BLOCK 4

DISORDERS OF CHILDHOOD AND ADOLESCENCE, TRAUMA AND STRESSOR RELATED DISORDERS, AND NEUROCOGNITIVE DISORDERS

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UNIT 12 CHILDHOOD AND NEURODEVELOPMENTAL DISORDERS-I

Structure

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Learning Objectives

After reading this Unit, you will be able to:

- Explain the nature of the diverse clinical conditions associated with childhood;
- Discuss the clinical presentation, causal factors, and treatment of clinical depression;
- Explain the nature of elimination disorders; and
- Elucidate the clinical picture, causal factors, and treatment of Oppositional Defiant Disorder and Conduct Disorder and Attention-Deficit/Hyperactivity Disorder.

12.0 INTRODUCTION

Before the twentieth century, there was no special attention given to mental disorders in children. Children were seen as 'miniature adults' and the problems in children were seen as extensions of adult-oriented diagnoses. It was only with the beginning of mental health movement that clinicians began to understand

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that problems of childhood deserve special recognition. Today, even though much progress has been made in treatment for mental disturbances in children, in many parts of the world especially in developing and underdeveloped countries, most children with mental health problems fail to receive evidence based early intervention. In India for instance, parents who received the diagnosis of autism for their child in 1990s, found the scientific understanding of autism inadequate and the intervention services unavailable even in urban areas of the country. **Developmental psychopathology** is a field in psychology that is dedicated to studying the origins and cause of significant disturbances in context of normal growth processes. In particular, the fast-growing field aims to help clinicians diagnose and treat developmental disorders. Developmental disorders refer to those conditions that occur early in life and may affect one or more domains of a child's development (physical, cognitive, social-emotional, and moral).

Unit 12 and 13 will focus on those conditions and disorders that emerge in clinically significant ways during the childhood and adolescence. Some of these disorders like Autism Spectrum Disorders, Attention-deficit/Hyperactivity Disorder, Intellectual Disability, Specific Learning disability are better understood as conditions that continue till adulthood while others like childhood depression and elimination disorders may begin in childhood and may or may not extend till adulthood. The former is categorized under the broader heading of **neurodevelopmental disorders** or a group of severely disabling conditions considered to be a result of structural and/or functional differences in the brain that are usually evident at birth or become apparent as the child begins to develop. Finally, disorders like Oppositional Defiant Disorder and Conduct Disorder are classified as Disruptive, Impulse-Control and Conduct Disorders in DSM-5 since they share the core features of aggressive or anti-social behaviour.

To assess whether a child's behaviour is 'normal' or not, the behaviour needs to be compared to a sample of children of the same age group, educational level, and socio-cultural background. For instance, temper tantrums are common in two-year-old children but not for a 10-year-old child. Consequently, a child's behaviour is understood as typical or atypical to his/her peers. Clinicians must understand that the repercussions of the label 'abnormal' for a child or adolescent are immensely stigmatizing and significant in determining the future outcomes for an individual.

Early systems of classification for mental disorders either did not include the emotional and mental disorders of childhood and adolescence or if they were included then the information was found to be inaccurate and inappropriate. For instance, the classification system developed for adults was continued to be being used for children. Additionally, many disorders like autism and learning disabilities did not have an adult counterpart. Diagnostic and Statistical Manual for Mental Disorders (DSM-5) has made efforts to provide a classification system for childhood and adolescence disorders that is consistent with latest findings in the field and clinical practice. Let us now see the clinical features of childhood depression, elimination disorder, oppositional defiant disorder/conduct disorder and attention deficit/hyperactivity disorder. There causal factors and treatment will also be discussed.

12.1 CHILDHOOD DEPRESSION

The perception of childhood period as a carefree and happy phase of life, makes it difficult for a layperson to believe that children can experience clinical depression. Many clinicians before 1970s shared this belief, that children are incapable of exhibiting and experiencing depression. It is now widely accepted that depressive features displayed by children is often consistent with the criteria of Major Depressive Disorder and Persistent Depressive Disorder (dysthymia). Children with depression exhibit symptoms like withdrawal from family and friends, avoidance of eye contact, physical complaints, poor appetite and/or aggressive behaviour. In some cases, the children may even attempt self-harm or suicide. Depression in children is different from depression in adults in showing more guilt but lower rates of early-morning depression and weight loss.

As is the case in adult depression, girls have higher prevalence rate of childhood depression than boys. Majority of children with depression also have a comorbid disorder most common being anxiety, conduct disorder, and ADHD. Although most children with depression recover to a significant degree, research suggests a high probability of experience of a subsequent depressive episode.

Box 12.1: Case Study: Childhood Depression

Ayush, l0-years-old, lives with his parents and grandmother. His parents have been facing some financial troubles since the last 3 years and have been extremely stressed. Ayush's counselor calls his parents for a meeting to discuss his behaviour after he was found crying in school bathroom. The counselor informs the parents that his teacher reports that he is in danger of failing the class, that he becomes preoccupied, often staring out the window, and seldom finishes his work. Ayush told the school counselor that all the other children in his class are much smarter than he is and that is why they tease him calling him 'stupid'. Ayush used to enjoy playing in the school playground, but since the last three months he has stopped attending sports classes also in school. Ayush's parents inform the school counselor that when he gets home each afternoon, he watches television and refuses to eat in spite of his grandmother cajoling him to. Since the parents do not come home until late at night they speak to him over the phone in the evenings to make sure he's all right. Ayush's birthday is coming up, and his parents were trying hard to plan a birthday party to "cheer him up" but Ayush replied to his parents, *"what's the use of a birthday party, nobody is going to come, nothing good will happen anyway?"* and started crying.

12.1.1 Causal Factors and Treatment

Biological factors are implicated in childhood depression; research has found that there is a strong association between parental depression and children's behavioural and mood problems. Suicide attempt rate is also found to be high in cases of children of parents suffering from depression than for children of control parents. Pre-natal exposure to alcohol in cases where mothers were abusing alcohol during pregnancy has also be found to be related to rates of early childhood depression. Additionally, an experience of trauma in childhood can also predispose a child to develop depression. Trauma and experience of negative affect makes children vulnerable to depression and suicidal ideation under stress. For instance,

children with divorced parents have higher likelihood of depressed moods. Researchers are examining the effect of mother-child interaction in transmission of depressed affect. Depression in mothers makes them less responsive to the needs of the child than their non-depressed counterparts. Depression in fathers have also been related to depression in children. Overall, research has focussed on how genetic factors may interact with stressors in family environment to result in childhood depression. Interpersonal factors, especially the poor peer relationships may contribute to the negative affect experienced by a child with depression. A child with depression is likely to be ignored by her/his peers in school and playground which may in turn aggravate the negative self-image of the child. Further, consistent with Beck's cognitive theory, cognitive distortions and negative attributional style are associated with depression in children.

Predominant approach for treatment of depression in children has been the combined use of medication and psychotherapy. Anti-depressants used with adults have proven to have moderate effect on children with depression. Parents and professionals have raised safety concerns regarding the use of medicines with children especially since they are associated with undesirable side-effects like nausea, headaches, nervousness, insomnia and seizures. Psychological therapy with children aims to provide a supportive emotional environment for the children to enable adaptive emotional expressions. This is especially effective for older children and adolescents who benefit from discussing their feelings openly. Play therapy in which the child can express his/her feelings and concerns through the medium of play is popular for use with younger children. Finally, treatment is incomplete without psychoeducation, supportive management, family and school involvement.

Check Your Progress 1

1) What are neurodevelopmental disorders?

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2) Mention some of the symptoms of depression in children.

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12.2 ELIMINATION DISORDER

Elimination disorder concerns with defecating and urinating difficulties in children. In this condition, children eliminate bodily substances at inappropriate times and places. While most young children may have some occasional "accidents" of defecation and urination, in children diagnosed with elimination disorders this behaviour occurs regularly for a period of three months. There are two types of elimination disorders, **enuresis** and **encopresis**.

Occasional enuresis (bedwetting) is not considered to be a problem before the age of 5 years. However, in some children there is habitual involuntary discharge of urine, usually at night after 5 years of age. Bedwetting beyond this age may be caused by organic causes such as disturbed cerebral control of bladder or because of side effects of certain medications. According to DSM-5, children who experience bed wetting beyond 5 years of age which is not organically caused are classified with the problem of functional enuresis. Children who were never learned bladder control are classified under **primary enuresis** whereas those who have been toilet trained for at least one year but have regressed and start bed wetting are classified with **secondary enuresis**. A common problem amongst school going children, and the prevalence rate varies among different populations. DSM IV studies suggest the rate to be 12-25 percent amongst four-year-olds, 8-10 percent amongst eight-year-olds, and 2-3 percent amongst 12-year-old (APA, 2002). Prevalence in India is 7.6-16.3 percent for 6-7 years old children (De sousa A, Kapoor, Jagtap & Sen, 2007)

Studies have found that age, parental history of enuresis, and siblings' history of enuresis were significant predictive factors for enuresis. Psychological and emotional causal factors include faulty learning processes resultinig in failure to acquire inhibition of reflexive bladder emptying. Emotional problems, dysfunctional family interactions, anxiety and hostility between family members and stressful events contribute to bedwetting. For instance, it's common to find that a child may regress to bed-wetting when the parents have another child who becomes the centre of attention.

Medical treatment of enuresis involves prescription of an anti-depressant drug, *imipramine*. The exact mechanism of its working is unclear, but it is suggested that the drug lessens deepest stage of sleep to light sleep, enabling the child to recognize the need to pass urine more effectively. Doctors claim that medications by themselves do not cure enuresis, relapse is often common when the medicine is discontinued. Therefore, conditioning procedures are often used and have been found to be extremely effective. In a classic study by Mowrer and Mowrer (1938), a child sleeps on a pad that is wired to a battery-operated bell. The bell is set off when it comes in contact of the urine. Through classical conditioning, the child comes to associate bladder tension with awakening.

Majority of parents do not experience distress over enuresis in their children since they feel the child will 'outgrow' the habit. Therefore, parents may not go for treatment in many cases of functional enuresis. Even though, incidence of enuresis decreases with age, medical experts believe that functional enuresis should be treated in childhood, as there is no way to predict which who will remain enuretic till adulthood.

Encopresis refers to inability to learn toileting for bowel movements beyond the age of 4 years. DSM-5 reports encopresis to be less common than enuresis, the incidence rate for encopresis is about 1 percent of 5-year olds. About one-third of children encopresis were also enuretic. Sex difference has also been reported in studies, in some studies encopresis was about six times more common in boys than girls.

Soiling of clothes is common under situations of duress. Common time is usually afternoon after school, but incidents can also occur even during school time. Most children may not know that they need to use the bathroom or may be too

shy to ask the teacher permission to go to the toilet. Conditioning procedures have also been used for treatment of encopresis.

Box 12.2: DSM-5 Criteria for Elimination Disorders (APA, 2013)

Enuresis

A. Repeated voiding of urine into bed or clothing, which can be intentional or involuntary.

B. The behaviour is clinically significant as manifested by either frequency of at least twice a week for at least three consecutive months or the presence of clinically significant distress or impairment in social, academic (occupational), other other important areas of functioning.

C. The individual is chronologically or developmentally older than 5 years.

D. The behaviour is not attributable to biological effects of a substance (e.g. diuretic or antipsychotic medicine) or another medical condition (e.g. diabetes, spina bifida, a seizure disorder.)

Encopresis

A. Repeated passage of faeces into inappropriate places (e.g. clothing, floor) whether involuntary or intentional.

B. At least one such event occurs each month for at least 3 months.

C. Chronological age is at least 4 years (or equivalent developmental level).

D. The behaviour is not attributable to the physiological effects of a substance (e.g. laxatives) or another medical condition except through a mechanism involving constipation.

Check Your Progress 2

1) What are the two different type of elimination disorders?

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2) How has classical conditioning been used to treat bedwetting?

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12.3 OPPOSITIONAL DEFIANT DISORDER AND CONDUCT DISORDER

Oppositional Defiant Disorder (ODD) and Conduct Disorder are categorized under Disruptive, Impulse-Control and Conduct Disorders in DSM-5 since they share the core features of aggressive or anti-social behaviour. ODD and conduct

disorders may also involve behaviour that may be considered against the law (juvenile delinquency). There is a debate regarding if ODD and conduct disorder are distinct disorders or if ODD is a precursor or milder form of conduct disorder. Some professionals find it important to distinguish between the two because of the nature of seriousness of violations in case of conduct disorders. Violations in case of ODD are relatively less serious. Also, while ODD is usually recognized by the age of 8 years, full-blown conduct disorder usually develops by middle childhood through adolescence.

12.3.1 Clinical Picture

Essential feature of ODD is presence of persistent negativistic, defiant, disobedient, and hostile behaviour towards authority figures. There have been some changes made in the category of ODD from DSM IV to DSM-5. Some of the symptoms include: frequent temper tantrums, arguing with adults, refusing instructions by adults, always questioning rules and non-compliance with rules set, doing things to annoy or upset others, being easily annoyed, speaking unkindly or angrily, and seeking revenge. The ODD disorder is now grouped into three subtypes: *angry/irritable mood, argumentative/defiant behavior and vindictiveness*. As is the case with other disorders in DSM-5, a severity rating has also been included. Relative to other childhood disorders, the prevalence of ODD is high. According to Nock et al., (2007) study (as cited in Butcher, Hooley, & Mineka, 2020) lifetime prevalence of ODD is about 11 percent for boys and 9 percent for girls. Not all cases of ODD go on to develop conduct disorder, however almost all cases of conduct disorder are preceded by ODD. ADHD is a common co-morbid condition with ODD. Even though unruly behaviour is also present in ADHD, but in case of ODD the unruly behaviour is judged to be more deliberate whereas in case of ADHD it is usually attributed to poor attention or impulsivity.

In conduct disorder, a child has a repetitive and persistent pattern of behaving in a way that violates other people's rights or societal norms that are age appropriate. DSM-5 describes the symptoms of conduct disorder are aggression to people and animals, destruction of property, deceitfulness or theft, and serious violation of norms. Children with conduct disorder shows covert or over aggression towards others in the form of bullying, initiation of physical fights, and use of weapons that can cause harm. Some show cruelty towards people and animals. There is deliberate destruction of property through fire setting and/or other means. Lying, stealing, vandalism, and breaking into someone's house/car may also be common. Children with conduct disorder are likely to be sexually uninhibited and may inflict sexual aggression on others such as forcing someone especially children younger than them into sexual activity. Such children may repeatedly run away from their home or stay out at night in spite of parental restrictions often beginning young (before 13 years of age). Two different courses of conduct disorders are identified, life-course persistent pattern that starts early and continues into adulthood and adolescence-limited course where anti-social behaviour begins in adolescence for someone with a typical childhood and who would later go on to live typical non-problematic adulthood.

Research has found that early-onset of conduct disorder is highly associated with later development of conduct disorder. It also has a strong association with development of substance use, abuse, and dependency later in life. According to Mohan and Ray (2020), conduct disorder is also fairly common with life time prevalence rate of in general population could range anything between 2 to 10 percent. Conduct disorder is three to four times more common in boys than girls.

Box 12.3: Case Study: Oppositional Defiant Disorder

Usman is a 7-year-old male student studying in Class 1 who lives with his parents and younger sister. Usman is an intelligent and caring young boy who has been performing well academically. While Usman interacts well with his peers, his parents noted that he can be easily influenced by them. They also report that Usman gets upset when he does not receive recognition or feels that he has been ignored. His teacher has observed that Usman can sometimes act 'socially immature', and that he often demonstrates attention-seeking behaviour. His mother reports difficulties at home with following routines and remembering instructions. His parents describe emotional reactivity as well as confrontational behaviours at home. He would often get very angry and would hit his sister. Teacher also commented that he is easily frustrated and emotionally impulsive. Over the past one year, Usman has had several incidents of hitting, argumentative, lying, and disruptive behaviour. Similar behavioural concerns of less severity had been observed by teachers in pre-school, but were ignored by parents at the time.

Box 12.4: DSM-5 Criteria for Oppositional Defiant Disorder (APA, 2013)

A. A pattern of angry/irritable mood, argumentative/defiant behavior, or vindictiveness lasting at least 6 months as evidenced by at least four symptoms of the following categories, and exhibited during interaction with at least one individual who is not a sibling:

   Angry/Irritable Mood

   1) Often loses temper
   2) Is often touchy or easily annoyed
   3) Is often angry and resentful

   Argumentative/Defiant Behavior

   4) Often argues with authority figures or, for children and adolescents, with adults
   5) Often actively defies or refuses to comply with requests from authority figures or with rules
   6) Often deliberately annoys others
   7) Often blames others for his or her mistakes or misbehavior.

   Vindictiveness

   8) Has been spiteful or vindictive at least twice within the past 6 months.

B. The disturbance in behavior is associated with distress in the individual or others in his or her immediate social context (e.g., family, peer group, work colleagues), or it impacts negatively on social, educational, occupational, or other important areas of functioning.

C. The behaviors do not occur exclusively during the course of a psychotic, substance use, depressive, or bipolar disorder. Also, the criteria are not met for disruptive mood dysregulation disorder.

Box 12.5: Case Study: Conduct Disorder

Akash is a 15-year-old male who was brought to the psychiatrist by his parents. He is the eldest child of his parents and has two younger siblings including one brother and one sister, Akash recently dropped out of school and refusing to go back to school claiming the "teachers don't teach well." His parents reported that Akash had been eating *gutka* and *paan* regularly since last one year. He started stealing from his neighbour's house to buy gutkha when he stopped receiving any pocket money from parents. Akash had been stealing since the last three months but when cornered he would always lie his way out claiming that the neighbours didnot like him and were lying to get him into trouble. Recently he was caught red handed which is the reason why his parents decided to take him to their family doctor who suggested he should be taken to a psychiatrist. His parents report that while Akash had always had temper tantrums, lately he had become very aggressive. Akash would often fight with his parents and had become abusive towards them. He would often beat up his younger siblings at the smallest of things. His teachers at school were always unhappy with him since they found it extremely difficult to discipline him. He would perform poorly in studies and would never focus on the lessons, instead he would be found disturbing other students in class. He had also started 'bunking' classes with other students. The school had started getting complaints from the parents of other students, especially female students who complained that Akash would misbehave with them. He even sent objectionable pictures to his female classmate who got very upset and informed her parents about it. He stopped going to school after the school suspended him for a week for starting a fight with junior students who complained that Akash would bully them and force them into paying him their pocket money.

Box 12.6: DSM-5 Criteria for Conduct Disorder (APA, 2013)

A. A repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of at least three of the following 15 criteria in the past 12 months from any of the categories below, with at least one criterion present in the past 6 months:

Aggression to People and Animals

1) Often bullies, threatens, or intimidates others.
2) Often initiates physical fights.
3) Has used a weapon that can cause serious physical harm to others (e.g., a bat, brick, broken bottle, knife, gun).
4) Has been physically cruel to people.
5) Has been physically cruel to animals.
6) Has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery).
7) Has forced someone into sexual activity.

Destruction of Property

8) Has deliberately engaged in fire setting with the intention of causing serious damage.

