INDIAN ACADEMY OF PEDIATRICS

Mission Kishore Uday

Comprehensive Adolescent Health Program

Suicide Prevention and Intervention Module

Precious Teens Precious Lives

Under IAP Presidential Action Plan 2018-19

In collaboration with Adolescent Health Academy IAP

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Dr MKC Nair

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Dr Preeti M Galagali

FOREWORD

I am really very honoured to be invited to write a foreword for the publication of training manual of IAP - Indian Academy of Paediatrics- Comprehensive Adolescent Health Program, Mission Kishore Uday 2018-19 which is call for action for 'Suicide Prevention and Intervention'.

We have highest rate of suicides amongst the youth 35.5 per 100000 (Lancet 2012). India also has the highest number of adolescent suicides in South East Asia (Mental Health Status of Adolescents in South-East Asia: Evidence for Action WHO 2017)

These tragic deaths, leading to loss of young lives, which are the future of our country, are preventable in majority of cases, as many occur after bad examination results, rejection of romantic relationships or inability to cope up with various failures, in addition to other mental health issues.

All the stake holders of Adolescent health have to spread awareness and educate the community in learning how to prevent teen suicide. Flag signs of suicidal thoughts; intent and ideation need to be taught to young people themselves to help their peers and to parents and teachers to improve their communication channels and to take timely action

Paediatricians and Adolescent experts are the best suited for this purpose in addition to mental health professionals, as they are in close contact with teens and their parents and should take the lead for such programs

I congratulate Dr Santosh Soans, IAP President 2018, Dr Digant Shastri, President Elect 2018, Dr Remesh Kumar, HSG IAP 2018-19 and their team, who have done a commendable job of including this important issue in Presidential Action Plan 2018-19.

I appreciate the hard work put in by Dr CP Bansal, Dr JS Tuteja, Dr Preeti Galagali, Dr Sandip Trivedi and the scientific team to have put together a comprehensive program which will focus on capacity building, education and training of paediatricians, teachers, parents and adolescents to prevent teen suicide. I am sure that this program that covers both physical and mental health problems will be beneficial to both the community and professionals in dealing with suicidal intent, behaviour and thus preventing teen suicide.

I am sure this program will make a difference and bring down the ever increasing statistics of teen suicides. I wish the team all success in this endeavour which will be a landmark in Adolescent Medicine in our country and a model for others to follow

Dr Swati Y Bhave

President IAP 2000
Chairperson IAP Task force of Adolescent health (2000-05)
Chairperson IAP Adolescent chapter (2003-05)
Member TSC (Technical Steering Committee) Child and Adolescent health, WHO HQ Geneva (2007-09)
IPA Technical advisor on Adolescent health (2007-13)
Regional Vice President IAAH SE Asia & Middle East (2009-17)

FOREWORD

It gives me great pleasure to write the foreword for the Mission Kishore Uday Module 2018-19. I have been designated as National Advisor MKU by Dr Santosh Soans, IAP President.

I am thankful to the devoted, dedicated team of the historic module –Mission Kishore Uday 2013 for their unprecedented success. This was a landmark program in the history of IAP. I am sure that like the previous version, the present module MKU 2018-19 will shine to deal with the current burning issues of adolescence. Adolescents are the future of our country.

Lately, there has been a rampant increase in suicides amongst adolescents. Our country has been labeled as the 'capital of suicide'. MKU Module 2018-19 is an evidence based publication on suicide prevention and intervention, written by our devoted team under the academic leadership of National Convener, Dr Preeti Galagali. The team has done a wonderful work of compiling scientific information to help our adolescents, parents, teachers and heads of educational institutions.

I am sure Module MKU, a prestigious publication of IAP, will continue to address all concerns of our gems, i.e Adolescents and ensure their safety.

I wish IAP the very best and congratulate all team members of MKU 2018, President IAP and executive board 2018 for their stupendous efforts.

Dr JS Tuteja
National Advisor, MKU 2018
Chairperson AHA 2012-2015
Chairperson MKU 2013

PREFACE

Adolescents constitute 21.8% of the Indian population. They are our demographic dividend. Unfortunately, suicides amongst adolescents are on the rise in India. Each adolescent suicide is a tragedy and has a devastating effect on family, friends and community on the whole. The causes of suicide are complex and fall into biopsychosocial domains. Hence a multisectoral strategy is required to prevent suicide. Such a strategy should involve parents, teachers, paediatricians, lawyers, government, non-governmental social organisations and adolescents.

A comprehensive adolescent health program, Mission Kishore Uday (MKU) was launched and executed in 2013 under the IAP and AHA leadership. This program covered over 50000 stakeholders all over the country. The warm acceptance of this program by the community and paediatricians motivated Dr JS Tuteja, Chairperson AHA 2013 to propose another landmark collaboration of IAP and AHA focussing on Adolescent Suicide: Prevention and Intervention. Our vision of formulating such a program has been realised in the form of MKU 2018-19, by Dr Santosh Soans, President IAP, Dr Digant Shastri, President Elect, Dr Remesh Kumar, Hony Secy IAP and the dynamic team of CIAP and AHA. Dr Preeti Galagali, Dr Sandip Trivedi and the MKU Team have put together a scientifically sound evidence based program for paediatricians, parents, teachers and adolescents. Undoubtedly, MKU 2018 will be a resounding success and will go a long way in decreasing suicide rates in adolescence.

Dr CP Bansal
President IAP 2013
President South Asia Pediatric Association 2014-16
Member National Advisory Board GAVI

IAP PRESIDENT'S PAGE

It is a common fallacy in society to treat early childhood as the tender years. Once the individual has crossed the threshold of infancy it is assumed that he or she will automatically grow into a mature adult. This has led to a situation of the inadvertent neglect of the individual during the later stages of childhood as well as during adolescence. This has far reaching impact that could last an entire lifetime.

This is partly based on the notion that physical well being equals good health. Human beings are a composite of physical, mental, emotional and social aspects of personality. All these add up to the overall health of the individual. Adolescence, as we now know, is a vital stage of life, which is perhaps more deserving of a pediatrician's attention. As the legendary American psychologist and adolescent expert G. Stanley Hall said, “Adolescence is a new birth; for the higher and more completely human traits are now born.”

Teens are the future powerhouse of the nation. Their well being should be our top priority. Being a teen is a very difficult period in life. The rapid mental, emotional and physiological upheaval can be very disturbing and improper response from the parents can lead to adverse results and further worsen the situation. Temptation for smoking, alcohol, substance abuse, sexual experimentation and deviant behaviour are commonly seen. We also see the extreme cases manifesting in despicable acts like rape, crime and suicide. We have all gone through this phase of life and are in a position to lend our sympathetic understanding. We are also professionally equipped to extend a helping hand.

IAP's response to this has been Mission Kishore Uday, which was first launched in 2013. Over the years, this programme has assumed greater dimensions and proved to be increasingly successful. With MKU 2018-19, we are now entering the sixth year of the programme and I am glad that a new curriculum has been devised reflecting improved understanding and approaches to the issues at hand.

I wish to congratulate all people involved in this path breaking venture of IAP, especially Adolescent Health Academy under whose auspices we are spearheading this programme. I wish all the participants a successful participation in this programme.

Dr Santosh T Soans
President IAP

IAP HONORARY SECRETARY GENERAL'S PAGE

We at Central IAP are happy to note that the Team MKU is in full swing. With the proactive involvement from Adolescent Health Academy, the stalwarts of adolescent health in India have joined together to disseminate the latest as well as the basics in adolescent health care through the Presidential Action Plan Module 2018-19. The Trainer of Trainers Workshop being conducted in Mumbai on Sept 1st is sure to give a quantum leap to adolescent health in India.

The Team under the efficient coordination of Dr PreetiGalagali and wise guidance of Dr J S Tuteja is taking all pains to roll out a most useful training module. Newer thoughts on adolescent stress, depression, hypertension, anemia and prevention of teen suicide are being discussed in this module.

Central IAP congratulates the whole MKU Team behind this initiative and hope the TOT and further workshops will enable our friends in Academy to take care of the adolescents of our country in a much more learnt structured manner. Wish the activities of Mission Kishore Uday Team all success. Let the TOT scheduled on Sept 1st mark the beginning of a vibrant new chapter in the care of adolescent population of our country.

Jai IAP! Jai Hind!

Remesh Kumar.R

Honorary Secretary General, IAP 2018 - 2019

FROM THE DESK OF IAP PRESIDENT 2019

Currently, India is the home to the largest number of adolescents in the world. Their well being will ensure the health of the nation. Adolescence is a transitional phase of life between childhood and adulthood. It is one of the most rapid periods of growth and development. It is said to be an age of great opportunity and vulnerability. The brain in adolescence is still under construction and the healthy lifestyle adopted in this period usually lasts a lifetime. Vulnerability of adolescence is due to highly reactive limbic and reward systems and a relatively immature 'control centre'- the prefrontal cortex. This makes teenagers prone to high risk behaviour. The stress response in this age is also immature. Hence stressful events have an adverse effect on learning, health and behaviour of adolescents. Adolescents often fall into the trap of maladaptive coping in the form of drug addiction, violence, crime and self harm. Parents, teachers and health professionals, who have a good rapport with them, can be their best guides and mentors.

Keeping in view, the high rates of teen suicides in our country, Indian Academy of Pediatrics has taken the timely decision of launching Mission Kishore Uday (MKU): Adolescent Suicide Prevention and Intervention Module under Presidential Action Plan 2018-19 in collaboration with Adolescent Health Academy. In 2013, under the leadership of then IAP President, Dr CP Bansal and with the dedicated efforts of Dr JS Tuteja, Chairperson AHA, MKU laid the foundation of a comprehensive adolescent health program. We are sure that MKU 2018-19 will reinforce and strengthen it. This program will equip the paediatricians with expertise in dealing with adolescent clinical problems and suicide ideation and attempt in particular. It will also convey important practical tips to parents, teachers and adolescents about stress management and suicide prevention. The MKU team has published a fine evidence based training manual. I wish the team and the MKU program stupendous success!

Dr Digant D Shastri
President IAP 2019

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Prof. (Dr.) M. K. C Nair
(Ph.D, M.D, M.Med.Sc., M.B.A)
Vice-Chancellor

From the Desk of the Guest Editor

Suicide is the leading cause of adolescent mortality in India. The launch of Mission Kishore Uday 2018-19 focussing on prevention of adolescent suicide is an important step towards ensuring adolescent health and emotional well being. Since the past 18 years, Indian Academy of Pediatrics has been on the forefront in promoting and advocating for adolescent health in the country. I congratulate Dr Santosh Soans, IAP President 2018, Dr Digant Shastri, President Elect 2018, Dr Remesh Kumar, HSG IAP 2018-19 and their team for including this important issue in Presidential Action Plan 2018-19. Dr CP Bansal, Dr JS Tuteja, Dr Preeti Galagali, Dr Sandip Trivedi and the scientific team have put together a comprehensive program for parents, teachers, adolescents and paediatricians. This comprehensive program reaches out to all gatekeepers of adolescent health; parents, teachers, paediatricians and adolescents themselves. It covers both physical and mental health problems. Pediatricians are the first health professionals preferred by both adolescents and their parents for medical care. India lacks adequate number of mental health professionals and there is a social stigma attached to seeking care for them. Hence capacity buildingand training of paediatricians to manage mental health issues is essential to stem the tsunami of teen suicides. Mission Kishore Uday with the theme 'Precious Teens Precious Lives' will be beneficial to both the community and professionals in dealing with suicidal intent, behaviour and thus preventing teen suicide.

Sd/-
Prof.(Dr.) M.K.C Nair
Vice Chancellor
Kerala University of Health Sciences

FROM THE DESK OF THE CHIEF EDITOR

Dear Colleagues,

We are honoured and privileged to be a part of the first ever adolescent suicide prevention and intervention program of Indian Academy of Pediatrics and Adolescent Health Academy, Mission Kishore Uday 2018-19. We congratulate Dr Santosh Soans, President IAP, Dr Digant Shastri, President Elect, Dr Remesh Kumar, Honorary Secretary IAP and CIAP and AHA team on the launch of this innovative program.

Every second, 40 people around the globe commit suicide. Suicide rates are the maximum in the age group of 15 to 29 years. Suicide is preventable. WHO Mental Health Action Plan 2013-20, aims to decrease global suicide rates by 10% by 2020. The main causes of teen suicide in India are academic stress, failed romantic relationships, family problems, drug use, mental disorders and chronic diseases. Social taboo and stigma surround the issue of suicide and many fail to seek timely and effective help. Adolescents and parents usually share an excellent rapport with paediatricians and confide their problems in them with ease. Hence it is essential that paediatricians establish adolescent friendly health services and fine tune their clinical skills to manage physical and mental health problems of teens and thereby save lives.

The MKU Team with blessings and guidance of senior ace adolescent health specialists and teachers; Dr Swati Bhave, Dr MKC Nair, Dr CP Bansal and Dr JS Tuteja, have strived hard to formulate a comprehensive program for parents, teachers, adolescents and paediatricians to prevent adolescent suicide. In 2013, this team had worked sincerely for the success of MKU. We hope that the success story will continue. We thank the IAP Action Plan Committee, Dr Bakul Parekh, Dr Gnanamurthy, Dr Uday Pai and the CIAP office for their relentless support and encouragement.

MKU 2018-19 is scientifically designed to promote physical, emotional and social well being amongst adolescents and prevent self harm and suicide. In words of Dr Margaret Chan, Director General WHO, “The way forward is to act together and the time to act is now.” We request all IAP members to join hands with each other, the community and the government to tackle the deadly menace of adolescent suicide. Adolescents are precious and so are their lives- *Precious Teens Precious Lives*. May the adolescents of our country live a fulfilling life and thrive!

Dr Preeti M Galagali
Chief Editor, MKU Module 2018-19
National Convener, MKU 2018-19
On behalf of MKU 2018-19 Team

MESSAGE

According to 2011 census of India, there are 253 million adolescents constituting 21.8% of the total population. This number is ever increasing making it the largest generation to undergo transition from children to adults in the near future, in turn making India the youngest country of the world

There is a clustering of high risk factors during childhood, which predisposes adolescents to childhood diseases. The peer and parent pressures and lack of skill to cope with such pressures exposes them to high risk situations which results in multitude of problems ranging from unprotected sex, unwanted pregnancy and childbirth to substance abuse and later development of cardiovascular diseases and cancers. Nutrition plays a significant role in growth and development especially during adolescence to prevent non communicable diseases. A strong emphasis on educational and social achievements places an adolescent under immense pressure.While adolescents are growing, they experience a lot of emotional problems and stress. Depression and suicidal tendencies have also become increasingly prevalent amongst the adolescents. Adolescents are also a vulnerable group for disease and discrimination. Several incidents of rape, sexual and physical abuse, neglect, and exploitation are reported throughout India. It is evident that adolescents are confronted with numerous problems, which they find difficult to cope with. They need supportive environment and skills to handle these problems.

To meet the challenges of adolescence, Dr C P Bansal IAP President 2013, launched the visionary project Mission Kishore Uday for schools to educate students to be knowledgeable, responsible, socially skilled, healthy, caring, and contributing citizens. This mission was to support growing number of school-based prevention of suicides, substance abuse, sex abuse and vaccine preventable diseases. Mission Kishore Uday implementation was envisaged to improve social, health, and academic outcomes by encouraging life skills programs. Dr Bansal said “I call upon my fellow IAPians that while in our office practice we need to make more active efforts for comprehensive services for adolescents, for improving health of the adolescents, the parents have a major role in prevention as they have the sacred and honorable duty of rearing children with love and righteousness and by becoming role models and countering the negative messages from the media. Through Mission Kishore Uday, they are encouraged '3L' of positive parenting: (L)ove for teenager, Set (L)imits, and Provide (L)atitude.”

Thus, Adolescent Health Academy members proudly devoted time to run this mission successfully in 51 cities across country and it received appreciation from all stakeholders. The beneficiaries across the country were not only the adolescents but also the parents, teachers and pediatricians. Some of the approaches adopted in 'Mission Kishore Uday' were to intervene by counselling on normal body developments, on avoiding or minimizing the risk-taking behavior, on sexuality issues, on positive parenting and on effective communication.

After the success of the MKU program across the country and the experience thus gained through interactions, a need was felt to continue with the program. In its endeavour to improve the health of the adolescents while ensuring the quality of information generated and implementing various interventions for providing quantitative information, the program has been revised addressing the needs for the current generation.We as a society need to prioritize and address all the issues in a non-judgmental manner. Adolescents need supportive environment and skills to handle problems with the focus being on health promotion through awareness activities, prevention and primary intervention.

There is an urgent need for us to follow a holistic approach towards adolescent needs and concerns, which this programme envisages. As the adolescents are the future, strength and resource of the country, it is pertinent to invest time in this group. Keeping the objective of equipping our children with all the required essentials of happy and healthy living, Indian Academy of Pediatrics and the members of Adolescent Health academy are re-launching the Mission Kishore Uday. I am sure once again, the Mission Kishore Uday shall be a great success with the enthusiasm and dedication of its fine members.

Prof Sangeeta Yadav

Chairperson Adolescent Health Academy 2018

MESSAGE

Greetings from the office of Adolescent Health Academy IAP!

It is a pleasure to know that TOT and training programs are being organized for Mission Kishore Uday 2018-19.

Adolescents are important pillars of the nation. Their development, nutrition, psycho-social well being and healthy media usage are important clinical issues.

Maximum numbers of death occur in adolescence due to injuries- motor vehicle accidents or suicides. Both these aspects need special attention. Mission Kishore Uday is a very important movement in preventing teen suicide.

The MKU committee and AHA stalwarts have been working day and night for the mission. I sincerely thank and salute the entire team especially, Dr. Preeti Galagali, who has put in great efforts.

I wish MKU 2018-19 great success!

Dr JC Garg
Honorary General Secretary 2018-19
Adolescent Health Academy IAP

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IAP Mission Kishore Uday Program 2018-2019

Presidential Action Plan 2018-19

In collaboration with Adolescent Health Academy IAP

Comprehensive Adolescent Health Program for Suicide Prevention and Intervention

Precious Teens Precious Lives

Indian Academy of Pediatrics (IAP) Comprehensive Adolescent Health Program, Mission Kishore Uday 2018 - 19 is a call for action for 'Suicide Prevention and Intervention'. Adolescents form 21.8% of our population (Census 2011) and are our demographic dividend. Their physical, mental and emotional well being will determine the health of the nation; now and in the future. The menace of adolescent suicide is growing and hence there is an urgent need to prevent it. IAP, being the leading professional organisation in India for adolescent health care has taken the onus and responsibility to reduce rate of adolescent suicide through Mission Kishore Uday Program. The program will focus on capacity building, education and training of paediatricians, teachers, parents and adolescents to prevent teen suicide. The details elaborated in the next few paragraphs would reinforce the need and rationale for launching such a program all over the country.

Facts and Figures

- **Self harm is the most common cause of adolescent mortality in India** *(Global Burden of Disease Study 2013)* while globally road traffic accidents is the most common cause of death in this age group
- India has the highest rate of suicides amongst the youth 35.5 per 100000 *(Lancet 2012).*
- India has the highest number of adolescent suicides in South East Asia *(Mental Health Status of Adolescents in South-East Asia: Evidence for Action WHO 2017)*
- Every hour, one student commits suicide in India. Students comprise 6.4% of those who committed suicide in India in 2015. *(National Crime Records Bureau 2015)*
- Most common known causes of adolescent suicide in India are family problems, physical and mental illnesses, school failure, broken love affairs, drug and sexual abuse. *(National Crime Records Bureau 2015)*
- Mental disorders are on the rise amongst Indian adolescents with the highest prevalence in urban metros. The current prevalence is estimated to be 7.3% with depression and anxiety being the most common disorders *(National Mental Health Survey 2015-16).* 35-50% of adolescents with depression may attempt suicide.
- WHO states that prevalence of depression and anxiety in Indian school adolescents is 25% and 8% respectively, 11% used drugs, 7% were bullied, 10% had no friends and 8% were lonely and only 62% felt that their parents were able to understand their worries and problems. *(Mental Health Status of Adolescents in South-East Asia: Evidence for Action WHO 2017)*
- Suicide attempts far exceed reported numbers of suicide attempts. For every recorded suicide, there are 20 suicide attempts and 10 percent succeed.
- There is a 87% shortage of mental-health professionals. There are 3,800 psychiatrists, 898 clinical psychologists, 850 psychiatric social workers and 1,500 psychiatric nurses nationwide *(reply by the*

Ministry of Health and Family Welfare in the Lok Sabha in December 2015).

Rationale

IAP acknowledges the urgency of dealing with the issue of adolescent mental well being to abate the tide of adolescent suicide. There is poor availability of mental health professionals in India. Pediatricians take care of a child from the newborn period to adolescence and have expertise in neurodevelopmental and behavioural science. They are the most suitable professionals to ensure adolescent emotional well being in health care establishments and in the community. They also share an excellent rapport with parents. Through Mission Kishore Uday, IAP plans to train paediatricians all over the country for suicide prevention and intervention. Other gatekeepers of adolescent health like parents, teachers and teens would also be sensitised. Adolescent health experts will take the role of lead faculty in these programs.

Training of paediatricians will focus on both physical and mental health issues. It is known that adolescents have a poor health seeking behaviour as they find the current health services 'unfriendly' and irrelevant to their needs. Common problems like anemia, acne and dysmenorrhea may serve as 'entry points' to health care systems. Hence the pediatricians' training workshop would cover all common physical and mental disorders like stress, depression, anxiety, drug use and a 'clinical approach' to an adolescent patient.

Neurodevelopmentally teens are prone to impulsive risky behaviour especially in stressful conditions as they have an immature prefrontal cortex that may impair judgement and control. They also have a highly reactive limbic system and reward centre which pushes them into sensation seeking behaviour. Life skill training helps the adolescent to build resilience, manage stress and to resist peer pressure and high risk behaviour like drug use. Lately, dangerous digital games like 'blue whale challenge and cyberbullying have increased the propensity to self harm. The adolescent training module will focus on life skills, healthy media usage, pointers to mental disorders and responding to a 'suicidal' peer. IAP also plans to train peer educators in suicide prevention.

Family and school connectedness and spirituality and religiosity are important protective factors against risky behaviour including self harm in teens. The parents and teachers' module emphasises on 'teen connectedness and communication'. It comprises on tips on how to build resilience in children, digital parenting, pointers to mental disorders and responding to a teen with suicidal behaviour.

Parents, teachers, peers media, adolescent friendly health services, existing laws and national mental health policies are known socio ecological determinants of adolescent behaviour. Mission Kishore Uday is a comprehensive adolescent mental health program and makes a positive contribution to each of these health determinants. Nationwide launch of IAP Mission Kishore Uday will definitely make an impact on adolescent health and well being.

Methodology

IAP plans to conduct 30 workshops in different parts of the country in 2018-19, 6 in each zone; North, South, East, West and Central. The training programs will be lead by adolescent health experts. Each workshop shall have the following components:

1. **Pediatricians' Training Workshop: 6 hours**

   50 pediatricians will be trained, who in turn would train other local paediatricians and continue to conduct community programs for adolescents, parents and teachers in schools and colleges.

2. **Adolescent Training Workshop: 2 hours**

   200 high school students would be sensitised and 5 peer educators would be trained in disseminating the message of teen suicide prevention by adolescent health experts. Question box session will also be conducted.

3. **Parenting and Teacher Training Session: 2 hours**

   350 parents and teachers of a high school will be sensitised regarding teen suicide prevention and intervention through an interactive session by adolescent health experts.

