UNIT 3 OTHER DISABILITIES

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3.0 INTRODUCTION

Apart from mental retardation and learning disability, there are other forms of disabilities also. In this Unit we will cover multiple disabilities such as cerebral palsy, spina bifida and Tourette’s syndrome. People with multiple disabilities are those who have more than one disabilities, for example, one may have intellectual disability (mental retardation) with deafness, another may have blindness with hearing impairment and movement disorders. Thus it may include sensory disabilities, motor disabilities, and emotional and behavioural disabilities.

Precisely speaking, these individuals have more than one form of significant disabilities. They often share a wide range of physical, psychological (emotional and behavioural) characteristics. These disorders may vary across age. How many disabilities are involved, which type of disabilities are there and the severity of each disability are specific to the particular child.

They have much more complex special needs than individuals with a single form of disability. Therefore, their treatment and education is a challenging task.
3.1 OBJECTIVES

After studying this Unit, you will be able to:

- know about the diagnosis of other disabilities;
- identify these individuals in the community or classroom;
- prepare intervention programmes for them; and
- make referral to the trained rehabilitation professional.

3.2 CEREBRAL PALSY (CP)

3.2.1 Diagnosis

One of the most well known forms of multiple disabilities is cerebral palsy. This is an umbrella term used for one of the neurological disorders that appears in infancy or early childhood and permanently affects body movement and motor coordination. This was originally called Little’s disease. Cerebral palsy may be defined as a persistent but not unchanging disorder of movement and posture due to non-progressive disorder of the immature brain and usually noticed before two years of age. This can be considered as a part of brain damage syndrome which includes motor dysfunction, psychological dysfunction, convulsions or behaviour disorders due to brain damage. Cerebral palsy is a non-progressive disorder, that means, the brain damage does not worsen. However, the symptoms can become more severe over time.

The main problems associated with cerebral palsy are with regard to motor control and coordination. Various kinds of motor dysfunctions are associated with cerebral palsy which includes paralysis, poor reflexes, weakness and poor coordination. Children with cerebral palsy frequently have developmental delays such as learning to roll over, sit or crawl, smile or walk. However, the classical symptoms are spasticity (stiff tight muscles with exaggerated reflexes), ataxia (lack of motor co-ordination while performing voluntary motor movements), spasms (an unusual “tightness”, stiffness, or “pull” of muscles, velocity-dependent resistance to stretch, where a lack of inhibition results in excessive contraction of the muscles) and other involuntary movements such as unsteady gait or balance. Many children with cerebral palsy have symptoms like scissor walking (where the knees come in and cross, preventing the individual to walk) and, toe walking (walking on the toes, being unable to put the feet on the floor).

There is a wide range of intellectual ability in children with cerebral palsy. They may have normal to superior intellectual ability to intellectual impairment. These children may have problems with speech, hearing or vision, intellectual or learning difficulties, perceptual difficulties etc.

Cerebral palsy is caused by damage to or lack of development in the part of the brain that controls movement. Lack of oxygen during birth, or babies born extremely premature may cause brain damage. Severe infection or accident before two years of age may also put the infant at risk for cerebral palsy.

3.2.2 Types

There are various systems for classification of cerebral palsy. Some are based on the time period during which the brain damage had occurred, limbs involved and also the types of motor disability. The former classification has become obsolete as it is difficult to establish all antecedents of brain damage to say whether it has occurred at pre-,
peri-, or post-natal stage. The topological classification, based on limbs involved is used not only for cerebral palsy but for all other forms of motor disorders or paralysis. According to topographic classification, cerebral palsy may be classified under the following groups: Hemiplegia (one half, i.e., right or left side of the body is involved); Diplegia (legs are involved to a greater extent than the arms); Quadriplegia (all four limbs are involved); Monoplegia (only one limb is involved); Triplegia (three limbs involved); Doubleplegia (both halves of the body are involved but unlike quadriplegia the two sides are affected differentially (Hallahan, & Kaufman, 1978).

According to the types of motor disability, cerebral palsy may be classified under the following categories: Spasticity: Disharmony of muscle movements; Athetosis: Involuntary jerky, writhing movements, especially of fingers and wrists; Ataxia: Awkwardness of fine and gross motor movement that is lack of coordination in posture and orientation in space; Rigidity: Diffuse contiguous muscle tension, called “lead-pipe stiffness”; Tremor: Rhythmic, involuntary movement of certain muscles; Mixed cerebral palsy: Combination of one or more of the above types of cerebral palsy.

