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Intellectual Disability: definition, classification, causes and characteristics

Abha Shree[1] and P. C. Shukla[2]

[1]Assistant Professor, Department of Education, Mizoram University, Aizawl, India
[2]Head & Dean, Faculty of Education (K), Banaras Hindu University, Varanasi, India

Corresponding author: abhashree16@gmail.com

Abstract

The term intellectual disability refers to the level of cognitive functioning that is demonstrated by particular children. It is the circumstance in which a children's cognitive functioning is impeded to the point of causing a significant disability in receiving information from his or her environment, then effectively processing, problem solving and adapting to this information. This paper provides an overview of children with intellectual disability incorporating definition, causes and classification for conceptual understanding. Intellectual disability is characterized by significant limitations in intellectual functioning and adaptive behaviour, the latter expressed as conceptual, social and practical adaptive skills. An intellectual disability is defined as an IQ below 70 and deficits in adaptive behaviour or daily living skills (eating, dressing, communication, participate in group activity). People with intellectual disability learn slowly and have difficulty with abstract concepts. This paper also throws some light on the characteristics of people with intellectual disabilities.

Keywords: intellectual disability, definition, classification, causes and characteristics.

Intellectual disability is abnormality that has enormous social effects; it not only affects the people who suffer from it but also the family and society as a group. Intellectual disabilities is diminished cognitive ability that translates into a difference in the rate and efficiency with which the person acquires, remembers and uses new knowledge compared to the general population.

In the last century, the persons with intellectual disability have experienced a radical change in all aspects of life: healthcare, employment, education, recreation, and living situation (World Health Organization, 2000). It has been defined and renamed many times throughout history. Mental retardation, which was in use world over till late 20th century, has now been replaced with Intellectual disability in most countries. Diagnostic and Statistical Manual 5th Revision (DSM-V) has replaced it with Intellectual Disability.

The term intellectual disability is increasingly being used instead of mental retardation because of following reasons:

- Reflects the change construct of disability described by the AAIDD and WHO
- Aligns better with current professionals practices that focus on functional behavior and contextual factors
- Is less offensive to persons with disability
- Is more consistent with international terminology.

Children with intellectual disability often can participate in various activities (e.g., play, clay making, group dance, music, creative art) with other children of their age who do not have disabilities. It is important that children with intellectual disability are treated kindly and fairly because quality of life, health, education, employment, recreation etc., are also their fundamental rights. People with an intellectual disability experience the same range of emotional and mental needs as the general population. Intelligence is the ability to acquire, remember and use knowledge. They are less able to grasp abstract, as opposed to concrete, concepts; children with intellectual disabilities develop learning sets at a slower pace that peers without disabilities and they are deficient in relating information to new situations (Beirne-Smith, Patton and Kim 2006).

Intellectual Disability

The term intellectual disability can be used to refer to-a significantly reduced ability to understand new or complex information, to learn new skills (impaired intelligence), with; A reduced ability to cope independently (impaired social functioning); which started before adulthood with a lasting effect on development (Department of Health (United Kingdom), 2001, p. 14).

"Intellectual disability" (mental retardation) refers to a particular state of functioning that begins prior to age 18, characterized by significant limitations in both intellectual functioning and adaptive behaviour (AAMR, 2002). The definition of intellectual disability has been revised a number of times during the past few decades as people's understanding of the disorder has changed, and in response to various social, political and professional forces. The most widely accepted definition of intellectual disability is that of the AAIDD: "Intellectual disability (is) characterized by significant limitations both in intellectual functioning and in adaptive behaviour as expressed in conceptual, social and practical adaptive skills. This disability originates before age 18 " (AAIDD [AAMR], 2002, p.1)

Accompanying this description are five assumptions considered essential when applying this definition:

- Limitations in present functioning must be considered within the context of community environments typical of the individual's age, peers and culture.
- Valid assessment considers cultural and linguistic diversity as well as differences in communication, sensory, motor and behavioural factors.