Contents of Training Modules

Module 1 : Pediatricians' Training Workshop: 6 hours

1. Clinical Approach to an Adolescent
2. Stress Management
3. Depression and Anxiety
4. Substance/ Drug Use
5. Management of Adolescent Suicide in Clinical Practice
6. Anemia
7. Headache
8. Menstrual Issues
9. Polycystic Ovarian Syndrome
10. Hypertension
11. Acne
12. Sexuality

Module 2: Adolescent Training Workshop: 2 hours

1. Life skills
2. Stress management
3. Healthy Media Usage
4. Flag signs of mental disorder
5. Responding to a peer with suicidal behaviour
6. Peer education

Module 3 : Parenting and Teacher Training Session: 2 hours

1. Building resilience
2. Digital parenting
3. Flag signs of mental disorder
4. Responding to an adolescent with suicidal behaviour

Enhancing Resilience in Adolescence
Role of Parents, Teachers & Caretakers

Dr Atul M Kanikar

Objectives

1. Empower parents, teachers and caretakers with skills for developing emotional well being and preventing teen suicide
2. Discuss flag signs of mental disorders and suicidal behaviour
3. Impart digital parenting tips

Adolescence is a phase of rapid biopsychosocial changes. It is a period of attaining puberty, moving away from the family towards peers, independence bids, identity crisis, sensation seeking behavior, experimentation and emotional upheavals. Coping with these normative changes may be challenging and stressful for adolescents and their caretakers. Stress in adolescence is undoubtedly on the rise in all socio-economic strata, either singly or in combination with other mental health issues. The current scenario of changing family base, cultural norms and the ever increasing demand to acclimatize to the social milieu make the teenagers strong but at times vulnerable. The capacity to handle various stressors (mostly unknown to the parents) is never actively taught to a growing child who lives at the mercy of peers, social media or fate, which are unpredictable and unsafe in many instances. Pediatricians should impart anticipatory guidance and counsel caretakers and adolescents.

The innate ego of a child refuses to accept the acute or long lasting impact of stress. Neurobiologically, adolescents have high emotional reactivity due to an immature prefrontal cortex and stress response and a relatively mature limbic system and reward centre. After a critical level, the adolescent may engage in high risk behavior in the form of media addiction, rash driving, binge eating, drug abuse, sexual promiscuity and self harm simply to ‘forget’ the stress which never disappears. Hence caretakers should keenly monitor adolescent behavior.

Parents and teachers, having all their focus on the academic performance alone, usually do not address this decisive killer namely 'Teen suicide', mainly because of wishful ignorance and lack of skills. Parents and teachers should understand the causation, warning signs, manifestations and means for prevention of one of the leading cause of death in young people across the globe – suicide.

Importance of Resilience and Life skills

Over the years, it is documented that like sexuality education, life skills – the skills essential for our existence and psychosocial growth must be taught to every child right since early childhood. Life skills enable us to handle daily tasks successfully and these make us capable to face the challenges arising anytime, anywhere and anyhow. Life skills education makes our thinking protective, productive, peaceful and pleasant. Those who receive this vital education early in life tend to take good care of themselves as well as of other people. Lack of essential life skills makes a growing and confused teenager quite vulnerable to stress. Stress may be caused due to external factors like noise and pollution or by internal factors like irrational beliefs. Since adolescence is the crucial period of development of one's core beliefs and personality, learning healthy coping skills is essential.

In addition to life skills, parents and teachers should enhance the resilience of today's teens since most suicidal thoughts arise out of low frustration tolerance. Thus a trivial incidence gets converted into a catastrophe due to incorrect and irrational belief system leading to helplessness, hopelessness and worthlessness. Teaching this connection to a growing child is one of the many important parental tasks.

Warning Signs of Suicide

For every unfortunate suicide there are twenty failed attempts and countless suicidal thoughts. Fortunately four out of five teenagers give clear warning signs which can alert the caretakers to take remedial action in the form of counseling and support.Any subtle change in teen's behavior or attitude cannot be missed if parents are vigilant. These may indicate onset of mental disorder, especially if such transformations are recent, of increasing severity and persist for more than two weeks. The following signs are pointers towards suicidal intent:

Verbalizing	Death wish revealed through talking, writing or texting on social media. Wishing, "I should have never been born. I wish this was the end.”
Acquiring means	Collecting weapons, pills, ropes, maps, train time tables. Searching the internet for ways to do self harm or suicide helplines.
Feeling of hopelessness	Sense of being trapped, sadness, thinking,"nothing better will happen". Ending any discussion on " There is no hope and life has no meaning.”
Self hatred	Guilt, shame, serious dislike for self, disturbed sleep and appetite. Mentioning, "I am a burden to my family or world.”
Getting things in order	Giving away possesions and valuables to friends or siblings. Closing bank account and doing charity.
“Good bye”	Making unexpected visits to friends and relatives. Saying bye-bye as if this is the last one.
Social withdrawal	Isolation from friends and family, deterioration of social relationships. Excessive anger and aggression. Fall in academic performance
High risk behaviors	Reckless driving, drug abuse. Increased consumption of alcohol and tobacco.

Many parents wrongly believe that a mention about death wish by a teenager is an attention seeking behavior. Caretakers need to take every word very seriously because it could be the last one. Talking to a teens about suicide does not predispose them to self harm. It makes them feel that parents are caring, nonjudgmental and empathetic. They also feel understood and supported. If a teen expresses suicidal intent, parents and teachers should remain calm, offer unconditional support, actively listen to the distressed adolescent, ensure safety, discuss 'reasons to live' and consult a health professional at the earliest.

Risk and Protective Factors

Following **risk factors** make the teenage vulnerable to suicide :

Individual Factors	Family and School Factors	Societal Factors
• Poor self esteem • **Previous suicidal attempt** • Alcohol & drug abuse • **Mental health disorder** • **Chronic disorder** • **Failed romantic relationship** • Recent loss of near and dear one • Sexual identity confusion and shame • Easy access to lethal weapons / pills • Hesitancy for obtaining help.	• **Family history of suicide** • **Disrupted family milieu** • Financial crisis • Alcoholism in parents • Domestic violence • Sexual abuse • **Academic failure** • Bullying / Ragging • Humiliation by teachers • Corporal punishment and poor discipline methods • Truancy	• Lack of awareness • Less number of mental health professionals • Inaccessible and unaffordable services • Social stigma associated with mental health disorders • Cyber harassment • Poor support from health care workers • Unfriendly teenage care services

Caretakers must take note of certain **'protective factors'** which prevent teenagers from ending lives and help them to cope with the stressors. As mentioned before, the learning should begin early in life and the active process of life skills education must continue through teenage and early youth. Life skills education by parents and schools nurture a mentally strong, resilient and responsible teen who can handle any dire situation in an effective way.

Protective Factors	Mechanism
Life skills and resilience	Ability to effectively handle difficult situations
Family and school connectedness	Mental comfort and early detection of problems
Restriction to lethal means	Opportunity is avoided during mental crisis
Cultural and religious beliefs	All cultures and religions discourage suicidal acts
Strong support system	Enables easy access for a disturbed teenager
Peer support and trained peer educators	Teenagers tend to disclose their issues with friends

Life Skill Education

There are more than one hundred skills which help us survive, sustain and succeed. Most of these life skills are interwoven and augment one another. The important skills which ensure teenager's safety and success are depicted in the following diagram.

Life is full of everyday challenges and teenagers are vulnerable to various stressors like academic turmoil, competitive sports, peer influence, social media hazards, substance abuse, separation from parents, bullying, disturbed relationships, body image dissatisfaction,sexual identity confusion and uncertainty about the future. Many teenagers leave the protective home environment and join some career or job to live on their own. Prior preparation and anticipation of hurdles in the new premises is certainly helpful.

Life skills training aims at behaviour change designed to address a balance of three areas: knowledge, attitude andskills. The process is dynamic and the skills change with time and growing experiences. Following chart depicts the various skills which aid the teenager to have a positive outlook towards life:

Skill	Brief Description	Parenting Tips to Teach Life Skills
Self awareness	Knowing likes, dislikes strengths and weaknesses.	Through self assessment and avoid putting labels to growing child. The adolescent may choose to live with the label.
Decision making	Making decisions. Solving problems effectively and efficiently	Objectively understand the problem and the central issue, weigh pros and cons of each possible solution, choose the best option with highest gains and lowest pains and give fair trial before accepting or rejecting it.
Critical thinking	Analyzing a problem in an objective and unbiased way.	Understand things in detail with open mind and without any prejudice. Assimilation and evaluation of information from wider perspective.
Coping with stress	Identifying the stressors, differentiating between internal and external.	Understand self contribution and catastrophization especially through irrational thinking to distress. Use relaxation techniques and cognitive management. Try to change the things which can be changed and unconditionally accept those that cannot be changed. Professional help may be needed.
Handling emotions	Dealing positively with unpleasant emotions like rage, grief, anxiety, guilt, shame, jealousy, envy, being hurt	Understand the triad of thinking, feeling and behaviour Convert unhealthy negative emotions into healthy emotions by practice, patience and persistence. Control reactions in a way that is safe for oneself as well as others. Taking counselor's help if necessary.
Effective communication	Ability to successfully convey thoughts and feelings to other people.	Nonverbal tools like eye contact, touch, nodding, smile to be used appropriately. Show concern, understand other person's perspective, be willing to accept differences of opinions without compromising self esteem. Use verbal tools in a non-aggressive manner. Learn to write notes or letters to convey emotions clearly
Nurturing relationships	Accepting differences, enhancing mutual growth, giving opportunities, providing support and being always available.	Understand other person's feelings, be compassionate, and avoid being prejudiced. Show concern and share feelings in a non-hurting manner. Have patience and praise friendly gestures. Give space to the other person. Avoid gossips and negative comments and constant ridicule.
Personal safety	Leading a healthy risk free lifestyle	Balanced diet, adequate sleep (8-9 hours/day), no drug use, safe driving, cyber-protection, responsible sexual behaviour, regular physical exercise (1 hour/day) and meditation
Goal setting	Decide what one wishes to achieve in life.	Detailed analysis and planning, proper training, persistent efforts, readiness to activate next plan in case of failure and not putting blame on self or others.
Wise use of resources	Have self awareness and knowledge.	Know the expected monthly expenses, manage pocket money, keep accounts, avoid lavish shopping and borrowing money. Keep some extra saving for unexpected expenses. Target for monthly positive bank balance.

Building Teen Resilience

Resilience is the capacity to handle changes or adversities. Like other life skills, resilience changes with experience over time. Resilient teens have high frustration tolerance and can withstand unpleasant situations. They are resistant to mood swings, tantrums, stressors and catastrophization of mishaps like break-ups, separation from family, conflict with friends or failure in examination.

Resilient teens have skills to make healthy choices from available options. They are flexible and avoid black and white or "all or none" (rigid) thinking.Thus they always remain "on track", have better school adjustments, good academic performance and more job opportunities. Resilient teens get along well with people around them and are approachable and admired in the group.

Parents and teachers can inculcate resilience in a teenager by role modeling, setting limits for acceptable behavior, saying "No" assertively with proper explanation, appreciating desirable behavior and multiple intelligences, encouraging skills, participation in sports and extra curricular activities, giving responsibility and by teaching that failures do happen and a single setback is not the end of the world. Parents should follow authoritative parenting style. Dimensions of different parenting styles and their effect on adolescent behavior is given below:

Parenting Style	Dimensions		Effect on Adolescent Behaviour
	Responsiveness	Demandingness	
Authoritative	High	High	Responsible, self assured, socially skilled
Authoritarian	Low	High	Dependent, not confident, passive, less socially adept
Indulgent	High	Low	Immature, irresponsible, peer conforming
Neglectful	Low	Low	Impulsive, defiant, delinquent

Authoritative parents help adolescents to develop positive attitude towards themselves, others and the world. They enhance theirself esteem or self confidence. Parents should refrain from constant criticism, nagging, too much preaching, humiliation, physical abuse, over expectations and empty praise. They should adopt positive disciplining techniques. Parents should understand that all teens are not hardwired to excel in academics and pressurizing them to do so can result in emotional distress. Resilient teens exhibit rational behavior even under stress and realize their potential in life.

Following mechanisms enhance resilience in children and teenagers

Social and emotional learning : The five components of this theory are,

a) Self awareness (identifying emotions, knowing personal preferences and strengths and maintaining self confidence and self esteem.)

b) Self management (handling stress by regulating emotions, impulse control, setting and monitoring progress towards goal attainment and appropriate expression of emotions.)

c) Social awareness (ability to empathize and accept individual differences)

d) Relationship skills (cooperating with group or individual activities, resolving conflicts in a mutually agreeable way, seeking help if needed.)

e) Decision making (making appropriate decisions using critical thinking and problem solving skills with ethics and socioeconomic norms.)

Many researchers have concluded that this theory enhances academic performance, improves behavioral problems and emotional distress in teenagers.

Cognitive behavioral approach : This is based on the triad of thinking, feeling and behavior. Teens' belief system decides their reaction to adversities. For example, two teenagers with similar low grades may have totally different reactions. An emotionally disturbed teenager is likely to get accentuated self defeating reactions due to illogical beliefs leading to suicidal behavior while another teen with resilience may decide to put in more hard work to overcome failure. Through this approach, caretakers can make a teenager understand the link between thoughts, feelings and behavior, identify the 'faulty' self talk, dispute irrational beliefs and encourage an effective new thinking process to overcome adversities. This approach works well for anxiety and depression.

Positive psychology : This approach emphasizes the development of positive mental wellbeing with less emphasis on mental abnormalities. Thus it focuses on the study of conditions and processes which contribute to optimum functioning.

Mindfulness approaches : These approaches comprise of paying attention in a particular way: on purpose, in the present moment and non-judgmentally. By connecting with the present moment and calmly observing ones thoughts, feelings and sensations, there is an increase in self-awareness and improved capacity to manage thoughts and emotions. This can be achieved through meditation, contemplation exercises or through paying attention to everyday activities such as eating, gardening, walking, listening and class work.

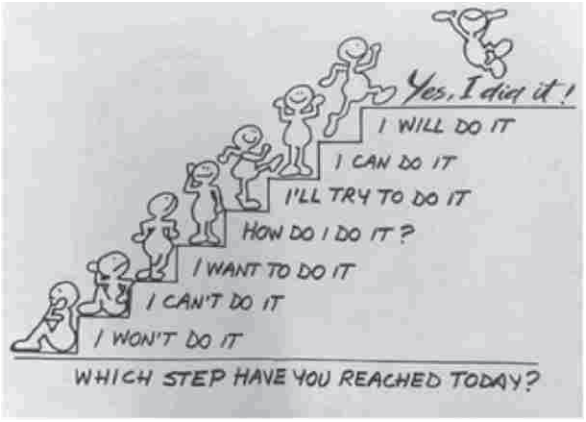
Stress Management

Some amount of stress is essential for improving efforts and performance. Distress or too much stress results in failure and poor health. Teenagers with SMART (Specific, Achievable, Realistic, Time bound) goals are likely to remain focused. They make use of all possible resources and are consistent in their efforts with good time management. Distressed teens are usually erratic and have poor task performance. Parents and teachers should have appropriate expectations and provide constant support and encouragement to teens. Just being with the teenager is many times sufficient to counter stress. Too much questioning and needless preaching or idealism can be repulsive and should be avoided.

A few stress management tips are elucidated below:

1. **Identify the stressor/s :** An adversity could be internal i.e. arising from within (e.g. lack of skills, tendency to procrastinate, short cuts to pleasure, negative thought processes, being inconsistent or even a drug habit) or external (disturbed family milieu, peer pressure, media overuse, break up in relationships, going away from home, bullying, academic burden). At times there can be multiple stressors working together.
2. **Time management :** This should be taught to a growing child through proper discipline methods. A difficult task can be broken down into manageable small segments and over a period the task may not appear so difficult. Consistency and family cooperation is a must.

3. **Positive thinking :** Rational coping statements and positive visualization can help a teenager feel confident. Saying," I have to do it, I can do it, so I will do it and I may succeed" makes one feel good. Putting up motivational posters (see below) in teenager's study room may be helpful. These are useful for managing any adversity like drug habit, sexual experimentation, academic backlog, academic under achievement and break up.d admired in the group.



4. **Behavior modification :** Working on irrational beliefs, being realistic, disputing the self defeating thoughts, avoiding temptations and making persistent efforts are likely to take the teenager towards desired goal. Each step achieved leads to reduction in stress level and enhanced confidence.

5. **Relaxation techniques :** Intake of a balanced diet, adequate sleep, deep breathing exercises, yoga, pursuing hobbies, mindfulness and meditation have been proven to be useful in stress reduction, if practiced consistently. A trained teacher should be approached for training and initial supervision.

Caretakers should provide a nurturing environment and be approachable and available, especially in a stressful situation. This is possible only if caretakers spend adequate time with adolescents, show empathy and have effective communication skills. Else, the teenager may use unhealthy methods for managing stress like alcohol, smoking or drug abuse, social withdrawal, wishful thinking, bargaining with God, blaming others, violent behavior and self harm. Ineffective stress management can precipitate a mental disorder like depression.

Parenting in the Digital Era

Media revolution and digital boom has made parenting difficult and challenging. Many teenagers have to leave the secured and warm home environment for studies or career. The "empty nest syndrome" of parents and separation anxiety of a teenager overlap. Many parents feel inadequate to manage a teenager far away from home. Most teenagers and young people tend to manage themselves well without yielding to outside world's unfavorable influences. Parenting remains through occasional meetings, internet chatting or phone / video calls mainly. The role of parents and teachers eventually revolves around family rules and preventive measures. Healthy bilateral talk and rules agreeable to every family member is the key to teen's cooperation.

Important digital parenting tips are enumerated below:

1. Be the first one to expose your child to the cyber world. Explore the internet together.
2. Be a good role model of cyber habits. Restrict media use. Ensure media free zones and media free time

3. Put emphasis on the useful contribution of media towards improving knowledge and information and providing recreation. Be in regular touch and share humor. A simple joke reciprocated by a smiley would be appreciated by teens.
4. Teach cyber ethics and consequences of hurting someone on net. Teach that any comment or picture posted leaves a permanent electronic foot print and can be tracked by cyber crime branch. Make the teen aware about POCSO (Protection Of Children from Sexual Offences) Act, mentioning that posting inappropriate text / pictures is a crime and sexual offence.
5. Never reveal personal information (mobile number, address, bank account details, PAN number, post revealing photographs or videos) on net, unless one personally knows the receiver and their purpose. Talk about the impending risks to teens. Do talk about "predators" who misuse the pictures/videos, innocently displayed by kids on social media. Ask the teenagers not to click on "save password" icon.
6. Be vigilant about the child's cyber-circle. Ask about any threats/bullying. Parents should keep their minds open for discussion. Ask your teenager to share instances of cyber-bullying. If the posts shared by teenager reveal death wish or cyber bullying, parents should be emotionally supportive and seek professional/legal help.
7. Follow the WWW approach. Ask the teenager about "Who" they talk to when online, "Where" they go online and "What" they do online. Educate the child about hazards of chatting with 'strangers' on net. Do not be over inquisitive. Teens do deserves some privacy, provided they are well informed.
8. Use tracking software e.g. Mob Safety Ranger Browser, Famigo, Video Monster, Qustodio, ContentWatch Net Nanny 7. Remember, nothing works better than parental vigilance.
9. Do not blame the cyber world for the teenager's worsening behavior/academics. Be a "Web-wise" parent
10. The most vital task is to"**Keep updated with time and technology."**

Flag Signs of Mental Health Disorders

In countries like India where mental health remains a neglected issue, most of the times, parents and teachers fail to identify and report psychological abnormalities in adolescents. They should be vigilant about the following warning signs which point to a significant mental health disorder Many parents give way to denial and assume everything is going to be alright with time.Parents and teachers can pick up the slightest change early and take necessary action to prevent a impending disaster and save a life. It is better to be safe than sorry. Any abnormal behavior which lasts for more than two weeks, that increases in severity and adversely affects teenager's routine and efficiency, maybe a flag sign of a mental disorder.

1. Mood swings, sadness disproportionate to cause, sleep and appetite disturbances, irritability, social withdrawal, loss of interest in activities which were previously enjoyable, scholastic deterioration, unkempt appearance, increased alcohol and drug abuse and preference for being left alone point to **depression**. Sexual abuse may also present with similar symptoms. An unusual cheerfulness in an otherwise depressed teenager must be a cause for alarm for the caretakers, because the decision to end life has been made as a means to get rid of agony and stress. This teenager need immediate

attention and intervention. Hospitalization maybe be necessary to save the life of a teen with severe depression.

2. Pounding heart beats, frightened or tensed look, flashbacks, sweating, tremors, sleeplessness, nightmares, unexplained hesitancy to do tasks, talking to self with fearful or angry facial expressions, grinding teeth and avoiding people or places all point towards **anxiety disorder or post traumatic stress disorder.**
3. Frightfulness, excessive suspiciousness, flight of ideas, unusual sensory symptoms, incorrect articulation, doing meaningless things, disproportionate reaction to criticism and aggression point towards **psychosis or thought disorders.**
4. Causing harm to other's property, aggressiveness, theft, truancy, carrying hazardous weapons and violence denotes **conduct disorder** or antisocial personality.
5. Stealing money or valuables, spending time with senior friends, excessive use of deodorants, avoiding eye contact and hug by parents, spending extra time in bathroom, preference for being alone, poor hygiene, prick marks, burnt holes on clothing, red eyes and snuffles point towards a possible **drug abuse.**

Caretakers should detect the problem EARLY, pay serious attention to it and take professional help as soon as possible. A delay in obtaining help can be life threatening.

Key Messages

- Parents, teachers and caretakers have a vital role in teaching healthy stress management techniques, life skills and resilience building skills to adolescents
- Caretakers should closely monitor adolescent behavior. Symptoms and signs of distress, emerging mental disorders and suicidal intent should be managed appropriately with professional help
- Web wise parenting is essential to overcome challenges of digital media

Suicide Prevention: Empowering Adolescents

Dr Sushma P Desai

Objectives

1. Discuss life skills and stress management techniques
2. Impart scientific facts regarding teen suicide and its prevention
3. Encourage healthy media usage

Adolescent participation defines the success of a teen health program. Bids for independence and autonomy are important developmental tasks of adolescence. Hence there is a need to talk with adolescents directly and motivate them to adopt a healthy lifestyle to combat stress and adversities. Life skill education, utilizing stress management techniques and using media judiciously, promote emotional well being in adolescence. Teens should be aware about the causes of suicide and appropriate ways to respond to a peer with suicidal intent or behavior. This would go a long way in preventing teen suicide. In adolescence, peer affiliation increases and family influence on behavior decreases, thus involving peers and peer educators in and out of school, increases the reach and impact of adolescent health education programs.

Life Skills

Life skills help adolescents to deal effectively with the demands and challenges of everyday life enabling them to lead a meaningful life with psychosocial competence. The World Health Organization has proposed a set of core life skills. These skills are usually clubbed into three major categories:

1. Thinking skills: critical thinking, creative thinking, problem solving, decision making
2. Personal skills: self-awareness, coping with stress and emotions
3. Interpersonal skills: communication skills, empathy

Life skills are used in conjunction. For example, critical thinking is required for effective problem solving as well as understanding an interpersonal conflict from a wider perspective. Core life skills are described below:

1. **Self-awareness :** It is the ability to recognize ones strengths, weaknesses, likes and dislikes. Self awareness is important for being comfortable with one-self, to recognize the ways by which one can handle stress and to optimally utilize resources.
2. **Empathy :** It refers to understanding others' emotional states and perspectives. It helps in understanding other peoples' concerns and reactions to a given situation. This helps in having better interpersonal relationships.
3. **Creative thinking :** It is the ability to visualize and analyze things in novel ways. It helps in building new perspectives and to think out of the box. It helps in finding 'new' solutions to an existing problem.
4. **Critical thinking :** It is the process of analyzing a problem in an objective manner. It helps in objective evaluation of information.

5. **Problem solving and decision making :** Problem solving and decision making are interrelated skills. These skills nurture an objective approach towards a problem and facilitate the process of selection of those solutions that are most economical (with highest gain and lowest losses).
6. **Coping with stress :** Identifying triggers of stress, ways to counter stressors and to prevent distress are important skills to be learnt by adolescents.
7. **Coping with emotions :** It refers to understanding and responding to one's emotions in an appropriate way. It does not mean suppressing or bottling up emotions. It avoids an impulsive or aggressive response to an emotionally arousing situation.
8. **Effective communication :** It develops the skill of using both verbal and non-verbal communication effectively. It encourages the use of assertive communication, especially to deal with negative peer pressure.
9. **Interpersonal relationships :** Maintaining a healthy interpersonal relationship is crucial for mental well being. Compassion, empathy, emotional reciprocity and effective communication skills are vital for developing and maintaining healthy relationships with family members, friends, neighbors and colleagues.

