



# Adolescent Mental Health: From Normalcy to Illness

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*Abstract: Adolescence is a period of multiple changes in the body which can lead on to stress, behavioural or emotional state. Behaviour during adolescence is driven by hormonal changes like increase in growth hormone, steroid hormones etc. There is pruning of neural pathways, such that the parts of brain that are most active during adolescence are best developed and those parts that are not utilized remain under-developed later on in adulthood. Common mental disorders during adolescence are emotional disorders like anxiety disorders, depression; conduct disorders like oppositional defiant disorders; hyperkinetic disorders and other psychotic disorders. Multiple tools or questionnaires are available to apply on adolescents and children for screening as well as diagnosing them with mental disorders like Rutter Child Scale A and Rutter Child Scale B, Child Behavior Checklist (CBCL), K-SADS (Schedule for Affective Disorders and Schizophrenia), ISC (Interview Schedule for Children), CAS (Child Assessment Schedule), CAPA (Child and Adolescent Psychiatric Assessment), DISC (Diagnostic Interview Schedule for Children) and the DICA (Diagnostic Interview for Children and Adolescents) etc. Poverty, social disadvantage, violence, child abuse, academic failure are some of the risk factors associated with mental disorders. Prevalence of any psychiatric disorder in India is 11% and 8% among boys and girls respectively compared to US where it is 46% in the age group of 13-16 years irrespective of sex. nothing much has been achieved for adolescents under national mental health programme. Interventions like life skills education through community programs, internet or at school can help adolescents bring confidence in them and ability to cope with the stress.*

*Keywords: Adolescence, neurodevelopment, mental disorders, Rutter scale, child behavior checklist*

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## 1. Introduction

Adolescence is a stage of transition from childhood to adulthood. It is a period of physical, psychological, emotional and personality change, which can lead to stress, and emotional and behavioral problems. The term “mental health”

generally refers to a psychological and emotional state [1]. It is the stage at which most mental disorders, often detected for the first time in later life, begin. Young people have a high rate of self-harm, and suicide is a leading cause of death in



young people. The risk factors for mental disorders are well established, and substantial progress has been made in developing effective interventions for such problems [2]. Yet, most mental-health-service needs are unmet, even in wealthier societies, and the rate of unmet need is nearly 100% in many developing countries [3]. Policies, interventions and the need to address adolescent mental health problems are still far from the acceptance of public health significance.

## 2. Neurodevelopment during Adolescence

The brain of an adolescent is not mature till about the early or mid-twenties. There is a rapid increase in the inter-neural pathways in the adolescent brain [4]. Adolescent behaviors are driven largely by “raging hormones.” Pubertal-associated hormonal changes include dramatic gender-specific rises in gonadal steroids (estrogen and testosterone) [5]. Other adolescent hormonal changes include increase in growth hormone (GH) release [6, 7] as well as an early prepubertal rise in adrenal androgens (including hormones such as androstenedione and dehydroepiandrosterone, often called “neurosteroids” for their potent actions on the nervous system). Adolescence is

associated with the loss of a considerable number of synapses. There is pruning of neural pathways, such that the parts of brain that are most active during adolescence are best developed and those parts that are not utilized remain underdeveloped later on in adulthood [4]. Cortical pruning may be one of a number of developmental changes in adolescent brain that serve to refine brain effort during adolescence. Developmental increases through adolescence in white matter density in numerous cortical fiber tracks, including the corpus callosum [8]. In contrast to the developmental decline in gray matter volume of frontal brain regions, volumes in the amygdala and hippocampus increase during childhood and adolescence, with volume changes in the amygdala more prominent in males whereas increases in the hippocampus are more pronounced in females [8]. The adolescent brain is a brain in the process of becoming leaner, more efficient, and less energy-consuming [9]. Adolescence also experience the development of the dorsolateral prefrontal cortex and the superior temporal gyrus, areas responsible for higher order associations, including the ability to inhibit impulses, weighs the consequences of decisions, prioritize, and strategize [10].



## 2.1 Common Mental Disorders in Adolescence

Mental disorders among adolescents have been assessed in Great Britain and it has been found that emotional, conduct and hyperkinetic disorders are common [11]. Following mental disorders are identified according to ICD10 common among adolescents:

- A. Emotional disorders:** *Anxiety disorders:* Separation anxiety, specific phobia, social phobia, panic, agoraphobia, post-traumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD), generalized anxiety disorder (GAD), other anxiety; *Depression:* Depressive episode, other depressive episode.
- B. Conduct disorders:** Oppositional defiant disorder, conduct disorder (family context), unsocialized conduct disorder, socialized conduct disorder, other conduct disorder.
- C. Hyperkinetic disorder:** Hyperkinesia, other hyperkinetic disorder.
- D. Less common disorders:** Pervasive developmental disorder, psychotic disorder, tic disorders, eating disorders, other psychiatric disorders.

