i.e. 47 instead of 46 chromosomes. This extra chromosome is the cell interferes with the normal development of the brain, leading to intellectual disability. It occurs one in 800 new born babies. They are often recognized by their facial appearance, up slanting eyes and flat bridge of the nose (Kalgotra and Warwal, 2017). Chromosomal disorders, genetic syndromes, congenital brain malformations, neurodegenerative diseases, and congenital infections, inborn errors of metabolism and birth injury are the most common identified causes of severe intellectual disability (Moeschler and Shevell, 2014). One of the most common causes of intellectual disability is abnormal genes. Sometimes these are inherited from parents. Hereditary factors include phenylketonuria, galactosemy (Campos et al; 2007), Mowat-Wilson syndrome, Tay-Sachs disease (Vallance et al; 2006), and glycogen deposit disease, among others. The causes of ID are quite heterogeneous, as they may be due to factors of genetic, environmental or multifactorial origin (Chaste and Leboyer, 2012), however 25 to 60% are attributed to genetic causes (Lakhan et al; 2017). Nongenetic causes such as prenatal infections, substance use like alcohol intake during pregnancy, and postnatal meningoencephalitis account for only one-third of cases and the rest are of genetic origin (Kishore et al; 2021). In such cases, functioning represents an interaction of both genetic and environmental factors (Shree and Shukla, 2016). These illnesses can be easily diagnosed when intra-hospital births are involved, during which neonatal metabolic screening can be conducted; however, when the latter is not conducted a considerable risk is presented since such causal factors for mental delay are not identified.

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slanting eyes and flat bridge of the nose. Although they are intellectually disabled, they possess good social and interactional skills. Diseases such as whooping cough meningitis, and measles, Chromosomal abnormality.

DIAGNOSIS OF INTELLECTUAL DISABILITY

Diagnosis of intellectual disability is primarily based on the presenting symptoms and signs, detailed medical history and findings on a detailed physical examination. Intelligence is the general mental capacity that involves reasoning, planning, solving problems, thinking abstractly, comprehending complex ideas, learning efficiently, and learning from experience (AAIDD; 200). The several tools where intellectual disability diagnosing such as; the Stanford Binet Intelligence Test, Behavior assessment scales in Indian setting, Seguin Form a Board test, Bayley Scales of Infant Development, Gesell Developmental Schedules, Madras Developmental Programming System, Developmental Screening Test (DST) by Bharat Raj, Problem Behaviour Checklist by Peshawaria etc.

The diagnostic process of ID is similar to any other behavioral and mental disorders but with subtle differences. The diagnostic process involves history taking, observation including medical examination, intellectual and adaptive behavioral assessment, identification of comorbid psychiatric disorders, and need-based laboratory investigations for other medical conditions (Kishore et al; 2019). Subjects with intellectual disability and comorbidities, especially those that are psychiatric in origin, have less social capital than individuals with ID who do not have psychiatric disorders (Widmer et al; 2007). Various medical comorbidities are often associated with ID. Depending on the etiology, varying degrees of both neurological and nonneurological comorbidities are encountered. Some are a consequence of ID itself. Few of the common medical comorbidities are the following: epilepsy, spasticity, dystonia, ataxia, visual impairment, hearing impairment, congenital heart disease, cleft lip and cleft palate, limb anomalies such as congenital talipes equinovarus, congenital dislocation of hip joint, renal malformations, failure to thrive with vitamin and mineral deficiencies, recurrent infections, feeding disorder, and short stature (Kishore et al; 2019). In addition, the absence of legislation in developing countries, the lack of knowledge about ID, the stigmatization and discrimination as well as the lack of training and infrastructure for establishing a diagnosis significantly delays possibilities for intervention and the utilization of specific services (Maulik and Darmstadt; 2007). The cultural context establishes denial on the part of the parents who are faced with the possible diagnosis of intellectual disability. It is indisputable that parents take on the diagnosis of mental delay with great difficulty, to the extent that the doctor frequently chooses not to confront this reality in the attempt to avoid the intense pain that it represents. It is unquestionable that the acceptance of a condition that signifies a life of constant difficulties is not easy for anyone (Katz and Lazcano-Ponce; 2008). Clinicians may note that the choice of tests in the Indian context is limited notwithstanding the fact that the norms are in many cases are not revised [Appendix 2]. This is a major concern given the evidence for Flynn effect, which refers to observed rise in IQ scores over time and related norm obsolescence. Therefore, the IQ scores should not be rigidly interpreted. When IQ tests are not applicable because of young age (e.g., children below 3 years) or associated sensory-motor issues and gross under stimulation, standardized developmental scales (e.g., Developmental Screening Test and Developmental Assessment Scales for Indian Infants) can be used as applicable. The developmental tests yield “developmental quotients” which are interpreted in the same way as IQ scores ((Kishore et al; 2019).