Stress Management

Stress is the way our body and mind reacts to demanding life situations. Depending on one's perception, thinking and appraisal, the demanding situation can result in either positive or negative stress.

- Positive Stress/ Eustress: It motivates one to keep alert and be prepared to face life challenges. For example athletic adolescents who have undergone adequate training and coaching, enjoy participating in competitive sports and put in their best without feeling distressed.
- Negative Stress/ Distress: It takes away positive energy and leads to loss of productivity and poor health. For example adolescents who do not study regularly, may get distressed during exams and perform poorly. Adequate exam preparation will convert distress into eustress.

Stressors are events or situations that cause stress. These alter the internal homeostatsis of the body. Internal stressors are within the body like pubertal changes, sickness, injury, malnutrition or sleep deprivation. External stressors are outside the body like family stressors, peer pressure or societal expectations. Stressors could also be divided into environmental (e.g noise, pollution), physical (e.g prolonged tuition hours, excessive physical activity) and psychological and psychosocial (e.g intense academic competition, peer and media pressure, identity crisis).Ongoing daily stressors are harder on adolescents than one major adverse life event.

Hans Selye has conceptualized three **stages of stress**, which are important to understand in the context of stress management. They are:

1. Alarm stage: Here the body responds to an emergency or threat. It indicates the need to deal with the crisis on hand.
2. Adaptive-resistance stage: In this stage, the body may use its reserves to cope with the situation. After a break point or burn out, this may not work leading to a stage of exhaustion.

3. Exhaustion stage: Body gets exhausted of resources if the stressor prolongs. There may be a complete breakdown of the bodily systems and various illnesses develop.

So, it is important to identify the warning signs of stress and start managing it otherwise it may lead to adverse effects on body and mind.

Physiologically, teens have an immature stress response and high emotional reactivity due to a relatively mature limbic system and immature prefrontal cortex (that controls emotions). Hence teens get easily stressed out. Distressed adolescents usually complaint of :

- Physical symptoms like severe and persistent headache, sleep disturbances, acne break out , nausea, abdominal pain, excessive perspiration and palpitation.
- Emotional and behavioral changes like excessive anger, excitability, moodiness, irritability, frequent crying episodes, poor concentration, forgetfulness, poor school performance, nervousness, poor appetite and loss of interest in favorite activity.

Poorly managed stress can lead to academic underachievement, disturbed relationship with family and friends, increased susceptibility to infections, hypertension, heart problems at young age, asthma and diabetes and mental health problems like depression, eating disorders and sometimes even suicidal thoughts.

The way one deals with the stress is known as 'coping'. The coping can be:

1) Problem focused which refers to a problem solving approach
2) Emotion focused which refers to the efforts to deal with emotional distress arising from a frustrating situation like talking with someone or taking a time out.

Each person reacts to stress in different ways. Likewise, a method that suits one person in reducing stress may be ineffective for another person. Moreover, the stress management technique also differs in different situations. Some people may adopt the following unhealthy methods for managing stress :

- Consumption of alcohol and drugs : For some time, this may give some relief but ultimately it would increase the stress by bringing in other stressors in life such as financial problems, severe physical illnesses and addiction.
- Avoiding situations: This will not result in disappearance of stressful situation as one has to deal with it head on. Sometimes avoiding a stressor can be temporarily effective and provide respite until other healthy coping skills are brought into effect.
- Remaining aloof or isolated: Not sharing feelings with others and decrease in interpersonal interactions compound the effects of stress. It may also lead to feeling lonely and depressed.
- Aggression and self-harm : Instead of dealing with stress, teens may vent their frustration on self or others in the form of aggression and self-harm. All such acts will have lasting negative consequences on health and well being

Healthy ways of coping with stress are as follows:

1. Adopting a healthy lifestyle: It can significantly help in preventing and reducing stress. It includes:

- Daily moderate physical activity for 1 hour like jogging and swimming can rejuvenate and refresh

adolescents. Physical activity generates endorphins, the mood elevating hormone. Physical health and mental health go hand in hand. Therefore, regular physical exercise should be integral part of the adolescent's daily routine.

- Spending time in hobbies, prayer, meditation and activities that one likes can be quite relaxing and pleasant. It also keeps one away from the stressful thought process.
- Eating a balanced diet ensures physical and mental health. Eating fresh fruits and vegetables, having regular meals and avoiding junk food, aerated drinks, tea and coffee, significantly helps in stress reduction .
- Adequate sleep of atleast 8 hours is essential to keep stress at bay.

2. Tips for promoting emotional well being include the following:

- Talking to parents or some trustworthy adult or friends when distressed, helps to release the stress. It may also help in problem solving
- Keeping a mood diary to note positive and negative stressors and early warning signs of mood changes may help to identify and deal with stress provoking stimuli at the earliest. A 'morale boosting' book can be maintained to make a note of one's strengths and achievements to nurture self-confidence.
- Helping the needy and contributing to the community by doing social work are stress busters.
- Developing assertive skills to resist negative peer pressure like use of drugs and rash driving can be life saving.
- Positive self talk in the form of “I can manage” and “This too will pass” when faced with adversities can build up resilience

3. Time Management :To avoid getting overwhelmed by various tasks, it is important that adolescents manage their time effectively by making a list of daily activities and arranging them according to the priority, by following the time schedule for the day as far as possible and by avoiding procrastination and clustering too many activities at the same time. Adolescents should adopt regular study habits for dealing with academic stress.
4. Relaxation techniques like abdominal (bubble) breathing, progressive muscle relaxation, imagery, music, dance, yoga and sports help in relieving stress.
5. Professional help is required when adolescents and their caretakers are not able to manage stressors on their own. For better results it is important to seek consultation when early signs of distress appear in form of persistent low mood, irritability and loss of interest in activities that were previously enjoyed.

Teen Suicide : Facts and Prevention

Self harm is the leading cause of death in Indian adolescents. Amongst the South East Asian countries, India has the highest rate of adolescent suicides. Prevalence of suicide attempts are more in female teens while completed suicides are more in males.

Conceptually, suicide is a way to escape from psychological pain which is usually acute or prolonged. When the stressor (and the resulting psychological pain) crosses individuals' limits of coping, they may decide to end their life. This psychological pain leads to various behavioural and mood changes (different people can

have different manifestations) and identifying these indicators is critical for preventing suicide. Proper psychological help in a crisis motivates people to use healthy methods of coping. Thus the most important aspect of helping those who are at-risk of suicide is to support and assist them in seeking help. As adolescents are impulsive by nature with poor coping skills to stressful situations (hot cognition), they are at risk for suicide. In a safe and calm environment (cold cognition), all teens should be taught life skills and resilience building techniques.

A few important definitions are given below:

Suicidality refers to the cognitions and activities of persons seeking their own death, including thoughts, actions or omissions.

Suicide (from the Latin sui caedere, to kill oneself) means the act of a person intentionally causing his or her own death

Suicide attempt denotes non-fatal acts or preparations intended to result in death. The suicidal act may have been abandoned, interrupted or was unsuccessful

Parasuicide refers to a nonhabitual, potentially life-threatening self harming behavior which is performed without the intention to kill oneself. Because the behavior is nonsuicidal, some authors prefer the terms 'deliberate self-injury', 'deliberate self-harm' or 'non-suicidal self injury' (NSSI).

The warning signs, risk and protective factors of adolescent suicide and flag signs of mental disorders are described in chapter 1.

Myths and facts about suicide

There are some myths prevailing about suicide. The decision about paying attention to near and dear one's likelihood of attempting suicide may get influenced by these myths. Some of the common myths are:

1. ***Myth :*** Those who are serious about suicide do not give any warning.

   Fact: Most of the teens, before attempting suicide, show one or more warning signs. If these warning signs are identified, an individual can be saved.

2. ***Myth :*** It is not a good idea to talk about suicide with a person who might be at-risk.

   Fact : Talking to a person about the possibility of the presence of thoughts related to suicide in a non judgmental manner and with empathy may provide an opportunity to vent out the pressing thoughts of self harm and give a sense of relief and ward off the imminent danger.

3. ***Myth :*** Teens talk about suicide to seek attention.

   Fact : Most of the individuals who attempt suicide, talk about suicide with someone. Therefore, even though there can be some teens who may use the threat of suicide for some gain; yet, instead of becoming judgmental it is better to seek a trained mental health professional's help to assess their suicide risk.

4. ***Myth :*** No matter what, if someone has decided to die will kill himself.

   Fact : Expressing suicidality is actually a ***'Cry For Help'*** and suicide is a highly preventable condition. If proper attention is given to risk factors and warning signs, the chances of someone attempting suicide can be decreased significantly.

5. ***Myth :*** An individual who has attempted suicide in past will not do it again.

   Fact : Previous attempt of suicide is a risk factor. A significant number of adolescents who commit suicide have history of previous suicidal attempts.

6. ***Myth :*** Adolescents with family h/o suicide will never attempt it as they have experienced the consequences.

   Fact : Chances are more in these cases as some mental illness like depression, runs in family.

Responding to a peer with suicidal behavior

Adolescents often confide in and seek help from their friends, who can play a major role in prevention of suicide. A simple method **QPR** (like CPR, which saves lives) has been suggested which can save numerous lives from suicide. QPR refers to **Question, Persuade** and **Refer.** Thus,

- **Explore (Question),** if someone in emotional distress has thoughts and plans about suicide
- **Persuade** to seek help
- Making an adequate **Referral** so that the individual gets timely help c

While communicating with adolescents with suicidal intent, it is important that:

- One should convey that they are being taken seriously. For example, if someone has expressed the thought of committing suicide, a statement like this can be helpful *"I understand that you are quite upset about……and thinking of killing yourself. I am concerned and would like to assist you in seeking professional help for this."*
- If someone is showing warning signs, a simple (but non-judgmental) inquiry can be of tremendous help. For example, *"Since your exam results, I am finding you quite down. Am I right? Would you like to talk to me about this?"*
- If someone gives hints about having thoughts related to suicide, ask a direct question such as, *"Do you have thoughts about harming yourself?"*
- The individual should be sincerely persuaded for seeking professional help. For example, *"I understand your situation. There are professionals who can help you and it is important that you take help."*
- The person who is persuading the individual having suicidal thoughts to seek help should have information about whereabouts of various mental health facilities. Facilitating consultation by talking to family / guardian as well as talking to the professional to whom the referral is being made is crucial.

Cautions to be observed while talking to individuals who may have suicidal thoughts or intents are as follows:

- Ask (whether or not they are having intents or plans to attempt suicide) but don't be judgmental.
- Do not impose moralities (e.g., committing suicide is right or wrong). Decision to attempt suicide is an example of extreme crisis. Debating or questioning someone's morality can add to the guilt. Just talk to the individual in a clam and non-argumentative manner.
- Do not express shock: Remain calm but talk in a manner that individuals feel that they are being taken seriously.

- Do not minimize: Judgmental statements such as, “How can you think of committing suicide for such a trivial issue” must be avoided.
- Do not trivialize : For example, a statement such as this should be avoided “ Neha, this is not good that you keep talking about cutting your wrist. I have heard it so many times and you must stop talking this non sense.”

Healthy Media Usage

Today's generation of adolescents are media savvy and are known as 'digital natives' as they have grown up immersed in media while their parents are 'digital immigrants', who are often uncomfortable with rapidly changing technology. Media is divided into broadcast and interactive. Broadcast media includes television and movies. Interactive media includes social media and video games in which users can both consume and create content. Interactive media enables easy sharing of information and provides an engaging personalized digital environment. Overall media use among adolescents has continued to grow over the past decade, aided by the recent increase in mobile phone use among teenagers.

Both traditional and social media provide exposure to new ideas and information and raise awareness of current events and issues. Media is the most popular tool of communication. Media has converted the world into one 'global village'. It has played an important role in nation building. For students, media provides a sea of information, it keeps them updated with latest advances and gives a platform for collaboration for assignments, projects, discussions and blogs. It promotes creativity and is a source of entertainment and socialization. Social media helps families and friends who are separated geographically to communicate across miles and fosters social inclusion among users who may feel excluded or who are seeking a welcoming community (e.g. LGBT)

Excessive and unhealthy media usage can result in obesity, postural problems due to prolonged sitting, repetitive stress injury, inadequate physical activity, impulsivity, aggression, poor socialization skills, media addiction, internet gaming addiction, depression, suicidal behavior, fear, sleep deprivation, poor academic performance (due to inattention, excessive time spent and pre occupation with the media), body image issues, eating disorders and cyberbullying. It also impacts the traditional value system and promotes unhealthy sexual behavior by broadcasting sexually explicit inappropriate content.

In recently released media usage guidelines, it has been recommended that:

- Children aged 6 years and older should have consistent limits placed on the time spent on media, and the type of media usage.
- Time spent on media should not take the place of adequate sleep, physical activity and other behaviors essential to health. Adolescents should formulate a Family Media Use Plan (www.HealthyChildren.org/MediaUsePlan) and adhere to it.
- It is important to designate media-free times, such as dinner or driving and media-free locations at home, such as bedrooms.
- Adolescents should have an ongoing communication with caretakers about media literacy, online citizenship and safety, including treating others with respect online and offline. They should not indulge in online offences like sexting and cyberbullying that are punishable by law. They should be wary about online solicitation and avoid communication that can compromise personal privacy and safety,

especially with unknown people. They should confide in their parents and caretakers about any 'uncomfortable message' that they receive on digital media.

- Teens should not sleep with devices in their bedrooms, including TVs, computers, and smartphones and should avoid exposure to devices or screens for 1 hour before bedtime.
- Adolescents should not see entertainment media while doing homework.

Adolescents should understand the concept of digital footprint that any information posted by them on the internet stays forever and cannot be erased. Inculcating media etiquette in adolescents is the need of the hour

Key Messages

- Adolescent suicide is preventable
- All adolescents should learn stress management techniques
- Unhealthy coping skills can be detrimental to health and life
- A non judgmental caring response and early referral can save the life of a teen with suicidal behavior
- Adolescents should be motivated to adopt healthy media usage skills

Approach to an Adolescent Patient

Dr Chitra Dinakar

Objectives

1. Understand the need for adolescent focused healthcare
2. Understand development domains of adolescence and implications for clinicians
3. Explain concepts of Adolescent friendly health services (AFHS), psychosocial evaluation of adolescents (HEEADSSS) and adolescent counselling
4. Outline approach to an adolescent client or patient
5. Discuss basics of counselling

According to WHO, 'adolescence' extends from 10 to 19 yrs. 'Youth' constitutes the period 15 to 24 yrs. The period of adolescence is an eventful formative period of transition from childhood to adulthood with a unique set of developmental changes and corresponding health care needs.

Worldwide adolescents comprise 1.2 billion, 18 % of the total population. India currently has the highest adolescent population in the world of 243 million, approximately 22% of the total population. This demographic dividend of a young population on the threshold of adulthood needs focused care encompassing areas of preventive and curative services to ensure a healthy future adult pool.

Behaviors established in adolescence like tobacco use, alcohol consumption, unprotected sex, reduced physical activity, faulty eating habits and violence contribute to 66% of all premature deaths and 33% of total adult disease burden. This estimate underscores the window of opportunity for medical care providers, counsellors and educators to focus on this age group for health promotion and early intervention.

The common causes of mortality in this age group, who by and large enjoy good physical health are: road traffic accidents, complications of childbirth in teenage mothers, suicide, violence, and less commonly infections like tuberculosis, malaria and AIDS. Gender differences in mortality causes are evident. In India 47% of adolescent girls are underweight, 56% are anemic, 26% are married with >50% having their first child by 20yrs. These have intergenerational effects contributing to increase in low birthweight babies and in maternal, neonatal and infant mortality. The adolescent girl therefore needs additional nutritional support and reproductive health care services.

The field of adolescent focused medical care is in a state of evolution and there is need for innovative strategies to address the diverse and challenging health care needs of this age group. The Indian Academy of Paediatrics, a professional national body of Paediatricians has pledged in 1999 to extend medical care up to 18 years of age. Taking into account the large numbers in this age group, providing primary level care to all adolescents becomes the prerogative of every clinician.

Adolescents are evolving physically, psychologically and sexually to don their adult roles as responsible and free thinking individuals capable of contributing positively to the society. An important adolescent milestone is the development of a unique'identity' separate from that of the parents. Adolescents are not homogenous in their developmental attributes and are further divided into 3 stages, early, middle and late adolescence. Each stage has unique medical care needs. Neurobiological studies have documented the

structural brain changes during this period with neuromaturation proceeding into the third decade of life. There is a posterior to anterior progression of maturation with the prefrontal cortex being the last to complete maturational changes. These changes involve a reduction in grey matter, increase in myelination with pruning and enhanced efficiency of neuro connectivity between different brain anatomical areas. The final hardwiring of circuitry is determined by enhanced usage of particular pathways, reinforcing connectivity within a 'use it or lose it' principle.

Bio-Psycho-Social Development in Adolescence

Domain	Early Adolescence	Middle Adolescence	Late adolescence
Age	10 -13 yrs	14-17 yrs	18 -21 yrs
Tanner stage - Sexual maturity rating(SMR)	SMR 1 / SMR 2	SMR 3/SMR 4	SMR 5
Cognitive	Follow rules set by parents /teachers. Concrete thoughts Start of bids for independence Unable to perceive long term effects of current behaviour	Peak in defiance and questioning of norms. Independent opinions and testing of limits Perceive long term effects but poor impulse control	Independent identity and opinions. Abstract thought Able to adapt to perceived limits and expectations. Future oriented actions
Self concept and identity	Focused on changing body Self-conscious in company. Confused identity	Concern with attractiveness Introspection and adoption of many trial identities	Stable body image Firm perception of a unique identity
Family	Needs for privacy Start of conflicts	Increased separation from parents, physically and psychologically. Conflicts peak	Emotional separation complete with establishment of identity. Re-establishes 'adult' relationship with parents
Peers and society	Same sex peer affiliation Sexual exploration	Intense peer affiliation - same and opposite sex Sexual activity	Stable relationships Sexual intimacy

Implications for Clinicians

Clinicians need to keep in mind the developmental stages of the adolescent and anticipate stage appropriate behavioural difficulties and conflicts. The developmental stresses make adolescents moody, defiant, confused and unpredictable in their attitudes and may have difficulties in forming rapport with parents and physicians. Risk taking, poor impulse control with still evolving abilities for decision making and poor judgement are to be anticipated. The primary care provider needs to develop additional skills to build a therapeutic alliance with an adolescent to ensure effective health related evaluations and treatment. Adolescents with medical illness need additional counselling support to address their normative developmental issues.

Adolescent Friendly Health Services (AFHS)

Adolescents are best evaluated in separate clinics for teenagers. These should be adolescent friendly with regard to personnel, location, timings, fee and décor. The medical care provider needs to have skills to build rapport, have a friendly personality, be nonjudgemental and communicate effectively with the adolescent.

The location of the service should be ideally in a school/college/public space where adolescents can visit without being stigmatised. Adolescents appreciate spaces that are not shared with younger paediatric or adult patients. Available paediatric clinic spaces need to be modified with larger beds and screens and walled off areas for uninterrupted counselling. Clinic timings should not clash with school/college timings as many adolescents are preparing for competitive board and entrance exams impacting future career choices. Costs of service should take into consideration that adolescents may not be earning and may seek care without their parents' knowledge for sensitive personal medical issues like those related to sexuality.

Privacy and confidentiality need to be maintained. Confidentiality should be assured and spelt out to the adolescent and parent at the start of the interaction. This is a prerequisite for eliciting an accurate history. The indications to breach confidentiality are self- harm (suicide risk), abuse (information to authorities is mandatory), criminal activity, surgical procedure and hospitalisation. Adolescents accompanied with their parents should be first seen together with their parents and subsequently assessed alone. Parents are informed on relevant medical issues only after expressed permission from the adolescent.

The history is to be taken from the client/patient themselves in addition to the parents. Consent for examination, treatment or procedures are best taken as per the laws of the geographical region. In India, a 12 year old can assent/consent for an examination and an 18 year old for medical procedures including MTP (medical termination of pregnancy). A chaperone (nurse, attender) of the same sex as the patient should be present during examination of both girls and boys.

Establishing Rapport

Adolescent clients are often unsure and sometimes scared of visits to the doctor, particularly when they are brought against their wishes, by a parent. Therefore, make an attempt to put them at ease and build good rapport right in the initial meeting. Initial chatting should be informal, for example, about friends, hobbies or school for a while to encourage the adolescent to talk freely. This will decrease the nervousness and tension and enable the pediatrician to gain insights into the adolescent's personality and background. Gradually when rapport is established, one can discuss difficult and 'threatening' issues like drug use and sexual behaviour as appropriate.

Clinician must use good skills of communications, both verbal and non-verbal, like eye contact, friendly demeanor, active listening, clear and appropriate language and asking open-ended questions. The demeanor of the client is observed closely.A frightened adolescent usually responds with hostility and physician who understands this defense mechanism can adjust his own communication style accordingly and being more supportive and encouraging. Similarly a silent, non-communicative adolescent is often hiding worry, fear or anger and can best be reached by a warm, caring attitude.

Problems Specific to Adolescence

Medical problems in adolescence encompass a spectrum of disorders. They require a unique age appropriate approach including counselling. Childhood onset nutritional anemia and malnutrition may persist or aggravate in this age group. Acne and dysmenorrhea are puberty related adolescent onset disorders. Disorders like hypertension and diabetes could reflect an early appearance of adult onset disease.

Medical problems in adolescents other than infections can be classified as:

1. Problems related to Growth and development

Short stature, delayed puberty, undernutrition/obesity, eating disorders, acne, body image concerns, gynecomastia, menstrual disorders, deficiency states – iron, iodine, vitamin D, sexuality related problems, sexually transmitted diseases, teenage pregnancy, drug abuse, suicide, road traffic accidents, violence, homicide, anxiety, obsessive compulsive disorder, depression, psychosis.

2. Problems with onset in childhood continuing into adolescence or starting in adolescence

Cardiac – Congenital heart disease, rheumatic heart disease

Renal – hypertension, renal failure

Connective tissue disorders – Systemic Lupus Erythematosus, juvenile Idiopathic arthritis

Central nervous system- Epilepsy, specific learning disability, generalized learning disability, visual and hearing problems

Gastrointestinal – Hepatic, pancreatic disease, inflammatory bowel disease

Respiratory – Cystic fibrosis, pulmonary dysplasia, bronchiectasis

3. Problems of adults starting in adolescence

Hypertension, diabetes, hyperlipidemia, depression, anxiety, psychosis

Approach to an Adolescent Client / Patient

An adolescent 'patient' has a medical problem requiring treatment. An adolescent 'client' has no medical illness but requires counselling services. In a hospital setting there is a need to provide both medical treatment and offer counselling services otherwise the medical visit would be considered a lost opportunity to extend holistic care. Given the reluctance of adolescents to visit a hospital, this could be a practical approach to optimize benefit.

Preventive care is as important as curative services and a comprehensive care model for adolescent health should encompass health in the physical, psychological and social domains. Ideally this is accomplished by a

universal annual adolescent health maintenance visit that includes counselling and anticipatory guidance.

Adolescent evaluation and management should include

1. A detailed history, including a psychosocial history
2. A head to toe examination, including a genital examination if indicated.
3. Relevant additional laboratory investigations
4. Immunization
5. Anticipatory guidance: Preventive counselling is provided for anticipated health impacting behaviours like sexuality or substance use related.
6. Treatment of specific problems with appropriate referral to an adolescent friendly provider

History

This is taken from the adolescent and parent/guardian and includes the following:

- Details of present and past medical problems
- Immunization history.
- Family history of diabetes, hypertension, hyperlipidemia, early onset cardiac events <55 years in family members
- A detailed psychosocial history.

Psychosocial History

The psychosocial history gives a wealth of information on current state of emotional wellbeing, identifying problem areas (e.g substance abuse) or criteria for diagnosing mental health conditions (e.g depression) it can also identify supportive adults who can partner with the physician to provide care. It identifies adolescents in need of additional medico-social support services (e.g HIV infection or disability).