9) Has deliberately destroyed others' property (other than by fire setting).

Deceitfulness or Theft

10) Has broken into someone else's house, building, or car.

11) Often lies to obtain goods or favors or to avoid obligations (i.e., "cons" others).

12) Has stolen items of nontrivial value without confronting a victim (e.g., shoplifting, but without breaking and entering; forgery).

Serious Violations of rules

13) Often stays out at night despite parental prohibitions,beginning before age 13 years.

14) Has run away from home overnight at least twice while living in the parental or parental surrogate home, or once without returning for a lengthy period.

15) Is often truant from school, beginning before age 13 years.

B. The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.

C) If the individual is age 18 years or older, criteria are not met for antisocial personality disorder.

12.3.2 Causal Factors

Evidence from **genetic studies** is mixed, although heritability is likely to play a role in conduct disorder. Researchers have found that criminal and anti-social behaviour can be accounted for by both genetic and environmental factors. Aggressive behaviour has been found to be heritable where other delinquent behaviours like truancy, lying, and stealing may not be attributed to genetic factors. Also, life-course persistent pattern of conduct disorder is likely to be heritable as opposed to the adolescence-limited course pattern.

Neuropsychological studies have found childhood profiles of deficit in children with conduct disorders. These deficits include poor verbal skills, difficulty with higher order cognitive functioning (like the ability to anticipate, plan, self-monitoring, and problem solving), and problems with memory. In addition, children who develop conduct disorder at an earlier age are intellectually lower than typical age-matched control group. Similar to individuals with anti-social personality disorder, children with conduct disorder show low physiological arousal and low heart rate suggesting that they are less likely to fear punishment compared to typical peers. Whereas in case of typical adolescent the fear of getting caught and punishment keeps them from behaving in anti-social manner, a teen with conduct disorder goes on to behave in unchecked and unregulated manner without the fear of any repercussions.

Children behave in socially appropriate behaviour not only because they fear punishment, but also because they would experience guilt if they do not. Moral development or the understanding of right and wrong seems to be deficit in children with conduct disorder. Children with conduct disorder also seem to lack moral awareness and remorse.

Behavioural theories suggest that children with aggressive parents may model their parent's aggressive and hostile behaviour. Inconsistent and harsh parenting with poor monitoring are consistently associated with development of conduct disorder. Children with no previous history of delinquent behaviour may imitate aggressive behaviour on TV or emulate aggressive peers who seem to be enjoying high social status because of his/her aggressive demeanours. Social rejection of aggressive children by peers puts them at highest risk for adolescent delinquency and probably for adult antisocial personality. Parents, teachers, and peers may react to aggressive children with anger and rejection. The combination of rejection by parents, peers, and teachers may make these children to become isolated and alienated. Not surprisingly, they often turn to deviant peer groups for companionship, at which point a good deal of imitation of the antisocial behavior of their deviant peer models may occur. In such circumstances children with conduct disorder are likely to select more deviant peer (social selection view). However, environmental influence of neighbourhood (poverty in neighbourhood) and family (parental neglect) may also play a role in whether children associate with deviant peers.

Finally, **socio-cultural influences** like poverty, urban living, unemployment and low educational standards of parents, and dysfunctional family dynamics combine with anti-social behaviour in children to predict early criminal arrests.

12.3.4 Treatment

By and large, the attitude of the society towards aggressive youth is punitive, "teach the child a lesson". This attitude seems to aggravate and intensify anti-social and aggressive behaviour in children with conduct disorder. Mental health professionals have found that the most effective treatment of conduct disorder involves family intervention. Parents of children with conduct disorders are seen to lacking parenting skills and behaving in inconsistent patterns. Children may learn to escape harsh criticism and disciplining through anti-social behaviour like lying and deceitfulness to which parents may respond with aggression. The child observes this increased aggression and models this aggressive pattern. Parent management programs teach parents to modify their responses when dealing with their children so that they consistently reinforce prosocial behaviour rather than antisocial behaviour. They are also taught to give clear instructions and lay ground rules so as to provide consistent and expected consequences to undesirable behaviour. Often parents may themselves be burdened because of interpersonal relationships, unemployment, poverty and/or psychopathology and may find it difficult to practice effective parenting skills. Mental health professionals have exercised the importance of a warm and accepting environment for children with conduct disorders.

Another promising program is the Multi Systemic Treatment (MST) that recognizes that anti-social behaviour is influenced by multiple factors in family, school and neighbourhood. The program attempts to deliver comprehensive therapy services in the community targeting the adolescent, family, peers and school. Program identifies individual and family strengths, social contexts that contribute to aggressive and anti-social behaviour, and action-oriented and present focussed approach. In comparison to adolescents who received traditional psychotherapy, MST has been found to be more effective in treatment of conduct disorders in adolescents.

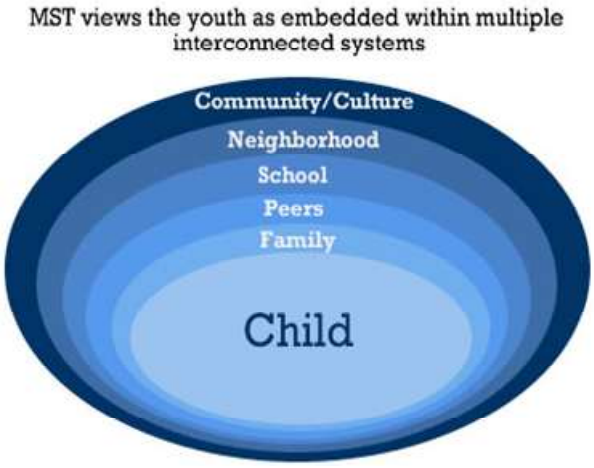

Fig. 12.1: Multisystemic Treatment (MST) includes consideration of multiple factors when developing a child's treatment, including family, school, community, and peers

Source: http://www.mstuk.org

Check Your Progress 3

1) How is conduct disorder different from oppositional defiant disorder?

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2) What are some socio-cultural factors influencing conduct disorder and oppositional defiant disorders?

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3) What is multi-systemic treatment?

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12.4 ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

Children with Attention-Deficit/Hyperactivity Disorder (ADHD) display difficulties in maintaining sustained attention, excessive and exaggerated motor activity, and impulsivity relative to their developmental level leading to social, occupational/academic activities. The classification criteria for ADHD remains largely unchanged in DSM-5. An exception being that ADHD is no longer

considered as a Disruptive Behaviour Disorder and instead lists it as a neurodevelopmental disorder. Other change specified in DSM-5 (DSM IV specified presence of some of the symptoms before 7 years of age), is several inattentive or hyperactive-impulsive symptoms to be present prior to 12 years of age. Additionally, similar to other disorders in DSM-5, it has added specification for current severity: mild, moderate and severe. Consistent with DSM IV criteria, DSM-5 codes Attention Deficit/Hyperactivity Disorder under three sub-types: combined presentation, predominately inattentive presentation (Attention Deficit Disorder; ADD) and predominately Hyperactive/Impulsive presentation. ADHD combined type is the most common presentation, whereas ADHD predominantly inattentive type may be cases of pure ADD or may include children who display attention difficulties along with sub-threshold hyperactivity.

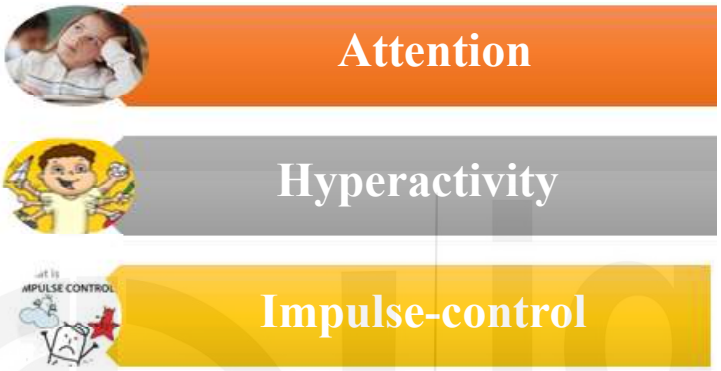

Fig. 12.2: Symptoms of ADHD

12.4.1 Clinical Picture

Attention deficit is a multi-dimensional construct that includes problems with arousal, alertness, selective focus, sustained attention/vigilance, and distractibility. These difficulties can manifest in many situations making it difficult to function adequately in school, workplace or with friends and family. Issues with arousal and alertness can lead to children failing to give attention to details, losing track of time or things, making careless mistakes or day dreaming. A child with deficit selective attention is likely to fail to understand instructions and follow through instructions. She/he could appear to others as if she/he is"not listening" or that their "mind is elsewhere". Problems with sustained attention can most often be seen in boring and repetitive activities but can also be apparent in free play. The child has a tendency to "tune out" of these tasks, and would perceive tasks requiring sustained attention (e.g. reading, mathematics, board games, etc.) are seen as aversive and are generally avoided. Sustained attention deficits may lead the child to shift from one task to another without completing any one of them. Finally, distractibility is the ability to be easily attend to irrelevant stimuli in the environment (e.g. noise, background conversations, object in a room, etc.). Attentional difficulties affect daily lives of people with ADHD. Their work is often messy, disorganized and appears to have been done without any considered thought. School material like pen, tiffin boxes, books and notepads are often scattered, lost or damaged. Attentional problems also make children and adolescents forgetful, for instance they would forget to bring lunch, books, homework etc. Socially, ADHD individuals find it difficult to keep track of conversations. Such children often find it challenging to follow rules in games or different activities.

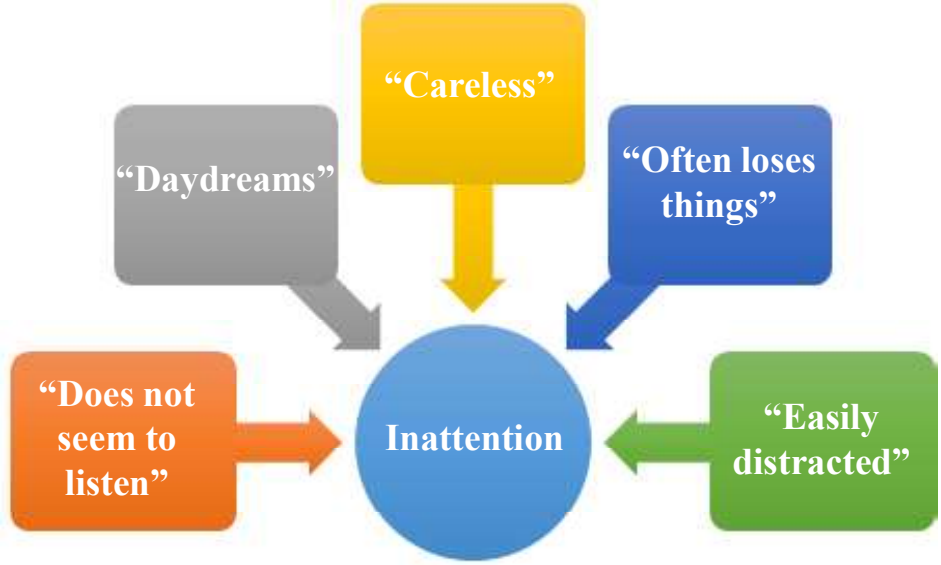

Fig. 12.3: Descriptions used by Parents and teachers for children with significant attentional difficulties

Hyperactivity refers to excessive activity manifested in two forms: motor hyperactivity (restlessness, squirminess, and unnecessary body movements) and vocal hyperactivity (excessive talking). Manifestation of hyperactivity may vary with developmental level. In pre-school children hyperactivity can be seen in children to engage in excessive jumping and climbing on furniture, running around the house, and in difficulty in engaging the children in sedentary activity like listening to story. In school aged children similar behavior may be seen in hyperactive children although the behavior maybe lesser in intensity and frequency. Hyperactivity in children can be seen in the child's difficulty to remain seated, they get up frequently, squirm, and hang onto the edge of their seat. Not only do they fidget during academic activities, they also find it challenging to sit through meals, TV, or play that requires them to sit in one place. One is likely to find them fidgeting with objects, pen, or shaking legs.

Girls with ADHD are more likely to display hyperactivity through excessive talking and interruptions when others are talking. It is a common misbelief that adolescents/adults "out grow" their hyperactivity. However, in older children

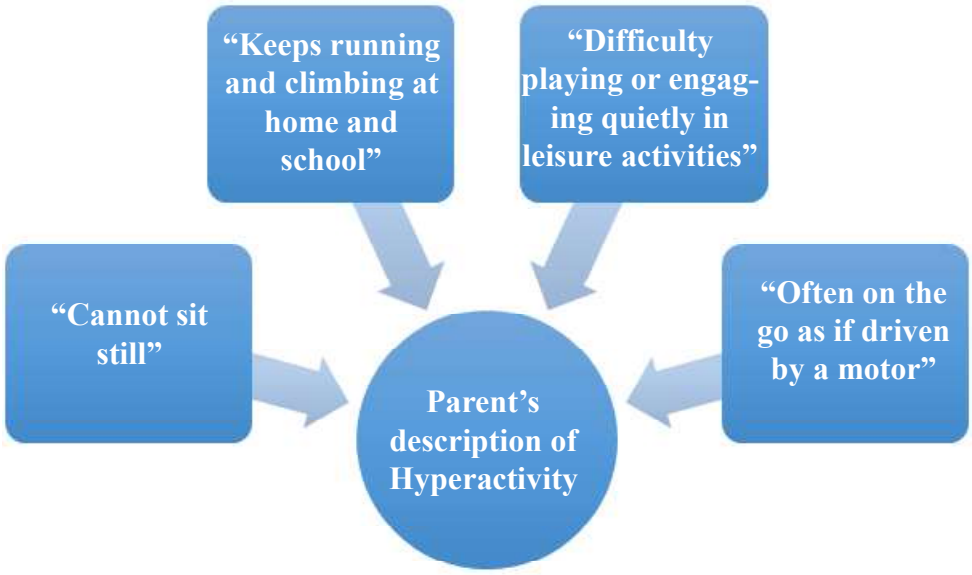

Fig. 12.4: Descriptions used by parents and teachers for children with hyperactivity

hyperactivity manifests more as restlessness, excessive speech, difficulty in engaging in solitary activities and increased aggression and conflicts. Professionals stress on pervasiveness of hyperactivity, ADHD children display hyperactivity throughout the day and even during night. ADHD children find it difficult to fall asleep and may wake up early. Hyperactivity is pervasive and displayed in all domains including home, school, and playground. Impulsivity refers to the tendency to act on urges, apparently without thinking. Impulsivity is one of the most common complaints parents and teacher's make about people with ADHD.

Most common complaint made about children with ADHD by parents and teachers is about this symptom. Impulsivity can be seen in impatience, difficulty in waiting for their turn, inability to blurt out answers, interrupting and intruding others to the point of causing difficulties in school, social or occupational setting. Impulsivity is often responsible for the many accidents that hyperactive children get into. More often than not children with ADHD may knock over objects, bang into people, grab to hold a hot pan, or even engage in potentially harmful activity like repeatedly climbing trees and riding bicycle in traffic.

Children with ADHD also display some secondary problems. ADHD is related to cognitive and academic difficulties as children with ADHD are found to have delay in intelligence of about 7-10 IQ points, may be at high risk for learning disability, and have lower academic intelligence than their peers. Many children with ADHD suffer from socio-emotional difficulties also. There is high rate of rejection by peers amongst ADHD children, which is not because they are unfriendly but because ADHD may make them inattentive to social cues and peers may get tired of their hyperactivity and excessive talking. Unpopularity amongst peers may also be a result of aggression and depression. Peer rejection and negative criticism from parents and teachers negatively effects the self-esteem of these children.

The prevalence rate of ADHD has been increasing over the years. The average prevalence of ADHD worldwide is found to be 5.9 - 7.1 percent and 2.6 - 4.5 percent (Willicut 2012, Polanczyk et al. 2015). Some researchers believe that the increase in the number of children diagnosed with ADHD may be a result of an increase in awareness about ADHD or society's intolerance to childhood activities because of urban life pressures and loss of support, or extended family. Also, boys are three times more likely to be diagnosed with ADHD. This may be because adults may be more tolerant of hyperactivity in girls who engage in less direct aggressive. Secondly, research on ADHD has focussed on boys, thereby ignoring the experience and manifestation of ADHD symptoms in girls. There is high co-morbidity of aggression and depression in ADHD.

Box 12.7: Case Study: Attention Deficit Hyperactivity Disorder

Rubin is a 9-year-boy who has been referred to a child psychologist at the request of his school counsellor. The counsellor had been receiving multiple complaints about Rubin from his class teacher. The teacher complained that Rubin is extremely restless, he is hardly ever on his seat and roams around in the class in spite of the many instructions given against getting up in class. He finds it difficult to pay attention to lessons in class and his work is messy and incomplete. His restlessness disturbs other children. Sometimes, he talks to other students making it difficult for them to concentrate on their

individual classwork. The teacher reports that Rubin does not seem to have any control over his unpredictable behaviour and is quite polite and good natured. Clinical interview with parents revealed that Rubin has had behavioural difficulties ever since he was a toddler. Even when he was three years old, he was and extremely restless who required little sleep and woke before anyone else. When he was four, he had managed to unlock the door of the house and wandered off by himself on a busy road. He was brought back by a neighbour who found him wondering on the streets. Teachers in play school complained that Rubin would find it difficult to follow any instructions given to him and his restlessness made it difficult for the teacher to look after his well-being.

Box 12.8: DSM-5 Criteria for ADHD (APA, 2013)

A. A persistent pattern of inattention and/or hyperactivity- impulsivity that interferes with functioning or development, as characterized by (1) and/or (2):

1) **Inattention:** Six (or more) of the following symptoms have persisted for at least 6 months (for children up to age 16) to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.

a) Often fails to give close attention to details or makes careless mistakes in school work, at work, or during other activities (e.g., overlooks or misses details, work is inaccurate).

b) Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading).

c) Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).

d) Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily side-tracked).

e) Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines).

f) Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers).

g) Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).

h) Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).

i) Is often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments).

2) Hyperactivity and impulsivity: Six (or more) of the following symptoms have persisted for at least 6 months (children up to the age of 16 years) to a degree that is inconsistent with developmental level that negativ impacts directly on social and academic/occupational activities:

Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or a failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.

a) Often fidgets with or taps hands or feetor squirms in seat.

b) Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in other situations that require remaining in place).

c) Often runs about or climbs in situations where it is inappropriate.

(Note: In adolescents or adults, may be limited to feeling restless.)

d) Often unable to play or engage in leisure activities quietly.

e) Is often"on the go,"acting as if"driven by amotor"(e.g., is unable to be or uncomfortable being still for extended time, as in restaurants, meetings; may be experienced by others as being restless or difficult to keep up with).

f) Often talks excessively.

g) Often blurts out an answer before a question has been completed (e.g., completes people's sentences; cannot wait for turn in conversation).

h) Often has difficulty waiting his or her turn (e.g., while waiting in line).

i) Often interrupts or intrudes on others (e.g., butts into conversations, games, or activities; may start using other people's things without asking or receiving permission; for adolescents and adults, may intrude into or take over what others are doing).