3.2.3 Incidence and Prevalence
The incidence of cerebral palsy is about 1.5 to 2 per 1000 live births. In countries where medical care services are poor, the figure may be much higher, such as 1 per 300 live births. About 57 per cent individuals with cerebral palsy are males. The incidence of cerebral is higher among those who are born premature. About 50% of cerebral palsy individuals have spasticity as a symptom, about 25 per cent have athetosis and similar degree of prevalence of ataxia is seen among people with cerebral palsy. It is often presumed to be incurable (Hinchcliffe, 2007); although, much can be done to improve the functioning of these individuals.

3.3 SPINA BIFIDA
3.3.1 Diagnosis
Spina bifida is the second most common childhood abnormality/disability disease, following cerebral palsy. It represents a group of neural tube deficits caused by congenital dysraphic malformations of the vertebral column and spinal cord (Roger et.al., 2004). This is a developmental congenital disorder which is characterised by congenital midline defect, resulting from failure of the bony spinal column to close completely during the fetal development. Thus spina bifida is due to incomplete closing of the spinal column. This defect may occur anywhere along the spinal cord. Due to this incomplete development of spinal the spinal cord fibers remain exposed in certain area(s) of the spinal cord.

Children with spina bifida may have learning problems, difficulties in comprehension, trouble paying attention, are hyperactive and impulsive in nature. They may have average intelligence; however, the level of intelligence and academic scores of such children depend on the severity of the hydrocephalus – the higher the level of the fault in the spinal cord, the greater is the possibility of intellectual deficit and lower academic score (Hurley et. al., 1983; Shaffer et.al., 1985). Neuropsychological functioning such as perceptual-motor functions, attention, impulsivity, hyperactivity, memory, sequencing, organisation and reasoning are also affected (Lollar, 1990; Cull & Wyke, 1984; Hurley et.al., 1983).

3.3.2 Classification
There are several forms of of spina bifida such as spina bifida occulta, meningocele,
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and myelomeningocele. In spina bifida occulta, although a part of the vertebrae is not completely closed the split is so small that the spinal fibers do not protrude from the spinal cord. There may be skin or hair growing from it. Sometimes even it remains unnoticed. Most often they do not show any symptom, i.e., asymptomatic; hence it is rarely of any clinical significance. Meningocele is one of the most common forms of spina bifida. This can be distinguished from other forms of spina bifida by a tumour-like sac somewhere along the backbone. It contains cerebrospinal fluid. In this case, the nervous system remains undamaged. Therefore, individuals with meningocele are unlikely to suffer from any neurological disability or long-term health problems. In myelomeningocele (or meningomyelocele), the neurological disability is most severe. In the unfused portion of the spinal column the spinal cord protrude. The meningeal membrane that covers the spinal cord forms a sack. People with this disorder suffer from problems like paralysis, loss of sensation below the level of spinal cord defect. Thus they may have ambulatory problems, loss of sensation, deformities of the hips, knees or feet, and loss of muscle tone. The medical complications include paralysis of the legs, and of anal and bladder sphincters.

3.4 TOURETTE’S SYNDROME

Tourette’s syndrome is named after the French doctor, Georges Gilles de la Tourette, who first described the syndrome and its symptoms in the 19th century. You have already learned about the Tourette’s syndrome in Unit 1, Block 1 of MPC 053. Here, we will describe it briefly. Diagnostic and Statistical Manual-IV (APA, 2000) describes Tourette’s Syndrome as a complex behavioural disorder which is accompanied with both, motor and vocal tics. Tics are sudden, rapid, recurrent, non-rhythmic, stereotyped, involuntary motor movement or vocalisation. Tics can be vocal (sound) or physical (movement); and simple or complex. These are eye-blinking, head-shaking, shoulder shrugging, and dystonic movements of abdominal and back muscles. Some of them have frequent vocalisations, grunting and yelling, and episodes of coprolalia in which the patient keep repeating certain phrases or slangs. Compulsive behaviours like holding of knees together, grabbing of a body part, touching and stalking of furniture and touching people as he/she passes by are evident in some cases. Many of them engage in continual motion, which affects their learning. However, the tics are not necessarily concurrent, they may occur many times in a day or intermittently throughout the period of more than one year. In most cases during this period, there may never be a tic-free period for more than 3 months. Most often tics occur in bouts.

The syndrome usually starts during childhood before 18 years of age. In most cases, it runs in families and is often associated with Obsessive Compulsive Disorder (OCD) and Attention Deficit and Hyperactive Disorder (ADHD). Tourette’s Syndrome is also associated with other behavioural problems such as demanding behaviour, stubbornness, negativistic, explosive and destructive behaviour, rolling on the couch, lying with the feet in the air. Hence many of them are considered as ‘difficult children’ and incapable of studying in school.