Components of the psychosocial history are captured under the HEEADSSS mnemonic. Both parents and adolescents should provide separate history which is then integrated into a single psychosocial history. The questioning should be open ended to avoid a 'yes' or 'no' response and allow the adolescent to communicate freely. Indirect questioning can be utilized in sensitive areas like sexuality or drug abuse. The HEEADSSS questions should cover the following :

H(ome) - Family composition, living and sleeping arrangements, relationship with the adolescent, disciplining strategy, abuse, adult psychiatric illness.

Sample : How would you describe your relationship with your parents?

E(ducation) - Attendance/absences. satisfaction with performance. pressures to perform. failure in passing any subject, falling grades, specific learning disability, vision, hearing, peer and teacher interactions, discipline.

Sample : Compared to your previous grades, how do you rate your studies this year?

E(ating) - Food habits, skipped meals, dieting, vomiting. attitudes to eating, schedules and logistics interfering with healthy eating choices. body image concerns.

Sample: On a routine day, could you tell me about your meal plan?

A(ctivities) - Exercise, hobbies, sports, TV viewing, computer and internet access, mobile phone use, gang violence, fighting, bullying.

Sample: What are the activities you do to relax? How much time would you spend on a regular school day watching TV/on a phone/social media?

D(rugs) - Cigarettes/ alcohol/ others.

Sample : What are your views on smoking? How can smoking affect health? Do any of your friends smoke? What about you? How would you say 'NO' to a close friend who is convincing you to smoke just one cigarette?

If there is drug usage administer CRAFFT questionnaire to assess severity of the habit

C - Have you or your friend ever been in a ***C***ar (any vehicle) while under the influence of any substance

R - Do you ever use alcohol or drugs to ***R***elax?

A - Do you ever use alcohol or drugs when you are ***A***lone?

F - Do you ever ***F***orget things you did while using alcohol or drugs?

F - Do your ***F***riends and ***F***amily ever tell you that you should cut down?

T - Have you ever gotten into ***T***rouble because of your use?

'Yes' responses as we move down the questions stages the drug problem as more severe and helps decide management plan or referral. More than 2 'yes' responses indicates a serious drug problem

S(uicide)/ Depression - Feeling of persistent low mood/sadness for >2 weeks, prior suicidal thoughts/prior attempts at self harm, sleep or appetite problems. disinterest in activities earlier enjoyed.

Sample: Many young people feel very sad or low sometimes and may even feel 'life is not worth living'. Have you ever experienced such thoughts?

S(exuality) - Menstrual history, attitudes to a sexual relationship, sexual orientation (homosexual /heterosexual), sexual activity/intercourse, number of partners, contraception, sexually transmitted diseases, pregnancy, abuse

Sample: I would ask all teenagers a few questions pertaining to sexual health which is an important component of general health. Are you ok with that? You could let me know anytime if you are uncomfortable or embarrassed. Can I share information on some web resource sites?

S(Safety) - Explore how safe the adolescent's living and working conditions are, safety practices including obtaining a licence before starting to drive, helmet/seatbelt use, avoiding drinking and driving. Also enquire about abuse.

Sample: Can you run me through a typical evening you may spend with friends? Sometimes it is difficult to share about something that scares or bothers you. If I can assure you of confidentiality and my help to make you feel better would you like to tell me about it?

A few more sample questions are given in the annexure at the end of the chapter

Examination

Equipment and materials needed in the adolescent clinic are:

1. Adult size stethoscope and blood pressure cuff
2. Adult size examination cot (around 7 feet long)
3. Adult weighing machine, stadiometer
4. Height, weight, body mass index, blood pressure centile charts
5. Tanner charts
6. Snellen chart
7. Orchidometer

Apart from the conventional paediatric examination, the following are essential:

- Measuring weight, height and BMI with plotting on growth chart is recommended. IAP 2014 growth charts 5-18 years are recommended. They depict centile curves for weight, height and BMI.
- Blood pressure, vision, hearing, dental examination are best done annually. A blood pressure >120/80 is considered elevated BP
- Skin is examined, particularly for acne, as this could cause serious body image concerns.
- Thyroid examination for the presence of goitre which needs laboratory evaluation and treatment
- Spine is assessed for scoliosis which is likely to manifest or get exaggerated due to rapid growth
- Breasts, external genitalia with Tanner staging when there is a history of delay in development.
- Pelvic examination if sexually active

Laboratory

- Hemoglobin especially for post menarche girls is done annually.
- In sexually active adolescents – Annual screening for HIV and Syphilis. First void urine for leucocytes in boys (screening test for STD) and swab for gram stain/culture/KOH, wet mount for girls.
- Screening for diabetes and hyperlipidemia if obese and/or family history positive

Immunization

IAP recommends Tdap/Td vaccine at 10 years and HPV vaccine at 10 years (0, 6 months schedule if <15 years, if >15 years schedule is 0, 1-2 months, and 6 months). Catch up vaccinations (if missed earlier) includes MMR or Rubella vaccine, Typhoid vaccine(single dose conjugate vaccine), Hepatitis B(0,1,6 months schedule), Varicella 2 doses 3 months apart if <13 years of age and2 doses 1 month apart if >13 years, Hepatitis A (0, 6 months schedule)

Anticipatory Guidance

This is an important component of preventive services. Anticipated problems are addressed by providing health education and counselling on how to protect and preserve good health and risks associated with particular behaviors. Positive coping strategies and protective factors like participation in hobbies, sports

and parental and school connectedness are reinforced and encouraged. Components of anticipatory guidance include:

- Information on normal development, nutrition, physical activity.
- Menstrual hygiene and fertility calendar.
- Injury prevention: use of helmets, safety belts, speed of driving, risks of drinking and driving.
- Handling peer pressure and bullying
- Media literacy and addiction, cyber bullying.
- Responsible sexual behavior, contraceptives and protection against sexually transmitted diseases.
- Substance use prevention and assistance with deaddiction
- Parenting guidance. Parents need to be educated about the developmental needs of adolescents and a change from directive parenting to negotiation and supporting 'independence'.
- Simulation training in life skills

'Life skills' are defined by WHO as skills for positive adaptive behavior to handle challenges of daily living. They include skills of decision making, problem solving, critical thinking, creative thinking, interpersonal relationship, effective communication, coping with emotions, coping with stress, empathy, and self-awareness. Schools and colleges are ideal settings for imparting life skills training by using interactive, experiential learning models like role plays, circle time and group activities Improving on life skills have translated to enhanced coping with problem situations and reduction in risky behaviours.

Adolescent Counselling

Counselling is an important component of medical care for adolescents. It may be the only treatment component for psychological distress or milder psychiatric illness. Counselling complements conventional medical treatment for all adolescents. Providers need to embrace both the science and art of counselling when dealing with adolescents.

Counselling is a process of client and counsellor interaction which helps the counselee to gain insight into their situation and understand their adaptive (e.g use of humor, destressing with sports, hobbies) and maladaptive coping strategies (e.g anger outburst, breakdown of communication, addictions). The counsellor attempts to empower the counselee to find solutions and coping strategies for enhancing emotional wellbeing.

Components of counselling could include provision of health education, ventilation of emotions, identifying problems, exploration of situations and identifying adolescent's perspective that is contributing to the problem. The counsellor assists the adolescent to generate situation specific solutions and use adaptive skills and motivation to enhance self-development and empowerment. Extra time needs to be set aside for counselling. Prerequisites are confidentiality, nonjudgmental attitude, active listening, professional ethics and goal directed counselling with defined end points or referrals.

Pediatricians, who take care of adolescents from infancy onwards, form a good rapport with them and their families with relative ease. Hence they are the best health professionals to offer health care services to adolescents. They should help them to grow into responsible independent healthy adults.

Key Messages

- Investing in adolescent health has a triple dividend- ensuring health in adolescence, in adulthood and over generations
- All adolescents should be advised an annual health maintenance visit
- Privacy, confidentiality and rapport building are pillars of adolescent friendly health services
- It is important to take a detailed psychosocial history from adolescents and their caretakers using the mnemonic HEEADSSS
- Anticipatory guidance and counseling are important components of adolescent health care

Annexure

HEEADSSS Psychosocial Interview

All the issues may not be explored at the first interview. Depending on the rapport formed with the client and availability of time, the interview can be split into three visits of 30 minutes each. The following questions can be asked regarding various issues:

Home

Who lives at home with you? How is your relationship with each family member?Do you share your problems with any family member?

Do you have a separate room? Who gives you a bath? Do you sleep alone? Has there been a recent change in living arrangement?

If I was invisible and you were having a disagreement with your parent, what would I hear? How would I see your parent disciplining you?

Education/ Employment

Are you studying/ working? How is the situation at school/ work place?

How has your performance been in school this year compared to last? Are you satisfied with your performance?

Are you a member of an educational club? How is your relationship with you teachers? How is your relationship with peers at school? Has anybody ever spoken to you in a way that you have not liked? Who helps you with school work? Details regarding study habits and skills can be elicited. Where do you see yourself 5 years from now?

Eating

How do you feel about your body? Recall your dietary intake on a typical day.

How often do you eat out/ drink colas? How do you stay healthy?

What do you think about your diet? Do you ever feel that food controls you rather than vice versa? Has there been any change in your appetite lately?

What do you feel when you look at yourself in the mirror?

Activities

What do you do for fun? How much time do you spend in structured or unstructured outdoor/ physical activity?

For how long do you watch TV and use the computer? Do you have a TV and computer in your room? Which is your favourite media program/ game? Are you a member of a social networking site?

What are your hobbies? Do you attend special hobby classes? Are you happy with your performance?

Do you have friends you socialise with? Where do you and your peers hang around for fun? How is your relationship with friends?

For how many hours do you sleep? Do you have any sleep related problems?

Drugs

What is your attitude towards drug usage? How do you feel about this issue? Does any of your friends smoke, drink or use drugs? Have you ever tried? If yes, which drug and how often? CRAFFT screening can be done to assess severity of drug abuse and making a decision regarding referral to mental health personnel.

Sexuality

It is useful to begin the history taking with a 'normalising qualifier' statement like- 'I ask these questions from all young people. As your doctor, it is important for me to know about each and every aspect of your health'.

Are you in a steady relationship? Have you been physically intimate with somebody? If yes, with whom? What do you do in intimate moments? How do you express your affection? Are you married? Do you use any contraceptive method? Have you ever been pregnant?

Do you have any vaginal/penile discharge or itching? Do you have burning micturition? Has anybody touched you in a way that you did not like?

When did you attain menarche? What is the length of your menstrual cycle and for how long does the bleeding last? How many pads do you use in a cycle?

Suicide and Depression

Have you ever felt hopeless, sad and a failure in life? Has there been a recent change in your mood, behaviour, sleep, appetite or academic performance?

On a scale of 10, rate your present mood? What would make you feel better? What do you do when you feel sad? Do you confide your problems in someone? Sometimes when young people are in unbearable pain or trouble they wish that they could end it all. Have you ever wished the same? If someone gave you three wishes, what would they be?

Safety

Do you feel safe at home and school? Where do you play?

Do you drive a vehicle? If yes, which one? Do you wear a helmet and seat belt while riding in a vehicle? FISTS (Fighting, Injuries, Sex, Threats and Self Defense) acronym can be used to further assess adolescent's risk of violence.

Adolescent Counseling

Dr Atul M Kanikar, Dr Somashekar AR

Objectives

1. Discuss importance and basics of counseling
2. Describe unique features of adolescent counseling
3. Outline steps of a counseling session

Various thinkers, theories, languages and cultures have given different meanings to the word 'counseling'. Like the terms 'personality' or 'intelligence', many scholars have defined counseling in various ways. However, all the psychologists agree on the ultimate purpose or aim of counseling, which is helping the individuals to overcome future problems. The Oxford dictionary definition mentions counseling as "the provision of professional assistance and guidance in resolving personal or psychological problems".

Sadly, mental health is not considered a priority in India. Individuals and their families may face considerable difficulty in obtaining societal acceptance for the treatment of mental health problems. There is a lot of social stigma attached and visit to a psychiatrist or counselor is equated to being 'mad'. Unfortunately, owing to the lack of awareness in the gatekeepers (i.e. family members, teachers and doctors), a vast number of mental health problems remain unrecognized and dormant, only to flare up later in more severe forms. The fact remains that majority of adult mental health disorders have their origin in the adolescence. Pediatrician, being a frontline caretaker who is easily approachable (without social stigma) and child friendly individual, certainly needs to take child and adolescent mental health as a priority and should undergo basic training in the same.

Definition of Counseling

Perez (1965) gave a popular definition of counseling as an interactive process conjoining the counselee who needs assistance and the counselor who is trained and educated to offer this assistance. This interactive process needs to be initiated, facilitated and maintained by the counselor through feelings of spontaneity, warmth, tolerance, respect and sincerity. Carl Rogers in his book "Counseling and Psychotherapy", has defined counseling as a process consisting of a definitely structured permissive relationship which allows the client to gain an understanding of self to a degree which enables the client to take positive steps in the light of the new orientation.

For lay people, counseling equates to guidance or education or giving advice, whereas in psychology, the meaning differs. The broad differences between guidance, counseling and psychotherapy are given in the table below

Guidance	Making choices/decisions for normal individuals in difficulties. Confusion in choices and unclear ideas/concepts.
Counseling	Focus on the present problem in a disturbed individual. Stress related crisis triggered by intra/interpersonal disturbances.
Psychotherapy	Restructuring of personality in mentally disordered individuals. Usually combines with drug therapy and/or electroconvulsive therapy

Counseling Adolescents

Many adolescents are at times not so easy to counsel. The obvious reasons are unwillingness for therapy, unfriendly attitudes of the therapist, denial of the problem leading to resistance, tendency to blame the caretakers, social stigma, poor compliance leading to drop-outs, peer influence and a feeling of being victimized by parents or teachers. However, adolescents are quite receptive to the process if the counselor exhibits adolescent friendly skills (as explained below). Distressed adolescents are looking for someone who will understand them and be with them unconditionally with respect. Behavioral change interventions during adolescence period will have a long term benefit.

Principles of Counseling

Counseling is more of an art than science. Reading about the skills and techniques is easy, understanding them is easier but putting them into practice consistently is difficult. All the skills described below need not be utilized in each and every case but few basic skills like empathy, listening skills, positive regard and unconditional acceptance of the client should be inculcated and practiced during almost all the counseling sessions, especially with a teenager.

The core skills essential for the successful process of counseling are:

1. **Active listening :** Listening includes understanding the feelings and emotions and not merely the spoken words. Thus it is an active process which also enables us to understand what the teenager is trying to say but cannot. The four important components of active listening are:

   a) Paying attention : Facing the teenager and minimizing ambient distractions

   b) Use of minimal responses: Responses like 'Ah-ha, Oh, Yes, OK, Right, I understand, Mmm, Hummm' encourage teen to continue speaking and confiding in the counselor

   c) Use of reflection: Helping the teenagers to express by paraphrasing what they are saying or trying to say

   d) Summarizing: Picking up the key points in the teenager's description of events and emotions and reflecting these back

   In addition to the above skills, there is immense importance of silence at the appropriate time especially when teens are facing situations where crowding of emotions disable them from expressing their feelings. Silence works wonders when words fail. Proper use of pauses and sensible silence helps the communication to become smoother, productive and purposeful. It also gives breathing space for restructuring words, putting thoughts sequentially and understanding exact flow of emotions. Silence can thus be paradoxically called the most useful tool in interpersonal communication. Most adolescents want and need to be heard and understood, not advised or preached. The counsellor should not self interpret the client's problems or offer any premature suggestions as to how to deal with, or solve the issues presented. Counselors should understand both the problem and the solution from the client's perspective.

2. **Empathy :** Empathy is a communicated understanding of the other person's intended emotional message (Martin 1983). The client should feel "understood". Empathy is also described as putting oneself in the client's shoes without removing ones socks and looking at the situation from client's perspective. Empathy requires listening and understanding. Empathy is not imitation. Dymond (1949)

mentions empathy as imaginative transposing of oneself into the thinking, feeling and acting of the client and so structuring the world as the client does.

3. **Leading :** Also called as “moving the client”. There are several ways to “lead” the client forward in a session. The counselor needs to be aware of how and in which direction, the discussion is going. Working on the client's issues (and not counselor's issues) should be given priority. Responding to the client could be affective (focusing on feelings), cognitive (focusing on thoughts) or behavioral (focusing on the actions and behavior).

4. **Self Disclosure :** Counselor's self-disclosure is necessary as it relates to the therapeutic process. Too much self-disclosure hinders the counseling process, whereas not enough may inhibit the client from forming a bond with the counselor. For example, at the beginning of adolescent counseling session, the adolescent should know about the type of cases which the counselor handles. This helps to break the ice, relieve client's nervousness and develop rapport.

5. **Using Humor :** Humor must be used with sensitivity and timing. It should never humiliate or ridicule the client.

6. **Immediacy :** Although counseling can take place anywhere, it is better to have a quiet, comfortable and cozy room without any distractions for effective counseling process. All the nonverbal tools of communication should be employed. Proper interpersonal distance should be maintained during the counseling process with sound proof but transparent glass doors as barriers. Both the client and counselor should feel safe, yet secluded during the process.

7. **Transference and Counter-transference :** This is a process wherein the client feels things and has perceptions of the therapist that rightly belong to other people in the client's life, either past or present. It is a process somewhat related to projection. Understanding transference reactions can help the client gain understanding of important aspects of their emotional life. Counter-transference refers to the emotional and perceptional reactions the therapist has towards the client that rightly belong to other significant people in the therapist's life. Sigmund Freud has employed transference and counter transference during psychoanalysis and has mentioned it as an important tool. Transference is the client's projection of past or present feelings, attitudes, or desires onto the counselor. It can be direct or indirect and will cause the client to react to the counselor as he/she would in the past or present relationship. Counter-transference is the counselor's projected emotional reaction to or behavior towards the client. It can take on many forms, from a desire to please the client, to wanting to develop a social or even sexual relationship with the client. When this happens, supervision or counseling for the counselor is necessary.

Changing human behavior is not usually a linear, direct, and logical process. Many habits of behavior and thought that are dysfunctional are difficult to break. Many threads of behavior are tied to others and when one thing is changed a new balance must be established, otherwise people would not be able to function. This means the change occurs at different rates depending on how well and at what pace, a client can tolerate the imbalance that comes from the change. Therefore, some form of resistance by the client is quite natural due to stress and the counselor must not take it personally. Sigmund Freud mentions that the degree of resistance offered by the client is directly proportional to the success of counseling process. The counselor has to be flexible, versatile and reliable for establishing good rapport with the client.

Counselors should be interested in helping people, have perceptual sensitivity, should be well adjusted in their personal life, genuine and well trained with good emotional control. A lot of importance is given by Carl Rogers to the term “Acceptance”. He defined acceptance as 'a warm regard for the client as a person of unconditional self worth and of value under any condition, behavior or feelings.' Acceptance implies helping individuals and not controlling them.

A counselor must avoid advice giving, lecturing, excessive questioning and storytelling which may take away the client's interest in the process.

The effective communication skills that work wonders with an adolescent client are:

Effective Communication

Verbal	Non - Verbal
• *K.I.S.S. Principle • Use of ‘I’ Language • Non - Accusing • Tone and Pitch • Apt Words • No Scientific Jargon • Open ended questions	• Eye Contact • Proximity and same level • Facial Expressions • Nodding • Silence • Holding Hands, Patting • Position of Hands and Legs

Listen more, talk less

*KISS stands for Keep It Short and Simple.

KISS principle states that communication with teens should be simple, clear and short.

The Process and Steps of Counseling

The actual process of counseling takes the following form:

Stage 1 - Awareness of the need for help : In the Indian context, this is the most crucial step especially for adolescent counseling due to ignorance about the extent and severity of mental health problems amongst teenagers and the gatekeepers. Further, most of the adolescents are ‘brought’ by their parents unwillingly or referred by an unfriendly school teacher. Pediatricians, school authorities, media and the administrators have a lot to do in creating awareness for early detection of mental health problems in children and youth.

Stage 2 - Development of relationship : This is a bridge between personalities of client and the counselor penetrating through initial outer defenses. The emotionally warm relationship is characterized by mutual trust, liking and respect. The defense may manifest either as a helpless attitude of the client giving all the tasks to the counselor or the client may evoke excess sympathy and seek undue attention of the counselor to avoid unpleasant tasks. By showing such defense mechanisms, the adolescent may successfully ward off the counseling relationship especially when brought to counselor's office against will.

Stage 3 - Catharsis and clarification of problems : The ventilation of feelings is crucial and the client experiences a sense of relief due to release of tension. This process may further aid in clarification of the

problems. However, there is a possibility that the client may have a false sense of resolution of tension, leading to incomplete therapy.

Stage 4 - Exploration of deeper feelings : This is a step of 'analysis' wherein, the counselor, without remaining satisfied with the superficial view of client's feelings (revealed in stage 3), tries to explore the deeper feelings and conflicting situations which the client was unable to bring to the surface initially.

Stage 5 - The integration process : During this stage which evolves smoothly out of stage 4, the client appreciates the feelings and underlying polarities objectively without undue fear, withdrawal or lack of concern. This being a very important step, the counselor has to apply all the necessary skills to help the client see the feelings in new perspective. During this process the counselor can synthesize the needs and potential of the clients to direct them towards appropriate goals.

Stage 6 - Orientation of time : Adolescents are usually confused about the time perspective. There is a gross confusion regarding the connection between past, present and future leading to frustration and grief. The counselor helps the adolescent to understand that the present arises logically from the past and has significant influence on the future.

Stage 7 - Developing awareness or insight : During this process, the counselor helps the client to gain new look at self and the world. During psychoanalysis, the counselor aims at providing insight into one's conflicts, repressions and inhibitions and once these are seen in new perspective by the client, they cease to be painful. Albert Ellis in rational emotive behavior therapy mentions that a rational understanding is a prelude for emotional insight.

Stage 8 - Termination : The counseling session should start and end on time. It is better to leave 5 minutes or so for a summary of the session. The last five minutes should be kept for assigning homework and setting up next appointment. Termination is the end of the professional relationship with the client when the session goals have been met. A formal termination serves three functions: 1. It indicates that it is time for the clients to face their life challenges 2. Changes which have taken place have generalized into the normal behavior of the client and 3. The client has matured and thinks and acts more effectively and independently. If the counselor feels that the adolescent has achieved behavioral, cognitive or affective goals; termination is indicated. At times, the clients and counselor may not want the sessions of counseling to end. In many cases this may be the result of feelings about the loss and grief or insecurities of losing the relationship. For the client, this is something to process, for counselor; this is an issue for supervision. At any point, if the counselor feels the need for referral, the same should be done either to a psychiatrist or another counselor at the earliest.

For all practical purposes, when pediatricians as counselor suspect a thought disorder, severe substance use disorder, severe depression with suicidal ideation, relapse of symptoms with increasing severity or unresponsiveness to their treatment; the adolescent must be referred as early as possible to a clinical psychologist or psychiatrist for further management. In this process, the pediatrician has a task of convincing the parents about the need for referral. The pediatrician can act as a guide and as a reliable source who can keep the client's follow up. In certain instances, adolescents look at the pediatrician as an ice breaker to inform their parents about sensitive issues e.g. pregnancy or love affair and here, the pediatrician must ensure the importance of such disclosure to the adolescent in trouble and inform the parents about the situation at hand in the presence of teenager.

Adolescents and their parents usually seek counseling from pediatricians regarding academic issues, family conflicts, behavioral problems like aggression, substance use, media addiction, unsafe sexual behavior and handling negative peer pressure and sibling rivalry. Pediatricians can practice the use of skills described in this chapter to be effective counselors.

Key Messages

- Adolescent counseling is a challenging task
- Counseling services form an important component of adolescent health care
- Counselor should be empathetic, sensitive and should have good communication skills
- Clinician should follow the steps of counseling diligently

Adolescent Stress

Dr Latha Ravichandran, Dr Sarala Premkumar

Objectives

1. Discuss stress response in adolescence
2. Evaluate teen stress in clinical practice
3. Outline a stress management plan

Adolescent period is the twilight zone between childhood and adulthood. It is a phase of rapid change in the biological, social and psychological facets. Many adolescents and parents consider it as a period of stress and strain. The hormonal changes and the immaturity of the brain lead to a heightened stress response in all adolescents. The ability to cope and handle these challenges is determined by the environment and genetic background. Those with supportive family and friends face these challenges better than those living in an unhealthy environment. Globally adolescent stress ranges from 20 to 45 %.