B. Several inattentive or hyperactive-impulsive symptoms were present prior to age 12 years.

C. Several inattentive or hyperactive-impulsive symptoms are present in two or more settings (e.g., at home, school, or work; with friends or relatives; in other activities).

D. There is clear evidence that the symptoms interfere with, or reduce the quality of, social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of schizophrenia or another psychotic disorder and are not better explained by another mental disorder (e.g., mood disorder, anxiety disorder, dissociative disorder, personality disorder, substance intoxication or withdrawal).

12.4.2 Causal Factors

Researchers understand that the causes of attention deficit hyperactivity disorder are not social in origins. **Genetic factor's** plays a role in ADHD as twin and family studies report high degree of heritability of ADHD. Adoption researches have also reported higher rates of hyperactivity in biological parents of hyperactive children than adoptive parents of such children. Molecular genetic studies have found that multiple genes contribute to the risk for ADHD. In particular, DAT-1 or dopamine transporter gene has been implicated. Neuropsychological studies have found structural and functional difference in brains of people with ADHD and typical control. In particular, difference have been seen in frontal lobe, basal ganglia, and cerebellum. Executive functions (high order cognitive processes), such as working memory, attention, and inhibition of responses has been found to be poorer for ADHD individuals relative to typical control. ADHD is related to dysfunction in two neurotransmitters, dopamine and nor-epinephrine. Scientists have found that inattention and distractibility appear to be related to low levels of norepinephrine whereas impulsivity and hyperactivity problems appear to be related to low levels of dopamine in the brain. Thus, because child feels lack of stimulation in the brain, hyperactivity is a way to compensate for that. That is why, stimulants are prescribed as medicines for children with ADHD. Pregnancy and birth factors like mother's age at delivery (younger), mother's educational level (lower), time between labour (longer), and premature delivery related to higher probability of the child developing ADHD. Prenatal exposure to environmental toxins like lead, alcohol and tobacco have been implicated. Certain medicines, such as medicines for seizures are likely to result in problems with in attention and hyperactivity. Some researchers also report that the behavior of some ADHD children is worsened after eating foods with artificial colors, certain preservatives, and/or allergens.

While **social factors** like parenting style, schooling, and peer relations may moderate the types and degrees of impairment but they do not cause ADHD. Overall critical, harsh and negative behaviour of parents of hyperactive children is related to difficult, disruptive and non-compliant behaviour of ADHD children. Early TV viewing has also been found to shorten attention span of children. Aggressive and hyperactive portrayal of characters in TV shows has also been found to exaggerate difficult behavior.

12.4.3 Treatment

Some of the treatment options for ADHD are indicated below:

Prescription of medicine, like, Ritalin (methylphenidate), an amphetamine in some children with attention deficit hyperactivity disorder is a common treatment for ADHD. Ritalin is a stimulant and has a quietening effect on a child with ADHD, opposite of what is expected for a typical adult for whom stimulant leads to increased arousal and experience of excess energy. Ritalin has been found to help children reduce restlessness and aggression, helping them focus on studies and moderate difficult behaviours in classroom and home. Some significant side effects are also related to the use of Ritalin in children including decreased blood flow to the brain, which can result in impaired thinking ability and memory loss; disruption of growth hormone, leading to suppression of growth in the body and brain of the child; insomnia; psychotic symptoms; and others. Medicines like Ritalin do not cure ADHD, but they do result in moderation of

behavioural symptoms.

Psychological interventions along with medications are important in providing holistic treatment. Behavioural strategies include selective reinforcements in classroom and structuring of material in a way that enhances the experiences of success. For instance, a girl with ADHD should be praised for increasing the amount of time she sits in classroom even if she sits for 15 minutes in a half an hour class, if she was unable to previously sit for anything more than say five minutes. Family therapy helps in making parents and sibling understand behavioural strategies to maximize productive behavior and extinction of aggressive and destructive behavior.

School based intervention programs aim to teach teachers to deal with hyperactivity and inattention difficulties in classroom.

Check Your Progress 4

1) Classify the sub-types of ADHD.

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2) What is the role of social factors in etiology of ADHD?

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3) Define impulsivity.

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12.5 SUMMARY

Now that we have come to the end of this unit, let us list all the major points that we have already learnt.

- Developmental psychopathology is a field in psychology that is dedicated to studying the origins and cause of significant disturbances in context of normal growth processes.
- Children with depression exhibit symptoms like withdrawal from family and friends, avoidance of eye contact, physical complaints, poor appetite and/or aggressive behaviour. In some cases, the children may even attempt self-harm or suicide. Depression in children is different from depression in adults in showing more guilt but lower rates of early morning depression and weight loss. Genetic factors interact with stressors in family environment to result in childhood depression.

- Elimination disorder concerns with defecating and urinating difficulties in children. In this condition children eliminate bodily substances at inappropriate times and places.
- Oppositional Defiant Disorder and Conduct Disorder are categorized under Disruptive, Impulse-Control and Conduct Disorders in DSM-5 since they share the core feature of aggressive or anti-social behaviour.
- Multisystemic Treatment (MST) includes consideration of multiple factors when developing a child's treatment, including family, school, community, and peers.
- Children with Attention-Deficit/Hyperactivity Disorder display difficulties in maintaining sustained attention, excessive and exaggerated motor activity, and impulsivity relative to their developmental level leading to social, occupational/academic activities.

12.6 KEYWORDS

Neurodevelopmental Disorders: A group of severely disabling conditions considered to be a result of structural and/or functional differences in the brain that are usually evident at birth or become apparent as the child begins to develop.

Childhood Depression: Children with depression exhibit symptoms like withdrawal from family and friends, avoidance of eye contact, physical complaints, poor appetite and/or aggressive behaviour. In some cases, the children may even attempt self-harm or suicide.

Enuresis: Bedwetting or habitual involuntary discharge of urine after the age of 5 years which is not organically caused.

Encopresis: Inability to learn toileting for bowel movements beyond the age of 4 years.

Oppositional Defiant Disorder: Characterised by presence of persistent negativistic, defiant, disobedient, and hostile behaviour towards authority figures.

Conduct Disorder: A disorder in which a child has a repetitive and persistent pattern of behaving in a way that violates other people's rights or societal norms that are age appropriate.

Multisystemic Treatment (MST): It includes consideration of multiple factors when developing a child's treatment, including family, school, community, and peers.

Attention-Deficit/Hyperactivity Disorder: Includes difficulties in maintaining sustained attention, excessive and exaggerated motor activity, and impulsivity relative to their developmental level leading to social, occupational/academic activities.

12.7 REVIEW QUESTIONS

1) Which of the following is NOT an example of a neurodevelopmental disorder?

   a) ADHD

   b) Childhood Depression

c) ASD

d) SLD

2) Developmental disorders refer to those conditions that occur _____in life.

a) Early, b) Late, c) After retirement

3) Children with ____ seem to have particular difficulty controlling their activity in situations that call for sitting still, such as in the classroom or at mealtimes.

4) Hyperactivity refers to excessive activity manifested in two forms: _____ hyperactivity and _____ hyperactivity.

5) There are two types of elimination disorders, _____ and _____.

6) Discuss the causes of Oppositional Defiant Disorder and Conduct Disorder.

7) Describe the clinical picture of Attention Deficit/Hyperactivity Disorder.

8) Explain the causal factors and treatment of childhood depression.

9) Discuss the diagnostic criteria of elimination disorders.

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12.10 WEB RESOURCES

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- Micheal Phelp's Story of ADHD. https://www.understood.org/en/learning-attention-issues/personal-stories/famous-people/celebrity-spotlight-how-michael-phelps-adhd-helped-him-make-olympic-history

Answers to Fill in the Blannks (1-5)

(1) Childhood Depression, (2) Early, (3) Attention Deficit/Hyperactivity disorder, (4) motor and vocal (5) enuresis and encopresis.

UNIT 13 CHILDHOOD AND NEURODEVELOPMENTAL DISORDERS-II*

Structure

13.0 Introduction

13.1 Intellectual Disability

- 13.1.1 Clinical Picture
- 13.1.2 Causal Factors
- 13.1.3 Treatment

13.2 Autism Spectrum Disorder

- 13.2.1 Clinical Picture
- 13.2.2 Causal Factors and Treatment

13.3 Specific Learning Disorder

- 13.3.1 Clinical Picture
- 13.3.2 Causal Factors and Treatment

13.4 Summary

13.5 Keywords

13.6 Review Questions

13.7 References and Further Reading

13.8 References for Images

13.9 Web Resources

Learning Objectives

After reading this Unit, you will be able to:

- Explain the nature of neurodevelopmental disorders;
- Elaborate on the clinical picture, causal factors, and treatment of Intellectual Disability, and Autism Spectrum Disorder (ASD); and
- Discuss the clinical presentation, causal factors, and treatment of and Specific Learning Disorder.

13.0 INTRODUCTION

Developmental disorders refer to those conditions that occur early in life and may affect one or more domains of a child's development (physical, cognitive, social-emotional, and moral). In the previous Unit, we covered the clinical features of childhood depression, elimination disorder, oppositional defiant disorder/ conduct disorder and attention deficit/hyperactivity disorder. There causal factors and treatment were also be discussed.

Some of the disorders like Autism Spectrum Disorders, Intellectual Disability, Specific Learning disability are better understood as conditions that emerge in childhood and continue till adulthood. These are known as neurodevelopmental

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disorders or a group of severely disabling conditions considered to be a result of structural and/or functional differences in the brain that are usually evident at birth or become apparent as the child begins to develop. In this Unit, thus we will focus on such disorders like autism spectrum disorder, intellectual disability, and specific learning disability. There clinical features, causes and treatment will be discussed in the following sections.

13.1 INTELLECTUAL DISABILITY

Intellectual disability (ID) also known as intellectual developmental disorder is defined as sub-average functioning in general mental abilities such as reasoning, problem solving, planning, abstract-thinking, judgment, academic learning, and learning from experience beginning before the age of 18 years. The definition covers deficits in intelligence as well as problems with performance. The age criterion is important as it distinguishes between individuals who have had intellectual impairments throughout of his/her development and those who acquired intellectual functioning impairment after maturity. The latter category of individuals is diagnosed with dementia rather than intellectual disability. The causal factors for intellectual disability range from biological, psychosocial, socio-cultural or a combination of the three.

Compared to any other mental disorder, people with intellectual disability have received most of the devaluing, stigma, bullying, and shameful treatment from lay people and medical professions. The medical terms used to classify different levels of intellectual ability were turned into pejoratives over the ages, namely, idiot, moron, and imbecile. Similarly, the term used for intellectual disability used in DSM IV was mental retardation ("retarded") that also turned into an abuse.

About, 1-3 percent of general population falls into the category of intellectual disability (APA, 2013), with largest number of those diagnosed with ID are assessed to be at mild intellectual disability. People with mild intellectual impairments can, with proper preparation carry out most of the day-to-day activities.Many can learn to use mass transportation, purchase groceries, and hold a variety of jobs. Whereas those with more severe impairments may need help to eat, bathe, and dress themselves although with proper training and support they can achieve independence. Difficulties for both mild and severe cases affect many areas of functioning. For example, communication in mild cases may lead to difficulties with articulation and expression of though. By contrast, people with more severe problems may never learn to use speech as a form of communication and may require sign language.Cognitive processes are adversely affected in people with intellectual disability, making learning a challenge however, the level of challenge depends on how extensive the cognitive disability is. Unlike in DSM IV, the severity levels in DSM-5 (mild, moderate, severe, and profound) are determined on the basis of adaptive functioning and not on Intelligence Quotient (IQ) scores. This is because adaptive functioning and not IQ scores is necessary to determine level of support necessary to maintain an acceptable condition of life. IQ scores are not overemphasized and considers functioning levels as important. The three domains of adaptive functioning have been identified: conceptual, social and perceptual domain. The assessment of intelligence across three domains (conceptual, social, and practical) ensures that clinicians base their diagnosis on the impact of the deficit in general mental

abilities on functioning needed for everyday life. With early diagnosis, parental assistance and special educational programs people with intellectual disabilities are able to achieve significant degrees of functionality.

Fig. 13.1: Domains of Adaptive Functioning in DSM-5

Box 13.1: Case Study: Intellectual Disability

Jagdish's mother contacted psychologists because he was being disruptive at school and at work. Jagdish was 17 years old with Down's syndrome and was described as likable and at times, mischievous. Since childhood, Jagdish had undergone many tests of IQ functioning in the range of 40-50, which placed him in moderate intellectual disability. In school, Jagdish attended separate classrooms meant for children with special problems. Jagdish was placed in regular classes but was unable to proceed beyond class II, after which his teachers placed him in special classes. Jagdish has been cheerful and pleasant for his teachers and has made many friends in his class. He is very social and participates in all school activities that involve music and dance. However, lately his teachers complained to his parents that he was being difficult and oppositional. When Jagdish's mother was interviewed, she expressed frustration at the classes because he was asked to do boring and repetitive tasks like folding paper. Jagdish felt frustrated too, because he was "*being treated like a baby*". Whenever Jagdish though that he was been given work too easy for him, he would respond by being disruptive and naughty. However, his behaviour was interpreted by the teacher as communicating that the work was too hard for him and responded by giving even simpler tasks after which Jagdish protested and resisted more vigorously.

Box 13.2: DSM-5 Criteria for Intellectual Disability (APA, 2013)

A. Deficit of intellectual functions, such as reasoning, problem solving, planning, abstract thinking, judgment, academic learning or learning from experience, and confirmed by both individual clinical assessment and standardized intelligence testing.

B. Deficits in adaptive functioning that failure to meet developmental and socio-cultural standards for personal independence and social responsibility.

Without ongoing support, the adaptive deficits limit functioning in one or more activities of daily life, such as communication, social participation, and independent living, across multiple environments, such as home, school, work and community.

C. Onset of intellectual and adaptive deficits during the developmental period.

13.1.1 Clinical Picture

The DSM-5 criteria classifies severity on the basis of daily skills. The categories are as follows:

Mild Intellectual Disability*:* Largest number of people diagnosed with intellectual disability are those with mild intellectual disability. These individuals are considered to be educable (third-sixth grade), there intellectual levels as adults are comparable to average 8-11year olds. Socially they are considered to be that of adolescents, although they lack the imagination, inventiveness, and judgment of a typical teenager. Most cases of individuals with intellectual disability do not show any sign of brain pathology or physical anomalies. These individuals may require some intermittent and limited supervision, because of their limited ability to foresee the consequences of their action. Adults can marry, have children, but may need significant help during episodes of distress. Early diagnosis, parental assistance, special educational programs can help these individuals achieve simple academic and occupational skills and become self-supporting citizens.

Moderate Intellectual Disability: Individuals with moderate intellectual ability usually attain intellectual levels of 4-7-year olds all into 'educable' and 'trainable' category. They may be able to read and write a little and manage to communicate verbally but their rate of learning and level of conceptualization is very limited (first-second grade). They are presumed to be able to achieve partial independent in in daily self-care, acceptable behaviour, hold a job in a sheltered environment.

Severe Intellectual Disability*:* Sensory defects, motor disability and speech development are severely affected in these individuals. There is limited level of personal hygiene and self-help skills, which somehow lessen their dependency, but they are always dependent on others for care. Some individuals may gain to certain extent from training and can perform simple occupational tasks under supervision.

Profound Intellectual Disability: Such individuals are severely deficient in adaptive behaviour and unable to master even simple tasks like buttoning, using spoon to eat, toilet training, bathing etc. In some individuals, speech may not develop or may be rudimentary. Generally related to organic brain damage resulting from physical abnormalities, central nervous system pathologies, seizures etc. and can be diagnosed in infancy. The individuals require constant support and custodial care all must their lives. They usually have poor health and low resistance to diseases, thus short life expectancy.

13.1.2 Causal Factors

People with intellectual disability can be classified in two groups based on their causes. First, biological basis i.e. intellectual ability caused by some known brain pathology or organic impairments. In these cases, the level of functioning is almost always at least moderate. Profound intellectual disability, although rarer is also related to organic pathology. Second, cultural-familial basis of intellectual disability, about 25 percent of cases with intellectual disability, usually with mild intellectual disability are thought to be a result of social and environmental influences such as neglect, abuse and social deprivation (Barlow & Durand, 2015). Environmental factors like child abuse, neglect and socio-emotional deprivation combine with biological influences to cause intellectual disability.

Genetic Factors: Intellectual disability (especially mild intellectual disability) tends to run in families; about 300 genes have been identified as having the potential to contribute to intellectual disability. However, it is also important to note that poverty and socio-cultural deprivation that may contribute to impaired brain development also tends to run in families. Genetic aberrations may lead to metabolic alterations that negatively affect the brain's development. Mild intellectual disability is usually attributed to multiple genes, whereas severe and profound intellectual disability is likely to be associated with identifiable single gene disorders. Dominant gene disorder (only one gene is needed for its expression) includes conditions such as tuberous sclerosis. About 60 percent of people in tuberous sclerosis have intellectual disability along with seizures and characteristic bumps on skin (Curatolo, Bombardieri, & Jozwiak, 2008). Recessive gene disorder (expresses itself only when paired with another copy of itself) such as phenylketonuria (PKU) in which the child has an inability to breakdown the protein phenylalanine found in food. If detected early, intellectual disability can be prevented through special diet. Finally, X-linked gene (present on X chromosome) conditions such as fragile X syndrome primarily affects males and causes moderate-severe intellectual disability and autism like symptoms.

Infections, Toxic Agents and Radiation: Intellectual disability is associated with wide range of infections and toxic agents, such as exposure to HIV, German measles, carbon monoxide, and overdose of any toxicity. Excessive alcohol intake during pregnancy leads to a condition like foetal alcohol syndrome. RH incompatibility between parents has also been associated with intellectual disability in the child. In a medical study, it was found that the deadly gas leaked from a Bhopal pesticide plant (Bhopal gas tragedy, 3 December, 1984) is continuing to effect third generation of victims. About 2500 children were identified with birth defect and about 164 of them were assessed to have intellectual disability. Additionally, exposure to radiation may lead to mutations, which is why pregnant women are not allowed in X ray rooms in hospitals.For example, studies on 1600 children who were irradiated while they were in their mother's womb during the atomic bomb explosions in Hiroshima and Nagasaki (Japanese cities that were bombed during World War II, 1945) revealed that 30 of them suffered clinically severe intellectual disability.

Trauma/Physical Injury*:* Physical injury at birth for instance because of forceps delivery, difficulties in labour due to malposition of the foetus, lack of sufficient oxygen during birth from delayed breathing, and bleeding within the brain may be caused due to the physical trauma are associated with intellectual disability.