Self Assessment Questions 1

1) When one half (right or left side) of the body is involved in the motor dysfunction due to brain damage, it is called _________________.
   a) Paraplegia
   b) Hemiplegia
c) Quadriplegia

d) Doubleplegia

2) Mark (✓) whether the following statements are True or False:

a) Tremor refers to rhythmic, involuntary movement of certain muscles:

   True/False

b) Involuntary jerky, writhing movements, especially of fingers and wrists is called ataxia:

   True/False

3.5 ASSESSMENT

Combined forms of disabilities often cause severe educational needs that cannot be addressed by providing psychological and educational intervention meant for single form of disability. Therefore, it needs detailed multidisciplinary assessment with an involvement of a multidisciplinary team whose goal should be to provide optimum assessment of the child.

Psychological assessment of children with multiple disabilities is a challenging task. It starts with assessment of cognitive functioning which provides the base for intervention related decisions. A comprehensive psychological assessment aims at the following:

- understanding child’s cognitive abilities.
- developing appropriate goals and expectations from the child.
- determining suitable methods to impart instruction.
- designing appropriate educational and treatment programmes.
- adapting the home and classroom setting, and instructional strategies.
- advising and guiding parents and family members to plan for the future of the child.

The disabilities affect the education and adaptive development of the child. The multiple disabilities sometimes pose a problem for correct assessment of the different cognitive, psychological and social aspects of the child. Hence contextual evaluation is very much important. Analysing the context is as important as analysing the child. It provides a wealth of information about the child in various situations that demonstrate cognitive abilities, social relationships, communication skills, and adaptive behaviour. Everyday activities provide the best opportunity to learn how does a child behave and function. Thus both contextual evaluation and traditional evaluation should be taken together to provide a comprehensive assessment of the child that will help plan out the best intervention strategy for the child.

3.6 INTERVENTION

Such children find more difficulties in adjustment as they enter higher classes. In higher classes, children are required to be independent in their performance. At this stage, although there is lesser emphasis on oral assignments, there would be more written assignments. They are supposed to do a lot of copying from the chalkboard involving cursive writing, spelling tasks. Due to increasing difficulty, their scores often decline and they are ostracized by teachers and peers as well, which at times make them aggressive.
Some of them refuse to go to school. At this point, the teachers and special educators should refer these children to clinical or school psychologists for psychological intervention, as forcing them to work in a hostile environment affects their mental health. However, due to lack of co-operation, disruptive and aggressive behaviour as well as restlessness, psychological tests are difficult to administer.

3.6.1 Teaching and Training

For these children with any of these disabilities described above, such as cerebral palsy, spina bifida, or Tourette’s syndrome, learning can be tough, teaching them can be tougher, as they may be having several physical and behavioural problems. The teacher has to be creative and dynamic in preparing and changing the instructional procedures while teaching them. Individualised training programmes (ITP) are more useful than regular classroom training. Individualised training programmes are designed according to the special needs of each individual student, after conducting a thorough physical, behavioural and psychological assessment. In ITP, the skill to be taught has to be identified by conducting interviews with the primary and secondary caregivers at home, school or in the workplace, as the case may be and should be operationally defined. Task analyses are undertaken from time to time in order to break complex tasks into teachable units. This is due to the fact that teaching complex tasks require a process of simplification and this is possible by analysing and training the sub-tasks one after another.

3.6.2 Behaviour Modification

Behaviour modification techniques are often used to reduce their behaviour problems and enhance adaptive responding. The approach is based on learning principles. Behaviour modification is based on learning principles. The basic assumption is that most behaviours are learned, hence can be unlearned. Most of these behaviours exhibited by people with Tourette’s syndrome are maintained by their reinforcing consequences. Attention to the maladaptive ways of responding plays a significant role in it, apart from other forms of sensory and biological reinforcers. In order to conduct behaviour modification programme for them, behaviour analysis of behaviours that are maladaptive as well as those which are adaptive is required to be performed. Behaviour analysis refers to the analysis of behaviour with reference to their antecedents and consequences. A behaviour analyst attempts to alter the contingencies of the antecedents and consequences to modify maladaptive responding and enhance the adaptive ones. A variety of behaviour modification techniques for use in Tourette’s syndrome have been reported by Azrin and Peterson (1988), which may include the following:

Relaxation Training

This may include muscular relaxation, meditation, visual imagery, deep breathing such as pranayam, etc. It is assumed that relaxation techniques reduce tension, muscle tone and reactivity, which may reduce the frequency and duration of tics and stress related problems.