- Within an individual, limitations often coexist with strengths.
- An important purpose of describing limitations is to develop a profile of needed supports.
- With appropriate personalized supports over a sustained period, the life functioning of the person with intellectual disability will generally improve.

(Luckasson *et al*. 2002, p. 1)

American Association on Intellectual and Developmental Disabilities (AAIDD, 2010) defined Intellectual disability as "Significantly sub average general intellectual functioning existing concurrently with deficit in adaptive behaviour and manifested during the developmental period that adversely affects a child's educationl performance."

An individual is considered to have an intellectual disability based on the following three criteria:

1. Subaverage intellectual functioning: It refers to general mental capacity, such as learning, reasoning, problem solving, and so on. One way to measure intellectual functioning is an IQ test. Generally, an IQ test score of around 70 or as high as 75 indicates a limitation in intellectual functioning.
2. Significant limitations exist in two or more adaptive skill areas: It is the collection of conceptual, social, and practical skills that are learned and performed by people in their everyday lives.
   - Conceptual skills—language and literacy; money, time, and number concepts; and self-direction.
   - Social skills—interpersonal skills, social responsibility, self-esteem, gullibility, naïveté (i.e., wariness), social problem solving, and the ability to follow rules/obey laws and to avoid being victimized.
   - Practical skills—activities of daily living (personal care), occupational skills, healthcare, travel/transportation, schedules/routines, safety, use of money, use of the telephone.

Standardized tests can also determine limitations in adaptive behavior.

3. The condition manifests itself before the age 18: This condition is one of several developmental disabilities-that is, there is evidence of the disability during the developmental period, which is operationalized as before the age of 18.

The AAIDD definition has evolved through years of effort to more clearly reflect the ever-changing perception of intellectual disabilities. Historically, definitions of intellectual disability were based solely on the measurement of intellect, emphasizing routine care and maintenance rather than treatment and education. In recent years, the concept of adaptive behaviour has played an incresingly important role in defining and classifying people with intellectual disabilities.

Causes of Intellectual Disability

Approximately 70% of individuals with severe intellectual disability and 50% of individuals with mild intellectual disability have an organic or biological basis for their disorder (McLaren & Bryson, 1987). Some children's cognitive deficits may simply reflect the lower end of the normal IQ distribution (Achenbach, 1982). In such cases, functioning represents an interaction of both genetic and environmental factors. Factors such as poverty, neglect, abuse, limited stimulation and poor parent-child interactions are but a few of the psychosocial factors that have been found to be related to intellectual functioning (AAMR, 2002). Determining the cause of intellectual disabilities is a difficult process. An individual may be intellectual disable for a multitude of reasons, and frequently the cause is unknown. Factually, only about half of all cases of intellectual disabilities can a specific cause is cited (Beirne-Smith, Patton, & Kim, 2006). In attempting to determine possible biological causes of intellectual disability in an individual are illustrated in Table 1 presented according to their time of onset: prenatal onset (occurring before birth), perinatal onset (occurring around the birth) and postnatal onset (occurring after birth).

Table 1: Showing representative possible causes of Intellectual Disability

Type	Example	Characteristics and Considerations
	Postnatal Contributions	
Chromosomal abnormality	Down syndrome	• Most common chromosomal abnormality • Distinctive physical characteristics • Generally mild to moderate intellectual disability
	Fragile X syndrome	• One of the leading inherited causes of intellectual disability • Predominantly affects males • Distinctive physical features • Wide variation in learning characteristics
Metabolic disorders	Phenylketonuria (PKU)	• Inborn error of metabolism, a recessive trait • Dietary intervention initiated shortly after birth prevents occurrence of intellectual disability
Maternal infections	Rubella (German measles)	• One of the leading causes of multiple impairments in children • Exposure during first trimester of pregnancy usually results in severe consequences
Environmental conditions	Fetal alcohol syndrome	• One of the leading causes of intellectual disability • Mild to moderate intellectual disability with concomitant physical deformities
	Postnatal Contributions	
Gestational disorders	Low birth weight/ prematurity	• Infant at risk for serious problems at birth • Potential for learning problems as well as sensory and/or major impairments • More common in mothers living in poverty, teenage pregnancy and women engaged in substance abuse