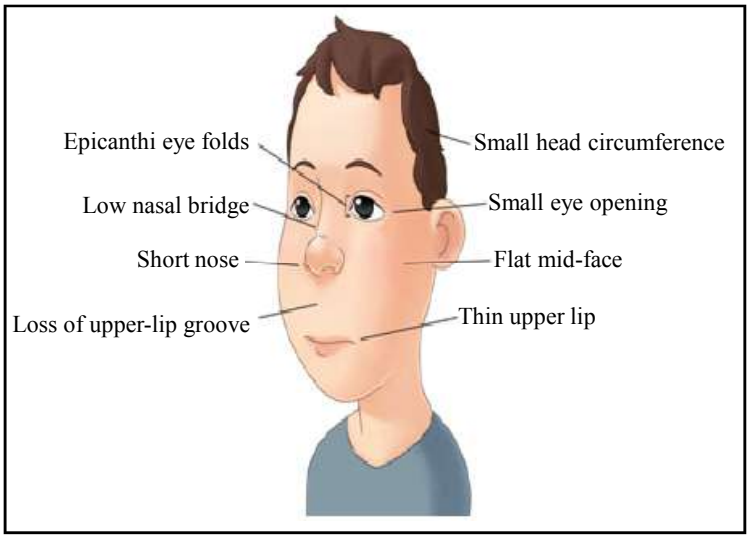

Fig. 13.2: Foetal Alcohol Syndrome

Source: https://healthand.com/in/topic/general-report/fetal-alcohol-syndrome

Malnutrition: Unhealthy and unbalanced diet (devoid of protein and other essential nutrients) during early development of foetus does irreversible physical and mental damage. In many villages in India because of poverty and lack of education many pregnant women do not get healthy and nutritional diet. Malnutrition continues to plague many children below the age of five years in India often leading to their death or poor physical and mental development.

Organic Retardation Syndromes*:* PKU is an inerited disorder in which phenylalanine is build up to harmful levels in the blood, thus causing intellectual disability. Intellectual disability stemming primarily from biological causes can be classified into several recognizable clinical types such as Phenylketonuria (PKU), Down's syndrome, and conditions involving cranial abnormalities. Down's syndrome (trisomy 21) is a condition in which an individual has extra 21st pair of chromosomes. These individuals have recognizable facial features. Nearly all adults with Down's syndrome past the age of 40 show signs of dementia of the Alzheimer's type. It is possible to detect Down's syndrome in utero and had led to the ethical question of whether it is advisable to abort foetus detected with Down's syndrome or not. A mother writes on the matter,

"If we deny someone the chance to be born because we've decided they won't meet a predetermined measure of status or achievement, then we fail to grasp what it is to be human".

Cranial abnormalities like macrocephaly (large headedness), microcephaly (small headedness), and hydrocephaly (accumulation of abnormal amount of cerebrospinal fluid) are conditions associated with intellectual disability amongst other problems.

13.1.3 Treatment

A number of *special education and rehabilitative programs* have been developed to improve the adaptability and functionality of individuals with intellectual disability. Institutionalization of people with intellectual disability depends on the quality of care and services provided by the institution. Education and training facilities for individuals with intellectual disability are extremely inadequate. Educational and training programs can help in improvement of skills such as

such as personal grooming, social behavior, basic academic skills, and simple occupational skills. Behavioural principles such as breaking a complex task into smaller sub-components can help individuals learn at their pace and experience success. Vocational training for those with mild intellectual disability can help individuals become independent and productive community members. Whereas, special education classes for those with moderate and severe intellectual disability emphasize on the development of self-care and other skills — e.g., toilet training. mainstreaming or inclusion programs, regular schooling of children with mild intellectual disability — requires careful planning, a high level of teacher skill, and facilitative teacher attitudes.

In general, *institutionalization* is sought for two types of people with intellectual disability, those with profound disability and institutionalization is sought in childhood itself. And second for those with mild intellectual disability where institutionalization is sought in adolescence because of delinquency and other problematic behaviours such as, aggression. In general, long term institutionalization is related to behavioural and emotional problems. In many cases in India, institutionalization may be very expensive for many families. It is not uncommon to find children and individuals with intellectual disability to receive almost no care/support by family or society.

Check Your Progress 1

1) What are the different domains of adaptive functioning in the diagnosis of intellectual disability?

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2) Mention the different levels of intellectual functioning.

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3) What is organic retardation syndrome?

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13.2 AUTISM SPECTRUM DISORDERS

The term Autism is derived from the Greek word *autos* meaning self, used by **Eugen Bleuler** (Swiss psychiatrist) for the first time. Autism is a neurodevelopmental condition that is usually identified before a child is 30 months of age and may be suspected in early weeks of life. Autism is a condition that affects social communication and is associated with repetitive patterns of behaviour. DSM-5 has combined four independent diagnoses autistic disorder, Asperger syndrome, pervasive developmental disorder-not otherwise specified

(PDD-NOS) and childhood disintegrative disorder into one diagnosis of Autism Spectrum Disorder (ASD). Recent researches have suggested that all these disorders have the same essential symptoms, varying in degrees of severity. No two children with ASD are alike, they have wide range of deficits, abilities, difficulties, and challenges, therefore spectrum was found to be a suitable word to describe individuals with autism. Moreover, it has also been found that the number of children diagnosed as having ASD in the recent years is increasing. The reason for the same is unclear. Some researchers suggest that the increased awareness about autism has led to the increased incidence rates of autism. It has been found that more boys show ASD than girls, with a ratio of 4:1.

13.2.1 Clinical Picture

Lack of reciprocal social interaction is amongst the earliest markers of autism, irrespective of cognitive or language ability. In infancy, the child seems to be aloof from others. Mother's remember that babies diagnosed with autism later in life fail to respond to their name, do not reach out when picked, would never smile or look at family when they are played with, or may not notice people family and strangers alike coming and going from the room. This may make people assume that children with autism do not have the ability express emotions or may lack emotions, however the fundamental problem in autism comes from lack of social understanding. As children with autism grow older, deficits in social understanding can be seen in lack of initiation for social interactions with others, social interaction is restricted to getting obvious needs met such as food and water, the children appear to be content with being alone and may ignore parents bid for attention, and inconsistent eye contact although not reported for all children, but has been reported for many children on the spectrum. Some children may approach others in an unusual manner, for example, by licking, smelling or biting. In teenage, the social deficits are not manifested in seeming lack of social interest, but in inability to maintain relationships appropriate to age level. This is because in adolescence, an individual is faced with a more complex social milieu, a person on the spectrum may lack the ability to understand social conventions making socialization extremely challenging. For instance, the person may have difficulty in understanding jokes, irony, sarcasm, and faux pas and because of this may become a victim of bullying in school.

Individuals with autism find it difficult to understand and use verbal and non-verbal communication. Deficits in verbal communication include, delay in language development, mutism (inability to acquire speech), idiosyncratic uses of speech (unusual ways of using some words), immediate or delayed echolalia (repetition of words or phrases either immediately or later sometime), or inability for pragmatic use of speech (inability to use language for everyday social interactions). Individuals with autism may fail to initiate, maintain, or respond to conversations; engage in one-sided conversations which makes others who have no understanding of autism to reject them. Additionally, children with ASD find it challenging to understand non-verbal gestures, cues, and body language of others. About 70 percent of human communication is largely non-verbal in nature; deficits in verbal in and non-verbal communication prove to be a major impediment for successful socialization even for extremely intelligent people on the spectrum.

Box 13.2: Case Study: Autism Spectrum Disorder

Abhishek is 5 years old. His mother took him to a doctor to get his hearing tested at 2 years of age when he would not respond to his name and had not started speaking even a single word. Even at 5 years of age, Abhishek would turn his head away whenever someone would speak to him. Sometimes he would mumble something unintelligible. Although toilet trained and able to feed himself, schools asked his parents to take him out of school, because Abhishek would not mingle with other children. He actively avoided being touched and, on some days, he would start to cry and scream and no amount of cajoling or loving him would soothe him. Inconsistent eye contact and repetitive behaviour like lining up of his toy cars can be seen. When seated he often rocks back and forth in a rhythmic motion for hours. Any change in routine is highly upsetting to Abhishek.

Box 13.3: DSM-5 Criteria for Autism Spectrum Disorder (APA, 2013)

A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive; see text):

1) Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
2) Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a (total lack of facial expressions and nonverbal communication).
3) Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

B. Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive; see text):

1) Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
2) Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).
3) Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).
4) Hyper or hyporeactivity to sensory input or unusual inter-est in sensory aspects of the environment (e.g., apparent indifference to

pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).

C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).

D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

Box 13.4 : An example of *Echolalia* from the perspective of an individual with autism.

Excerpt taken from **Nobody Nowhere: The Remarkable Autobiography of an Autistic Girl** by Donna William

Words were no problem, but other people's expectations for me to respond to them were. This required my understanding of what was said but I was too happy losing myself to want to be dragged back by something as two-dimensional as understanding.

"*what do you think you're doing*" came the voice.

Knowing I must respond in order to get rid of this annoyance, I would compromise, repeating, "what do you think you're doing?' addressed to no-one in particular.

'*Don't repeat everything I say,*' scolded the voice.

Sensing a need to respond, I'd reply, "*Don't repeat everything I say*.'

Slap

I had no idea what was expected out of me.

Social and communication deficits have a reciprocal relationship in autism. An innate inability for socialization affects language development in the child, language and communication deficits in turn lead to challenges with socialization as the child grows up. Understanding of this reciprocal relationship between socialization and communication deficits led DSM-5 to assimilate socialization and communication impairments under a single heading, 'social-communication' impairments. Social-communication impairments in autism have been attributed to the inability of individuals with autism to 'read people's minds' also known as *mindblindness.* Mindblindness refers to the difficulty in seeing things the way other people do and make educated guesses about what other's may be thinking or feeling. This skill helps typical people navigate a number of social situations. For instance, if a typical child finds her/his friend sitting and sulking, she/he is likely to enquire about the reason for her/him sulking, whereas a child with autism may be unable to 'read' the non-verbal gestures of sulking and start talking about a topic that greatly interests him/her.

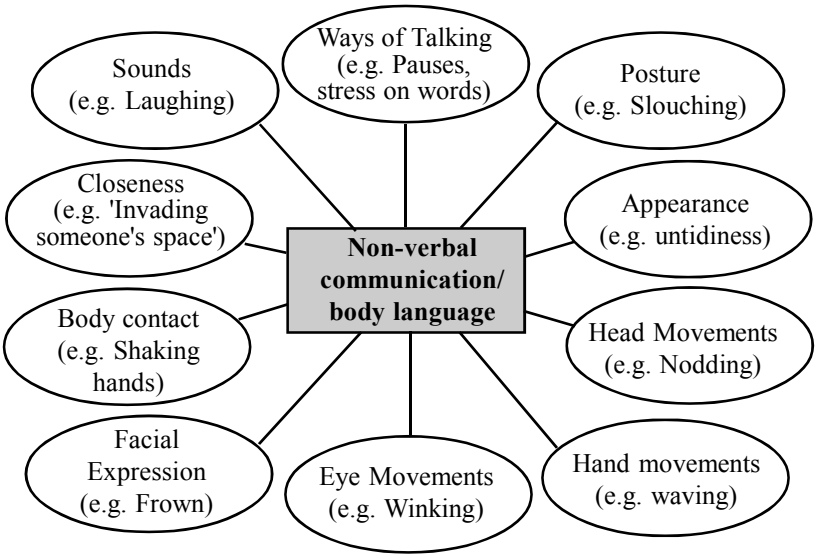
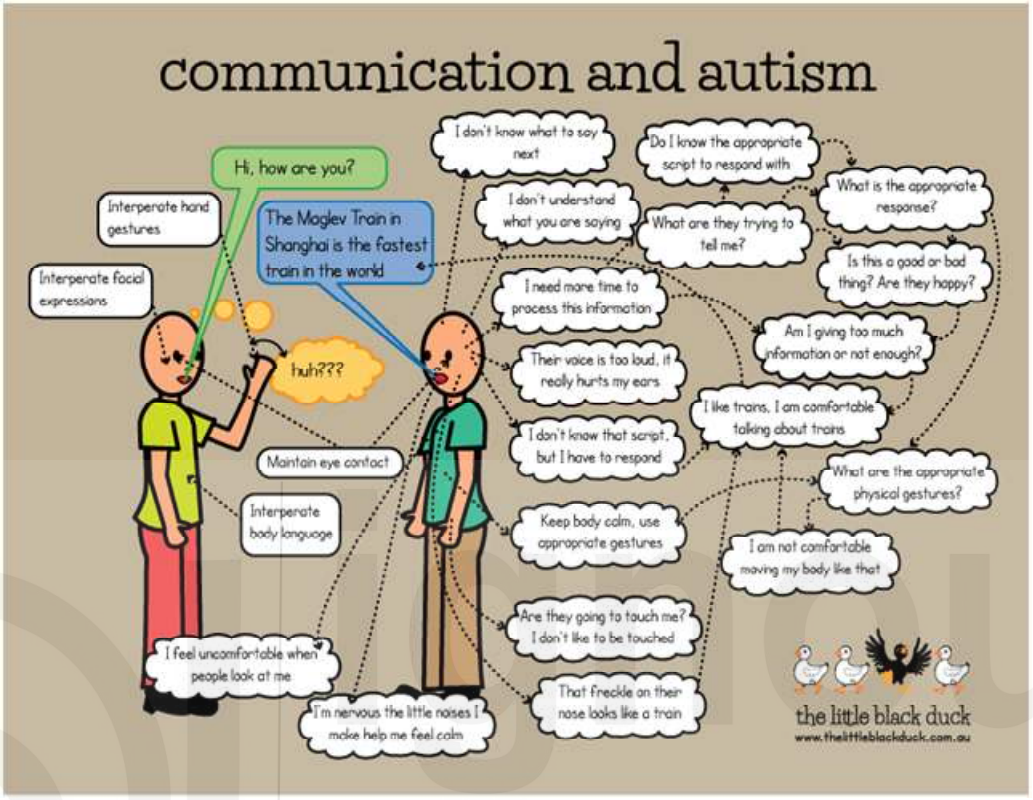


Fig. 13.4: Non-Verbal Communication

Along with social-communication difficulties, autism is characterised by a number of behavioural difficulties in autism. Children with autism may engage in stereotyped or repetitive speech, motor movements, or use of objects. For instance, they may engage in self-stimulation i.e. repetitive movements as head banging, spinning, and rocking, which may continue by the hour. Lining up of objects is also commonly seen in children. Excessive adherence to routines or rituals and resistance to changes in routines can also be seen with children on the spectrum. The child may insist of taking the same route every day, or make the bus stop at a particular point only then would the child get down. Children may form strong attachments to unusual objects like rocks, keys, and light switches so much so that the attachment may interfere with other activities. Highly restricted interest of unusual magnitude is not just limited to objects such as pens, keys, action, figures, and particular toys but may also extend to topics like dinosaurs or trains. Changes in the environment, stereotypical routine, and/or an object with strong attachment leads to resistance from the child ranging from discomfort to crying spell that continue until the situation is restored. Finally, an addition to DSM-5 diagnostic criteria for autism is sensory difficulties. Sensory difficulties, i.e., hyper or hypo reactivity sensory input from the environment such as indifference to pain/heat/cold, over-under reaction to certain sounds, distaste for certain food to the point of being nauseous when made to eat it, fascination with lights etc. are pervasive and independent of age and ability. Although individuals with autism have always experienced sensory hyper/hypo reactivity, practitioners have only recently acknowledged it, because of the social-communication difficulties inherent in autism. For instance, a child with autism would cry when getting hair or nails cut, she/he may refuse to wear socks, or t-shirts with labels because of hyper sensitivity to tactile stimuli. But many adults would interpret this as disruptive behaviour instead of sensory difficulties in autism.

Autism has a high comorbidity with intellectual disability. Earlier estimates indicated that approximately 70 percent of individuals with autism also had intellectual disability (Fombonne, 2005). However, recent estimates have estimated that 50 percent of individuals with autism are also intellectually impaired (Polynak, Kubina & Girirajan, 2005). This shift in the distribution has been primarily attributed to an increase in identification of high functioning children with autism, who were earlier missed out because their cognitive abilities would often mask other deficits.

Unlike children with intellectual disability, children with autism are quite adept at puzzles and fitting objects together often performing better than even typical children. However, difficulties meaning is apparent, for instance, if a child with autism is asked to arrange pictures in an order so that they communicate a story, she/he is likely to perform poorer than typical children.



13.2.3 Causal Factors and Treatment

Although most scientists believe that autism is an innate condition that affects the development of the nervous system of a child, the precise cause/causes of autism are unknown. Evidence from role of genetics in the etiology of autism comes from studies examining the incidence rates of autism in families. To have a parent or sibling with autism raises the chance of an individual to have autism. According to WHO, 1 in 160 children has ASD. A family with one child with autism have greater risk of having another with autism. Twin studies have shown higher concordance for monozygotic (60%) than dizygotic twins. Relatives of people with autism may show sub-threshold social-communication deficits. Genetic researches in autism has been found autism to be related to the faulty working of the brain's glutamate neurotransmitter system. However, it is unclear how the genetic vulnerability transmits to leads to faulty wiring in early stages of development.

Expression of the autism genes may be influenced by environmental factors. Prenatal environmental factors (exposure to radiation, toxins, alcohol, drugs, infections etc.) and pregnancy related factors (uterine bleeding, Rh incompatibility, induced or prolonged labour, oxygen requirements at birth) have been implicated in children with autism.

Based on the recent researches it is important to note that there is no cure for autism. In spite of that, many children continue to be subjected to the many fads in the market, promising them a 'cure' for the condition. Many researchers and parents conceive autism to be unlike other mental illnesses like depression and

anxiety. Autism is seen as a condition, that leads to differences in brain wiring relative to the typical population, Treatment of autism includes management of problematic behaviours as well training of teachers, schools, and workplaces to understand and make space for the challenges of autism.

In the past medications for autism have proven to be effective. Currently medicines are only prescribed for aggression and hyperactivity that may be excessive and leading to self-harm. Behavioural therapy has been found to be successful in development of some social and communication skills and elimination of problematic behaviour. A successful intervention involves one-to-one teaching of skills every day for several years in diverse settings of the child i.e. clinic, school, and home. Adults including parents and teachers are taught principles of behavioural therapy, such as use of rewards and breaking down of complex tasks into smaller tasks. Use of punishment or aversive techniques must be avoided.

Check Your Progress 2

1) Explain the social-communication deficits in autism

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2) What is mindblindness?

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3) Define echolalia.

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13.3 SPECIFIC LEARNING DISORDERS

Children first learn oral language and then learn to read and write that language. Written language is a code that stands for oral language whereas reading is the ability to construct meaning (comprehension) from the printed language. Academic success of a child depends great deal on reading, writing, spelling and comprehension. While most children are able to recognize or decode in print the language and use printed language for the language they use orally, people with specific learning disability have significant deficits in reading, written expression and/or Mathematics. Specific learning disorder (SLD) refers to clear impairment in school performance or (if the person is not a student) in daily living activities—which is not due to intellectual disability or to another developmental disorder such as autism or attention deficit and hyperactivity. Further, DSM-5 distinguishes learning disorder from learning problems that are primarily a result of visual, hearing and motor disabilities, emotional disturbances, environmental, cultural or socioeconomic disadvantage. DSM-5 combines the previous DSM IV diagnoses of poor achievement in reading (**dyslexia**), writing **(dysgraphia),**

arithmetic **(dyscalculia)** and learning disorder not otherwise specified into a single diagnosis of Specific Learning Disorder. Learning disorders in reading, writing, and/or mathematics are designated as specifiers.