Massed Practice

In this technique, the patient is asked to perform the tics voluntarily for a specific period of time so that “reactive inhibition” will block the motivation for engaging in such maladaptive and incapacitating tics.

Contingency Management

The technique is based on the assumption that the probability of occurrence of a behaviour can be altered by altering the contingencies of reward and punishment that control it. Immediate reinforcement following occurrence of behaviour enhances the probability
of occurrence. Thus behaviours occurring less frequently can be reinforced to strengthen them. Similarly extinction (withdrawal of reinforcement) and mild forms of punishment such as reprimand can be used following occurrence of maladaptive behaviours to reduce their probability of occurrence.

**Habit Reversal**

This is a behaviour modification technique in which isometric tensing of opposite muscles is used contingent on occurrence of tics or repetitive behaviours. Opposite muscles are contracted approximately for about two minutes following such behaviours to reduce their strength of occurrence, as this newly introduced behaviour acts as a competing response.

Thus it involves monitoring the pattern and frequency of the tics and identifying any sensations that trigger them. Then an alternative, i.e., the competing response is identified to relieve the sensations that cause a tic (known as premonitory sensations).

**Self-monitoring**

Counting the frequency of one’s own maladaptive responding like tics and other stereotyped and maladaptive behaviours or recording their duration can reduce the chances of their occurrence. This can be used as an effective behaviour reduction technique.

**Exposure with Response Prevention (ERP)** is also another behavioural therapy technique used to reduce the intensity of tics. It involves increasing exposure to the urge to tic in order to suppress the tic response for longer. This is based on the theory that one will get used to the feeling of needing to tic until the urge, and any related anxiety, decreases in strength.

When the tics are more frequent or severe, a number of medications can help to improve them, such as alpha2-adrenergic agonists, muscle relaxants and dopamine antagonists.

### 3.6.3 Educational Intervention

**Setting:** Physical environment of the classroom need to be arranged to best fit the needs of children with multiple disabilities. Children with Tourette’s syndrome need a moderately structured classroom where the physical environment as well as learning instructions are flexible and designed as per the specific need of the child instead of traditional regular classroom instruction designed for group teaching. Some special schools design highly structured and programmed environment for such children.

**Curriculum and Instruction:** The curriculum should focus on developing adaptive skills required in various environment such as home, school or neighbourhood. However provision should be made of mainstreaming to the regular classroom environment too for facilitating generalization of certain skills learned in individualised programmes. In many school programmes audiovisual have been used extensively to educate children to control their own behaviours. Some such films are The Sudden Intruder, Stop It—I Can’t or Mathew and His Tics.

The instructional programme prepared for these children should be precise and conducted in one-to-one setting carefully choosing one or few behavioural objectives. Complex task must be taught in segments and organising them meaningfully. Size of the class should be small. Peer tutoring is often used to facilitate better learning. Children who have problems in handwriting due to muscular problems or problem of eye-hand co-ordination can be taught through augmentative or alternative communication systems.
Special equipments and assistive technologies are used to facilitate the learning needs of such children. Palmtops and computers with specially designed word processors have been used extensively to overcome the problem of handwriting. Special assistance such as providing a writer during their examinations can be permitted for these children. Instead of focusing on academic activities, the curriculum for them should focus on life skills and other forms of learning activities outside the classroom. Good amount of flexibility is required in designing and implementing instructional programmes for them.

Early intervention is very crucial in case of multiple disabilities. A team approach is required with inclusion of various professionals such as physiotherapist, speech therapist, occupational therapist, counsellor, special educator, psychologist etc.

### 3.7 REFERRAL

Based on the type of deficits, children may be referred to orthopaedic doctors, physiotherapists, occupational therapists, clinical psychologists or special educators, as the case may be. Orthopaedic doctors make a diagnosis of the condition, provide medicine for some of the problems that are biological in nature. If required Orthopaedic surgeons attempt to correct the problems of posture or movement by surgical procedures. Physiotherapists use active as well as passive exercises of the limbs, and other body parts using physical forms of treatment. Occupational therapists primarily look into training in activities of daily living. Clinical psychologists attempt to deal with psychological problems like mood swings, impulsive behaviour, aggression, depression or poor socialisation. The special educators prepare Individualised Training Programmes (ITPs) and implement them to improve academic problems.