## 2.2. Concept of Mental Disorders

The term mental disorder is very stigmatizing and can mark a child very different although the defect may entirely not be within him. At times it is the reaction of the child or adolescent to certain external circumstances which if resolved can solve the problem. Appropriate application of terms pertaining to mental disorders is very important to avoid confusion in diagnosis and hence treatment and allocation of resources. Most of the researchers apply questionnaires based on DSM-IV and ICD-10 diagnostic criteria. There are multiple tools or questionnaires available to apply on adolescents and children for screening as well as diagnosing them with mental disorders. Some of the screening tools used are Rutter Child Scale A and Rutter Child Scale B to cover aspects of behavioral and emotional functioning within the past year and Child Behavior Checklist (CBCL) that describes symptoms of emotional and behavioral disturbance over the past six months. Diagnostic questionnaires commonly used in studies are K-SADS (Schedule for Affective Disorders and Schizophrenia), ISC (Interview



Schedule for Children), CAS (Child Assessment Schedule), CAPA (Child and Adolescent Psychiatric Assessment), DISC (Diagnostic Interview Schedule for Children) and the DICA (Diagnostic Interview for Children and Adolescents) [11], children's behavior questionnaire (CBQ) rated by teachers, felt treatment needs (FTN) to assess parental awareness of their child's problems, parent interview schedule (PIS) – to assess deviance or disturbance in the child's family and environment, Vineland social maturity scale (VSMS) – Indian adaptation of the Vineland Social Maturity Scale used to assess children aged 0–16 years in the areas of self-help general, self-help dressing, self-help eating, self-direction, locomotion, communication, occupation and socialization, Binet kamat test (BKT), Specific learning disability (SLD) battery – battery of tests to assess attention, reading, writing, spelling, comprehension, arithmetic, visuo-motor skills and auditory and visual memory, children's global assessment scale (C-GAS) – to measure the degree of functional impairment [12], Strengths and Difficulties Questionnaire V(SDQ) [13]

– to assess emotional and behavioral problems and to predict the presence of conduct, hyperactivity, emotional, and psychiatric disorders. Problem with these assessment tools is availability in local language with validity specific to the region and culture. These tools should be translated into different languages and should be field-tested for their reliability, validity and feasibility in Indian conditions.

### 2.3. Risk Factors for Mental Disorders

Poverty and social disadvantage are strongly associated with mental disorder [14–16]. The presence of parental mental disorder [17, 18] or substance abuse [19], discord between parents, marital violence, and breakdown within the family poses to adolescents a higher risk of mental disorders [2]. Commonly, violence and child abuse are major risk factors [20]; most sexual violence takes place in the context of trusting relationships (for example, peers or relatives), whereas most violence in general takes place in the school or community; in both instances, older peers are the most frequent perpetrators [2]. Academic failure, failure of schools to provide



appropriate environment to support attendance and learning, inadequate or inappropriate provision of education and bullying are some of the risk factors at the level of school. The emphasis on perfect body shapes fuelled by fashion industry—is probably a factor in explaining the finding that eating disorders are more common in developed countries [21]. Strong evidence is available for the contribution of genetic and biological factors, particularly for depression, psychoses, and severe behavior disorders [2]. Adolescents who have a history of difficult and disruptive behaviors from childhood have a high rate of neurocognitive impairments [22].

#### **2.4. Protective Factors for Mental Disorders**

They play a role in modifying the effect of risk factors and mitigating their effects on mental health. Apart from good physical health and intellectual functioning, good self-esteem, high level of problem-solving ability and social skills are some of the psychological protective factors. A good family nurturing imparts protective effect on mental health of an

adolescent like family attachment, opportunities for positive involvement in family, rewards for involvement in family, etc. [2].

### **3. Scenario in India**

In India, adolescents form 22% of the population. Children and adolescents together constitute about 37% of our population. In the 2001 census [23], mental health disorders among children and adolescents in India were projected to increase by another 6 million cases by 2015. The WHO reported that worldwide, up to 20% of children and adolescents suffer from a disabling mental illness. In a study conducted in Goa [24], the commonest mental health disorders were anxiety (1.0%), depression (0.5%), behavior disorders (0.4%) and ADHD (0.2%). In a study conducted in Vellore, Tamil Nadu [25], the average suicide rate for young women was 148 per 100,000 and for young men 58 per 100,000, much higher than the world suicides rates. According to the study in urban schools [13], 10.36% of the participants studied had an abnormal SDQ score, which would suggest that they were likely to suffer from some degree of mental health issues. Indian participants are



perhaps more at risk of developing mental health difficulties than those in developed countries contrary to the popular belief. According to a study in Bangalore [12], the prevalence rate of specific psychiatric disorders like generalized anxiety, pica, depression, phobias, OCD, ODD, etc., was 12% in 0–16 years old.