Prevalence rate for specific learning disorder varies from one study to another. In one study conducted on children in Kerala, school-going children from the fourth standard to the seventh standard were included in the study, the prevalence of specific learning disorders was 16.75 percent (Chacko & Vidhukumar, 2010) to the sev. Out of the three, dyslexia is the most common whereas, dyscalculia is least common. Significantly there are more boys than girls diagnosed with specific learning disorder, although more recent researches suggest that boys and girls may be equally affected by this condition.

13.3.1 Clinical Picture

Children with *dyslexia* have poor phoneme awareness, i.e. they have difficulty in knowing how to sound out alphabets. A child may achieve phoneme awareness but may lack word decoding ability, she/he may not be able to read words on a page. Child lacks fluency and may get stuck when trying to read, reading speed is slow, she/he may make guesses at words based on the first letter and may find the entire exercise to be extremely exhausting and may begin to avoid reading altogether. In *dysgraphia*, child may have very poor and almost illegible writing, wrong spellings for even simple words, and lack organization of ideas and thoughts. *Dyscalculia* can cause difficulties in learning math concepts such as quantity, place value, and time, difficulty memorizing mathematical facts, difficulty organizing numbers etc.

Despite being recognized as a distinct neurodevelopmental disorder, learning disorders are poorly understood by teachers, parents, and school administration. Blaming of victim and attributing the problems to the child's character ("you're lazy, you're useless, you are stupid") and lack of motivation is common. Conventional schooling and parenting can be detrimental for the self-esteem of a child with learning disorders. It is not uncommon for parents to receive a diagnosis late, by the time the child's self-esteem and psychological well-being has already been compromised though internalization of negative comments, brickbats and criticisms received. Many well-known and famous people like Abhishek Bachchan, Winston Churchill, Tom Cruise, Leonardo da Vinci, Walt Disney, and Jim Carrey are said to have dyslexia. Early intervention, high intelligence, talent and motivation can help children overcome their disability through achievements in many fields.

Box 13.5: Some Common Indicators of Specific Learning Disorder

Dyslexia

- Poor Phonemic Awareness: i.e. lack of awareness of sound of alphabets.
- Poor phoneme-grapheme connection: sound-symbol correspondence.
- Making of errors while reading.
- Omit words: cat for can't, wet for went, sig for sing.
- Reversals: read 17 for 71, won for now, saw for was.
- Sequencing: reading name as amen, reserve as reverse.
- Misreads simple words: a for and, from for for, then for there.

- Problems with fluency/slow reading: their reading is painfully slow and halting. Reading lacks fluency.

Dysgraphia

- Generally illegible writing: writing may resemble scribbles/noodles.
- Spelling Mistakes: Poor phoneme-grapheme connection
- Mix of upper/lower case letters or cursive/print letters.
- Irregular letter shape and sizes.

Dyscalculia

- Problems with adding, subtracting, multiplication.
- Confused by similar looking Arithmetic signs such as + and x; < and > ; - and ÷
- Understand what adding means yet may become confused when asked to add.
- Reverse numbers like 18 and 81, or transpose numbers like 752 becomes 572
- Problems with telling time.

Box 13.6: DSM-5 Criteria for Specific Learning Disorder (APA, 2013)

A. Difficulties learning and using academic skills, as indicated by the presence of at least one of the following symptoms that have persisted for at least 6 months, despite the provision of interventions that target those difficulties:

   1) Inaccurate or slow and effortful word reading (e.g., reads single words aloud incorrectly or slowly and hesitantly, frequently guesses words, has difficulty sounding out words).
   2) Difficulty understanding the meaning of what is read (e.g., may read text accurately but not understand the sequence, relationships, inferences, or deeper meanings of what is read).
   3) Difficulties with spelling (e.g., may add, omit, or substitute vowels or consonants).
   4) Difficulties with written expression (e.g., makes multiple grammatical or punctuation errors within sentences; employs poor paragraph organization; written expression of ideas lacks clarity).
   5) Difficulties mastering number sense, number facts, or calculation (e.g., has poor understanding of numbers, their magnitude, and relationships; counts on fingers to add single-digit numbers instead of recalling the math fact as peers do; gets lost in the midst of arithmetic computation and may switch procedures).
   6) Difficulties with mathematical reasoning (e.g., has severe difficulty applying mathematical concepts, facts, or procedures to solve quantitative problems).

B. The affected academic skills are substantially and quantifiably below those expected for the individual's chronological age, and cause significant interference with academic or occupational performance, or

with activities of daily living, as confirmed by individually administered standardized achievement measures and comprehensive clinical assessment. For individuals age 17 years and older, a documented history of impairing learning difficulties may be substituted for the standardized assessment.

C. The learning difficulties begin during school-age years but may not become fully manifest until the demands for those affected academic skills exceed the individual's limited capacities (e.g., as in timed tests, reading or writing lengthy complex reports for a tight deadline, excessively heavy academic loads).

D. The learning difficulties are not better accounted for by intellectual disabilities, uncorrected visual or auditory acuity, other mental or neurological disorders, psychosocial adversity, lack of proficiency in the language of academic instruction, or inadequateeducational instruction.

13.3.2 Causal Factors and Treatment

Most commonly held view of the cause of Specific Learning Disorder is that it is caused by subtle central nervous system impairments. Like other neurodevelopmental disorder, learning disorders also have a heritable component. Studies have found that people in dyslexia have reduced activation of left hemisphere. In particular, three areas of left hemisphere: Broca's area (word recognition), left parietotemporal area (affects word analysis), and left occipitotemporal area (recognizing word form) have been found to have reduced activation in children with dyslexia when given a phonological awareness task. Further, intervention for reading disability, led to greater activation of these areas in children than those who received less intensive treatment.

Many treatment programs have been developed for people with learning disorders, including one-one-one tutoring and school group programs. Early intervention programs involve imparting of skills such as reading out loud under close supervision, teaching phonemic awareness through creative methods, readiness skills, such as letter discrimination, phonetic analysis, and learning letter–sound correspondences, have been incorporated. Programs have also been designed to ensure that children experience success that helps boost the self-confidence of children and makes learning interesting. However, while many single case studies have claimed success in treatment of learning disorders, interventions based on direct instruction strategies for learning have had limited success. Some successful strategies include use of computer assisted tools like podcast/webcast lectures, tutors, untimed/oral tests and allowing another individual to write answers that they can dictate out in examinations. Central Board of Senior Secondary Education (CBSE) in India for instance mandates schools to give special provisions for children with specific learning disorders as well as autism spectrum disorders

Check Your Progress 3

1) List some common indicators of SLD.

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2) Mention any two treatment options for SLD.

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13.4 SUMMARY

Now that we have come to the end of this unit, let us list all the major points that we have already learnt.

- Neurodevelopmental disorders have a heritable component.
- Intellectual disability also known as intellectual developmental disorder is defined as sub-average functioning in general mental abilities such as reasoning, problem solving, planning, abstract-thinking, judgment, academic learning, and learning from experience beginning before the age of 18 years.
- Special education and rehabilitation programmes as well as institutionalization are being used for intellectually disability depending upon the functionality of the individual.
- Autism is a condition that affects social communication and is associated with repetitive patterns of behaviour. Although there is no cure for autism, behavioural interventions and parent/teacher training program can help with problematic behaviours of children with ASD.
- Behavioural therapy has been found to be successful in development of some social and communication skills and elimination of problematic behaviour in autism spectrum disorder.
- While most children are able to recognize or decode in print the language and use printed language for the language they use orally, people with specific learning disability have significant deficits in reading, written expression and/or mathematics.
- Early intervention programs that includes one-to-one tutoring and school-based programmes have been found to be successful for learning disability.

13.5 KEYWORDS

Intellectual Disability: Also known as intellectual developmental disorder and is defined as sub-average functioning in general mental abilities such as reasoning, problem solving, planning, abstract-thinking, judgment, academic learning, and learning from experience beginning before the age of 18 years.

Mindblindness: Difficulty in seeing things the way other people do and make educated guesses about what other's may be thinking or feeling.

Dyslexia: Significantly poor achievement in reading relative to one's developmental level which is not due to intellectual disability, another developmental disorder such as autism or attention deficit and hyperactivity, primarily a result of visual, hearing and motor disabilities, emotional disturbances, environmental, cultural or socioeconomic disadvantage.

Dysgraphia: Significantly poor achievement in writing relative to one's developmental level which is not due to intellectual disability, another developmental disorder such as autism or attention deficit and hyperactivity, primarily a result of visual, hearing and motor disabilities, emotional disturbances, environmental, cultural or socioeconomic disadvantage.

Dyscalculia: Significantly poor achievement in Mathematics relative to one's developmental level which is not due to intellectual disability, another developmental disorder such as autism or attention deficit and hyperactivity, primarily a result of visual, hearing and motor disabilities, emotional disturbances, environmental, cultural or socioeconomic disadvantage.

13.6 REVIEW QUESTIONS

1) Which of the following is a sign of Autism?
   a) 2-year-old child does not react or respond when his name is called.
   b) Child consistently does not seem interested in the reactions of others, especially the reactions parents.
   c) Person does not seem aware of the feelings of others.
   d) All of the above.
2) Which of the following causes Autism?
   a) Cold parenting
   b) Poor prenatal nutrition
   c) A single gene or chromosome
   d) There is no known single cause
3) Areas in the _____hemisphere have been implicated in specific learning disorders.
4) The DSM-5 criteria classifies the severity of _____ on the basis of daily skills.
5) The categories of intellectual disability are, _____,_____, _____, and _____.
6) Explain the causes and treatment of intellectual disability.
7) Discuss the clinical features of autism spectrum disorder.
8) Elucidate the diagnostic criteria of specific learning disability. Discuss its treatment.

13.7 REFERENCES AND FURTHER READING

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13.9 WEB RESOURCES

- Bhopal Gas Tragedy and Intellectual Disability. https://pulitzercenter.org/projects/disabled-children-bhopal-gas-tragedy.
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- Identification of Early Signs of Autism. https://www.youtube.com/watch?v=z7NeBs5wNOA.
- Helping children with learning disorders. https://www.helpguide.org/articles/autism-learning-disabilities/helping-children-with-learning-disabilities.htm.

Answers for Fill in the Blanks (1-5)

(1) All of the above, (2)There is no known single cause, (3) Left (4) intellectual disability (5) mild intellectual disability, moderate intellectual disability, severe intellectual disability, and profound intellectual disability.

UNIT 14 NEUROCOGNITIVE DISORDERS*

Structure

14.0 Introduction

14.1 What are Neurocognitive Disorders?

14.2 Delirium

14.3 Major Neurocognitive Disorders (Dementia)

14.3.1 Parkinson's Disease

14.3.2 Huntington's Disease

14.3.3 Alzheimer's Disease

14.5 Causal Factors

14.6 Treatment

14.7 Amnestic Disorder

14.8 Summary

14.9 Keywords

14.10 Review Questions

14.11 References and Further Reading

14.12 Web Resources

Learning Objectives

After reading this Unit, you will be able to:

- Explain some of the neurocognitive disorders recognized in DSM-5;
- Elucidate delirium and how it is treated;
- Summarize the clinical picture and causes of dementia; and
- Describe the clinical picture of Amnestic Disorder and the causes behind it.

14.0 INTRODUCTION

Brain is a complex and amazing organ of the body that weighs around 1300 to 1400 grams in an adult human. It is involved invariably in all the activities that the individual does, be it physical or mental, and thus it is very precious. It is protected inside the skull that is hard. It is strong and can bear the weight of nearly three tonnes if applied slowly (Rolak, 2001). Though brain is strong and is protected, however, it can become vulnerable to damage from various sources. When the damage occurs due to any reason, cognitive functioning is hampered. Thus, in this Unit, we will focus on the meaning and criteria of mild and major neurocognitive disorders as classitied in DSM-5. The causal factors like, changes in brain chemistry and structures, as well as their treatment, will also be discussed.

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14.1 WHAT ARE NEUROCOGNITIVE DISORDERS?

Role of brain in understanding psychopathology has always intrigued researchers. It is interesting that brain has some or the other role to play in majority of the disorders mentioned in DSM. Newer researches have also added to the probable understanding of the causality behind the disorder eventually leading to betterment in treatment techniques. This has also made us more optimistic about the future, for instance, earlier we had a notion that once neurons died there was no hope of replacement. However, now we know that neurons can be regenerated even in an aging brain (Stellos et al., 2010).

Brain is considered as the most complex organ that the human body possess. It is involved in almost every aspect of our lives- eating, balancing, standing, running, sleeping or even falling in love. So, whether it's a physical illness or mental illness, brain is involved in it in some or the other way. If, we go by the anatomy of brain, it is protected and covered by a thick outer cover called dura mater (the "hard mother" of the brain). It is further encased by skull which is very hard in itself. Even though it is highly protected, it is vulnerable to damage and when there is a brain damage, it may result in various cognitive changes. Changes in cognitive functioning are considered to be the most obvious signs of brain damage.

Neurocognitive disorders are a group of conditions that often leads to impaired mental functioning. It is most commonly seen in older adults, but can also affect younger people. Reduced mental functions may include, memory related issues, difficulty in understanding language, problems in performing routine activities, changes in behavior etc. In DSM-5, the diagnostic category of Neurocognitive Disorders comprises of **delirium, dementia and amnestic and other cognitive disorders**. This involves a loss of cognitive ability due to brain damage, disease or impairment. Delirium is a condition displayed as disorientation and confusion. It is marked by gradual deterioration of cognitive abilities; and amnestic disorders are dysfunctions of memory resulting from a drug or perhaps a medical condition. Instead of the term dementia, another term that is being used in DSM-5 is **major neurocognitive disorder**. A new category, mild neurocognitive disorder has been included in DSM-5. The distinction between mild and major is based on severity. This change was reflective of the aspect that cognitive problems even if not affecting everyday life functioning in a debilitating way may still seek clinical attention. This move has been controversial. To its credit, refraining from usage of terms like dementia until the impairment is severe, it may help in reducing the stigma and anxiety attached with it. But some others feel that usage of the word, "mild" may trivialize the impairment of the individual and thus the services that should be provided to them may also get impacted.

Box 14.1: DSM-5 Criteria for Mild Neurocognitive Disorder (APA, 2013)

A. Evidence of modest cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual motor, or social cognition) based on:

   1) Concern of the individual, a knowledgeable informant, or the clinician that there has been a mild decline in cognitive function; and

2) A modest impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another quantified clinical assessment.

B. The cognitive deficits do not interfere with capacity for independence in everyday activities (i.e., complex instrumental activities of daily living such as paying bills or managing medications are preserved, but greater effort, compensatory strategies, or accommodation may be required.

C. The cognitive deficits do not occur exclusively in the context of a delirium.

D. The cognitive deficits are not better explained by another mental disorder (e.g., major depressive disorder, schizophrenia).

The terminology and understanding of neurocognitive disorders have undergone a journey of its own. In DSM-IV-TR, the label given to these disorders was "cognitive disorders", which reflected a shift in the way these disorders were viewed (Sweet, 2009). Earlier, they were labeled as "organic mental disorders", along with anxiety, mood, personality, hallucinosis and delusional disorders. The inclusion of the word organic indicated brain damage or dysfunction. It is important to note here that brain damage is still believed to be the primary cause of these neurocognitive disorders, however, we also know that some dysfunction in the brain is involved in most disorders.

Many people who have been diagnosed with neurocognitive disorders may not develop psychopathological conditions such as delusions, dissociation or panic attacks. They may still show mild deficits in cognitive processing or self-regulation. In the same way, people with psychopathological disorders may have cognitive deficits that can be detected even in the remission period, for instance, as seen in bipolar disorder (Bora et al., 2012). Thus, there is a close link between psychopathological and neuropsychological conditions. It is important to note here that intelligent and mentally active people have higher resistance to behavioral and mental deterioration and dysfunction after a serious brain injury (Schmand et al., 1997). However, there is a limit to which anyone can tolerate brain damage and as it is responsible for integration of behavior it may lead to abnormal behavior when the damage is serious.

Box 14.2: Reasons why Neurocognitive Disorders are Included in Abnormal Psychology

1) Inclusion of neurocognitive disorders in Diagnostic and Statistical Manual (DSM) is indicative of the fact that these disorders are considered as psychopathological conditions.

2) Some brain disorders are capable of causing symptoms that are very similar to other disorders that come under abnormal psychology.

3) Brain damage can lead to changes in personality, behavior and mood of an individual. Damage of a particular brain area may be the primary cause of change in mood, behavior or personality of an individual and understanding it can help in the treatment of the same.

4) It has been found that some people who suffer from a brain disorder may develop anxiety or depression as they get to know of their diagnosis

initially. These together can be dangerous for the patient, further impairing the abilities of the individual.

5) Depression and anxiety can also be commonly seen in the caregivers of these patients as taking care of such patients may take a toll on the mental and even physical health of the family members or the caregivers.

14.2 DELIRIUM

Delirium is one of the earliest recognized mental disorders. It is characterised by confusion, and cognitive dysfunction. It is a state of brain failure that lies between normal wakefulness and stupor or coma. DSM-IV-TR described it as impairment in consciousness and cognition. DSM-5 did not retain it as a consensus was made amongst the researchers that essence of the state of delirium is captured best by the idea of disturbance in awareness. It can co-exist with any of the mild or major neurocognitive disorders such as Alzheimer's disease. But, because delirium quickly fluctuates in severity, it is categorized as a separate disorder from mild or major neurocognitive disorders.

Delirium also involves impairments of memory, attention and the aspect of disorganized thinking. It includes irregular psychomotor activity along with disturbances in sleep cycle. Such a person might be unable to carry out any purposeful mental activity. Hallucinations and delusions can also be quite commonly seen here (Trzepacz et al., 2002). It is important to note here that the intensity of the symptoms may also fluctuate over the 24 hours period. Although, delirium can occur at any age but, older adults are at higher risk especially after they have had a surgery perhaps due to reduced "brain reserves". Apart from increasing biological age, other factors responsible for delirium could be depression, tobacco or substance use and even dementia (Fricchione et al., 2008).

Delirium is found to be correlated with longer hospital stays, increasing health problems, increasing cognitive decline and even high mortality. Witlox and colleagues (2010) concluded that almost 25 percent of the elderly patients with delirium die within the 6 months of their symptoms. Delirium may result from head injury or infection. Drug intoxication, withdrawal or medication could also be some of the possible reasons for delirium in an individual. Sleep deprivation, excessive stress and immobility can also cause delirium (Solai, 2009).

Treatment

It is important to identify and manage the cause of delirium. Treatment usually involves medication, environmental manipulations and family support. Mostly neuroleptics are used to help the patients with delirium (Fricchione et al., 2008). Delirium caused by alcohol or withdrawal is usually treated with benzodiazepines, or other antipsychotic medicines (Trzepacz et al., 2002). Appropriate medical intervention is done for infections, brain injury and tumors. In all probability, the recommended first line of treatment for people with delirium is psychosocial intervention. The goal here is to deal with anxiety, agitation and hallucination mainly, the person is made comfortable by familiar personal belongings near her/him. Environmental manipulations such as lighting, clear signage, visible clocks etc. may help them in staying oriented. This type of psychosocial treatment may help them in managing themselves in their disruptive period till specific causes are identified.