Stress is the body's response to a challenge or to any demand for change. The factors that produce stress are the stressors. Adolescent stress includes the physical, emotional, cognitive and behavioral response to events that are appraised as threatening or challenging. A little stress called eustress improves performance and attention. Excessive stress called distress results in poor health.

Normal Stress Response

When there is a response to stress, there are two hormonal systems that are activated:

1. The immediate response is called the **'fight or flight response'** that releases adrenaline and nor adrenaline into the blood stream
2. The slower more protracted hormonal response is mediated by the hypothalamo-pituitary - adrenal - axis. The corticotrophin releasing hormone from the paraventricular nucleus of the pituitary signals release of the adrenocorticotrophic hormone which in turn stimulates adrenal gland to secrete glucocorticoids. Once stressors have ended, the glucocorticoids act through negative feedback on pituitary and forebrain regions, hypothalamus, hippocampus and prefrontal cortex. These glucocorticoids are responsible for adaptive responses like mobilizing energy stores, enhancing immune reactions and enhancing learning abilities and memory. However if prolonged, these can lead to neurotoxicity, reduced immunity and maladaptive behaviour resulting in depression, anxiety, drug use and suicide.

Stress Response in Adolescence

The physiology of stress during adolescence depends on responsiveness to stress in terms of the hormones and the impact of these on the developing brain. The adolescent response to stress is heightened Adolescents have greater levels of cortisol as a response to stress than any other age. The neuronal activity in para-ventricular nucleus, especially in the Corticotrophin Releasing Hormone cells is higher in adolescents and hence causes prolonged ACTH and glucocorticoid response.

The prefrontal cortex, amygdala and the limbic system continue to mature during adolescence. This differential development may lead to an imbalance in control by prefrontal regions over subcortical ones

and heightened emotional reactivity. Although elevated emotional reactivity is typical during the period of adolescence, failure to suppress it with time is associated with symptoms of anxiety. The adolescent brain is more sensitive to glucocorticoids. Also the negative feedback response to glucocorticoids is blunted because of the poorly responsive glucocorticoid receptors in the brain resulting in their elevated levels over a prolonged time period. This leads to the so called “Storm”. Thus it is possible that prolonged or repeated exposure to stress may result in a heightened sensitivity to these stressors, ultimately leading to maladaptive neurobehavioral problems like aggression and self harm.

The large variability observed in developmental studies of emotion regulation may be due to differences in individuals' environmental and genetic background. Both environmental and genetic factors can exacerbate the imbalance between limbic and control regions and in turn lead to greater storm and stress in some individuals over other.

Adolescence is a phase of information gathering and experimenting. Identifying stress, stressors and learning coping skills is an important part of an adolescent education program.

Stressors in Adolescence

There are many stressors in adolescence. A few are listed below:

- Academic pressures
- Balancing academic and afterschool activities
- Career decisions
- Peer pressures
- Intimate relationships
- Pressure to wear certain types of clothing, jewellery or hairstyles
- Pressure to experiment with drugs, alcohol or sex
- Pressure to be a particular size or body shape
- Handling puberty itself
- Family problems
- Social life

Adolescents may seek refuge in peer groups in the absence of family support. They feel that peer group satisfy their needs. Negative peer pressure may push them into substance abuse, gadgets and electronic media addiction, violence, sexual promiscuity, self harm and other risky behavior. Disturbed family milieu like parental divorce, intrapersonal conflict, sibling favoritism and maternal depression can leads to stress in adolescents which deteriorates their day to day functioning.

Warning Signs of Stress Overload in Teens

Distressed teens may present to the pediatrician with the following:

- Recurrent complaints of headache, stomachache, muscle pain, tiredness
- Social withdrawal

- Increased anger or irritability; i.e., lashing out at people and situations
- Crying more often and appearing teary-eyed
- Feelings of doom, hopelessness and worthlessness
- Chronic anxiety and nervousness
- Changes in sleeping and eating habits, i.e., insomnia or being "too busy" to eat
- Difficulty in concentrating at tasks
- Deterioration in scholastic performance

Clinical Assessment of Stress

HEEADSSS psychosocial history should be elicited from both the parent and adolescent in privacy with confidentiality. Following questions could be asked to evaluate triggers, severity of stress and stressors:

1. H/o traumatic events such as break up of a relationship/ death of a loved one/ family discordance/ academic failure/ chronic disease/ teasing/ bullying
2. H/o over scheduling of activities
3. H/o any of the above listed physical symptoms (i.e. headaches, tired, low motivation)
4. H/o change of behavior and getting overwhelmed with emotions (i.e. extreme anger, sadness, or hopelessness)

Stress is considered to be severe if it effects the functioning of the adolescent in academic and social domains. Objective assessment of stress could be done using perceived stress scale, sleep scales, heart beat variability and salivary cortisol levels. PSS (Perceived stress scale) is the most widely used scale where the adolescent is asked about feelings and thoughts during the last month. Salivary cortisol level is a stress biomarker that can be easily collected for research purposes.

Coping with Stress in Adolescence

Common reactions of adolescents to stress are excitement, anger, fear and sadness. Though their initial reaction is similar to adults, due to neurodevelopment in this age group (as described previously), effects of prolonged stress in adolescence can be more acute and severe. Adolescents can be taught the following methods to cope with stress and stressors:

1. **Problem solving :** Using this technique, adolescents tend to change the situation or find a solution to the problem. They are encouraged to choose multiple solutions to the identified problem and asked to choose the best one after analyzing the pros and cons of each. Teens resorting to this method are better adjusted as they see the positive side of a difficult situation
2. **Managing emotions :** Adolescents use this skill to deal with the thoughts and feelings triggered by the disturbing problem. Avoidance , distraction and talking to a trustworthy adult to ventilate feelings are some important coping strategies

Caretakers can be counseled to support distressed teens in the following way:

- Helping them to develop knowledge and skills to cope with difficulties and solve problems
- Actively listening

- Keeping open communication channels
- Encouraging them to participate in daily and extracurricular activities
- **Being role models by adopting a healthy lifestyle (balanced diet, physical exercise, adequate sleep, prayer, meditation) and exhibiting appropriate emotional responses and moral values**

Stress Management skills for Adolescents

Adolescents can be counseled to use the following strategies to counter stressful problems/ situations:

Healthy Lifestyle

- Exercise and eat regular meals
- Get adequate sleep
- Avoid the habit of caffeine or energy drinks to get through the day
- Practice Meditation and yoga
- Develop competencies (academic, social and life skills) and hobbies
- Nurture a sense of humor
- Schedule breaks and enjoyable activities
- Break tasks into smaller, manageable chunks
- Use effective study skills

Controlling Thoughts

- Focus on what you can control (your reactions, your actions) and let go of what you cannot (other people's opinions and expectations)
- Work through worst-situation until they seem amusing or absurd
- Lower unrealistic expectations
- Accept yourself as you are
- Identify your unique strengths and build on them
- Give up on the idea of perfection, both in yourself and in others

Stress Busters

- Talk it out, aloud with a friend/ trustworthy adult
- Follow problem solving technique
- Take deep breaths, saying “I can handle this”
- Perform progressive muscle relaxation, which involves repeatedly tensing and relaxing large muscles of the body
- Visualize and practice feared situations with relaxation techniques

Referral to psychologist and child psychiatrist is recommended in cases of distress with depression, anxiety, substance abuse and suicidal behavior.

Key Messages

- Adolescents have an immature and exaggerated stress response resulting in high levels of cortisol for prolonged periods
- All adolescents should be taught stress management techniques
- Maladaptive response to stress can lead to depression, anxiety, drug use and suicide

Depression and Anxiety in Adolescence

Dr Poongodi Bala

Objectives

1. Enumerate clinical features and risk factors of depression and anxiety
2. Outline management plan
3. Discuss referral indications

Most of us wish that adolescence should be associated with lots of fun and play. However in reality many teens are affected by depression or anxiety. Lately there has been a tremendous rise in psychological problems in adolescents, probably due to increased parental and personal expectations. In this competitive modern world, no one is satisfied with high percentage of marks; the child has to top the class, school, district, state and country. The other reason is tolerance limit, which is very low these days as teens get everything they want from a very early age. Hence they cannot cope up with negative situation, which leads to low mood and anxiety symptoms and suicidal behaviour.

Lifetime prevalence of depression and anxiety increases from 1% of the population under age of 12 yrs to 17% to 25% of the population by the end of adolescence. An apparent increase in psychologically disturbed students consulting doctors and psychologists has led to concern that increasing school stress, family issues and external pressures may be affecting student mental health and academic performance.

Mental health illness such as depression and anxiety disorder can lead to significant functional impairment, morbidity and mortality (suicide) in children and adolescents. It is important to diagnose and offer treatment early to get better outcome. Paediatricians play an important role in identifying risk factors for anxiety and depression as they are the first point of contact for children and adolescents. Moreover stigma in getting help from psychiatrist or psychologist delays the treatment for young adults. Hence paediatrician should have training to identify the mental illness and to signpost them appropriately to psychiatrist or psychologist for further management.

Depression

Depressive disorder is characterised by persistent sadness, anhedonia (loss of interest), boredom, irritability, low energy, functional impairment, relative unresponsiveness to pleasurable activities, interaction and attention from other people. Functional impairment is most distinguishing features of depression from 'normal ups and down'' of adolescence. The biological symptoms of depression are insomnia, loss of appetite and loss of weight. In atypical depression child may have symptoms such as sleeping excessively and weight gain. These symptoms should be persistent for a minimum period of two weeks to diagnose depression based on ICD10 criteria.

Depression can be classified as mild, moderate and severe based on the number of symptoms and severity of the functional impairment. In severe depression thoughts of ending life would be prominent. Affected teens talk about their failure and they get stuck with their negative thoughts which will affect their normal

function. Very rarely they became mute. In severe depression, adolescents may also have psychotic symptoms such as hallucination and delusion.

Risk factors for Depression

Bullying, substance abuse, somatic symptoms, lack of family support, lack of school support, low self esteem, abuse both physical and sexual, poor academic performance, financial worries, chronic medical illness and genetic factors are risk factors for depression.

Diagnosis of Depression

Gold standard of diagnosing depression is by taking detailed history from the child and parents and assessing mental state of the teen by direct observation. All the available questionnaires are used for screening purpose and assess the outcome of the treatment; none of them can be used to diagnose depression. Comorbidities like anxiety disorder, ADHD, substance use and conduct disorder maybe seen.

Differential diagnosis of Depression

1. Bipolar disorder is a mental illness marked by alternating periods of elation (mania) and depression.Manic symptoms are feeling energetic, physical restlessness, flight of ideas (grandiosity, eg. I can fly), decreased need of sleep, over familiarity, increased sexualised behaviours, talking fast, overspending money and appearing excitable.
2. Adjustment disorder is an acute reaction to unexpected and unpleasant event. Though it mimics the depressive symptoms, there is no functional impairment and it settles over time without treatment.
3. Irritability is a prominent symptom of conduct disorder and oppositional defiant disorder. To differentiate these behavioural disorders from depression, one needs to look for behavioural symptoms such as fighting, stealing, lying, breaking things and refusal to stay within boundaries.

Investigations

Routine blood tests can be done to rule out physical causes for depression such as hypothyroidism and anaemia. Investigations for Wilson disease are needed, if the teen shows clinical features of the disease.

Treatment

Referral criteria: All moderately to severely depressed children should be referred to child psychiatrist/child psychologist, because the treatment is combination of pharmacotherapy and psychotherapy.

Medication can be avoided for treatment of mild depression. Mild depression is generally treated with regular psychotherapy.

Combination of psychotherapy (cognitive behaviour therapy, interpersonal therapy and family therapy) and pharmacotherapy give a better outcome for moderate and severe depression. In addition to this, social activities and physical activities should be encouraged. The support from school is important to ensure a speedy recovery and ideally therapist should closely liaise with the school and monitor the progress.

Pharmacotherapy: SSRI (Selective serotonin reuptake inhibitors) are the drugs of choice. Dosage is given in the table below. On SSRI, the teen should be closely observed for suicidal ideation and behaviour.

Medication	Starting Dose	Dose Increments	Typical Target Dose	Maximum Dose
Fluoxetine	5-10mg	10-20mg	10-20mg kids 20-40 mg teens	60mg
Sertraline	12.5 -25mg	25-50mg	50-100mg	200mg
Citalopram	5-10mg	10-20mg	20-40mg	60mg
Escitalopram	5-10mg	5-10mg	10-20mg	40mg

Mood stabilizers can be added in recurrent depression. Antipsychotic medication should be added for severe depression with psychosis.Melatonin or benzodiazepine can be added for short term purpose to regulate sleep rhythm.

Antidepressant should be continued for 6 months after recovering from depression, if it is the first episode. In recurrent episode, antidepressant should be continued to 2 years. Non compliance of medication will lead to relapse of episodes.

Anxiety Disorders

Anxiety disorders are classified as:

1. Generalised anxiety disorder
2. Social anxiety
3. Specific phobia
4. Panic disorder
5. Mixed anxiety and depressive disorder
6. Separation anxiety disorder

Generalised Anxiety Disorder

Adolescents with generalised anxiety disorder tend to worry for everything.Excessive anxiety and worry should occur half of the days over a period of 6 months to diagnose generalised anxiety disorder based on ICD 10 criteria. Anxiety or worry can be in response to any event or activity. For example," Am I going to fail in exam?" " Is an accident going to happen now?" "Will something happen to my dad, if he does not return home at usual time?" Associated symptoms are restlessness, tiredness, difficulty in concentration, irritability, insomnia and muscle tension.

Social Anxiety

Persistent anxiety occurs in all the social situations, mainly when the teen is exposed to new situations or crowded environment. It is manifested by socially avoidant behaviour with or without panic symptoms. The symptoms should be present for a minimum duration of 4 weeks. It affects the self confidence of teens and

they feel embarrassed in social situations.

Panic Disorder

Anxiety is not restricted to a particular situation. It is associated with recurrent episodes of panic attack. Symptoms usually start abruptly with the fear of discomfort. Generally lasts for few seconds to few minutes. The panic attacks are characterised by intense fear, increased heart beat, shortness of breath, choking sensation, sweating, depersonalisation and derealisation. There is no physical cause for panic attack.

Mixed Anxiety and Depressive disorder

Both depressive symptoms and anxiety symptoms should be present to diagnose mixed anxiety and depressive disorder. Duration of symptoms should be present for a minimum of 2 weeks to diagnose mixed anxiety and depressive disorder based on ICD 10 criteria.

Specific Phobia

Phobia is a marked unreasonable fear of a specific object that is not dangerous like animals or situations, tall buildings, dark places and lift. The phobia causes significant distress and impairs the child's well being. It interferes with their normal activities due to avoidant behaviours. It can lead to physical symptoms such as sudden drop of blood pressure, fainting, palpitation and increased heart rate. Most children with specific phobia share a limited number of feared situations like spider phobia, needle phobia, elevator phobia, agoraphobia(open space fear).

Separation Anxiety Disorder

As the name indicates the disorder reflects anxiety or separation from parent/caregiver that causes functional impairment by leading to avoidance. Difficulty in sleeping alone in adolescents can be a symptom of separation anxiety disorder.

Diagnosis

Similar to depression, gold standard of diagnosing anxiety disorder is by taking detailed history from the teen and parents and assessing mental state of the child by direct observation. All the available questionnaires are used for screening purpose and assess the outcome of the treatment; none of them can be used to diagnose anxiety.

Risk Factors

Genetic factors, gender (girls are more prone to have anxiety disorder when compared to boys), substance misuse, past history of medical illness such as cardiac and respiratory illness,cultural factors, disturbed family and school environment are risk factors for anxiety disorders. Comorbidities like depressive disorder, ADHD, substance use and conduct disorder maybe seen

Investigations

Routine blood tests can be done to rule out physical causes for anxiety disorder such as hyperthyroidism, anaemia and other endocrine causes. Routine investigations for cardiac causes such as ECG can also be done if clinically indicated.

Treatment for anxiety disorder

Referral criteria : All severe anxiety disorder children should be referred to child psychiatrist/child psychologist.

Medication can be avoided for treatment of mild anxiety disorder. Mild anxiety disorder is generally treated with regular psychotherapy.

Combination of psychotherapy and pharmacotherapy will give better outcome for moderate and severe anxiety disorder. In addition to this social activities and physical activities should be encouraged.

Pharmacotherapy : SSRI (Selective serotonin reuptake inhibitors) are used in higher doses compared to depression (e.g fluoxetine 40mg). Melatonin, beta blockers and benzodiazepine can be added for short term purpose to regulate sleep rhythm and control anxiety symptoms.

Psychotherapy : Cognitive behavioural therapy, graded exposure and systematic desensitisation need atleast 10 to 12 sessions with focus on relapse prevention.

Key Messages

- Untreated mental health disorders in adolescents result in morbidity and mortality
- Change in behaviour and loss of interest in activities previously enjoyed for more than 2 weeks is a clinical pointer to depression
- Early detection and management of mental health disorders improves prognosis and quality of life
- Selective serotonin reuptake inhibitors are the drugs of choice to manage moderate to severe depression and anxiety disorders

Substance Use in Adolescence

Dr Preeti M Galagali, Dr Somashekar AR

Objectives

1. Discuss the need for screening for drug use in adolescence
2. Delineate socioecological determinants of drug use
3. Outline a practical approach to management of substance use disorder

Substance use disorder is a 'medico-socio-economic disease' with a high mortality and morbidity. It is the most common missed paediatric diagnosis. Substance abuse in most of the cases has its onset in adolescence. 70% of adults addicted to substances, initiate use during teenage. Substance use has both short term and long-term implications on health. Drug abuse is associated with high-risk sexual behaviour, HIV, hepatitis, endocarditis and other risky behaviour like road traffic accidents, violence, crime, homicide and suicide. Acute intoxicating effects of the drugs may make suicide more likely to occur. Suicide is very common in alcohol abusers, with 1 in 4 suicides in adolescents being related to alcohol abuse According to the Global Burden of Diseases study 2016, alcohol use is the leading risk factor for mortality between 15 to 24 years of age. Drug use is the most common cause of early onset of cardio vascular disease, liver cirrhosis and cancer.

Adolescence and Drug Use

The non-medical use of chemical substances in order to achieve alteration in psychological functioning has been termed substance use. It has been reported that genetic predisposition, peer pressure and a desire to experiment are the most common causes of initiation. Neurodevelopmentally, a highly reactive limbic system and reward centre with an immature control centre i.e prefrontal cortex makes adolescents vulnerable to drug use. As the brain is still under construction in adolescence, drugs act as neurotoxins and damage the brain permanently. They 'hijack' the reward centre of the brain, causing addiction at a young age and impair functioning of hippocampus and prefrontal cortex. This results in poor memory and impaired judgment. Drug abuse also has an epigenetic effect. Hence all adolescents should be screened for drug use at every health visit.

Situational Analysis

The drugs commonly abused by adolescents in India are listed below:

Substances are categorised as:

1) **Licit :** those which are not regulated or prohibited by law. For example, alcohol, khat, tobacco, cigarettes and coffee.

2) **Illicit :** those which are prohibited by law. For example, cannabis (marijuana or hashish), cocaine and heroin.

Based on effects on the central nervous system, drugs are classified as depressants, hallucinogens and stimulants.

1. **Depressants :** These drugs include alcohol, oxycontin, opioids, marijuana, tranquillisers, barbiturates, solvents and inhalants including petrol, glue, paint thinners and lighter fluid

2. **Hallucinogens :** This group of substances contains psychoactive drugs that distort reality by triggering hallucinations, delusional thinking, and/ or skewed experiences of time and space. These substances include LSD(d-lysergic acid diethylamide), peyote, mescaline, mushrooms (psilocybin), DMT (dimethyltryptamine).

3. **Stimulants :** These include methylphenidate, cocaine

Narcotics like fortwin, buprenorphine, morphine, pethidine, spasmoproxyvon, codeine containing cough syrups, cocaine, amphetamine, club drugs, anabolic steroids, electronic cigarettes and hookahs are commonly being used by adolescents. Various Indian and Western studies highlight that male, illiterate teens, unemployed, street children, abused adolescents, those with mental disorders, LGBQT and school dropouts are at the highest risk of drug abuse. The age of initiation is early in this group. They mostly indulge in hard drugs and are likely to engage in other high-risk behaviour.

According to NFHS-3, 11% adolescent boys and 1% girls use alcohol and 29% boys and 4% girls use tobacco. Average age of initiation of drugs varies between 12 to 15 years. In 2017, Global adult tobacco survey-2, prevalence of tobacco use among 15-24 years was 12.4 % ; a 6% decrease in 6 years. The mean age at initiation of tobacco use increased from17.9 years in 2009-10 to 18.9 years in 2016-17.

Socio Ecological Determinants of Adolescent Substance Abuse

Factors that predispose to substance abuse are called 'risk factors' and those that reduce the potential for drug abuse are called 'protective' factors. Adolescents function in five principle domains that include individual, family, school, peer and community. These domains interact with each other to either promote or protect against drug abuse. The various determinants of drug abuse are as follows;

Community : In India, this is the most important factor influencing adolescent drug use. Easy availability, accessibility of drugs and poor law enforcement, glamorised media portrayal, disorganized and violent neighbourhood as in slums and streets, extreme poverty, high rates of illiteracy and unemployment facilitate drug abuse. Changing social norms and worsening relationships with neighbours also contributes to substance abuse by the teenager.

Individual : Adolescents who are impulsive, sensation seeking, with low self esteem, aggressive and with drug abusing role models are particularly vulnerable. Another class includes victims of dating violence and sexual abuse. Those who are early initiators and gamblers and street children form a major group. As mentioned earlier, existing co-morbid conditions like depression, ADHD and anxiety predispose the teenager for drug abuse. The protective factors include having high aspirations in life, resilience and involvement in religious activities.

Family : Parental conflict and divorce, permissive/authoritarian parenting, parental approval of drug use, parental and sibling drug use, family h/o drug abuse, poor parental connectedness, availability and monitoring, faulty discipline techniques and parents with 'a pill for every ill' attitude increase the risk of substance abuse in the teenager.

School : Poor school connectedness, early school failure, truancy, school adjustment problems, school dropout and drug abuse by teachers can make the adolescent more vulnerable for drug abuse. Adolescents with high academic achievement and a drug free environment at school are protected against drug abuse.

Peers : Peer abuse and/or approval of drug abuse and delinquent and violent peer group make the teenager easily susceptible.

Clinical Presentation

The parents or caretakers may notice the following in the drug abusing adolescent:

Early indicators/ Flag Signs of drug abuse :

- Efforts to mask the smell as evidenced by frequent rinsing and washing hands, use of perfume or deodorant, chewing mint
- Avoiding eye contact and hug by parents.
- New set of (senior) friends.
- Social isolation with loss of interest in activities which the teenager was enjoying earlier.
- Scholastic deterioration.
- Poor hygiene, altered appetite and sleep pattern.
- Changed preference for movies and music which depict high action and drug abuse.
- Unexplained irritability and increasing conflicts with parents and teachers.
- Spending extra time in toilet.
- Stealing money/valuables from the house.

Drug specific indicators :

- Amnesia : **Date rape drugs e.g. Flunitrazepam, Ketamine, Barbiturates**
- Black outs, gastritis, body odour : **Alcohol**
- Flu like symptoms : **Marijuana, cocaine, inhalants**
- Red conjunctiva, abnormal pupils : **Marijuana**
- Paint stains on face and clothes : **Inhalants**
- Chest pain, tachycardia : **Cocaine, amphetamine**
- Bronchospasm, constipation : **Opiates, marijuana**
- Increased appetite for sweets : **Marijuana**
- Gynecomastia, small testes and irregular periods : **Marijuana**
- Altered body odor : **Alcohol, inhalants**
- Gasoline cans in cars : **Inhalants**

It is important to remember that earlier the teenager is brought to the clinician, the better. Most parents tend to hide the problem initially. This makes the treatment more difficult.