Neonatal complications	Anoxia (oxygen deprivation) Birth trauma Breach presentation Prolonged delivery	• Complicating factors surrounding birth may cause intellectual disability and other developmental delays
	Postnatal Contributions	
Infectious and intoxicants	Meningitis	• Viral infection causing damage to the covering of the brain-the meninges • May result from typical childhood illness such as chicken pox or mumps • Intellectual disability is a distinct possibility
	Lead poisoning	• Highly toxic substance • Infants/toddlers living in older homes in impoverished areas at risk for ingesting lead-based paint chips • Potential for causing seizures, central nervous system damage and brain damage
Environmental factors	Malnutrition Environmental deprivation Child abuse/neglect	• Correlates, but not necessarily causes, of intellectual disability, especially instances of mild intellectual disability • Best viewed as interacting psychosocial risk factors which heighten the vulnerability of some children for learning difficulties

Source: Adapted from R. Gargiulo, Special Education in Contemporary Society, 3rd ed. (Thousand Oaks, CA: Sage, 2009).

In general, the less severe the retardation, the greater is the likelihood that a particular cause cannot be determined. No two learners with intellectual disability are alike, even if they share the same etiological factor.

Classification of Intellectual Disability

A number of ways have been developed to classify children with intellectual disability during the past few decades. The 1973 and 1983 AAIDD definitions of intellectual disability divided severity of disability into four categories (mild, moderate, severe and profound intellectual disability), a classification system that continues to have widespread acceptance and use (Table 2).

Table 2: Showing Classification of Intellectual Disability According to severity of disability

Level of Intellectual Disability	IQ range	Approximate mental age in adulthood	% of persons with Intellectual Disability at this level
Mild	55-69	8 years, 3months to 10 years, 9 months	85
Moderate	36-51	5 years, 7 months to 8 years, 2 months	10

Severe	20-35	3 years, 2 months to 5 years, 6 months	3.5
Profound	< 20	< 3years, 2 months	1.5

Source: Sattler (2002, p. 337)

The current view is that intellectual disability has multiple causal factors, including genetic predisposition, environmental insults, developmental vulnerability, heredity and environment (Harris, 2006). Consequently, the AAIDD proposed a multifactorial approach to etiology, involving the following four categories (AAMR, 2002, p. 127).

1. Biomedical: factors that relate to biological processes, such as genetic disorders or nutrition.
2. Social: factors that relate to social and family interaction, such as stimulation and adult responsiveness.
3. Behavioural: factors that relate to potentially causal behaviours, such as dangerous (injurious) activities or maternal substance abuse.
4. Educational: factors that relate to the availability of educational supports that promotes mental development and the development of adaptive skills.

AAIDD uses a classification system based on the type and extent of the support that the individual requires to function in the natural settings of home and community. AAIDD recommends four levels of support:

Table 3: Showing Classification Based on Needed Support

Support Level	Description with Examples
Intermittent	Supports are provided on an "as needed basis." These supports may be Episodic- that is, the person does not always need assistance; or Short-term, occurring during lifespan transitions (e.g., job loss or acute medical crisis). Intermittent supports may be of high or low intensity.
Limited	Supports are characterized by consistency; the time required may be limited, but the need is not intermittent. Fewer staff may be required, and costs may be lower than those associated with more intensive levels of support (examples include time-limited employment training and supports during transition from school to adulthood).
Extensive	Supports are characterized by regular involvement (e.g, daily) in at least some environments, such as work or home; supports are not time-limited (e.g., long-term job and home-living support will be necessary).
Pervasive	Supports must be constant and of high intensity. They have to be provided across multiple environments and may be life-sustaining in nature. Pervasive supports typically involve more staff and are more intrusive than extensive or time-limited supports.