#### 4. Scenario Worldwide

In the United States [26], lifetime prevalence of any psychiatric disorder for 13–18 year olds was 46% and for severe disorder it was 21%. Lifetime prevalence of anxiety disorder for 13–18 year olds was 25% and for severe anxiety disorder was 6%. Lifetime prevalence of any mood disorder for 13–18 year olds was 14% and for severe mood disorder it was 5%. Rates of mental disorders ranged from 8% (in the Netherlands) to 57% (for young people receiving services in five sectors of care in San Diego, California, USA). The Australian National Survey of Mental Health and Well Being [27] reported that at least 14% of adolescents younger than 18 years were diagnosable with a mental or substance-use disorder in 12 months and this figure rose to 27% in the 18–24 year age-group. The burden of mental

health problems can be expressed in terms of DALY [28]. Five of the ten leading causes of DALY in people aged 15–44 years are mental disorders, unipolar depressive disorders, alcohol use disorders, self-inflicted injuries, schizophrenia, and bipolar affective disorder. In a study from Victoria, Australia, mental disorders in young people aged 15–24 years contributed to 60–70% of the total DALY [29]. According to a study conducted among adolescents in Great Britain [11], 10% of children aged 5–15 years had a mental disorder: 5% had clinically significant conduct disorders; 4% were assessed as having emotional disorders – anxiety and depression and 1% were rated as hyperactive. The physical illness or health conditions which showed the greatest disparity in prevalence rates between children with a mental disorder and those with no disorder were: bedwetting (12% compared with 4%), speech or language problems (12% compared with 3%), co-ordination difficulties (8% compared with 2%), and soiling pants (4% compared with 1%).

Apart from disability, mental disorders might also exact a substantial burden on mortality in young people – in many communities; youth is increasingly a



period of heightened risk of suicide [30]. Suicide is a leading cause of death in young people in countries such as China [31] and India [32]. The Indian study ascertained cause of death in a rural community of 108,000 people in south India during 10 years from 1992 to 2001. The investigators reported that suicide accounted for a quarter of deaths in boys and between half and three-quarters of deaths in girls aged 10–19 years [32].

## 5. Sex Differences

As common with many other illnesses, sex differences are common too with mental disorders: young women are 1.5–3 times more likely to have depressive disorders and attempt self-harm, whereas young men are several times more likely to suffer from conduct or behavior disorders and schizophrenia [33]. Children with a mental disorder compared with other children were more likely to be boys, living in a lower income household, in social sector housing and with a lone parent. They were less likely to be living with married parents or in social class I or II households. The proportion of children and adolescents with any mental disorder was greater among boys than girls: 11% compared with 8%. This disparity was

evident in both younger and older children. In the older age group, the 11–15 year olds, the proportions of children with some mental disorder were 13% for boys and 10% for girls. Whereas the rates of emotional disorders were similar for boys and girls, the prevalence of conduct disorders was found to be approximately twice more common among boys than girls and for hyperkinetic disorders the ratio was even greater: 2% among boys of all ages compared with about half a percent of girls [11].

## 6. Conclusions

Despite the fact that mental and substance use disorders represent the major health problems affecting young people and adolescence is the period of life during which most mental disorders emerge, provision of mental-health services is weakest for them. Although 24 years have passed since the launch of the national mental health program in India, the progress in this field is still a tortoise walk, neither the health care professionals are aware of such a program, nor is there any active participation from the side of all those who know [34]. Most of the steps taken under the program are treatment-oriented



and no emphasis is on preventive aspect. Targets are still far from achievement. In addition, no priority or emphasis has been given to adolescents. Self-limiting disorders and milder yet potentially serious disorders in an early stage might respond to simple measures, such as psychosocial support, self-help strategies, and education typically in non-clinical settings [11]. Assessment of mental disorders should be made available for Indian setting so that early detection can be supported by effective treatment. Interventions like life skills education through community programs, internet or at school can help adolescents bring confidence in them and ability to cope with the stress. To promote mental health, schools and colleges can serve as effective centers for emphasizing on protective factors and preventing from indulging in risk factors like substance abuse or risky behaviors.

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