Role of Pediatricians

Primary care pediatrician is the only health care professional to recognize substance abuse problem in the

adolescent as it evolves. Inspite of rapid advances in the field of treatment, the most cost effective solutions to the problem are still prevention and early intervention. Hence the role of the pediatrician is three fold:

1. Primary prevention in office practice.
2. Diagnosis, management and rehabilitation.
3. Taking a lead in community programs to prevent and treat drug abuse.

Primary Prevention

Primary prevention of substance abuse can be done at the individual level in office practice and at the community level.

In office practice

Each adolescent should be screened for substance use at every opportunity. Anticipatory guidance should be given to abstinent adolescents to prepare them for the social pressures that they would face from peers, media and other environmental sources. Parental guidance should be given. An assessment of risk and protective factors should be made. Co occurring disorders should be diagnosed and treated.

In a **parental guidance session**, the following tips could be given. The parents should be asked to:

- Teach children to be goal oriented and in tune with their culture and beliefs. Provide a loving and supportive environment. Be a role model, avoid using drugs and seek medical help early if already 'on' drugs and to discourage even casual use of drugs
- Use authoritative parenting style and set 'clear limits'. Monitor behavior, media exposure and peer group. Have 'realistic expectations' and teach life skills: enhance self esteem, develop coping, assertive (learn to politely say 'no' at home), critical thinking and communication skills. Ensure a healthy lifestyle and appropriate sleep and media hygiene.
- Screen and seek early treatment for co morbid disorders. Look for 'flag signs' of substance abuse.

At the community level

School based drug prevention programs form the cornerstone of preventive interventions. The school authorities and teachers should be sensitized about ensuring school connectedness, to emphasize on all round development, to teach life skills, to screen and refer learning disorders and other emotional problems as early as possible, to have regular parent teacher meetings, to have a 'drug free' environment, to look for 'flag signs' of drug use and define a clear and usable drug abuse prevention module in the school and implement it. They should involve the students and parents in the formulation, implementation and follow-up process.

Therapeutic Intervention

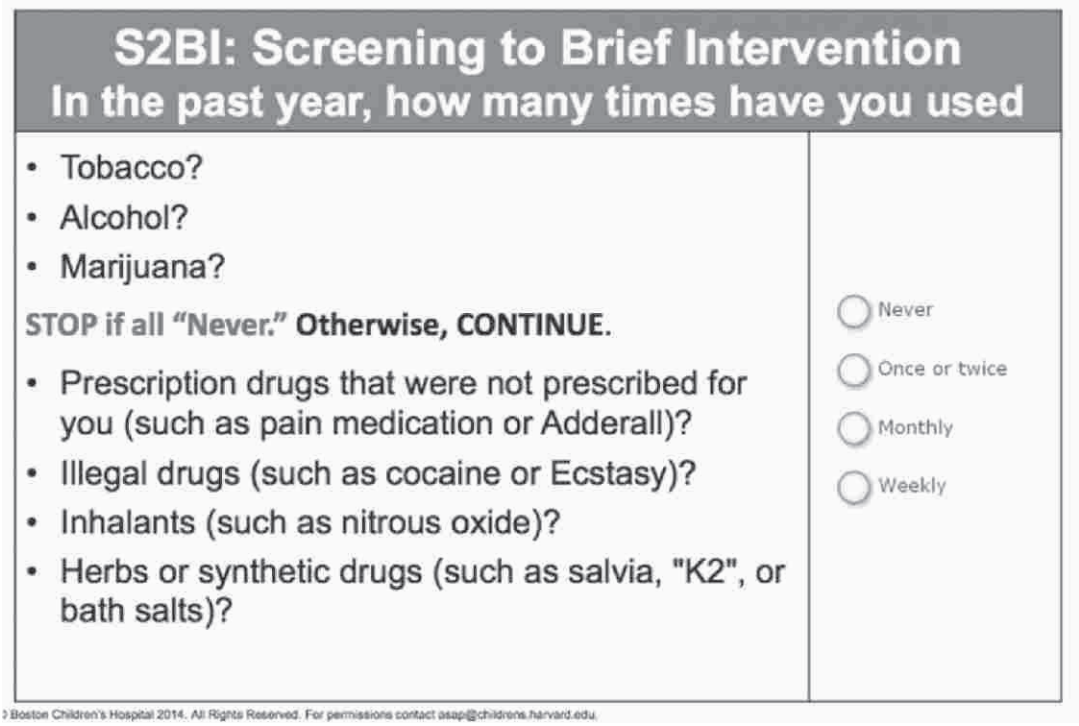
Pediatricians should have a high index of suspicion for substance abuse. Such an adolescent can present in an outpatient, inpatient or emergency setting. In 2016, American Academy of Pediatricians endorsed the simple to use and implement, Screening Brief Intervention Referral to Treatment (SBIRT) model to manage substance use in adolescence.

SBIRT

Screeing	Brief Intervention	Referral to Treatment
Quickly assess the severity of substance use and identify the appropriate level of treatment.	Increase insight and awareness of substance; motivation toward behavioral change.	Provide those identified as needing more extensive treatment with access to specialty care.

A confidential comprehensive history using empathic, non-judgmental and open-ended questions is the key to the screening, diagnosis and treatment of drug abuse. In case the teenager is already using drug, give lot of support and encouragement to help him win over the guilt factor associated with it. Let him/her experience regret for the same. Help the teenager to help himself. The steps in evaluating an adolescent with substance use are as follows:

- Assessment of risk factors is done using the HEEADSSS screen. History of comorbid high-risk behavior. Look for co occurring disorders.
- Specific drug history including type of the drug/s used, extent of use, setting of use and degree of social, educational and vocational disruption.
- Look for 'flag signs'. Headache, sore throat, worsening asthma, chronic cough, chest pain, gastritis, hepatitis, needle puncture marks and pancreatitis may be signs of drug abuse.
- Use the Screening to Brief Intervention Tool (S2BI Tool) given below:



S2BI: Screening to Brief Intervention

In the past year, how many times have you used

- Tobacco?
- Alcohol?
- Marijuana?

STOP if all "Never." **Otherwise, CONTINUE.**

- Prescription drugs that were not prescribed for you (such as pain medication or Adderall)?
- Illegal drugs (such as cocaine or Ecstasy)?
- Inhalants (such as nitrous oxide)?
- Herbs or synthetic drugs (such as salvia, "K2", or bath salts)?

Never
Once or twice
Monthly
Weekly

'Never' indicates no substance use, 'once or twice' indicates no substance use disorder (SUD), 'monthly' indicates mild/ moderate SUD and 'weekly' indicates severe SUD.

Management according to severity of drug use is as follows:

1. **No substance use :** Pediatricians should give positive reinforcement, encourage being 'drug free' and discuss the risks of drug use and skills to withstand negative peer pressure.
2. **No SUD :** Pediatrician should give brief advice regarding consequences of drug use. Discuss and deal with 'stressors' that trigger drug usage and reduce other risky behavior.
3. **Mild / moderate SUD :** Here the pediatrician should give motivational intervention. This is based on the principles of expressing empathy, developing discrepancy between life goals and the need to use drugs which could be stumbling blocks towards reaching the goals, enhancing self efficacy to resist drug use and rolling with resistance; if the adolescent refuses to get motivated to decrease/ stop drug use. A request to sign a contract of life (given below) is made to the adolescent.

I,_____, agree to not drink alcohol, use drugs, or take anyone else's medication for the next_____days. I also will not provide drugs, alcohol, or prescription medications for anyone else during this time. In addition, I agree to not drive a motor vehicle while under the influence of drugs or alcohol, nor will I ride with a driver who has been drinking or using drugs.

I will come to my follow-up appointment with_____ on _____

Signed_____

Date :_____

CRAFFT questionnaire is used to identify adolescents with a serious problem of substance us, who need an in depth assessment of staging and motivation level. Each 'Yes' item is scored as 1. A score >2 indicates a high risk use and the need for psychiatric referral.

CRAFFT Screening Questionnaire

C Have you ever ridden in a **c**ar driven by someone who was high or had been using drugs?

R Do you ever use drugs to **r**elax, feel better or fit in?

A Do you ever use drugs when you are **a**lone?

F Do you ever **f**orget things while using drugs?

F Do your **f**amily / **f**riends ask you to cut down on drug use?

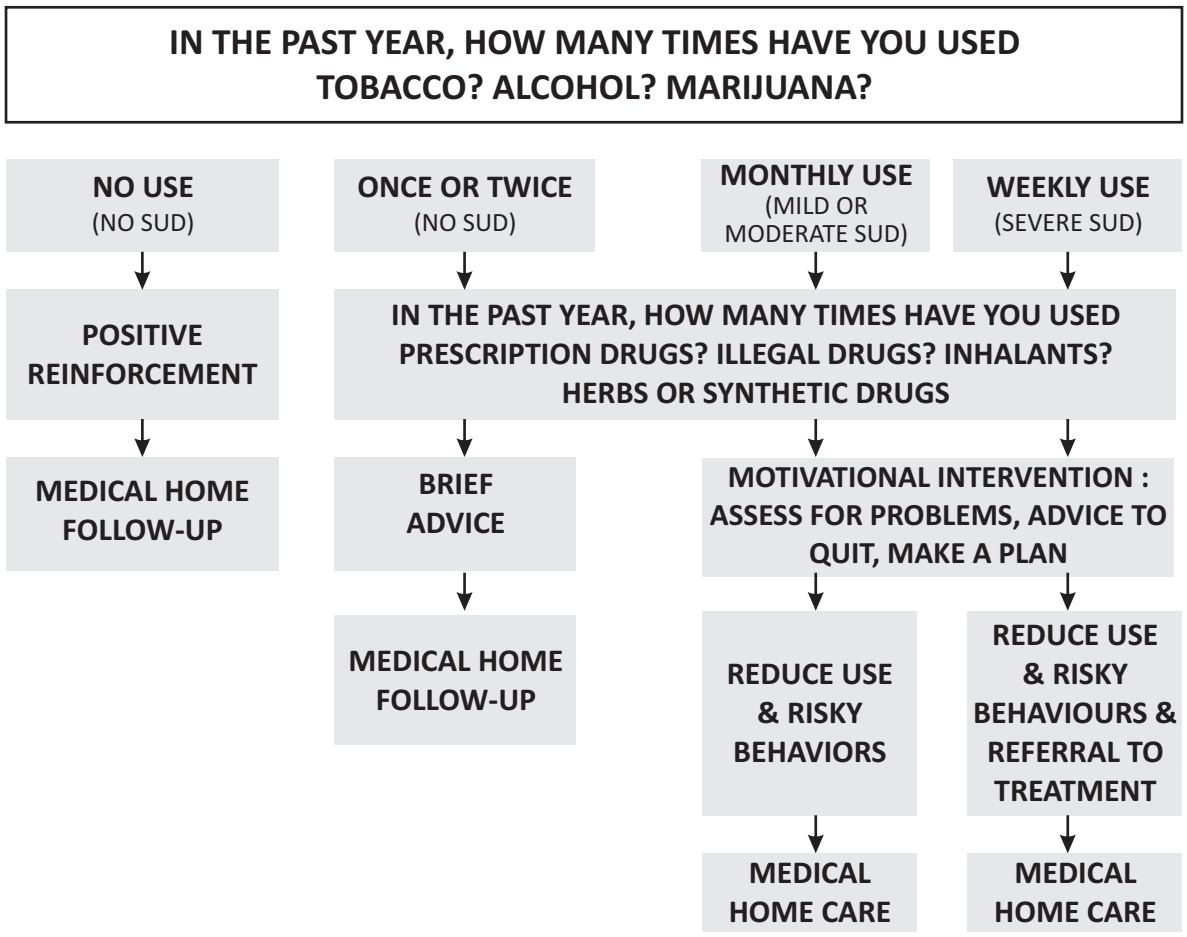
T Have you ever got into **t**rouble while using drugs?

4. **Severe SUD :** Pediatrician should refer such cases to an adolescent friendly psychiatrist for cognitive behavior therapy, motivational intervention, family therapy and pharmacotherapy. A number of medications have been approved for the treatment of substance abuse. These include replacement therapies such as buprenorphine and methadone as well as antagonist medications like disulfiram and naltrexone in either short acting, or the newer long acting form. Several other medications, have also been shown to be effective including bupropion and modafinil. Methadone and buprenorphine are sometimes used to treat opiate addiction. Comorbid disorders like ADHD, anxiety and depression should also be treated.

A multidisciplinary approach to addiction treatment literally means to come at the problem from multiple disciplines. The team comprises of nurse practitioners, physicians, interventionists, psychologists, psychiatrists, detoxification specialists, life coaches, nutritionists, physical trainers, yoga coaches, pharmacists and support groups/sponsor

Each member of the multidisciplinary team is able to meet with clients on an individual basis to interview them, review their test results and a questionnaire that they have completed. Goals are set by the team and a management plan is drawn defining the role of each team member. The pediatrician should closely follow up the treated cases at least once in few weeks in the first three months and later once a month to look for relapse and plan to reintegrate the adolescent into the community.

SBIRT approach is summarized below :



The S2BI-based approach to clinical SBIRT. S Levy, L Shrier. 2014. Boston, MA: Boston Children's Hospital. Copyright 2014, Boston Children's Hospital.

Key Messages

Drug abuse is a social and medical problem

Early and increased use of drugs is seen in the adolescents

Pediatricians play a key role in management

Prevention is the most effective intervention

Coordinating with substance abuse specialists ensures quality care and treatment

Adolescent Sexuality

Dr Harmesh Singh Bains

Objectives

1. Discuss development of sexuality in adolescence
2. Outline a clinical approach to an adolescent with a sexuality related issue

Adolescence is a transitional stage of physical, emotional, and cognitive development between childhood & adulthood. Sexuality, a normal developmental phase involves expression of interest, sexual orientation, religion, culture, gender identity and preference. Adolescent sexuality is changing as adolescents now attain puberty earlier than before. Puberty sets the stage for physical development and onset of sexual thoughts. Teens develop interest in intimate relationships and sexual experimentation during middle adolescence. In this period adolescents are at risk for the problems of teen pregnancy, sexually transmitted infections (STIs), failed romantic relationships, cyber stalking, confusion about sexual orientation and gender identity and sexual abuse. If these issues are not dealt in time, they may escalate; to result in serious physical and emotional problems like maternal mortality, morbidity, unsafe abortion, depression, self harm and suicide. Hence preventive health services and sexuality education for adolescents is warranted.

Definition of Sexuality

Sexuality is the total expression of who we are as human beings. It includes the physical, emotional and spiritual part of our being and encompasses our personality, values, attitudes, gender, race, thoughts, feelings and sexual behaviour. It is a broad term that describes our full personhood that begins at birth and ends at death. Sexuality is constantly evolving as we grow and develop. Human sexuality is more than the act of sex and involves the person's concept of his or her own body image, sexual identity, role at home and society, personal feelings and self-esteem

Components of Sexuality

Sexuality is comprised of the following:

Anatomic and biologic sex

This refers to the anatomic sexual reproductive organs. Anatomic sex is only one component of sexuality. Biologic sex (XX/XY) is determined at the time of conception.

Gender identity

This refers to the feeling within the person as being either masculine or feminine. Gender identity and anatomic sex sometimes do not match. For example, a person can be born as a boy but feels and behaves like a girl. This is sometimes referred to as transgender.

Sexual orientation

This refers to the sexual attraction one feels towards another person of the opposite sex (heterosexual), the same sex (homosexual, gay, or lesbian) or both sexes (bisexual). Sexual orientation is influenced by many factors, including anatomic sex, gender identity and the society. It is common for adolescents to feel confused about their sexual orientation, which is normal. These feelings may change as the person matures or may persist. It is important for adolescents and adults to be comfortable with all aspects of sexuality

(anatomic sex, gender identity and sexual orientation). Sexual orientation and gender identity are not a choice and appear to be established by early childhood. They are shaped by both biological and environmental influences.

Development of Sexuality in Adolescence

At puberty, there is generation of sexual interest and stimulation of thought process due to sexual maturation. Hormone secretion from the hypothalamus and anterior pituitary gland influences sexual behaviour and development of sexual organs. Increasing levels of androgen and estrogen have an effect on the thought process of adolescents. The changes can be summarised as under:

- Physical changes : Puberty sets in and there is increase in sex drive, sex organ maturation and appearance of secondary sex characters
- Cognitive changes : The teens develops introspective reflection, becomes self-conscious, develop imaginary thinking but lack impulse control
- Social changes: Teens begin understanding significance of sexual relations, its connection with adult roles and sexual motivation increases

These changes over different stages of adolescence are detailed below:

Early Adolescence

There are physical changes during early adolescence. The teen is concerned whether these are normal or not. Children at this stage are preoccupied and concerned about body image. They make autonomy bids and tend to focus more on relationship with friends moving away from the family. They are concrete thinkers. They try to experiment with their sexuality during this phase of adolescence. They may experience same-sex attractions.

Middle Adolescence

There is complete development of secondary sexual characteristics. Sensation seeking behaviour develops that put adolescents at risk of contracting a STI or becoming pregnant. Adolescents may undergo identity crisis in this age. Many of them may 'fall in love' and also may indulge in sexual experimentation including intercourse.

Late Adolescence

In this phase adolescents focus on autonomy. They develop abstract thinking and start thinking about their future. They feel secure about their body image, gender role and sexual orientation. As the prefrontal cortex is still developing they may act impulsively. Hence they require guidance and monitoring to adopt safe sexual practices.

Child Sexual Abuse

Child sexual abuse is the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give informed consent to or that violates the laws or social taboos of society (WHO). This may include but is not limited to involvement of children in any unlawful sexual activity, prostitution and viewing or participating in pornographic performances.

Sexual Grooming

Sexual Grooming is a subtle, gradual, calculated and escalating process of building trust with a child. It is deliberate and purposeful. Abusers may groom children for weeks, months, or even year, before any sexual abuse actually takes place. It usually begins with behaviors that may not even seem to be inappropriate. Grooming can be online or face-to-face, by someone they know or by strangers.

Six Stages of grooming are as follows:

Stage 1 : Targeting the victim

The offender targets a victim by sizing up the child's vulnerability that is emotional neediness, isolation and lower self-confidence. Children with less parental oversight are at risk.

Stage 2 : Gaining the victim's trust

The sex offender gathers details about the child and his/her needs and plans to fulfil them. They are able to gain confidence of the caretaker by being friendly with them. Sex offenders remain purposely disciplined and do not reveal themselves.

Stage 3 : Filling a need

The sex offender starts giving more importance on fulfilling the child's requirements by providing gifts and extra attention.

Stage 4 : Isolating the child

The sex offender tries to be with the child in lonely places by creating suitable situations like babysitting, tutoring, coaching and special trips to strengthen the link further.

Stage 5 : Sexualizing the relationship

After creating a significant emotional dependence and trust, the offender starts making sexual advances.

Stage 6 : Maintaining control

The offenders try to maintain this relation by using secrecy and blame by threatening the child with dire consequences. Hence the sexual abuse continues for a longer period.

It is important for caretakers and health professionals to talk with adolescents about personal safety guidelines to prevent sexual abuse

Role of a Pediatrician

Pediatricians should have adolescent friendly clinics and supportive office staff who do not discriminate and behave differently with sexual minorities. They should encourage parents to talk to their teen about sexual behaviour in a non-judgemental way. They should be guided about talking to their adolescents about the process of menstruation, menstrual hygiene and wet dreams once puberty sets in. Parents should be counselled that the adolescent interest in one's own body may be natural. It does not indicate that their child is involved in sexual activity. It is necessary to discuss abstinence, contraception, consent and substance abuse with the adolescent impart and life skill training to say 'no'. During communication, it is apt to use inclusive words as gay, lesbian, bisexual, or transgender, whenever required. This opens avenues for the adolescent to communicate. The impact of sexuality in adolescence on pregnancy,

contraception, sexually transmitted diseases, dating violence and sexual abuse should be discussed with the adolescent .

The adolescent sexual behaviour is assessed by using the HEADDSSS (Home, Education, Activities, Drugs, Sexuality and sexual activity, Safety, and Suicide) questionnaire to obtaining a comprehensive and developmentally appropriate psychosocial history for determining strengths and risks. Nonjudgemental attitude, privacy and confidentiality should be ensured. Resource material and reading material should be freely available in the adolescent clinic. CDC's five “P” approach for obtaining a sexual health history includes details regarding the following :

1. Partners
2. Practices (sexual practices)
3. Past history
4. Pregnancy
5. Protection

The patients must be comfortable and feel that they can say whatever they like to the doctor. The paediatrician must show empathy and sensitivity while dealing with sexuality related issues. They should ensure follow up appointments, if required. Adolescents should be advised about the safe methods of showing intimacy and about various contraceptive options to prevent teen pregnancy and STI. Investigations to rule out pregnancy and STI may be done depending on the clinical history and examination.

Key Messages

- Sexuality is one of the most fundamental aspects of who we are as human beings
- Sexuality is multidimensional in nature encompassing sexual behavior, attractions, fantasies, affiliations, sexual orientation and gender identity
- The components of sexuality include, anatomical and biological, sexual identity , gender identity , sexual orientation and sexual behaviour
- Physical , cognitive and social changes occur during development of sexuality in adolescence
- Pediatricians have key roles to play in sexuality related issues as educators, counsellors and healers

Appendix
Sexuality Evaluation in Clinical Practice

Factor	Evaluation	Issues	Recommendations
1. Sexual Identity	Complete Physical Examination	1. Ambiguous Genitalia 2. Genital abnormalities	Genetic Testing Gynecological Evaluation Urological Evaluation
2. Gender Identity	Observation of gender behaviors Interview	1. History of persistent cross dressing 2. Persistent feelings of being 'trapped in the body of the opposite sex' 3. Persistent desire to be the opposite sex 4. Persistent repulsion towards genitals 5. Persistent gender behaviors of the opposite sex	Psychiatric Evaluation
3. Sexual orient-ation	Interview	1. Predominant sexual fantasy and attraction towards the : Opposite Sex Same Sex Both Sex 2. Knowledge and awareness of variations of Sexual orientations 3. Psychological Adjustment Depression Suicidal ideation and plan Substance abuse 4. Familial knowledge and support Family unaware Family unsupportive 5. Social knowledge and support School Friends Sexual relationships 6. Religious conflicts 7. Legal problems prostitution 8. Special problems Bullying Violence	Reassurance Advise on Gay and Lesbian resources Referral to Mental Health Professional

Greydanus, Donald E. and Omar, Hatim A., "Adolescence and Human Sexuality" (2014). Pediatrics Faculty Publications. 124. https://uknowledge.uky.edu/pediatrics_facpub/124

Suicide in Adolescence

Dr Poongodi Bala

Objectives

1. Discuss the role of paediatricians in preventing teen suicide
2. Describe risk factors for suicide
3. Outline a clinical approach to a teen with suicidal behaviour
4. Delineate risk assessment of teen suicidal behaviour

The tragedy of children killing themselves because of overwhelming hopelessness or frustration is devastating to friends and family. Although suicide is relatively rare among children, the rate of suicide increases greatly during adolescence.

India is labelled as 'Suicide Capital of South-East Asia' as it has recorded the highest number of suicides in South-East Asia in 2012 according to a WHO report. When we look at the progress in the rate of suicide; the suicide rate in India was 7.8 per 100,000 in 2010, but it has steadily increased to 11 per 100,000 in 2013. A report of the Government of India revealed that more than 65% of all suicides are committed by persons between the ages of 15 and 24 years.

Paediatricians have an important role in identifying the risk and should act in collaboration with the mental health professionals to prevent and treat suicidal behaviours. Paediatricians are the first point of contact for children and adolescents as they are well known to the kids since their newborn life. Moreover, the parents prefer to consult their paediatricians first due to stigma of going to the psychiatrist or psychologist. Also there is a lack of mental health resources in India. For example we have only 1 Psychiatrist per 200,000 people in India. Only 0.06% of health budget is being spent for mental health every year. Mental health support system is not yet developed well in India, we are lacking adequate number of psychiatric nurses and social workers.