Source: Adapted from Mental Retardation: Definition, Classification and Systems of supports, 10th ed. (Washington, DC: American Association on Mental Retardation, 2002), p. 152.

The AAIDD's emphasis on classifying people with intellectual disabilities on the basis of needed support is an important departure from the more restrictive perspectives of the traditional approaches. Supports may be described not only in terms of the level of assistance needed, but also by type-that is, as formal or natural support systems.

Characteristics of people Intellectual Disability

Characteristics of people with intellectual disabilities that can affect their academic learning, as well as their ability to adapt to home, school, and community environments are presented under the following sub-headings:

- **General Cognition**

  People with intellectual disabilities vary physically and emotionally, as well as by personality, disposition, and beliefs. Their apparent slowness in learning may be related to the delayed rate of intellectual development (Wehman, 1997). When adults with intellectual disabilities attend to appropriate aspects of presented learning stimuli versus inappropriate aspects, their rate and amount of learning can be acceptable (Vakil, Shelef-Reshef, & Levy-Shiff, 1997; Werts, Wolery, Gast & Holcombe, 1996). If specific educational supports are implemented, few researches indicate children with intellectual disabilities may achieve at the same rates but overall remain behind their peers (Vakil *et al*. 1997; Wehman, 1997). The score of an IQ test is less important in determining the general cognition, or ability and facility in obtaining information, of a person with intellectual disability than the types and amount of support needed to function at specified tasks or levels (Hourcade, 2002).

- **Learning and Memory**

  The learning and memory capabilities of people with intellectual disabilities are significantly below average in comparison to peers without disabilities. People with intellectual disabilities develop learning sets at a slower pace than peers without disabilities, and they are deficient in relating information to new situations (Beirne-Smith, Patton, & Kim, 2006). Children with intellectual disabilities may not spontaneously use appropriate learning or memory retention strategies and may have difficulty in realizing the conditions or actions that aid learning and memory. However, these strategies can be taught (Fletcher, Huffman, & Bray, 2003; Hunt & Marshall, 2002; Werts, Wolery, Holocombe, & Gast, 1995; Wolery & Schuster, 1997). People with intellectual disabilities have trouble focusing on relevant stimuli in learning and in real-life situations, sometimes attending to the wrong things (Kittler, Krinsky-McHall,& Devenny, 2004; Westling & Fox, 2004).

- **Attention**

  To acquire information, children must attend to the learning task for the required length of time and control distractions. Children with intellectual disabilities may have difficulty distinguishing and attending to relevant questions in both learning and social situations (Saunders, 2001).

The problem is not that the student will not pay attention, but rather that the student does not understand or does not filter the information to get to the salient features (Hunt & Marshall, 2002; Meyen & Skrtic, 1988).

- **Adaptive Skills**

  The adaptive skills of people with intellectual disabilities are often not comparable to those of theirs peers without disabilities. A child with intellectual disabilities may have difficulty in both learning and applying skills for a number of reasons, including a higher level of distractibility, inattentiveness, failure to read social cues, and impulsive behaviour (Hardman *et al*., 2008). Lee, Yoo, and Bak (2003) investigated the quality of social relationships among children with mild intellectual disabilities and peers who were not disabled and found that the children without disabilities did perceive their classmates with intellectual disabilities as friends.

- **Self-Regulation**

  The ability to rehearse a task is related to a broad concept known as self-regulation, or the ability to mediate or regulate one's own behaviour (Shonkoff & Phillips, 2000). Information-processing theorists study how a person processes information from sensory stimuli to motoric output (Sternberg, 2003). In information-processing theory, the learning differences in people with intellectual disabilities are seen as the underdevelopment of metacognitive processes. The lack or underdevelopment of these skills notably affects memory, rehearsal skills, organizational ability, and being in control of the process of learning (Erez & Peled, 2001; Hunt & Marshall, 2002).