Box 14.3: DSM-5 Criteria for Delirium (APA, 2013)

A. Disturbance in attention (i.e., reduced ability to direct, focus, sustain, and shift attention) and awareness (reduced orientation to the environment).

B. The disturbance develops over a short period of time (usually hours to a few days), represents a change from baseline attention and awareness, and tends to fluctuate in severity during the course of a day.

C. An additional disturbance in cognition (e.g., memory deficit, disorientation, language, visuospatial ability, or perception).

D. The disturbances in Criteria A and C are not better explained by another preexisting, established, or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal, such as coma.

E. There is evidence from the history, physical examination, or laboratory findings that the disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal (i.e., due to a drug of abuse or to a medication), or exposure to a toxin, or is due to multiple etiologies.

Check Your Progress 1

Fill in the blanks.

1) In DSM-5, the diagnostic category of Neurocognitive Disorders comprises of _____.

2) Brain damage can lead to changes in personality, _____ and _____ of an individual.

3) Delirium is characterised by _____.

4) First line of treatment for people with delirium is _____.

5) Factors responsible for delirium could be increasing biological age, depression, _____ and _____.

14.3 MAJOR NEUROCOGNITIVE DISORDER (DEMENTIA)

The broad category of dementia under cognitive disorders is renamed as major neurocognitive disorder in DSM-5. Due to this renaming the stigma associated has reduced to some extent. A major reason for change was that although the term dementia has been accepted for older adults but it is not considered appropriate for younger adults with cognitive deficit, for those who have sustained damage from certain head injuries.

Major Neurocognitive Disorders are characterised by marked deficits in cognitive abilities such as attention, learning, memory, language, perception, social cognition and executive functioning. It is important to note that the decline being discussed here is the deterioration from a previously attained level. The onset of

cognitive deficits is gradual. Initially, the individual is alert and also attuned to the environment. The memory might be affected but mainly for the recent events. Gradually, with time, the patient may show deficits in acquisition of new knowledge, motor control, visuospatial comprehension, abstract thinking and reasoning, problem solving, judgment and decision making. Along with these deficits, the individual may also have issues in emotional control and in moral and ethical keenness.

It is only occasionally that a major neurocognitive disorder is reversible. This usually happens when the underlying cause can be treated or eliminated. There are various disorders that cause the type of cognitive deficit that can be listed under major neurocognitive disorders category. Some of them include, Huntington's disease and Parkinson's disease. Certain infectious diseases such as AIDS, meningitis or syphilis could also contribute to such cognitive deficits. Some other causes could be dietary deficiency (such as Vitamin B), intracranial tumors, anoxia, severe or repeated head injuries, inhalation of certain toxic substance (such as mercury) or even stroke.

Box 14.4: DSM-5 Criteria for Major Neurocognitive Disorder (Dementia) (APA, 2013)

A. Evidence of significant cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition) based on:

   1) Concern of the individual, a knowledgeable informant, or the clinician that there has been a significant decline in cognitive function; and

   2) Substantial impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another quantified clinical assessment.

B. The cognitive deficits interfere with independence in everyday activities (i.e., at a minimum, requiring assistance with complex instrumental activities of daily living such as paying bills or managing medications).

C. The cognitive deficits do not occur exclusively in the context of a delirium.

D. The cognitive deficits are not better explained by another mental disorder (e.g., major depressive disorder, schizophrenia).

14.3.1 Parkinson's Disease

Parkinson's disease (PD) is a chronic, progressive neurodegenerative condition predominately affecting the people over the age of 50, and estimated to affect 1 percent of the population aged 65 and over (NHS Choices, 2012). It is the second most commonly occurring neurodegenerative condition after Alzheimer's disease. Parkinson's disease (PD) is an age-related neurodegenerative disease, characterised by relatively selective nigrostriatal dopaminergic degeneration. The very first symptoms of Parkinson's disease appears, when the remaining production of dopamine has been fallen below 20 percent of its original production or when 50 percent of the cells of the substantia nigra have been destroyed

(Slaughter, 2001). Life expectancy for those with Parkinson's disease is a little shorter than most of the general population but if a person is diagnosed with Parkinson then the disease may thus be lived with for many years (Eccles, Murray & Simpson, 2011).

The criteria for diagnosis include physical and mental symptoms which have an impact on quality of life (QoL) of patients with Parkinson's disease (Burgess, 1988).There are four main dominant clinical symptoms of the disease: tremor, rigidity, slowness (*bradykinesia* or slowness of movement) and problems with walking (*hypokinesia* or poverty of movement) and posture (Slaughter, 2001). However, researchers have also stated that sleep problems, cognitive decline, speech and communication problems, and swallowing difficulties may also be prominent (Parkinson's UK, 2011). Another important physical symptom of Parkinson's disease is a blank stare (the so called "Parkinson's mask") and troubles with manual dexterity (de Nooijer, 2001). There are other non-motor symptoms of the disease which may include depression, apathy, sleep disorders, hallucinations and delirium, some of which may be related to treatment by dopaminergic drugs (Farmer, 2002). Apart from these symptoms, an individual may also experience a range of biological, psychological, and social symptoms as the range of symptoms are multifaceted (Parkinson's UK, 2013). Additionally, the progression of Parkinson's disease is erratic with fluctuations in the rate of decline and severity of symptoms (Holloway, 2007).

Within more psychological research, evidence of affective problems is notable. Depression is commonly reported in people with Parkinson's disease, with 20-40 percent of individuals experiencing major depression (Lees, 2009). Although, less researched anxiety rates are reported as high as 40 percent (Walsh & Bennett, 2001). Albeit quantitatively assessed and part of larger studies, there is evidence that individuals living with Parkinson's disease experience challenges to body image, mobility, social role, and independence (Abudi et al., 1997) with particularly adverse consequences for social interactions (Schrag et al., 2000; Schreurs, De Ridder & Bensing, 2000).

Read the book Lucky man by Michael J. Fox. It is a memoir of a person dealing with Parkinson's disease.

There have been efforts to understand Parkinson's disease etiology but the exact causes and underlying mechanisms of the disease remain unclear. It has been found that genetic factors only account for 5- 10 percent of cases (Kalinderi, 2016), while the majority of Parkinson's disease cases are erratic and sporadic which thus indicates the importance of environmental components in Parkinson's disease etiology. Genetic components of Parkinson's disease have been estimated using linkage analysis, genome-wide association studies (GWAS), and family-based studies. Although cross-sectional twin studies suggested no heritability for Parkinson's disease (Lang, 2011; Noyce, 2016) but, a Swedish twin study using longitudinal information has estimated Parkinson's disease heritability at 34 percent (Boeve, 2012). Having a first degree relative or any relative with Parkinson's disease has been associated with higher Parkinson's disease risk (Emre, 2007) which indicates an influence of both genetics and shared

environment. Additionally, some of the researches on Parkinson's disease etiology has focused on the brain and the period of late adulthood. In the past 15 years, new insights have emerged regarding the concept that Parkinson's disease pathology and might originate in peripheral organs during the long prodromal phase and spread to the brain via nasal and gut routes (Hawkes, 2009). Moreover, researchers have estimated that there is a lower Parkinson's disease risk for smoking and caffeine intake and higher Parkinson's disease risk for exposure to pesticide.

14.3.2 Huntington's Disease

Huntington's disease (HD) is a hereditary condition that affects the brain and nervous system. Huntington's disease (HD) is a fatal progressive, neurodegenerative genetic disorder with symptoms that include typical changes in movement, changes in personality, and cognitive decline. Researchers have noted that Huntington's disease affects both men and women equally and usually begins in midlife (around the age of 40). It is inherited in an autosomal dominant pattern, which means that individuals with an affected parent have a 50 percent chance of inheriting the disorder and they are said to be at-risk for Huntington's disease. It was only in 1990s that genetic testing for Huntington's disease became available. Individuals found to be mutation carriers will develop the disease in their lifetime and they are usually between the third and fourth decades of life which means they are between 35 and 44 years of age (Bennett, 2008). A rare form of Huntington's disease called juvenile Huntington's disease, has onset of symptoms at a much earlier age, around 20 and affects approximately 5-10 peercent of the Huntington's disease population (Warby, Graham, & Hayden, 2010).

A triad of symptoms characterises Huntington's disease that are motor, cognitive, and psychiatric disturbances, that progress over years in a person's lifetime. The average survival after the onset of symptoms is said to be 15 to 20 years (Evers-Kiebooms,1998). The first symptom that is *Chorea* is characterised by involuntary movement and impairment of voluntary movements. Individuals with Huntington's disease have been found to experience reduced manual dexterity, slurred speech, swallowing difficulties, problems with balance, and falls. The cognitive symptoms are characterised by a loss of speed and flexibility especially in the completion of complex tasks. Later as the disease progresses, there are more impairment in the body globally. The psychiatric symptoms in the patients vary, but the most common symptom is depression. It has been found that patients can suffer from mania, obsessive-compulsive disorder, irritability, anxiety, agitation, impulsivity, apathy, social withdrawal, and obsessiveness (Warby, Graham, & Hayden, 2010) The symptoms experienced by a person with Huntington's disease vary from individual to individual but often follow a specific pattern of progression.

As individuals with Huntington's disease begin to display symptoms, they become less independent and more reliant on caregivers, family members for their needs and medical facilities (Dawson et al., 2004). Due to the duration, inheritance and progressive nature of Huntington's disease, the individuals maintain long-term relationships with families throughout the many stages of the Huntington's disease. Care during the later stages of Huntington's disease can be extremely challenging because of the choices they make; care they expect and the way in which they cope with the progressive symptoms of the disease.

14.3.3 Alzheimer's Disease

In DSM-5, Alzheimer's disease is known as "major (or mild) neurocognitive disorder associated with Alzheimer's disease", commonly referred as Alzheimer's Dementia. It is associated with the most common cause of dementia (Jalbert et al., 2008) and has an indiscernible onset with slow but progressively deteriorating course which would ultimately lead to delirium and death.

The diagnosis of Alzheimer's is given after ruling out all other probable causes of dementia by taking medical and family history, laboratory tests and even physical examination. However, after the death of the patient, an autopsy is performed to check the brain abnormalities which are distinctive signs of the disease. It may start with minor cognitive impairment such as making more errors at work or forgetting recent events, but, in later stages, there is evidence of dementia, wherein the deficits become more prominent and severe. It may cover multiple domains thus showing inability to perform even daily routine like taking care of their hygiene. Due to decline in recent memory, many patients have "empty" speech, wherein grammar and syntax might be intact but the expression might be vague or meaningless. It may begin after about the age of 45 (Malaspina et al., 2002).

It has been found that temporal lobes are usually the first areas to be damaged in a patient with Alzheimer's. Hippocampus, involved in formation of new memories, is located in temporal lobes and perhaps that is why memory impairment is the early sign of this disease. Loss of brain tissue in temporal lobes could be responsible for the delusions in some patients (Lyketsos et al., 2000). Delusion of persecution is predominant followed by delusion of jealousy. In general, deterioration of patients in different domains continues, although, with proper treatment some symptoms can be alleviated. Eventually patients become unmindful of their surroundings, get bedridden and are reduced to a vegetative state. Slowly, the resistance to disease decreases and death comes about due to pneumonia or some other cardiac or respiratory problem. Prevalence of Alzheimer's has been increasing with time and accounts for most cases of dementia (Lyketsos et al., 2000) burdening societal and family resources.

It has been found that women are at a higher risk to develop Alzheimer's disease than men (Jalbert et al., 2008), though the reasons for the same are yet not clear. Observations have led to suspicion that certain lifestyle factors (high fat, high cholesterol diet) are the reasons behind the development of the disease (Sjogren & Blennnow, 2005). High levels of amino acid in diet may serve as a contributory factor in the development of Alzheimer's disease later in life (Ravaglia et al., 2005).

14.5 CAUSAL FACTORS

We will try to understand the causality here by dividing it into early onset of the disorder and late onset of the disorder.

Early onset of the disease appears to be caused by certain rare genetic mutations. Three such mutations have been identified (Ballard et al., 2011). They are as follows:

- Involving the amyloid precursor protein (APP) located on chromosome 21. This may be associated with an onset of the disease between 55 and 60 years of age (Cruts et al., 1998). It is interesting to note here that trisomy of 21st chromosome is also responsible for Down Syndrome and it has been found that people with down syndrome who survive beyond the age of 40 develop Alzheimer's Dementia (Janicki & Dalton, 1993).
- Earlier onset is also associated with mutation of a gene on chromosome 14 called presenilin 1 (PS1).
- Mutation of presenilin 2 (PS2) on chromosome 1 has also been implicated in Alzheimer's disease.

Mutation of PS1 and PS2 is associated with onset between the age of 20 and 50 years (Cruts et al., 1998). These mutant genes are very rare but nearly always causes disease in someone who carries them.

Apolipoprotein (APOE) gene on chromosome 19 is the one known for its role in late-onset Alzheimer's disease. This gene code helps in carrying cholesterol through the bloodstream. Three genetic alleles of APOE have been identified which predict the risk of late-onset of the disorder. They are:

- APOE-E4 allele enhances the risk for late onset of the disease. If an individual inherits 2 E4 alleles (one from both the parents), his risk for Alzheimer's disease increases by seven folds (Ballard et al., 2011).
- APOE-E2 is associated with protective effects against the late-onset Alzheimer's disease.
- APOE-E3 is of neutral significance.

APOE-E4 allele can be detected by a blood test and almost 65 percent of the patients have at least one copy of APOE-E4 allele (Malaspina et al., 2002). Interestingly, many people who inherit the most risky pattern, that is, two APOE-E4 alleles do not develop the disease. This could be because perhaps genetic susceptibility might be insufficient in some cases ad its interaction with the environment may determine the development of Alzheimer's disease. For instance, diet has been found to be an important mediating environmental variable. Being overweight or having Type 2 diabetes are also considered as risk factors. On the other hand, exposure to nonsteroidal anti-inflammatory drugs like ibuprofen may be protective and lead to a lower risk of having Alzheimer's disease (Weggen et al., 2001). Recent researches also show that exposure to novel and stimulating environment may slow down the development of Alzheimer related changesin brain (Li et al., 2013). Thus, it can be concluded that the occurrence of Alzheimer's disease can be reduced or delayed by limiting exposures to risk and taking preventive measures, lifestyle management looks like an important factor here.

There are mainly three brain abnormalities that are considered as the characteristic features of this disease: (1) amyloid plaques, (2) neurofibrillary tangles, and (3) atrophy (or shrinkage) of the brain. Plaques and tangles are also commonly found in so-called normal brains but they are in greater number in case of people with Alzheimer's and are mainly found in the temporal lobe region.

In people with Alzheimer's disease, nerve cells in the brain secrete beta amyloid much faster than it can be broken and consumed. This gets accumulated into

plaques and interfere with synaptic functioning leading death of brain cells. Having APOE-E4 allele is associated with faster buildup of amyloid in brain (Jalbert et al., 2008) causing further damage.

Neurofibrillary tangles are webs of abnormal filaments within a neuron and made up of a protein called tau. In a normal brain tau helps in conducting nerve impulse but in the case of patients with Alzheimer's disease, it is tangled and thus causes the neuron tube to collapse. Gotz et al. (2001) concluded that one of the most promising drug treatments of Alzheimer's disease could be the one targeting prevention of amyloid buildup.

Another aspect worth paying attention to is role of acetylcholine (ACh neurotransmitter). Evidences suggest that cluster of cell bodies located in basal forebrain are severely impacted in Alzheimer's disease. Cell bodies located in basal forebrain are responsible for the release of ACh (Schliebs & Arendt, 2006) and its reduction has been correlated with neuronal damage (plaques and tangles formation). ACh plays a vital role in memory and its decrease contributes to cognitive and behavioral deficits in patients with Alzheimer's disease.

14.6 TREATMENT

Current treatments and treatment plans for patients with Alzheimer's disease mainly aim at reducing the agitation, aggression and irritation in the patients, along with reducing the stress in the caregivers (Practice Guideline, 2007). Till date, we do not have a treatment that would restore the lost or destroyed functions in the patients.

Some of the behavioral therapy techniques have been found to be effective in dealing with some problematic behavior associated with dementia-inappropriate sexual behavior, lewdness, wandering off and inadequate self-care skills. Behavioral skills are found to be effective usually as they donot involve complicated instructions or communication abilities which is as it is deteriorating in the patients with Alzheimer's disease (Mintzer et al., 1997).

Antipsychotic medications are also used for those who develop psychotic symptoms. Treatment schemes to improve cognitive functioning have focused on the fact administering drugs that enhance the availability of Acetylcholine (ACh), this may improve their daily functioning. Currently, drugs (such as Tacrine and Donepezil) that would inhibit the production of acetylcholinesterase (involved in metabolic breakdown of acetylcholine) are being administered to the patients.

Another focus of treatment research is to develop vaccines that might help in clearing the accumulated amyloid plaques. But, the human trials of such a vaccine were terminated due to its dangerous side effects. Yet, researches are being continued vigorously to explore novel treatment approaches (Hardy, 2004; Gestwicki et al., 2004).

14.7 AMNESTIC DISORDER

The DSM-IV-TR diagnosis of both dementia and amnestic disorder is subsumed under the category of major neurocognitive disorders, in DSM-5. It is followed by the etiological subtype and thus is mentioned accordingly.

The characteristic feature of amnestic disorder is disturbed memory. It is derived from the word amnesia and in this case, usually the immediate recall is intact and memory for remote past events is also preserved. However, it is the short-term memory that is impaired- the person is unable to recall events that took place a few minutes ago. In comparison to other neurocognitive disorders, the overall cognitive functioning or other higher order functioning is intact here. People with amnestic disorder sometimes confabulate in order to fill the void and make their memories coherent.

While trying to understand amnestic disorder, it has been found that brain damage is at the root of amnestic disorder which might be caused due to infections, injuries, accidents, tumors or even strokes (Andreescu & Aizenstein, 2009). It would be interesting to note that all brain damage is not permanent, for instance, **Korsakoff's syndrome** (found in alcoholics mainly) is caused by deficiency of Vitamin B_1 (Thiamine). The memory related issues caused due to it can be reversed if it is detected early and sufficient Vitamin B_1 is given to the patient. The cause of this disorder will also be listed very much like others, for example, major neurocognitive disorder due to substance use, but unlike other forms the decline occurs in only one domain and that is memory. Various techniques are available to help good prognosis amnestic patients in recalling the recent events. As their procedural memory (ability to learn routines and skill) is intact, they can be taught to perform certain tasks (Cavaco et al., 2004).

Check Your Progress 2

1) What is Parkinson's Disease?

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2) How is Alzheimer's Dementia diagnosed?

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3) List three main characteristic brain abnormalities associated with Alzheimer's Disease.

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4) Define amnestic disorder.

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14.8 SUMMARY

Now that we have come to the end of this unit, let us list all the major points that we have learnt.