Risk factors for Suicide

The reasons behind a teen's suicide or attempted suicide can be complex. Factors that increase the risk of suicide among adolescents include psychiatric illness such as depression, anxiety, substance abuse, feelings of distress, irritability and agitation, a family history of depression or suicide, physical, sexual or emotional abuse, lack of support, poor relationships with parents or peers, feelings of social isolation, dealing with bisexuality or homosexuality in an unsupportive family or community or hostile school environment, bullying from peers, influence from social media, high expectations from parents and school and family factors (parents' separation and financial difficulties).

Common Methods of Suicide

The most common methods of suicide in children and adolescents are hanging, self-poisoning, drowning, falling from height and jumping on the railway track. Jumping from height and railway track is common for both boys and girls. Self-poisoning is more common in girls whilst hanging is more common in boys.

Clinical Approach

Adolescent who has attempted suicide needs to be stabilised first. Physical treatment such as stomach wash or suturing the injury should be completed. Apart from taking care of the physical complications of the suicide attempt, the mental health of the victims should be assessed. Once the victim is stable, detailed information regarding the circumstances of the attempt should be obtained from the victim and the parents. It helps to identify the risk factors and causes of the attempt. If the cause is known, paediatricians can help them to deal with it in future. Hence listening to the parents and the victims will help to reduce further suicide risks. For example; one of the 10th standard students tried to end his life by taking rat poison. Fortunately, he survived the attempt. On exploration, it was found that he was afraid of being physically punished by a particular school teacher. In this case, advice was given to parents to talk about the issue at school to avoid physical punishment and thereby preventing future suicidal attempts.

In the hospital, teens with suicidal behaviour need close observation as they may try another attempt in the ward if they are not happy to be alive. Generally we need to explain further risks to the parents and advise them to keep an eye on the victim. If the victim is anxious or agitated due to being alive or ongoing depression, anxiolytics should be prescribed for short term purpose. Benzodiazepine is the first choice anxiolytic for short term purposes. It can be used orally or by intramuscular or intravenous routes. Haloperidol is an older generation antipsychotic which should be used only if the anxiolytic is not effective, as it is known to cause acute dystonia.

Legal issues

Attempted suicide was a criminal offence under Indian Penal Code Section 309 in the past. However according to the Mental Care Bill 2016, attempting suicide is not a criminal offence; people who attempt suicide will be considered to be under severe stress by the law. Treat attempted suicide as a medico legal case. Hospitals and health care professionals should not alienate patients with mental illness.

Referral to the Psychiatrist

All suicide victims should be referred to a psychiatrist or psychologist for further counselling and management of associated mental health illness. If a psychiatrist is not available in a health care centre, paediatricians can do a brief risk assessment before discharging the patient.

Risk Assessment

Risk assessment is of two types; acute risk assessment and long term risk assessment. If someone has any of the risk factors as mentioned above, the long term risk is high when compared to someone who doesn't have those risk factors. Acute risk is the risk of further episodes of attempting suicide immediately in the hospital or at home after the discharge.

To assess the acute risk, paediatricians should ask the following direct questions. Research has proved that asking direct questions regarding suicide will not increase the risk

How do you feel about being alive?

Do you regret your action?

Do you understand the consequences of your action?

Do you have current thoughts of wanting to end your life?

If you have similar thoughts in future what would you do? What would you do differently?

If the victim says that he or she regretted his or her action and denied having current thoughts of suicide, the acute risk is low. If the victim says that he or she is not regretting his or her action and may try another attempt, then the acute risk is high. The victim should be discharged from the hospital only if the acute risk is low. If the risk is high, the victim should continue the hospital admission.

Assessing Risks in the Outpatient Department (OPD)

AAP (American Academy of Paediatrics) recommends screening for suicide tendency in adolescents during visits for acute diseases as well as during routine check-ups. As children have greater difficulty in expressing their internal stress, it could be expressed as somatic symptoms, irritable mood and/or poor academic performance. All children on antidepressants for chronic illness should be closely monitored for worsening features of suicidal behaviour.

Non Suicidal Self Injury / Deliberate Self Harm

It is very important to differentiate suicide attempt from deliberate self- harm. Deliberate self -harm is a cry for help. On noticing superficial cuts or scratches in the victim's arm, Paediatricians need to ask the following questions.

Why did you do it?

What did you expect to happen?

Did you want to end your life?

Did you feel relieved after scratching yourself?

Did you do it as a cry for help?

A self-harm victim would usually say 'I want to relive my stress; it makes me feel better temporarily'. The common sites of self -harm are wrists, thighs and abdomen. So we need to examine the whole body to assess the severity and the duration of self- harm. Recurrent self-harm is a sign of personality disorder which requires a combination of medications and psychotherapy by mental health professionals. Self harm needs sensitive and careful management as it may be a precursor of suicidal behaviour in the future.

Prevention

As anxiety and depression are common risk factors for suicide, screening for these disorders is a must using simple tools such as Trivandrum Screening Questionnaire. Universal intervention for suicide prevention targets the whole population. Selective intervention means only targeting subgroups with risk factors, for example, high school students with poor academic performance. In the recent times, NGO's (Non-Governmental Organisations) are playing important role in creating awareness and preventing suicide. Child help line (1098) could be used to get help. Risk factors need to be addressed to reduce the suicide rate.

School Support

Mental health well-being should be added to the school curriculum. Counselling centres should be available in all schools. School counsellors and teachers could act as gatekeepers for mental health problems by early detection of risk factors and warning signs of suicide. They should promptly refer such

cases to health professionals

Public Awareness

Raising awareness among the public is created by media and intervention programmes. Media should be educated about 'suicide contagion'. Irresponsible media reporting can result in 'copy cat suicides' amongst teens. Many paediatric departments have started child guidance clinic to address the stress of the young minds. Training and partnering with teachers, police officers and practitioners of alternative system of medicine and faith healers will help to abate this tide of teen suicide. WHO has announced 10 September as the suicide prevention day to create awareness and prevent suicide.

Key Messages

- Suicide among adolescence is a multifactorial problem and it needs multidimensional approach.
- Paediatricians play an important role in preventing and treatment by listening to the teens with suicidal behaviour and detecting and managing risk factors
- It is important to partner with gatekeepers of adolescent health like parents, teachers, adolescents, NGOs and government to prevent adolescent suicide

Appendix

Teenage Screening Questionnaire-Trivandrum (TSQ – T) Abridged

MENTAL HEALTH SECTION

1. Have you ever felt

0. No 1. Anxious 2.Sad 3. Angry / irritable 4. Stressed /tension

2. Do you feel your symptoms are out of proportion to the cause?

0. No 1. Yes 2. Not applicable

3. Do you frequently have any of the following symptoms in the recent past?

0. None 1. Palpitations 2. Excessive sweating 3. Appetite significantly less/more

4. Sleep significantly less/more 5. Sexual interest significantly less

4. Do the above symptoms disturb or affect daily activities

0. No 1. Studies 2. Job 3. Other

5. Have you lost interest in things that you always enjoyed?

0. Never 1.Sometimes 2.Often

6. Have you often felt that

a) You are good for nothing (Worthlessness)	0.Never	1.Sometimes	2.Often
b) There is no future for you (Hopelessness)	0.Never	1.Sometimes	2.Often
c) You can do nothing in life (Helplessness)	0.Never	1.Sometimes	2.Often
d) Life is not worth living	0.Never	1.Sometimes	2.Often
e) Want to harm yourself	0.Never	1.Sometimes	2.Often

7. Any other_____

8. Clinical impression: - 1. Anxiety 2. Depression 3. Suicidal tendency 4. Others (Specify)

Note: If the adolescent marks the response 'often' for any of the questions in TSQ , it is a 'red flag sign' for depression/ anxiety/ suicidal behaviour

Anemia in Adolescents

Dr Sandeep Trivedi

Objectives

1. Understand the need for increased demand of nutrients in adolescence
2. Discuss importance of screening for anemia
3. Delineate etiology of adolescent anemia
4. Outline the clinical approach and management
5. Review preventive measures

Adolescence is a period of rapid changes in body and mind. In this period, there is an increased need of nutrients. Due to acquisition of muscle mass, increasing blood volume and red cell mass, there is a physiological demand for more calories, proteins and hematinics like iron and folic acid. Changing behaviour also influences adolescents' nutrient intake. Food containing essential nutrients is less liked by them. In most of the adolescents this gap between demand and supply increases to a level causing deficiency states like (nutritional) anemia. Anemia is the most common 'medical disease' prevalent amongst adolescents.

Some autoimmune disorders may manifest as anemia for the first time during adolescence. Some children with congenital anemia enter adolescence with unique needs. A few children with congenital anemias, if heterozygous may clinically present for the first time in adolescence. Anemia during adolescence may have long lasting consequences. Cognitive changes due to iron deficiency anemia may lead to poor academic performance. Anemia may lead to recurrent infections, fatigue and poor task performance. 26% of Indian adolescent girls are married. Anemia in pregnancy predisposes to high perinatal and maternal mortality. It also has an intergenerational effect on the IUGR newborn who is predisposed to develop neuroendocrine dysregulation, impulse control disorder and metabolic syndrome later in life. Thus, anemia has several facets and physicians looking after adolescents should be well versed with these issues. In this chapter, anemia will be dealt with a clinicians' perspective; to enable them to identify, manage and prevent it efficiently.

Adolescence – A Period of Acute Stress on Erythropoiesis!

Adolescence is a period of growth in height, weight, muscle mass and bones. This heightened growth during puberty increases demand for oxygen and hence oxygen carrying capacity and the body responds by increase in red blood cell (RBC) mass. Hemoglobin concentration and size of RBC also increase and Mean Corpuscular Volume (MCV) reaches adult values by the time puberty ends. Boys have a rise androgens and more increase in muscle mass and activity. Androgens stimulate greater release of erythropoietin and thus there is a higher hemoglobin concentration in boys than that in girls. Girls lose blood every month during periods that may reduce the hemoglobin levels further, especially in those who are nutritionally compromised. Faulty eating habits may result in lack of iron, folic acid and other vitamins in diet that leads to inadequate erythropoiesis and anemia in adolescents. Autoimmune disorders (systemic lupus erythematosis, autoimmune haemolytic anemia) may manifest for the first time during adolescence.

There is an acute stress on erythropoiesis during adolescence and hence there is a definite need for increased intake of iron and other nutrients. Hence iron prophylaxis is essential in adolescence.

Definition

It is not difficult to identify anemia clinically but it is important to note that anemia manifests as pallor only when it is moderately severe. Some fall in hemoglobin is difficult to pick up clinically. But it is important to keep haemoglobin in normal range as even slight decrease will have effect on growth and cognition in adolescents.

Anemia is traditionally defined as decreased oxygen carrying capacity of blood. During adolescence, the adequate levels of haemoglobin depend on age as well as sexual maturity levels. Hormonal changes influence the hemoglobin levels and they increase with higher levels of sexual maturity. However, the difference is very little to have any effect on the cut offs of hematocrit or hemoglobin for defining anemia in adolescence. Table below describes the normal values.

Normal levels of Hemoglobin in Children and Adolescents

Age and Sex	Hemoglobin threshold for defining Anemia
0-5 years Boys and Girls	11 g/dl
5-10 years Boys and Girls	11.5 g/dl
10-18 years Girls	12 g/dl
10-14 years Boys	12 g/dl
15-18 years Boys	13 g/dl

Prevalence

Anemia is most common medical condition found in adolescence. Various studies from India have found anemia in 16 – 96% of studied subjects. Thus, on an average every 1 in 2 adolescent girls and 1 in 3 adolescent boys in community have anemia. Medical professionals should look for anemia in every adolescent coming to a healthcare facility. Risk factors known to be associated with anemia include poor socioeconomic condition, low dietary iron intake, vegetarian diet, worm infestation, under-nutrition, stunting, excessive menstrual bleeding , pregnancy and family history of thalassemia or other hereditary disorders like sickle cell anemia or spherocytosis.

Etiology

Most common cause of anemia in adolescents is nutritional deficiency (mostly of iron, followed by deficiency of folate and vitamin B12). The various etiological causes can be grouped into conditions with low production of RBCs in bone marrow or normal to high production of RBCs and peripheral destruction or loss of blood . These causes can be viewed in terms of pathophysiology and its effects on RBCs and for clinical ease they can be further divided depending on the size of RBCs i.e. values of Mean Corpuscular Volume and picture in peripheral smear examination.

Adolescents presenting with mild anemia will most commonly have iron deficiency anemia whereas severe anemia is usually because of iron deficiency and other micronutrient deficiencies like folate and vitamin B12. Other more serious causes of anemia should also be looked for in an adolescent with moderate or severe anemia. Acute or chronic blood loss should be looked for in adolescents showing clinical features of

iron or folate deficiency anemia, who do not respond to hematinics.

Causes of Anemia in Adolescents

A. Conditions with decreased production of Hemoglobin and RBCs (low reticulocyte counts)

a. Microcytic RBCs : iron deficiency anemia, thalassemia trait, chronic infections / inflammation, lead poisoning, sideroblastic anemia, copper deficiency

b. Normocytic RBCs : chronic disease / inflammation, pure red cell aplasia, drug related or idiopathic, malignancy, acute bleeding, hypersplenism, hemophagocytic syndromes, dyserythropietic anemia II

c. Macrocytic RBCs : folate deficiency, vitamin B12 deficiency, aplastic anemia, hypothyroidism

B. Conditions with destruction or increased loss of RBCs (high or normal reticulocyte counts)

a. Microcytic RBCs : chronic blood loss, thalassemia syndromes (very uncommon to present first time during adolescence), hemoglobin C and E disorders

b. Normocytic RBCs : acute blood loss, antibody mediated autoimmune haemolytic anemia, hypersplenism, microangiopathy (HUS, TTP, DIC) , membranopathies (spherocytosis, elliptocytosis, stomatocytosis or stomatocytosis), enzyme defects (G6PD deficiency, pyruvate kinase deficiency), hemoglobinopathies (hemoglobin SS, SC)

c. Macrocytic RBCs : dyserythropietic anemia – I, III, active hemolysis with very elevated reticulocyte count

Clinical Presentation

History is very important for diagnosis and for determining the cause and rate of development of anemia. The presenting symptoms are of anemia per se and of the underlying disorder causing it. The clinical manifestations depend on the degree of anemia and the rate of development of anemia. Mild to moderate anemia may be asymptomatic and may be an incidental finding in hemogram.

Mild to moderate reduction in haemoglobin (below normal upto 8 g/dl) may cause nonspecific features like fatigue, irritability, short attention span, poor exercise tolerance and poor school performance.

When the hemoglobin falls below 8 g/dl, several additional features may appear like pallor, paresthesias and impaired work performance and endurance. When hemoglobin further falls below 5-6 g/dl; tachycardia, hypotension, congestive cardiac failure and shock may develop.

Patients with anemia may also have features suggestive of its etiology. Nutritional anemia develops insidiously over a period of weeks to months or years, with symptoms appearing only when anemia becomes severe. Iron deficiency is usually associated with cognitive dysfunction and generally its severity correlates well with severity of anemia and the degree of iron deficiency. Adolescents with megaloblastic anemia may present with severe anemia or predominantly with gastrointestinal or neurological symptoms (peripheral neuropathy, posterior spinal neuropathy, dementia or depression from B12 deficiency). They may also have knuckle hyperpigmentation and pancytopenia.

History of blood loss is very important to ask especially from post-menarcheal girls. Detailed menstrual history should be taken. Site, duration, frequency and type of bleeding are important clinical clues. Urine and stool for occult blood loss should be checked. Rarely, bleeding can occur in lungs (pulmonary hemosiderosis).

Haemolytic anemia may have acute presentation like pallor, jaundice, headache, malaise, and lethargy. Family history of cholelithiasis or spleenectomy or repeated blood transfusions may point toward inherited haemolytic anemia.

Anemia that has developed subsequent to ingestion of certain medicines may indicate warm antibody, autoimmune haemolytic anemia; whereas symptoms suggestive of respiratory infections and dark urine following exposure to cold may hint towards cold agglutinin hemolytic process.

Evidences of involvement of leucocytes (recurrent infections, fever) and platelets (easy bruising, petechiae or echymosis) indicate involvement of a more pervasive marrow process like suppression or malignant infiltration. Features of other chronic conditions like renal failure, connective tissue disorders (SLE, Rheumatoid Arthritis) would provide a etiological pointer to anemia .

Effects on growth and development during adolescence may point towards chronicity of anemia and the underlying disease. So under-nutrition including short stature, and low body mass index should be looked for. These derangements depend on the severity and duration of anemia as well as on the nature of the underlying disease and its treatment.

Pallor is the clinical sign of anemia and it is not difficult to pick up. When pallor is detected then the next step is to check whether the adolescent is hemodynamically unstable as denoted by hyperdynamic circulation (rapid pulse rate, small water hammer pulse), fast breathing, raised jugular venous pressure, and hepatomegaly. Such patients need urgent attention and transfusion of packed RBCs. Before transfusing, blood samples for a complete hemogram including reticulocyte count, and peripheral smear should be taken. As guided by history and physical findings samples for haemoglobin electrophoresis, direct Coomb's test, serum levels of ferritin, folate and vitamin B12 should be collected.

A thorough general and relevant systemic examination is important to confirm or rule out features of etiological condition causing anemia. Enlargement of lymph node, hepatosplenomegaly, petechiae or bruising would necessitate investigations for serious haematological conditions including malignancy. Pallor with splenomegaly may indicate towards haemolytic process including autoimmune haemolytic anemia and chronic malaria. Mild splenomegaly may be seen in megaloblastic anemia.

Approach to Diagnosis

In most cases clinical features provide enough clues for diagnosis of etiology of anemia and laboratory parameters are used to confirm it. In adolescents presenting with only 'some pallor' nutritional anemia (in most cases iron deficiency anemia) is the most likely cause. Adolescents with severe pallor and the ones with other abnormal findings should undergo various laboratory tests. A stepwise approach to diagnosis of anemia in adolescents is given below:

Step - 1

Complete blood count including reticulocyte counts and peripheral smear examination. If blood (packed red cells) transfusion is planned then take 3-5 ml blood in EDTA vial and 3-5 ml blood in plain vial for tests as below.

Step - 2

(i) **When leucocytes and platelets are normal,** determine if hemolysis is likely (high reticulocyte counts) or not likely.

Step - 2a When hemolysis is likely, take samples for Direct Coomb's test, estimation of enzymes G6PD, pyruvate kinase, osmotic fragility, and hemoglobin electrophoresis.

Step - 2b When hemolysis is unlikely, samples for serum ferritin, iron binding capacity (when RBCs are microcytic), folate, vitamin B12 (when RBCs are macrocytic)

Step - 2c When bleeding is likely, do iron studies and investigations to determine cause of bleeding.

(ii) **When leucocytes and platelets are NOT normal,** do bone marrow examination

Note : Clinical examination and CBC with peripheral smear examination are likely to provide enough clues in most of the patients to order appropriate tests according to likely etiology

Reticulocyte counts (or corrected reticulocyte count) depend on the functioning of bone marrow; reduced reticulocyte count results from low erythropoiesis and hyper functioning marrow leads to high reticulocyte counts. Size of RBCs reflects the type of pathophysiology of anemia. All components of hemogram are useful but it is equally important to use age-appropriate range of normality for various parameters of complete blood count.

Low mean corpuscular volume (MCV) or microcytosis, hypochromia of RBCs, low reticulocyte count along with elevated red cell distribution width (RDW) are found commonly in iron deficiency anemia. However, when RDW is normal then this microcytosis may be because of thalassemia syndromes. Iron deficiency and thalassemia trait can be differentiated using Mentzer Index (MCV in femptolitre/RBC count in millions). Mentzer Index below 12 suggests thalassemia trait and 13 or more indicates iron deficiency. In case of iron deficiency attempts should be made to ascertain the cause of iron deficiency. Dietary deficiency of iron is found in most cases. When dietary intake of iron seems adequate then blood loss through gut or urine should be looked for. Serum ferritin, iron and iron binding capacity are required in some cases where it is difficult to confirm the iron deficiency.

Anemia with high MCV is seen in folic acid and/or vitamin B12 deficiency states. Anemia is because of reduced red cell production in bone marrow hence reticulocyte counts are low. Leucopenia with hypersegmented polymorphs, and reduction in platelet count are often present in cases of megaloblastic anemia. Bone marrow aspiration or biopsy will confirm the presence of megaloblasts that are pathgnomonic of megalobalstic anemia due to folate and vitamin B12 deficiency. Low serum levels of vitamin B12 and folate will further corroborate these findings.

By the time child reaches the age of adolescence, most congenital disorders are quite apparent. However, thalassemia traits, hereditary spherocytosis and G-6 PD deficiency may manifest for the first time during adolescence. Generally, reticulocyte count is very high in red cell enzyme deficiency like spherocytosis or acute Autoimmune Hemolytic Anemia.

Diagnosis for blood loss may be difficult at times. In acute blood loss, RBCs will be normocytic normochromic. In chronic blood loss, RBCs become microcytic hypochromic like in iron deficiency. Small amount of blood lost in stool, urine, or in lungs will cause iron deficiency also. Most of the times site of blood loss is obvious but at times it is difficult to find the source of blood loss.

When leucocytes and/or platelets are also involved than we should examine bone marrow as progenitors here might be involved. Bone marrow may be involved in some viral infections (CMV, HIV), drugs (chloramphenicol, co-trimoxazole) or infiltration by a malignant process like leukemia. Sometimes,

myelofibrosis may present with pallor and spleenomegaly with involvement of more than one cell line of blood.

Finally, some bleeding disorder like type 1 von Willebrand disease may present for the first time in adolescence and this may present as persistent menstrual bleeding especially when it does not respond to hormonal therapy. Excessive bleeding during menstruation can also cause anemia.

Management Issues

Treatment of anemia depends on the severity of anemia and rapidity of its development. Significant acute blood losses in trauma or surgery need to be replaced. Treatment can be divided in treatment of anemia and treatment of etiological condition causing anemia.

Mild to moderate anemia needs treatment of etiological condition primarily. Severe anemia causing heart failure needs transfusion of packed red cells. Whole blood is used when acute blood loss is there otherwise component therapy should be given. Some patients with very low haemoglobin levels may be very well preserved clinically and in such situations RBC should be given only after collecting appropriate samples.

For iron deficiency, iron therapy is needed in the dose of 3-6 mg per kilogram per day in 2-3 divided doses in between meals. Various compounds can be used depending on tolerance by patient. Ferrous sulphate and ferrous fumarate are widely used compounds. A small dose of folate should also be given with iron a erythropiesis increases the demand for folat . Iron should be continues until 3 months after the hemoglobin has become normal. Deworming once in 6 months also help in maintain hemoglobin levels.

For B12 and folic acid deficiency anemia, use parentral dose of 1000 microgram of B12 stat followed by 250-500 microgram weekly for 3 months. Folic acid is given in dose of 5 mg per day. These patients will also need iron for erythropoiesis. Few of these patients may need a monthly injection of B12 (1000 microgram) as they may be having pernicious anemia or poor absorption of B12. Confirmatory tests for pernicious anemia are not easily available so this therapeutic approach may help.

Management of 'secondary' anemia includes control/treatment of the conditions causing anemia.

Follow-up and monitoring of care

Patients under treatment of anemia should be followed for effect of treatment. Hemoglobin level is the best monitoring parameter for most of the patients. After completion of the treatment, a monthly or 3 monthly follow up will be useful.

Prevention

Prevention of anemia is important in adolescents. Regular intake of a balanced diet will certainly prevent anemia. A diet rich in iron and other micronutrients (non vegetarian food, green leafy vegetables, dates, jaggery, fruits and vegetables) should be recommended to adolescents and their families. Intake of junk food and alcohol should be discouraged. Negative effects of media and peers on diet should be explored and managed. Tannic acid in tea inhibits absorption of iron and should be avoided. Food rich in Vitamin C increases dietary iron absorption. However, the diet of Indian adolescents is often deficient and they need supplementation. Weekly administration of iron (100 mg) and folic acid (5mg) during adolescence will prevent the occurrence of anemia. It can also treat mild anemia which remains undetected clinically. These tablets can be 'prescribed' as a weekly drug to ALL adolescents both girls and boys. Ministry of Health and

Family Welfare, Govt of India recommends this weekly supplementation and has launched a national program called Weekly Iron Folic acid Supplementation (WIFS).