According to Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), (APA; 2000) three criteria must be met for a diagnosis of mental retardation: an IQ below 70, significant limitations in two or more areas of adaptive behaviour (as measured by an adaptive behaviour rating scale, i.e. communication, self-help skills, interpersonal skills, and more), and evidence that the limitations became apparent before the age of 18. It is formally diagnosed by a professional assessment of intelligence and adaptive behaviour. The DSM-V (APA; 2013) diagnosis is expected to require adaptive measurements of less than two standard deviations as compared to the population mean, with standard scores of 70 or less, in at least 2 of the following domains: Conceptual skills (communication, language, time, money, academic), Social skills (interpersonal skills, social responsibility, recreation, friendships) and Practical skills (daily living skills, work, travel). Depression, anxiety, etc. can also contribute to low IQ scores, which evaluator should rule them out before concluding that measured IQ. The second component of diagnosis, adaptive skills, is usually measured with a self reported or a parent/caregiver-reported inventory, such as the Vineland Adaptive Behaviour Scales. According to the widely accepted definitional criteria, a diagnosis of intellectual disability requires formal individualized assessment of cognitive and adaptive functioning by standardized tests (<https://pm.amegroups.com/article/view/4626/html>). Intellectual disability may present in a range of cases; it may be exhibited as only a lower level of intellectual and adaptive functioning, or it may appear as a result of some other developmental disorder such as down's syndrome, fragile X syndrome, phenylketonuria, or other recessive gene disorders. Thirdly, mental retardation may also co morbid with other developmental disorders like autism, attention deficit hyperactivity disorder etc (Kring et al; 2010).

Other methods of diagnosis are as: when a physical examination should be done to discover any, symptom. Physical examination can begin with a review of growth curves since birth; the head circumference should to be plotted regularly. Compilation of complete medical, family, social, and educational history from interviews with parents and existing medical and school records. Some clues to diagnose intellectual disability include delayed speech, general inability to do things for self. Assessment of maternal health during pregnancy (signs of infection, use of tobacco, alcohol and drugs, serious illness or injury. A developmental screening should be done regularly to study child's developmental rate and pattern. Information should be obtained about the family and educational achievements, parents' occupations educational and developmental status of siblings, the role of the patient in the family, discipline of the children and family history of intellectual disabilities (Kalgotra and Warwal; 2017).

CLASSIFICATION OF INTELLECTUAL DISABILITY

The classification of intellectual disability is based on a person's intellectual and adaptive functioning, and the intensity of supports needed. It is often not possible to assess the severity of intellectual disability in many cases solely based on standardized testing. In these instances, a diagnosis of intellectual disability is made based on clinical findings and judgment. It is also not always possible to determine the severity of intellectual disability or the severity may evolve over time. In such cases a diagnosis of intellectual disability is made without specifying the level of severity (Dilip et al; 2018).

DSM-5 defines intellectual disabilities as neuro-developmental disorders that begin in childhood and are characterized by intellectual difficulties as well as difficulties in conceptual, social, and practical areas of living. The DSM-5 diagnosis of ID requires the satisfaction of three criteria: "mild," "moderate," "severe," and "profound" have been used to describe the severity of the condition. This approach has been

helpful in that aspects of mild to moderate ID differ from severe to profound ID. The DSM-5 retains this grouping with more focus on daily skills than on specific IQ range.