- The DSM-IV diagnosis of dementia and amnestic disorder is categorized under major neurocognitive disorder. It has retained the earlier categorization of delirium and has added another one called as mild neurocognitive disorder.
- These disorders are caused due to temporary or permanent damage to the brain.
- Major neurocognitive disorders are characterised by loss of function and loss of previously known or acquired skills. The cause can vary from one individual to another and needs to be clearly specified. The onset could be slow or gradual but is usually deteriorating in nature.
- Delirium is characterised by a state of awareness that falls between wakefulness and stupor or coma. It has a sudden onset.
- One of the most common causes of major neurocognitive disorders is Alzheimer's disease.
- Genetic mutations of the APP, PS1 and PS2 genes are implicated in early-onset of Alzheimer's disease.
- APOE-E4 allele of APOE gene is a major risk factor for Alzheimer's with late onset.
- Neuropathology of Alzheimer's disease involves accumulation of amyloid plaques, presence of neurofibrillary tangles (tau protein) and atrophy (shrinkage) of brain.
- Behavioral therapy techniques have been found to be effective in dealing with some problematic behavior associated with Alzheimer's dementia.Antipsychotic medications are also used for those who develop psychotic symptoms.
- Amnestic disorder is characterised by memory loss. Major causes of it may include head trauma, surgery, infections, stroke and hypoxia.

14.9 KEY WORDS

Neurocognitive Disorders: Involves a loss of cognitive ability due to brain damage, disease or impairment and comprises of delirium, dementia and amnestic and other cognitive disorders.

Delirium: A state of brain failure that lies between normal wakefulness and stupor or coma; characterized by confusion, and cognitive dysfunction.

Huntington's disease: Is a fatal progressive, neurodegenerative genetic disorder with symptoms that include typical changes in movement, changes in personality, and cognitive decline.

Parkinson's Disease: Age related neurodegenerative disease characterised by tremor, rigidity, slowness in movement and problems with walking and posture.

Amnestic Disorder: A major neurocognitive disorder with characteristic feature of disturbed short-term memory. Overall cognitive functioning is intact.

14.10 REVIEW QUESTIONS

1) Describe the clinical picture of an individual with delirium. What could be the possible causes of it?
2) Define delirium. How is it different from major neurocognitive disorders?
3) Differentiate between mild and major neurocognitive disorder and highlight the controversy that surrounds mild neurocognitive disorder.
4) What genes are implicated in Alzheimer's disease?
5) Discuss the neuropathological abnormalities of a typical brain with Alzheimer's disease.
6) What is the characteristic clinical feature of amnestic disorder? Discuss some of its major causes.

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14.12 WEB RESOURCES

- You can read more about symptoms, causes and treatment of dementia;

  https://www.alz.org/alzheimers-dementia/what-is-dementia

- You can read more about symptoms, causes, risk factors and prevention of delirium;

  https://www.mayoclinic.org/diseases-conditions/delirium/symptoms-causes/syc-20371386

Ansers to Check Your Progress 1

1) delirium, dementia and amnestic and other cognitive disorders;
2) behavior and mood;
3) confusion, and cognitive dysfunction
4) psychosocial intervention
5) tobacco or substance use and dementia.

UNIT 15 TRAUMA AND STRESSOR RELATED DISORDERS*

Structure

15.0 Introduction

15.1 What is Stress?

15.2 Characteristics of a Stressor

15.3 Stress and Stress-related Response

15.4 Stress and Physical Health

15.5 Stress and Mental Health

15.6 Adjustment Disorder

- 15.6.1 Symptoms and Types of Adjustment Disorders
- 15.6.2 Causes of Adjustment Disorders
- 15.6.3 Treatment

15.7 Posttraumatic Stress Disorder

- 15.7.1 Clinical Features of Posttraumatic Stress Disorder
- 15.7.2 Causes of Posttraumatic Stress Disorder

15.8 Acute Stress Disorder

15.9 Crisis Intervention

15.10 Summary

15.11 Keywords

15.12 Review Questions

15.13 References and Further Reading

15.14 Web Resources

Learning Objectives

After reading this Unit, you will be able to:

- Define stress and describe bodily responses to stress;
- Set the context of mental disorders triggered by stress;
- Develop an understanding describe the clinical features of adjustment-based stress disorder;
- Describe the clinical features of acute stress disorder; and;
- Explain the clinical features of posttraumatic stress disorder.

15.0 INTRODUCTION

Everyday life poses many challenges and threats in front of us. Exposure to such situations impact our physical and psychological well-being. The field of health psychology deals with impact of stress and various other psychological factors in the development and maintenance of various physical problems. Health psychology is basically a subspecialty field within behavioral medicine. There

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is a strong association between stress and psychopathology, and thus DSM-5 has included trauma and stressor related disorders in its classification. Stress is considered as a response, as a process and as a stimulus. Therefore, to start with, the Unit examines stress, characteristics of stressors, and the role of nervous system and brain in coping and adapting to stress. Further, the Unit will explain causal factors, symptoms and treatment of Posttraumatic Stress Disorder, Adjustment Disorder and Acute Stress Disorder.

15.1 WHAT IS STRESS?

Stress can be understood as a circumstance in which the present perceived challenges to our well-being exceed our existing coping resources (Shalev, 2009). The individual perceives a discrepancy between the physical and psychological demands of a situation and the resources of their biological, psychological, and/or social system. It has two main components- physical (involving direct material or bodily challenge) and psychological (involving perception of circumstances in life). Along with this, it is important to note that stress is a dynamic construct as the results of it are due to the interaction between the organism and the environment and it all depends on their perception and coping resources (Monroe, 2008). The components of stress can be examined in three ways, they are as follows:

- *Stress as stimulus:* physically or psychologically challenging events are called as stressors such as death of a loved one or meeting a demanding boss.
- *Stress as response:* psychological and physical response to a stressor is called as strain. For instance, bodily changes, thoughts and emotions while experiencing a stressor.
- *Stress as process:* the process involves interactions and adjustments which is called as transactions. It includes stressor and strain but also adds the dimension of relationship between the individual and the environment.

Hans Selye (1956, 1976), Austrian-born Hungarian scientist, used the word stress to describe the strain experienced by people while adjusting and coping with their environmental conditions. He noted that stress may also occur in certain positive situations and in any way can tax an individual's skills and abilities to cope with it but definitely causes more damage when it accompanies a negative situation.

The relationship between stress and psychopathology has always been considered very strong. It can also be very clearly seen in the diagnostic formulation of Post-Traumatic Stress Disorder (PTSD) which was classified under anxiety disorders in DSM- IV and DSM-IV-TR. However, DSM-5 has introduced a new diagnostic category namely, trauma and stressor related disorders. PTSD along with adjustment disorder and acute disorder are a part of this diagnostic category. These disorders are characterised by a pattern of psychological and behavioral disturbance in an individual that is due to the response of an identifiable stressor (Cardena et al., 2003).

Box 15.1: Eustress and Distress

Stress can be positive and motivating. Good stress or *Eustress* (Eu= Good) as Selye called, is positive and pushes oneself towards goals and the person is stimulated by the stressor. Good stress is associated with optimal health and positive emotions. While as, distress is negative stress and has a negative impact on performance.Thus, moderate level of stress is necessary to optimize one's performance.

15.2 CHARACTERISTICS OF A STRESSOR

It is a known fact that certain events are more stressful than others, for instance, misplacing keys or a pair of glasses is much less stressful than being fired at a job or loss of a loved one. There are a few characteristics that determine the seriousness of a stressor: (a) severity of a stressor, (b) its chronicity, (c) its timing, (d) how closely it would impact an individual's life, (e) if it was expected (preparedness of the individual), and (f) its controllability.

A stressor that involves a more important aspect of an individual's life would ultimately prove to be more stressful- such as a divorce, loss of a job, death of child etc. (Newsom et al., 2008). To add to this, if a stressor remains for a longer duration, the effects can be far reaching and severe. For instance, a person with a long-term physical ailment may feel frustrated and this may also impact all his other pursuits as well. Stressors may also have cumulative effect (Miller, 2007). A married couple going through a rough relationship may also feel irritated and frustrated at their work places and the demands it might be pressing upon them. This may result in a bad day at work followed by further arguments and fights at home. Facing a number of stressors at one point of time may also press upon the coping resources of an individual and may get even more strenuous if this stretches for a longer duration. If the stressful situation is very close or immediate to the individual it may have a greater impact, for instance, learning about the death of uncle's close friend is not as stressful as hearing about death of a neighbor who is a friend or about someone in family. Unpredictability and uncontrollability of the situation may also add on to the stress because the individual is not ready or prepared to face such unforeseen circumstances and it may take a toll on their physical and/or psychological well-being. Knowing what to expect, adds predictability to the situation and it is controllable as wee (in any way), the probable damage it may cause can be reduced (Evans & Stecker, 2004).

15.3 STRESS AND STRESS RELATED RESPONSE

In order to understand the problems that stress can cause; it is imperative to first know what happens to our body when we experience a stressful situation. Various researches have been going on to understand the physiological response of humans to stress. Cannon (1932) gave *fight or flight model* also known as acute stress response. He discussed that when an organism perceives stress, body gets aroused rapidly and is motivated via Sympathetic Nervous System and Endocrine system. Then Selye gave the General Adaptation Syndrome (GAS) model. It discusses three stages of response to stress- (a) Alarm reaction (body gearing up for fight or flight), (b) Stage of resistance (if stressors remain longer, body tries to adapt and cope), and (c) Stage of exhaustion (prolonged physiological arousal depleting body's energy reserves).

Thus, researchers have identified two different systems that are involved here: **Sympathetic-Adrenomedullary System (SAM)** and **Hypothalamic- Pituitary Adrenocortical (HPA) axis**. The Sympathetic-Adrenomedullary System (SAM) (Gunnar & Quevedo, 2007) mobilizes available resources and prepares the body for a fight-or-flight response. As we are encountered with a stressor, hypothalamus stimulates the sympathetic nervous system. This, then causes adrenal medulla to secrete "stress hormones"- epinephrine (adrenaline) and norepinephrine (noradrenaline). They circulate in the body and cause increase in heart rate and also starts metabolizing bodily glucose rapidly.

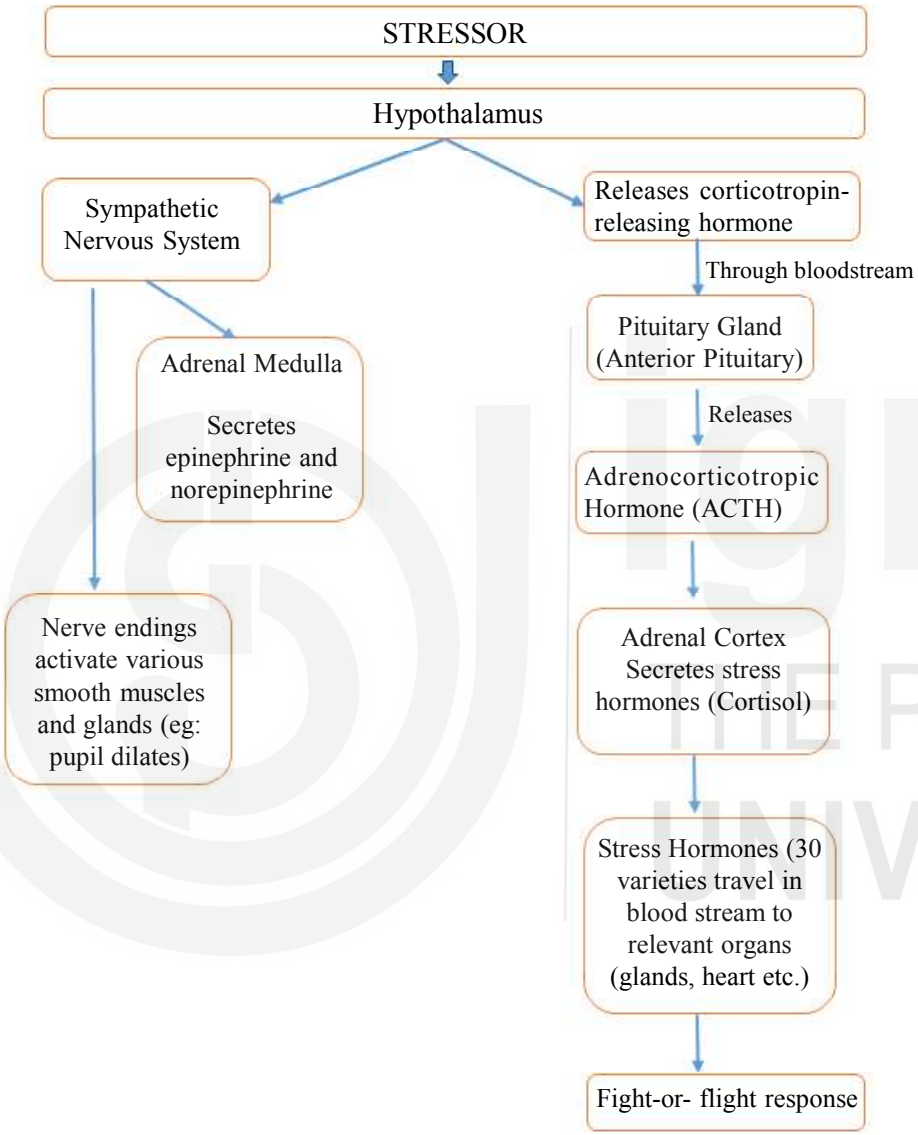

Fig. 15.1: The Sympathetic-Adrenomedullary System (SAM) and Hypothalamic-Pituitary Adrenocortical (HPA) axis

Another system involved in stress response is Hypothalamic- Pituitary Adrenocortical (HPA) axis. Hypothalamus also releases **corticotrophin releasing hormone(CRH)** which travels through bloodstream and reaches pituitary gland. Anterior pituitary then releases adrenocorticoptrophic hormone (ACTH). This induces adrenal cortex to secrete stress hormone cortisol. There are 30 varieties of the stress hormone that travel in the blood stream to relevant organs such as glands, heart etc., it prepares the body for either fight or flight response. It is important to note that during this time the innate immune response is also inhibited. Thus, if an injury occurs, escape is the priority over healing and then

tissue repair. This basically has a survival value and therefore, cortisol is important but if the cortisol response is not shut off it can damage the brain cells in the hippocampus region (Sapolsky, 2000). So, we can say that at a basic level, stress is bad for brain. Brain has receptors to detect cortisol and they send a feedback to diminish the activity of glands involved in stress response.

Allostatic load is the biological cost of adapting to stress (McEwan, 1998). This is low when an individual's stress level is low but higher when a person comes to face a stressor. **Allostasis** (maintaining stability) is the process of adaptation to acute stress and involves output of stress hormones to restore balance in the face of a challenge. Allostatic load is the price the body pays for being forced to adapt to adverse psychosocial or physical situations. It represents either presence of too much stress or ineffective operation of stress hormone response system of the body, which ideally should be turned on when facing a stressor and off after the stressful situation is over. Allostatic load may create wear and tear of the body and may impair the ability of an individual to adapt to future stressors. There are four important factors here: (a) amount of exposure, (b) magnitude of reactivity, (c) rate of recovery, and (d) resource restoration.

Check Your Progress 1

1) What is stress?

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2) Define allostasis.

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3) What are 'stress hormones'?

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4) List the main stages of GAS model.

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5.4 STRESS AND PHYSICAL HEALTH

There are various medical conditions that are linked to stress. Brain also influences the immune system, thus further creating problems for an individual when facing a stressor as it would lead to various probable diseases and disorders. Various psychological factors play a role in determining and maintaining our health and

well-being. How we perceive our problems, how we attempt to cope with them, our temperament may directly impact our physical health. The connection between mind and body becomes apparent while examining the impact of stress on an individual's life. Feeling stressed over one's financial condition, relationship issue, or any other living situation can create physical health problems and the inverse of this could also be true. Serious and acute stress like being involved in a verbal argument or fight can trigger heart attack (to someone with a heart disease), high blood pressure or may lead to any other such physical problem. Chronic stress can also have serious impact on health by continuous overactivation of the autonomic nervous system posing a threat to the body. Stress that's left unchecked can contribute towards various health problems, such as hypertension, cardiovascular diseases, diabetes, obesity etc. and may lead to symptoms such as headaches, muscle pain, chest pain, fatigue, sleep related issue, upset stomach, change in sex drive and many more other bodily changes. The major concern of this Unit is not to understand stress and physical disorders rather the focus would be on stress and mental health and thus to understand trauma and stress related disorders vis-à-vis mental health.

15.5 STRESS AND MENTAL HEALTH

When we experience stress, apart from our body, our mind also pays a price for it, that is, stress also has psychological consequences that overwhelms and individual's ability to adjust and cope. Under the category of Trauma and Stressor related disorders, DSM-5 mentions the following disorders:

- Posttraumatic Stress Disorder (PTSD)
- Adjustment Disorder
- Acute Stress Disorder
- Reactive Attachment Disorder
- Disinhibited Social Engagement Disorder
- Other Specified-Trauma and Stressor-Related Disorder
- Unspecified Trauma-and- Stressor Related Disorder

In this Unit, as earlier mentioned, we will be focusing mainly on Adjustment disorder, Posttraumatic Stress Disorder (PTSD) and Acute Stress Disorder. They are all triggered by exposure of an individual to stress and stressful conditions.

15.6 ADJUSTMENT DISORDER

Adjustment disorder is a psychological consequence to a common stressor that may result in clinically significant emotional or behavioral symptoms hampering daily functioning of an individual. This condition can occur when an individual may have difficulty in coping with a stressful event such as a relationship issue, being fired from work, or death of a loved one. Adjustment disorders can affect both adults and children and this failure to adjust to the stressful event can cause severe psychological symptoms and also physical symptoms in some cases leading to a diagnosis of adjustment disorder (Strain &Newcorn, 2007).

The stressor can be a single event or may also involve multiple stressors. There are six types of adjustment disorders which are described later. Each type is

associated with distinct symptoms and is different from acute stress disorder and posttraumatic stress disorder as they are associated with intense stressor(s).

Symptoms of adjustment disorder vary from one person to another. However, symptoms usually begin within three months of a stressful event or presence of a stressor in an individual's life. The person must experience more distress in comparison to usual. They may last for not more than 6 months (less severe) where the symptoms disappear or ease out once the stressor fades away or is removed. In case, the symptoms remain for more than 6 months, the diagnosis is changed to some other mental disorder befitting the symptoms as per the criteria.

15.6.1 Symptoms and Types of Adjustment Disorders

The major symptoms may of adjustment disorder may be categorized as follows:

Emotional and cognitive symptoms: Adjustment disorder may impact an individual's thinking style and the way they feel. It may include symptoms such as, hopelessness, nervousness, jitteriness, lack of enjoyment, crying spells, anxiety, worry, troubles in falling asleep, difficulty in concentration, desperation. This may also include suicidal thoughts.

Behavioral symptoms: Recklessness, fighting, avoiding friends and family, poor school or work performance, skipping school or work, and vandalizing property are common behavioural symptoms.

Physical symptoms: Insomnia, trembling, muscle twitch, fatigue, indigestion, and body ache are physical symptoms associated with adjustment disorder.