Rehabilitation of people with these disabilities can be done most effectively by involving a multi-disciplinary team to look into different aspects of these disabilities. A community-based approach is much more effective than institution-based programmes. Hence, the family members, teachers in the school and community members at large should be involved in the total rehabilitation of the client with these disabilities. District Rehabilitation Centres in every district provide valuable resource and support such programmes. Rehabilitation Council of India (RCI) also provides the list of qualified rehabilitation professionals available for rehabilitation of people with disabilities.

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<th>Self Assessment Questions 2</th>
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<td>1) Massed practice is used for blocking a behaviour through,</td>
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<td>a) Reactive inhibition</td>
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<td>b) Protective inhibition</td>
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<td>c) Response substitution</td>
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<td>d) Restitution</td>
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<td>2) Mark (✓) whether the following statements are true or false:</td>
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<td>(a) Suppression of a behaviour by isometric tensing of opposite muscles is called habit reversal: True/False.</td>
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<td>3) How will you plan for an individualised training programme?</td>
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3.8 LET US SUM UP

In this Unit, you learned that apart from learning disability and mental retardation, there are several other conditions such as Cerebral Palsy, Spin bifida, Poliomyelitis, and Tourette’s Syndrome, in which learning gets affected for various reasons. Cerebral palsy is a neurological disorder that appears in infancy or early childhood and permanently affects body movement and motor co-ordination. Due to brain damage it causes motor dysfunction, psychological dysfunction, and convulsions or behaviour disorders. This may cause persistent disorder of movement and posture due to non-progressive disorder of the immature brain and usually noticed before two years of age. Spin bifida is a congenital midline defect which results from failure of the bony spinal column to close completely during the fetal development.

You also learned that for intervention, all these individuals require careful psychoeducational assessment apart from neurological assessment, in order to assess their baseline performance and design competence based curriculum. The teaching and training programme for these children need to be conducted in moderately structured classrooms and it should be largely individualised. Behaviour modification programmes can be used extensively to reduce maladaptive responding and enhance adaptive behaviours. The most prominent techniques are contingency management, massed practice, habit reversal, relaxation training and self-monitoring. Good amount of flexibility is required in the curriculum as well as instructional procedures. Peer tutoring and use of augmentative as well as assistive technology may help these children to overcome some of the difficulties faced in traditional instructional programme.

3.9 ANSWERS TO SELF ASSESSMENT QUESTIONS

Self Assessment Questions 1

1) b) Hemiplegia
2) a) True
   b) False

Self Assessment Questions 2

1) a) Reactive inhibition
2) True
3) While planning an individualised training programme, one needs to take into account the special needs of the individual student, after conducting a thorough physical, behavioural and psychological assessment. The skill to be taught needs to be identified by conducting interviews with the primary and secondary caregivers at home, school or in the workplace, as the case may be and should be operationally defined.

3.10 UNIT END QUESTIONS

1) What is cerebral palsy? Describe the features and types of cerebral palsy.
2) Define Tourette’s syndrome and discuss the psychoeducational management of such children.
3) Discuss the clinical manifestation of Tourette’s syndrome.
4) Describe the techniques of behaviour modification.

### 3.11 GLOSSARY

- **Ataxia**: Awkwardness of fine and gross motor movement that is lack of coordination in posture and orientation in space
- **Athetosis**: Involuntary jerky, writhing movements, especially of fingers and wrists
- **Behaviour modification**: It refers to techniques based on the learning principles that are used to reduce the behaviour problems and enhance adaptive responding
- **Diplegia**: Legs are involved to a greater extent than the arms, in the motor dysfunction caused by brain damage
- **Doubleplegia**: Both halves of the body are involved in the motor dysfunction caused by brain damage, but unlike quadriplegia the two sides are affected differentially
- **Hemiplegia**: One half (right or left side) of the body is involved in the motor dysfunction due to brain damage
- **Mixed cerebral palsy**: Combination of one or more forms of cerebral palsy
- **Monoplegia**: Only one limb is involved in the motor dysfunction caused by brain damage
- **Quadriplegia**: All four limbs are involved in the motor dysfunction caused by brain damage
- **Rigidity**: Diffuse contiguous muscle tension
- **Spasticity**: Disharmony of muscle movements
- **Spina bifida**: It occurs due to incomplete closing of the spinal column
- **Tourette’s Syndrome**: A complex behavioural disorder which is accompanied with both, motor and vocal tics
- **Tremor**: Rhythmic, involuntary movement of certain muscles
- **Triplesgia**: Three limbs involved in the motor dysfunction caused by brain damage

### 3.12 REFERENCES AND SUGGESTED READINGS