- **Speech and Language**

  People with intellectual disabilities may have delayed speech, language comprehension and formulation difficulties. Language problems are generally associated with delays in language development rather than with a bizarre use of language (Beirne-Smith *et al*., 2006; Moore-Brown & Montgomery, 2006). People with intellectual disabilities may show delayed functioning on pragmatic aspects of language, such as turn taking, selecting acceptable topics for conversation, knowing when to speak knowing when to be silent, and similar contextual skills (Haring, McCormick, & Haring, 1994; Yoder, Retish, & Wade, 1996). Kaiser (2000) emphasized that "the overriding goal of language intervention is to increase the functional communication of students" (p. 457). The severity of the speech and language problems is positively correlated with the cause and severity of the intellectual disabilities: the milder the intellectual disabilities, the less pervasive the language difficulty (Moore-Brown & Montgomery, 2006).

- **Motivation**

  People with intellectual disabilities are often described as lacking motivation, or outer-directed behaviour. Past experiences of failure and the anxiety generated by those failures may make them appear to be fewer goals directed and lacking in motivation. The result of failure is often learned helplessness. The history of failure is likely to lead to dependence on external sources

of reinforcement or reward rather than on internal sources of reward. They are less likely to self-starters motivated by self-approval (Beirne-Smith *et al*., 2002; Taylor *et al*., 2005).

- **Academic Achievement**

  The cognitive inefficiencies of children with mild to moderate intellectual disabilities lead to persistent problems in academic achievement (Hughes *et al*., 2002; Macmillan, Siperstein, & Gresham, 1996; Quenemoen, Thompson, & Thurlow, 2003; Turnbull *et al*., 2004). Children with mild intellectual disabilities are better at decoding words than comprehending their meaning (Drew & Hardman, 2007) and read below their own mental-age level (Katims, 2000). Children with intellectual disabilities may be able to learn basic computations, but may be unable to apply concepts appropriately in a problem-solving situation (Beirne-Smith *et al*., 2006). A growing body of research has indicated that children with moderate or severe intellectual disabilities can be taught academics as a means to gain information, participate in social settings, increase their orientation and mobility, and make choices (Browder, Ahlgrim-Delzell, Courtade-Little, & Snell, 2006).

- **Physical characteristics**

  Children with intellectual disabilities with differing biological etiologies, may exhibit coexisting problems, such as physical, motor, orthopedic, visual and auditory impairments, and health problems (Hallahan & Kauffman, 2006). A relationship exists between the severity of the intellectual disabilities and the extent of physical differences for the individual (Drew & Hardman, 2007; Horvat, 2000). The majority of children with severe and profound intellectual disabilities have multiple disabilities that affect nearly every aspect of intellectual and physical development (Westling & Fox, 2004).

Conclusion

Human beings are social animal, so that intellectual disability should be treated in an inclusive and holistic way. They need encouragement and support to overcome potential obstacles. The rationale for the use of the term intellectual disability as less stigmatizing is not borne out by research. As noted by Ditchman *et al*., (2013), society is the locus of the problem-not the affected individual. The mocking of the terminology likely derives from the stereotypes and prejudices some people enforce when considering persons with intellectual disability. Stigma is a multifactorial and psychological problem (Ditchman *et al*., 2013) and not a terminology problem per se. Intellectual disability is characterized by significant impairment in cognitive and adaptive behaviour. People with intellectual disability experience loss, as do typically developing individuals. However, special considerations must be made for this population due to communication and cognitive needs (Kauffman, 1994; LoConto & Jones-Pruett, 2008). People with intellectual disability are at greater risk for experiencing traumatic grief symptoms due to secondary loss, communication barriers, and difficulty or inability to find meaning in the loss (Brickell & Munir, 2008).

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