The individual may end up acting rebellious or impulsive, may withdraw from people around, feel sad about most of the things, feel hopeless and may get trapped in a crying pattern. Loss of self-esteem could also be a characteristic feature. It is also important to note that the symptoms may not represent the normal bereavement pattern.

Box 15.1: DSM-5 Criteria for Adjustment Disorder (APA, 2013)

A. The development of emotional or behavioral symptoms in response to an identifiable stressor(s) occurring within 3 months of the onset of the stressor(s).

B. These symptoms or behaviors are clinically significant, as evidenced by one or both of the following:

   1) Marked distress that is out of proportion to the severity or intensity of the stressor, taking into account the external context and the cultural factors that might influence symptom severity and presentation.

   2) Significant impairment in social, occupational, or other important areas of functioning.

C. The stress-related disturbance does not meet the criteria for another mental disorder and is not merely an exacerbation of a preexisting mental disorder.

D. The symptoms do not represent normal bereavement.

E. Once the stressor (or its consequences) has terminated, the symptoms do not persist for more than an additional 6 months.

Specify whether:

- With depressed mood: Low mood, tearfulness, or feelings of hopelessness are predominant.
- With anxiety: Nervousness, worry, jitteriness, or separation anxiety is predominant.
- With mixed anxiety and depressed mood: A combination of depression and anxiety is predominant.
- With disturbance of conduct: Disturbance of conduct is predominant.
- With mixed disturbance of emotions and conduct: Both emotional symptoms (e.g., depression, anxiety) and a disturbance of conduct are predominant.
- Unspecified: For maladaptive reactions that are not classifiable as one of the specific subtypes of adjustment disorder.

Types of Adjustment Disorder

1) **Adjustment disorder with depressed mood**: People diagnosed with this disorder experience sadness and hopelessness. They might be unable to enjoy the activities which would give them pleasure earlier. This subtype is associated with crying.

2) **Adjustment disorder with anxiety**: This includes feeling anxious, worries, and overwhelmed. People diagnosed in this category may have issues with their memory and may also have concentration problems. In the case of children, the diagnosis is usually associated with separation anxiety from parents and the loved ones.

3) **Adjustment disorder with mixed anxiety and depressed mood**: People here experience both anxiety and depression.

4) **Adjustment disorder with disturbance of conduct**: This involves various behavioral issues such as reckless driving, getting into fights, stealing, etc. Adolescents may found to be involved in vandalizing property, stealing, or thievery. They may also start missing their school.

5) **Adjustment disorder with mixed disturbances of emotions and conduct**: This includes symptoms of depression, anxiety and behavioral or conduct problems.

6) **Adjustment disorder unspecified**: This includes those symptoms that are not otherwise associated with other types of adjustment disorder. This includes problems with friends, family, school, or work-related issues. This may also take into account physical problems.

15.6.2 Causes of Adjustment Disorder

Adjustment disorder is perhaps the mildest and least stigmatizing diagnosis that can be given to an individual. Variety of stressors and stressful events can lead to

such a diagnosis. Some of the common causes could be: interpersonal issues (troubled relationships), financial issues, major life changes, life transition, illness in self or of some closed one, death of a loved one, sudden disasters (natural or man-made), some sort of fears. In children and adolescents, typical causes could be, problems at school, amongst friends, fights in family or with friends, anxiety over sexuality (which they are trying to discover or identify with).

Work-related problems often lead to adjustment related issues (Lennon & Limonic, 2010) but adjustment disorder is also caused due to unemployment. It has been found that unemployment can be a major problem for young minority males as many of them live in economic depression for longer durations with fewer future job prospects (Bureau of Labor Statistics, 2013). This type of stress can further increase problems especially when the individual concerned has earned an adequate income earlier. It has also been found that the risk of suicide increases if the situation prolongs (Borges et al., 2010).

15.6.3 Treatment

Adjustment disorder is typically treated with psychotherapy, medication, or a combination of both; whatever works best for the client. Therapy, most of the times is a primary treatment, helping an individual to return back to regular and routine-like functioning. An attempt is also made to address the cause of the disturbance and develop future skills to cope with any such future stressors. Cognitive BehaviourTherapy(CBT) is very helpful at time in changing the distorted cognitions and thinking patterns of an individual which may also include *catastrophization* (cognitive errors) done by the client. These kinds of thoughts, are usually challenged via Socratic questioning. Apart from this, CBT practitioners usually plan out complete sessions and chalk out homework for their client. Family and support groups can also be found to be very effective in these cases. Usually medicines are used to reduce the symptoms such as depression, anxiety or insomnia.

Check Your Progress 2

1) List the main disorders included in Trauma and Stressor related disorders in DSM-5.

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2) What is adjustment disorder?

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3) What are the main symptoms of adjustment disorders?

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4) Is CBT helpful in the treatment of adjustment disorder.

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15.7 POSTTRAUMATIC STRESS DISORDER

Initially a lot of questions were raised against the inclusion of Postraumatic Stress Disorder (PTSD) in DSM, especially because including a disorder with an explicit cause (trauma, in this case) was actually inconsistent with the atheoretical approach of DSM. But then consensus emerged that any extreme stressful event that could have been life threatening and not a common everyday experience could lead to psychological symptoms. The diagnostic criteria of PTSD has changed and evolved over time. Earlier in the 20th century, PTSD symptoms were observed in combat soldiers; thus, it was known as *shell shock* and *combat neurosis*. Traumatic stressors may include living in a concentration camp, experiencing a natural disaster like earthquake or tsunami, combat situation, rape or a terrorist attack. Stress symptoms can be very common immediately after the traumatic event. But these symptoms may decrease with time. Here, it is important to remember that for a diagnosis of PTSD, the symptoms must last for at least one month.

15.7.1 Clinical Features of Posttraumatic Stress Disorder

Symptoms usually begin early, that is, within 3 months of the traumatic event, but, in some cases, it has been seen that symptoms may begin almost a year afterward. Symptoms must last more than a month and severe enough to hamper the occupational, social and daily functioning of the individual. For some cases, recovery can be seen within 6 months but for some it may take more time. In PTSD, "a traumatic event is thought to cause a pathological memory" that is at the center of the defining clinical symptoms that are associated with the disorder (Mc Nally, 2013). These memories can be brief pieces of the experience and may concern the events that happened just before the moment that caused a huge emotional impact on the individual (Hackman et al., 2004).

Box 15.2: DSM-5 Criteria for PTSD (APA, 2013)

Note: The following criteria apply to adults, adolescents, and children older than 6 years.

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:

1) Directly experiencing the traumatic event(s).

2) Witnessing, in person, the event(s) as it occurred to others.

3) Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.

4) Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).

Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1) Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

2) Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).

Note: In children, there may be frightening dreams without recognizable content.

3) Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)

Note: In children, trauma-specific reenactment may occur in play.

4) Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

5) Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

1) Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

2) Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1) Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).

2) Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad," "No one can be trusted," "The world is completely dangerous," "My whole nervous system is permanently ruined").

3) Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.

4) Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).

5) Markedly diminished interest or participation in significant activities.

6) Feelings of detachment or estrangement from others.

7) Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1) Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.

2) Reckless or self-destructive behavior.

3) Hypervigilance.

4) Exaggerated startle response.

5) Problems with concentration.

6) Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.

G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

To be diagnosed with PTSD, one must have the following symptoms for at least one month:

- At least one intrusion symptom (re-experiencing)
- At least one avoidance symptom
- At least two negative alterations in cognition and mood
- At least two arousal and reactivity symptoms

In the following section, we would elaborate upon the above-mentioned symptoms:

- **Intrusion:** The traumatic event is persistently experienced in one or the other ways, it could be through nightmares, intrusive images, flashbacks, any physiological reactivity as a reminder of the trauma. These re-experiencing symptoms may start from an individual's own thoughts and feelings. They can also be triggered by certain objects, words or situations.

- **Avoidance:** It includes avoidance of trauma related stimuli such as thoughts, feelings or reminders of the trauma. Due to this an individual may end up changing his or her routine.

- **Negative cognitions and mood:** They may include symptoms such as inability to recall key features of the trauma, overly negative thoughts and assumptions about oneself and others, distorted feelings like guilt, shame or blame. An individual may show diminished interest in activities and may have difficulties in experiencing positive affect. Due to these symptoms, a person may feel alienated or detached from others around him.

- **Arousal and reactivity:** This include hypervigilance, aggression, reckless behavior, irritability heightened startle reaction on the part of the client. Arousal symptoms are usually constant and may make the individual feel more stressed and angrier.

Children and adolescents may also have extreme reactions to trauma but in their case, some of their symptoms may not be similar to the adults, especially in children less than 6 years of age. They may end up wetting the bed even after being toilet trained. They may act out the scary event in their pay time or may become too clingy to a parent. Older children usually show symptoms very much like the adults. They may become disruptive or disrespectful. They may also have thoughts of revenge.

15.7.2 Causes of Posttraumatic Stress Disorder

Understanding the causal risk factors in the development of PTSD has been a controversial area and the major reason for it is that the very concept of PTSD makes it explicit that it is caused due to a traumatic experience. Another major concern is that, if we identify some people as more likely to develop PTSD over others when faced with stressful conditions, this may lead to double victimization-as they be blamed for the troubles and may also get stigmatized.

But we know it for a fact that everyone who is exposed to trauma may not develop PTSD. So, some people tend to be more vulnerable than others. In order to prevent and treat the disorder better, we need to understand factors that could be involved

in development of PTSD or what makes a person more vulnerable. There are certain occupations which put individuals at more risk than others- soldiers, especially those who have been in combat situations, or have been prisoners of war; firefighters, might also be at a higher risk. Breslau and colleagues (1991, 1995) concluded that risk factors also include being male, having less than a college education, having had conduct related issues in childhood, family history of a psychiatric disorder, and high scores on measures of neuroticism and extraversion. Some others have listed lower levels of social support, being female, neuroticism, preexisting depression or anxiety, family history of depression and anxiety, and substance use, as some more risk factors in the development of PTSD (McNally, 2013). Apart from this, the way an individual interprets the situation and make appraisals of their own stress symptoms also play a role in the development of PTSD. If people believe that they are responsible for their symptoms and it is a sign of personal weakness or feel that others would be ashamed of them, they are at higher risk even when the level of initial symptom sis statistically controlled (Dunmore et al., 2001).

Similarly, there are certain protective factors against PTSD as well, such as, higher IQ (Breslau et al., 2006). There is a possibility that individuals with higher IQ, that is, more intellectual resources might be able to figure out some meaning from their traumatic experience and make it into a personal narrative of some kind, thus, making it adaptive and emotionally protective ultimately.

While understanding the probable biological reasons and factors behind PTSD, one of the interesting areas is the presence of stress hormone in an individual's body. It has been found that baseline level of cortisol is similar in the patients of PTSD and the so-called normal control group (Young & Breslau, 2004). But if experimental stress is imposed, in conditions such as, trauma reminders or cognitive challenges, people with PTSD show exaggerated cortisol response (De Kloet et al., 2006). However, gender may also play a role here- women with PTSD had a higher baseline cortisol than women without PTSD. The type of trauma experienced may also play a role- lower cortisol levels found in people with physical or sexual abuse (Meewisse et al., 2007). Another area of interest to the researchers is gene-environment interaction. DNA data was collected and 589 adults were interviewed after a hurricane season (Kilpatrick et al., 2007). Risk factors in developing PTSD were- high level of hurricane exposure and low levels of social support and network. However, people who had high risk genotype of serotonin-transporter gene were found to be at a high risk to develop PTSD especially if they also had high hurricane exposure and low social support. For these the rate of PTSD was 4.5 times higher in comparison to those who were just exposed to high hurricane and had low social support. Thus, when gene and environment interact together, sometimes (in cases like these), the already bad situation may just become worse. It has also been found that hippocampus (involved in memory) seems to be reduced in size in people with PTSD.

Apart from these, there can be various sociocultural factors such as being a minority group member may put someone at risk or returning back to a negative and non-cooperative environment may make an individual more vulnerable (Charuvastra & Cloitre, 2008). Attitude of the community, stigma attached to certain ideas and behavior may lead to development of distorted cognitive beliefs in an individual and may make them more vulnerable to interpret stressful situation in a more negative and extreme way.

15.8 ACUTE STRESS DISORDER

By definition, acute stress disorder is a temporary condition that may last from 3 to 30 days immediately following the traumatic event. As we have discussed earlier, the diagnosis of PTSD requires that symptoms must last for at least 1 month. So, if we go by this then a person who has been showing severe disturbances within one-two weeks of the traumatic experience will have to wait till one month to get a diagnosis and a subsequent treatment. In these cases, the person is diagnosed with acute stress disorder and later if the symptoms persist for a moth or more, the diagnosis is changed to PTSD. This just ensures that people with debilitating symptoms do not have to wait for a month to be diagnosed and instead they can receive treatment as soon as they experience a traumatic event (Cardena & Carlson, 2011).

It can be caused by any sort of traumatic experience such as severe injury, being involved in an accident, death of a love one, being exposed to a natural disaster, news of a terminal illness etc. It can occur more than once in an individual's lifetime. It is important to note that those who have mental illness in families may be at a higher risk to develop the disorder in reaction to a traumatic event in comparison to others,

Box 15.3: DSM-5 Criteria for Acute Stress Disorder (APA, 2013)

A. Exposure to actual or threatened death, serious injury, or sexual violation in one (or more) of the following ways:

   1) Directly experiencing the traumatic event(s).

   2) Witnessing, in person, the events(s) as it occurred to others.

   3) Learning that the traumatic events(s) occurred to a close family member or close friend.

      Note: In cases of actual or threatened by death of a family member or friend, the events(s) must have been violent or accidental.

   4) Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).

      Note: This does not apply to exposure through electronic media, television, movies, or pictures unless this exposure is work related.

B. Presence of nine (or more) of the following symptoms from any of the five categories of intrusion, negative mood, dissociation, avoidance, and arousal, beginning or worsening after the traumatic event(s) occurred:

   Intrusion symptoms

   1) Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

      Note: In children, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

2) Recurrent distressing dreams in which the content and/or affect of the dream are related to the events(s).

   Note: In children older than 6, there may be frightening dreams without recognizable content.

3) Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings).

   Note: In children, trauma-specific reenactment may occur in play.

4) Intense or prolonged psychological distress or marked physiological reactions in response to internal or external cues that symbolize or resemble an aspect of the traumatic events.

Negative Mood

1) Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

Dissociative Symptoms

1) An altered sense of the reality of one's surroundings or oneself (e.g., seeing oneself from another's perspective, being in a daze, time slowing.)

2) Inability to remember an important aspect of the traumatic events(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).

Avoidance symptoms

1) Efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

2) Efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

Arousal symptoms

1) Sleep disturbance (e.g., difficulty falling or staying asleep, restless sleep)

2) Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.

3) Hypervigilance

4) Problems with concentration

5) Exaggerated startle response

C. The duration of the disturbance (symptoms in Criterion B) is 3 days to 1 month after trauma exposure.

Note: Symptoms typically begin immediately after the trauma, but persistence for at least 3 days and up to a month is needed to meet disorder criteria.

D. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

E. The disturbance is not attributable to the physiological effects of a substance (e.g., medication or alcohol) or other medical condition (e.g., mild traumatic brain injury) and is not better explained by brief psychotic disorder.

15.9 CRISIS INTERVENTION

Crisis intervention has emerged in response to stressful situations. Crisis is basically "a perception or experiencing of an event as an intolerable difficulty that exceeds the person's current resources and coping mechanisms" (James, 2008). It is important to note that it must be resolved or else it causes psychosocial deterioration of the person (Brown et al., 2013; Callahan, 2009). A central assumption over here is that before the traumatic experience the individual was functioning well psychologically. Thus, the goal here is not to "reconstruct" or "remake" an individual's personality but to help the person sail through the immediate crisis.

Check Your Progress 3

1) Mention some examples of traumatic stressors.

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2) What is cortisol? Is it harmful or beneficial for the body?

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3) What are the criteria for diagnosis of acute stress disorder?

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4) What is the goal of crisis intervention?

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15.10 SUMMARY

Now that we have come to the end of this unit, let us list all the major points that we have learnt.

- Stress is experienced when perceived challenges to physical or social well-being exceed our coping resources and abilities.
- Components of stress can be examined in three ways: as stimulus, as response and as a process.
- Key factors involved in making a situation stressful: severity, chronic, onset, impact on life, predictability and controllability.
- There are two different systems that are involved in stress related bodily response- Sympathetic-Adrenomedullary System (SAM) and Hypothalamic-Pituitary Adrenocortical (HPA) axis.
- DSM-5 defines trauma and stressor related disorders as a category that involves exposure of an individual to a traumatic or stressful event leading to various psychological problems. It includes, adjustment disorder, posttraumatic stress disorder and acute stress disorder.
- Several relatively common stressors are- loss of a loved one, divorce, difficult relationships, unemployment, etc. which may produce a great deal of stress and psychological maladjustment and result in adjustment disorder.
- There are 6 types of adjustment disorder: with depressed mood, with anxiety, with mixed anxiety and depressed mood, with disturbance of conduct, with mixed disturbances of emotions and conduct, and adjustment disorder unspecified.
- More intense psychological disorder in response to trauma or extreme stressor is categorized as posttraumatic stress disorder (PTSD). To be diagnosed with PTSD, one must have the symptoms for at least 1 month.
- In Acute Stress Disorder the stressor is similar to PTSD but the symptoms here may last from 3 to 30 days immediately following the traumatic event.
- In some cases, the diagnosis of Acute Stress Disorder is changed to PTSD if the symptoms persist for more than a month.

15.11 KEY WORDS

Allostatic load: It Is the biological cost of adapting to stress.

Hypothalamic- Pituitary Adrenocortical (HPA) axis: Hypothalamus releases corticotrophin releasing hormone (CRH) which travels through bloodstream and reaches pituitary gland. It prepares the body for either fight or flight response.

Stress: A dynamic construct that results due to the interaction between the organism and the environment and depends on one's perception and coping resources.

Acute Stress Disorder: A temporary condition that may last from 3 to 30 days immediately following the traumatic event.

Adjustment disorder: A psychological consequence to a common stressor that may result in clinically significant emotional or behavioral symptoms hampering daily functioning of an individual.

Posttraumatic Stress Disorder: A condition that develops after a traumatic event, when the symptoms last more than a month and severe enough to hamper the occupational, social and daily functioning of the individual.

15. 12 REVIEW QUESTIONS

1) Define stress and its components. Describe the factors that play a role in determining stress tolerance of a person.
2) Discuss the characteristics of stressors which make them more severe.
3) Explain the role of SAM and HPA axis in stress related response.
4) Discuss the clinical picture of PTSD and explain its potential causal factors.
5) Differentiate between acute stress disorder and PTSD.

15.13 REFERENCES AND FURTHER READING

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15.14 WEB RESOURCES

- Follow the DOI link given below:

  Miller, Chanel. (2015). Music Therapy as a Treatment for Patients with Post-Traumatic Stress Disorder. *Journal of Psychotherapy and Psychological Disorders*. 01. DOI: 10.4172/ijmhp.1000103.

- On legacy of Hans Selye and the origin of Stress Research;

  http://selyeinstitute.org/wp-content/uploads/2013/06/The-legacy-of-Hans-Selye44.pdf