Traditionally the intensity or “amount” of the disability was defined by scores on a standardized test of scholastic aptitude (or “IQ test”), with lower scores indicating more severe disability. Because of the insensitivity of such tests to individuals’ daily social functioning, however, current trends are toward defining intensities by the amount of support needed by the individual. Summarizes the most commonly used scheme for this purpose, one created by the American Association on Intellectual and Developmental Disabilities (AAMR, 2002). Levels of support range from intermittent (just occasional or “as needed” for specific activities) to pervasive (continuous in all realms of living).

Mild to Moderate Intellectual Disability

The majority of people with ID are classified as having mild intellectual disabilities. Individuals with mild ID are slower in all areas of conceptual development and social and daily living skills. These individuals can learn practical life skills, which allow them to function in ordinary life with minimal levels of support. Individuals with moderate ID can take care of themselves, travel to familiar places in their community, and learn basic skills related to safety and health. Their self-care requires moderate support.

Severe Intellectual Disability

Severe ID manifests as major delay

s in development, and individuals often have the ability to understand speech but otherwise have limited communication skills. Despite being able to learn simple daily routines and to engage in simple self-care, individuals with severe ID need supervision in social settings and often need family care to live in a supervised setting such as a group home.

Profound Intellectual Disability

Persons with profound intellectual disability often have congenital syndromes. These individuals cannot live independently, and they require close supervision and help with self-care activities. They have very limited ability to communicate and often have physical limitations. Individuals with mild to moderate disability are less likely to have associated medical conditions than those with severe or profound ID (<https://www.ncbi.nlm.nih.gov/books/NBK332877/>).

TREATMENT OF INTELLECTUAL DISABILITY

Intellectual disability must, evidently, be understood and diagnosed as a developmental disorder, but fundamental for providing adequate professional care; than to take into account the intellectual level of the patient and his or her ability to adapt to the existing environment and, of utmost importance, the reaction of the parents to this situation. The use of medication depends on the need of the patient; psycho-stimulants are used for the treatment of ADHD, neuroleptics for self-harming and aggressive behavior, and serotonin reuptake inhibitors for depression and obsessive–compulsive disorder. ID does not have a specific treatment, but associated impairments be treated by intervention and pharmacological treatment. Pharmacological treatment is used for the treatment of comorbidities, and is specific for each one

according to the criteria followed for these disorders, both in psychiatry and in neurology. On occasion, when a favorable response is not obtained, a random treatment scheme is established. In the case of attention deficit disorder and hyperactivity, the use of stimulants for the central nervous system (the treatment of choice for this disorder) had been considered not to produce favorable results; nevertheless, recent research shows that elevated doses of methylphenidate (0.60 mg/kg) produce obvious improvements in symptoms related to inattention, impulsivity and hyperactivity. The ID associated with challenging behavior (aggression, oppositional–defiant disorder) as well as mental illness, such as mood disorders, anxiety, epilepsy, and behavioral disorders (Swaiman, et al; 2012 and Junior and Kuczynski, 2003).

Intellectual disability is a lifelong disorder. It is treated through management and rehabilitation programs (including special education programs) aimed at helping children with the disorder acquire adaptive skills so they can live healthy, happy, relatively independent lives. <https://childmind.org/guide/intellectual-development-disorder/>. Cognitive disability must, evidently, be understood and diagnosed as a developmental disorder, but fundamental for providing adequate professional care; than to take into account the intellectual level of the patient and his or her ability to adapt to the existing environment and, of utmost importance, the reaction of the parents to this situation. Since cognitive disability is not curable, the treatment objectives must focus on the normalization of behavior in accordance with the norms and rules determined by society. To this end, intervention as early as possible is fundamental since treatment for developmental disorders can reach its maximum scope only through early intervention. It must be remembered that the process of cerebral plasticity has its greatest potential during to the first five years of life and this is one of the most important supporting factors in attaining the therapeutic goals. Furthermore, since the behavior disorders which are so frequently observed are secondary –due to deficient childrearing in the majority of cases– the parents must be worked with and advised as to adequate childrearing methods for developing adaptation patterns that lead to optimal social integration. During the infancy period (zero to two years), disorders in muscular tone and motor development are treated (motor therapy) and signs of sensory disintegration that almost always accompany motor problems are treated through sensory integration therapy. As for the linguistic developmental disorders themselves, symbolization processes are treated (language therapy) as well as muscular tone alterations that affect respiration, phonation and the bucofacial region (articulation therapy). Likewise, cognitive stimulation should be used for these children at the onset of treatment (Katz, and Lazcano-Ponce; 2008). In order to specific medical care to concerns associated with intellectual disability and deficits in cognitive and adaptive functioning, preventive and health maintenance should be integral component of healthcare for these children and adolescents (Dilip et al., 2018).

In these cases, as well as for adolescents and adults with intellectual disability, programs oriented toward independent living should be recommended. These programs should cover the areas necessary for achieving a partially or totally self-sufficient life, among which are: the academic-basic skills, community integration programs, developing skills for managing domestic tasks, personal healthcare and sexuality. In addition, a prevocational program should be included for the development of abilities for the workplace and, when possible, for the individual to become integrated into the labor market.

An Intellectual Disability treatment plan after stem cell treatment in India cannot be exactly the same for all ID children. Whether traditional, or unconventional, they have to be personalized. This

personalization can only be achieved with a thorough evaluation of the child. However, it is imperative that the following therapies be followed religiously after stem cell therapy, for the best possible outcome. <https://www.neurogenbsi.com/intellectual-disability-treatment-in-india>. The strategy for children with ID needs medical care to manage them through various aspects such as health, education, leisure and social activities, and treatment of associated diseases and behavioral problems (Battaglia and Carey, 2003). The medical care should be ideally delivered in one setting by all different disciplines in an integrated and coordinated manner. It is common to observe behavioral problems in this population, which often motivate parents to seek out professional advice; therefore, behavioral therapy should be included in the health care plan and should be based on humanistic principles (clarification of feelings and positive reinforcement) and not on aversion techniques. It is essential to work with independent living skills and give the individual the necessary elements for self-sufficiency (Katz and Lazcano-Ponce; 2008). Further a physician should provide a leading role in guiding the interdisciplinary team approach to medical care for children and adolescent with intellectual disability. The physician should also work collaboratively with community based governmental and non-governmental agencies and programs to access appropriate community based interventional for persons with intellectual disability. The physician should facilitate effective coordination and communication between different agencies and the child's family to access services and monitor ongoing needs and supports. The child's primary physician should also help facilitate consultations between other specialist physicians as indicated (Dilip et al., 2018). ID usually requires the participation of several professionals in addition to the pediatrician. These may include psychologists, physiotherapists, nutritionists, social workers, speech therapists, nurses, and occupational therapists, as well as medical specialists such as neuropsychiatrists, psychiatrists, and geneticists. Leisure activities should be considered for children with ID. Children with ID usually do not encounter problems when playing with normally developing children, but teenagers encounter more difficulties in social interactions and leisure activities (Duarte, 2018). So the above clause evident that treatment for persons with cognitive disability must be multidisciplinary and include medicine (family, pediatrics, neurology and psychiatry), psychology (educational and clinical), education (regular, and special), rehabilitation (physical, occupational and recreational), nursing, social work, etcetera.

CONCLUSION

Intellectual disability is a stage when a person's brain hasn't developed properly and brain does not function within the normal range of both intellectual and adaptive functioning. Intellectual disability is a significant public health issue in the India. Intellectual disability involves both low IQ and problems distracting everyday life. There may also be learning, speech, social, and physical disabilities. Doctors can't always identify a specific cause of ID typically; condition develops due to injury, diseases or certain brain malfunctions. To diagnose ID, we can use the help of standard intelligence tests, such as the Stanford Binet Intelligence Test etc. Family members, caregivers, friends, co-workers and community members can provide additional support to people with intellectual disability. With proper support and treatment, most people with intellectual disability can be converted to be capable for achieving successful, production roles in their communities.

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