Key Messages

- Anemia in adolescents is very common
- Anemia has immediate, short term and long term effect on adolescent development
- Therapy depends on the etiology of anemia
- Appropriate management and follow up is essential
- Preventive measures include adequate diet and weekly iron therapy

Acne in Adolescents

Dr Harmesh Singh Bains

Objectives

1. Discuss pathophysiology of acne in adolescence
2. Outline the clinical approach and management

Acne in adolescents is one of the most common presenting complaints in clinical practice. It usually appears for the first time during adolescence. It may cause many psychological effects like poor body image, stress, depression, anxiety and even suicide. It may result in permanent facial scarring.

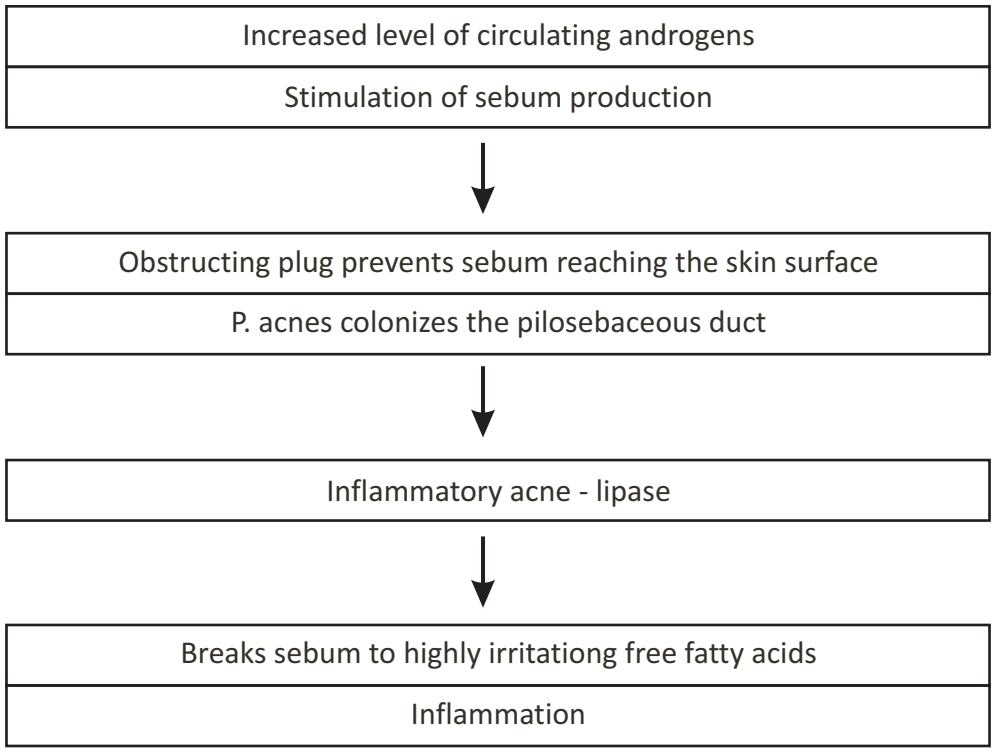
Epidemiology

Acne affects about 90 % of adolescents of all races and both sexes. It presents typically at 12-14 years , peaks at ages 15-18, and usually resolves by 25 years of age. The body areas with abundant sebaceous glands are mainly affected namely face, neck, upper trunk and upper arms. There is often a positive family history of acne.

Pathogenesis

Acne occurs due to excessive proliferation of follicular keratinocytes because of increased levels of circulating androgen. This leads to stimulation of sebum production resulting into formation of follicular plug. The obstructing plug prevents sebum from reaching the skin surface resulting in colonization and proliferation of Propionibacterium acnes in the pilosebaceous duct. P.acne produces lipase that acts on sebum to break it into free fatty acids that cause inflammation.

Pathogenesis of Acne



Classification

Acne lesions are classified as :

- Comedones: open (blackheads) or closed (whiteheads)
- Pustules
- Nodules
- Cysts
- Scars

Comedones are keratin-filled plugs that can be open or closed. Open comedones are called blackheads; the black appearance is due to oxidisation of keratin plugs. Closed comedones are whiteheads. Pustules occur due to follicular inflammation resulting in large collections of neutrophils. Cysts are follicular-lined keratin-filled structures that dilate. Nodules occur when there is further inflammation. These are clinically red, tender and palpable lesions. Nodules may rupture resulting in scarring on healing.

Grades of Acne

Severity of acne is divided into four grades depending upon the type and severity of lesions.

Grade I : There are comedones which may be open or closed. There are no scars; occasional papules or pustules may be present.

Grade II : There are papules , comedones , few pustules and mild scarring.

Grade III : Predominantly there are pustules, nodules , abscesses and moderate scarring.

Grade IV : There are mainly cysts , abscesses and severe scarring

Treatment

Adolescent acne has to dealt with care and sensitivity. HEEADSSS psychosocial screen will determine the psychological effects of acne on the adolescent.

The treatment includes the following:

- Topical Therapy
- Systemic Therapy
- Skin care
- Diet

Topical Therapy

- Benzoyl peroxide : It is used as first-line treatment in mild acne vulgaris . The clinical improvement is appreciated after five days of starting this drug .It can cause skin irritation.
- Topical Retinoid: This is the most frequently drug used agent in acne .This can also be used as first line therapy in acne. It must not be combined with its oral formulations. It can cause skin irritation and may flare the acne initially. Strong sunlight should be avoided during the therapy.
- Azelaic Acid : It is used as an alternative to benzoyl peroxide. It has similar properties to that of benzoyl

peroxide. It is also known to cause skin irritation.

- Salicylic acid : The properties of salicylic acid are similar to that of benzoyal peroxide and azelaic acid. It can be used with other therapies. Its adverse effects include skin irritation , erythema and peeling of skin.

Topical Antibiotics

Topical antibiotics are useful in inflammatory acne to suppress the P acnes bacteria. Clindamycin (1-2%) and erythromycin (2-4%) are used twice daily in combination with benzoyl peroxide and/or topical retinoid. Combination therapy increases the potency and decreases the chances of resistance.

Systemic Therapy

Systemic therapy is indicated when topicals as monotherapy are ineffective. A number of systemic antibiotics are routinely used

First Line Drugs : Doxycycline 50 mg daily, minocycline 50 mg twice daily

Second Line : Erythromycin 250-400 mg , azithromycin 500 mg

clarithromycin 250 mg, trimethoprim 80-400 mg; all once or twice daily

Hormonal Therapy : Combined oral contraceptives(COC) are also useful in decreasing the acne lesions and its severity. COC containing only progestogen only are not recommended ; as they can exacerbate acne.

Skin Care

Patients having excessively oily skin are advised not to use moisturisers. Picking and squeezing the lesions are contraindicated as they cause rupture of follicle and resulting in nodular inflammatory acne. Oil free make up can be used by such patients.Overaggressive washing and the use of particulate abrasive scrubs often exacerbates acne and should be avoided

Diet

Low glycemic load diets may improve acne by reducing androgen-induced sebaceous gland activity and keratinocyte growth associated with increased insulin and IGF-1 levels

Key Messages

- Acne usually appears for the first time during adolescence and is one of the most common causes to seek health care in this age group
- Acne occurs due to excessive proliferation of follicular keratinocytes due to increased levels of circulating androgen
- It is essential to screen for psychosocial effects of acne on adolescents
- The treatment includes topical therapy, systemic therapy, skin care and appropriate balanced diet

Menstrual Disorders in Adolescents

Dr Chitra Dinakar

Objectives

1. Delineate normal menstrual cycles in adolescents
2. Discuss clinical management of common menstrual disorders in adolescents namely dysmenorrhea and menorrhagia

Normal Menstrual Cycles

Despite variations worldwide, median age at menarche has remained relatively stable between 12 years and 13 years across well-nourished populations in developed countries. Details of a normal menstrual cycle in adolescents are given below:

Normal Menstrual Cycle in Adolescent Girls

Menarche (median age)	:	12.43 years
Mean cycle interval	:	32.2 days in first gynaecological year
Menstrual cycle interval	:	Typically 21-45 days
Menstrual flow length	:	7 days or less
Menstrual product use	:	3-6 pads or tampons /day

A number of medical conditions can cause abnormal uterine bleeding, characterized by unpredictable timing and variable flow. Clinicians should educate girls and their caretakers about what to expect of a first menstrual period and the range for normal cycle length. Identification of abnormal menstrual patterns in adolescence may improve early identification of potential health concerns for adulthood (for example, irregular menses associated with polycystic ovarian syndrome). After the clinician identifies abnormal menstruation a systematic evaluation is indicated.

The adolescent girl is often reluctant to discuss menstruation with a caretaker/doctor. Some adolescent girls may seek medical attention for cycle variations that actually fall within the normal range or conversely may be unaware that their bleeding patterns are abnormal.

Menarche typically occurs within 2–3 years after thelarche (breast budding), at Tanner stage IV breast development, and is rare before Tanner stage III breast development. By age 15 years, 98% of adolescents have attained menarche. An evaluation for primary amenorrhea should be considered for any adolescent who has not reached menarche by age 15 years or has not done so within 3 years of thelarche. Lack of breast development by age 13 years should also be evaluated.

Asking the adolescent to chart her menses on a menstrual calendar is beneficial, especially if her menstrual history lacks clarity or is considered inaccurate. The pattern will help in diagnosis and assessment of response to treatment. Clinicians should explain that cycle length is counted from the first day of a menstrual period to the first day of the next period. Use of technology like smart phones can facilitate charting of menstrual calendar. Adolescents need counselling on menstrual hygiene and discussions on myths associated with menses.

Apart from menstrual irregularities, two of the common menstrual problems in adolescents include dysmennorhoea and menorrhagia.

Dysmenorrhoea

Dysmenorrhoea means painful cramping pain accompanying menstruation. It is a very common and distressing condition. In an Indian setting, the prevalence of dysmenorrhea was found to be 80%. Half of those affected had severe disabling symptoms affecting daily activities. There is reluctance on the part of both adolescents and parents in bringing the symptoms to the doctor's attention as suffering through the symptoms is usually considered acceptable and unavoidable. With targeted history to assess both symptoms and severity of the same, needless morbidity can be avoided. Dysmenorrhoea is the leading cause of time lost from work and school.

Symptoms associated with pain include gastrointestinal (anorexia, vomiting, constipation, diarrhoea), psychological (irritability, fatigue, depression, inability to concentrate on work) and other nonspecific symptoms (breast tenderness, frequency of micturition, profuse sweating, giddiness, fainting). Medication to relieve pain is extremely rewarding. There is no consistent co-relation between severity of symptoms and general state of health of adolescents, putting all girls at equal risk

The two clinically relevant types of dysmenorrhoea are:

Primary : There is no associated pelvic pathology and pain is attributed to biochemical derangement. Increased levels of prostaglandins lead to the distressing symptoms.

Secondary : There is associated organic pelvic pathology like pelvic inflammatory disease uterine/vaginal structural anomalies, fibroids or endometriosis.

The hallmark of typical primary dysmenorrhoea is pain which starts with ovulatory cycles (6-12 months after onset of menarche), is most intense on the first day of the cycle with gradual waning. The pain is usually spasmodic and cramping and involves hypogastrium, back and inner thighs. It is also associated with other generalized symptoms. Differentiating the more common primary from secondary dysmenorrhoea will obviate need for further investigations. The differences are detailed below:

Differentiating Primary and Secondary Dysmenorrhoea

Featurers	**Primary Dysmenorrhea**	**Secondary Dysmenorrhea**
Onset	Within 2 years of menarche	Anytime
Pain characteristic	Cramping, spasmodic, typical locations	Generalized pelvic discomfort due to congestion.
Relation to menses	Usually 1st and 2nd days	Usually premenstrual onset and continues
Associated symptoms	Nausea, tiredness, fatigue, headache, vomiting	Dyspareunia, infertility, menorrhagia
Pelvic findings	Normal	Suggestive of eitiology
Management	Reassurance, Paracetamol, NSAID, Antispasmodic, Oral contraceptives	Investigate and treat cause

Management includes counselling on handling the distressing symptoms, reassurance on absence of serious organic cause and medical management which is effective in over 80% of those affected. Drugs used are paracetamol, mefenemic acid at 250 mg BID, indomethacin, naproxen and antispasmodics like hyoscine butyl bromide. Drug choice, doses and duration are directed to severity of symptoms and individual response.In nonresponders, a short 3 month course of oral contraceptives could be helpful. Adolescents not responding to treatment will require referral to a gynaecologist for further evaluation and therapy.

Menorrhagia

Heavy menses, or menorrhagia, is defined as menstrual loss greater than 80 ml. It implies heavy or prolonged menses. A new term used now is abnormal uterine bleeding (AUB) and this encompasses heavy or prolonged flow, irregularity or increased frequency. Menorrhagia is a subtype of AUB.

Anovulation and bleeding disorders make up the vast majority of menorrhagia in adolescents, which differs from an adult population, where pelvic pathology such as fibroids and polyps are more common. Dysfunctional uterine bleeding (associated with anovulation) refers to endometrial bleeding that is prolonged, excessive or irregular, and not attributed to an anatomic lesion of the uterus.

Hypo-thalamic-pituitary-ovarian (HPO) axis regulates the events of the menstrual cycle that occur in an orderly and sequential pattern. In adolescents, the HPO axis takes time to mature after menarche, which can lead to anovulation. In the first 2 years after menarche, 55-82% of cycles are anovulatory, and by the fourth and fifth year this decreases to 20 % . Approximately 95% of dysfunctional uterine bleeding in adolescents is due to anovulation. Without ovulation, progesterone is not produced from the corpus luteum of the ovary. This leads to a state of unopposed estrogen. Unopposed estrogen stimulates endometrial growth, which ultimately outgrows its blood supply. The endometrium becomes excessively thickened and unstable, and the lining breaks down irregularly and unpredictably. This leads to heavy bleeding and prolonged menstruation.

Heavy, prolonged, recurrent menses may also represent an underlying coagulation disorder. This is especially true in those adolescents with heavy bleeding, usually leading to anemia. Bleeding disorders can be due to thrombocytopenia, platelet function disorders and clotting factor deficiencies. Von Willebrand Disease (VWD) is the most common inherited bleeding disorder, estimated to affect 1% of populations studied. Among adolescents with menorrhagia, the prevalence of VWD is 5-36%, platelet dysfunction is 2-44%, clotting factor deficiency is 8%, and thrombocytopenia is 13-20%. Other causes for menorrhagia in adolescents include infection like chlamydia, use of oral contraceptive pills, pregnancy complications like threatened abortion, missed abortion or ectopic pregnancy.

History and Physical Examination

HEEADSSS psychosocial history is taken in privacy. Sexuality part of the history includes asking about the number of pads or tampons used. This is often inaccurate, and it is more helpful to ask details such as number of fully soaked pads or number of hours each pad was worn. Assess number of school days missed. History of prolonged bleeding from wounds, family history, surgery or dental procedures, easy bruising with minimal trauma, nosebleeds lasting more than 10 min, unexplained bleeding from the GI tract or anemia requiring transfusion suggest bleeding/clotting disorders. Menorrhagia with bleeding disorders tends to present at menarche.

Physical examination is used to assess severity of anemia and ascertain clues to eitiology of menorrhagia.. Height, weight, BMI, blood pressure and Tanner stage is recorded. Anemia is assessed. Examine for hypothyroidism, systemic disease and petechial / ecchymosis. Rule out sexually transmitted infections and pregnancy.

Laboratory Assessment

Begin with a pregnancy test and a complete blood count for anemia and thrombocytopenia. An ultrasound of the pelvis is indicated to look for anatomical abnormality. Coagulation studies including prothrombin time and partial thrombo-plastin time. The partial thrombo-plastin time should be normal in patients with a platelet dysfunction and may also be normal in patients with VWD. Complete coagulation studies for VWF antigen, Factor VIII activity, Factor XI antigen, ristocetin C cofactor and platelet aggregation are required, Estrogens will increase VWF, so obtaining laboratory testing prior to initiating hormonal treatment is important. Furthermore, platelet aggregation testing results are not accurate unless the hemoglobin count is approximately 10 gm/dl. Refer to a haematologist for opinion once coagulation studies are abnormal

Treatment

If there is no anemia, patient stress is minimal and the flow is only slightly to moderately increased. In such a case observation is appropriate. A menstrual calendar chart is used for a minimum of 6-12 months. Record day, dates, quantity of flow, pads used, treatments taken.

The addition of NSAIDs like naproxen sodium and mefenamic acid decrease menstrual blood loss by about 46 %. Avoid NSAID if bleeding disorder is present. Antifibrinolytics, such as tranexamic acid and aminocaproic acid, can reduce menstrual loss by 50%, but have side effects of nausea, diarrhea, headaches and abdominal pain. These can be used even in bleeding disorders.

Hormonal treatment is the most effective therapy, with more than 93% of adolescents responding to some form of hormonal treatment. Estrogen provides hemostasis and progesterone stabilizes the endometrium. The oral contraceptive pill (OCP) with at least 30 -35 µg of ethinyl estradiol is used OD, if there is no active bleeding. If there is heavier or active bleeding, an OCP taper can be used. A common approach is to give one pill four-times daily until bleeding stops, then one pill three-times daily for 3 days, then one pill twice daily for 2 days, followed by one pill once daily for 15-21 days. Antiemetics may be required when multiple pills are given. After completing the OCP taper, the patient can continue cycling OCPs for 6 months. Prescribing OCPs in a continuous, rather than cyclic fashion, is another option to suppress menses especially if anemia is severe. Side effects of hormonal therapy are nausea, vomiting, spotting, breakthrough bleeding.

Hormonal therapy is often successful in treating menorrhagia in adolescents with bleeding disorders, and OCPs can be used as first-line treatment. OCPs have been specifically shown to reduce menstrual blood loss in patients with VWD. OCPs possibly increase VWF and Factor VIII levels

If combined OCPs are contraindicated (high BP) cyclic progestins can be used. Oral medroxyprogesterone 10 mg or norethindrone acetate 5 mg can be given for 10—14 days each month starting on 14 day of cycle to induce a withdrawal bleed that is cyclic and predictable. This pattern is continued for 3—6 months. Subcutaneous medroxy progesterone acetate injection can also be used to reduce endometrial proliferation and blood loss. The levonorgestrel intrauterine device (IUD) is effective in decreasing menstrual blood loss in select patients and can even be used in nulliparous adolescents

Deamino-8- D -arginine vasopressin (DDAVP) can be used in VWD, mild-to-moderate hemophilia A,and some cases of platelet dysfunction. DDAVP increases levels of VWF and Factor VIII from endothelial cells, and is given intranasally or intravenously. Side effects include water retention and hyponatremia, so use is limited to 48 hrs.

In cases of severe bleeding, inpatient care with blood product transfusion and hormonal therapy is the mainstay of treatment. Combination OCPs are used every 6 h until bleeding ceases followed by a tapering dose over several days. In cases of intractable nausea, either intravenous premarin 25 mg every 4 h can be given or hormonal contraceptive patches. In patients with bleeding disorders, clotting factor concentrates, FFP or cryoprecipitate, VWF concentrates, recombinant Factor VIII or Factor IX (given to hemophila carriers) and platelet transfusions are used as indicated. In acute life-threatening situations, the use of a Foley balloon to tamponade the uterine cavity, and the use of uterine packing, uterine artery embolization and endometrial balloon ablation have all been described in adolescents.

In some cases, thrombocytopenia or myelosuppression can be anticipated, such as in adolescents undergoing chemotherapy. Preventive measures include giving a gonadotropin-releasing hormone (GnRH) agonist to induce amenorrhea.

Careful assessment and prompt recognition is important in the adolescent with menorrhagia. No single therapy or treatment is universal, and it must be tailored to the adolescent and clinical situation.

Key Messages

- Menstrual disorders are common in adolescence
- Anticipatory guidance regarding normal menstruation and hygiene is essential
- Dysmenorrhea is a common cause of school absence and should be appropriately managed
- Anovulatory cycles is the most common cause of menorrhagia in adolescence
- Untreated menorrhagia can lead to severe anemia
- In all cases of severe and prolonged menorrhagia, coagulation and bleeding disorders should be ruled out

Poly Cystic Ovarian Syndrome (PCOS) in Adolescents

Dr Harmesh Singh Bains

Objectives

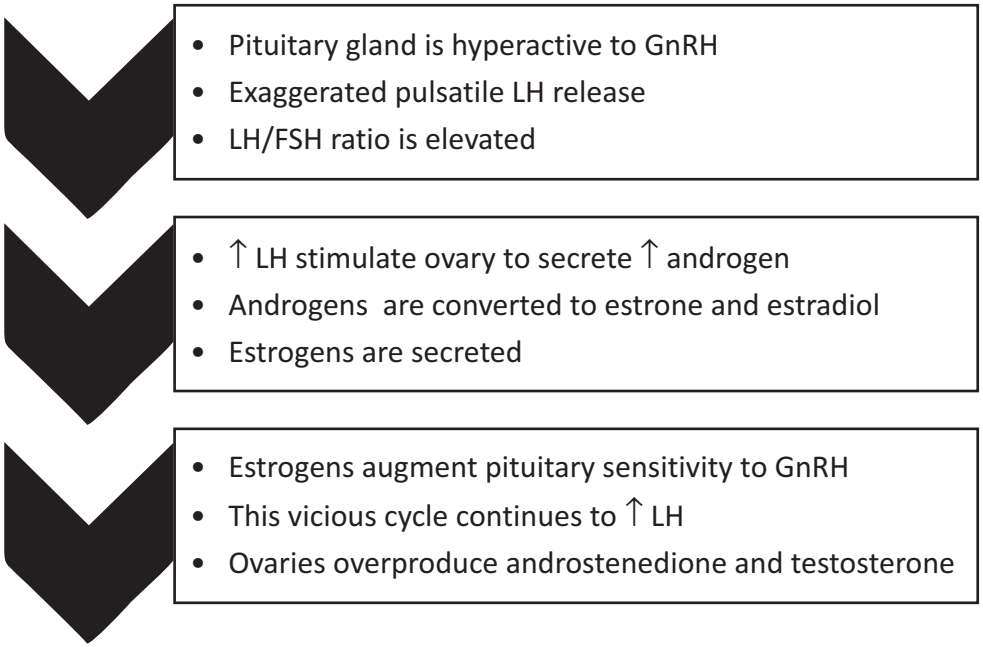
1. Discuss pathophysiology of PCOS
2. Delineate diagnostic criteria in adolescence
3. Outline clinical management of PCOS

Polycystic ovary syndrome (PCOS) is one of the commonest disorder affecting females of reproductive age . Studies of PCOS in India reported a prevalence of 3.7% to 22.5% and up to 36% prevalence in adolescents. It is the most common cause of infertility in women.

Pathophysiology

Pathophysiology of Polycystic ovary syndrome is not clearly known. It seems to be an interplay between environmental and genetic factors. Hyperandrogenism due to disordered neuroendocrine gonadotropin secretion , insulin resistance and hyperinsulinemia, all contribute to symptomatology of PCOS. Obesity and raised levels of luteinizing hormone (LH) may be associated with PCOS.

Pathophysiology of PCOS



Diagnostic Criteria

Adult diagnostic criteria of PCOS cannot be used in adolescence as irregularity of menstruation and signs of androgen excess may be physiological or normal. Further the normal levels of testosterone in adolescents have not been defined. The criteria used for diagnosis of PCOS in adolescent are as under (Rosenfield) :

1. Abnormal uterine bleeding pattern

    a. Abnormal for age or gynaecologic age

    b. Persistent symptoms for 1 to 2 years

2. Evidence of Hyperandrogenism

    a. Persistent testosterone elevation above adult norms in a reliable reference laboratory is the best evidence

    b. Moderate to severe hirsutism and persistent acne unresponsive to topical therapy are clinical evidence of hyperandrogenism

Alternate diagnostic criteria of PCOS in adolescents are as follows (Kamboj MK , Bonny AE):

1. Hyperandrogenemia

    - Moderate to severe hirsutism
    - Persistent acne unresponsive to topical therapy

2. Ovulatory dysfunction

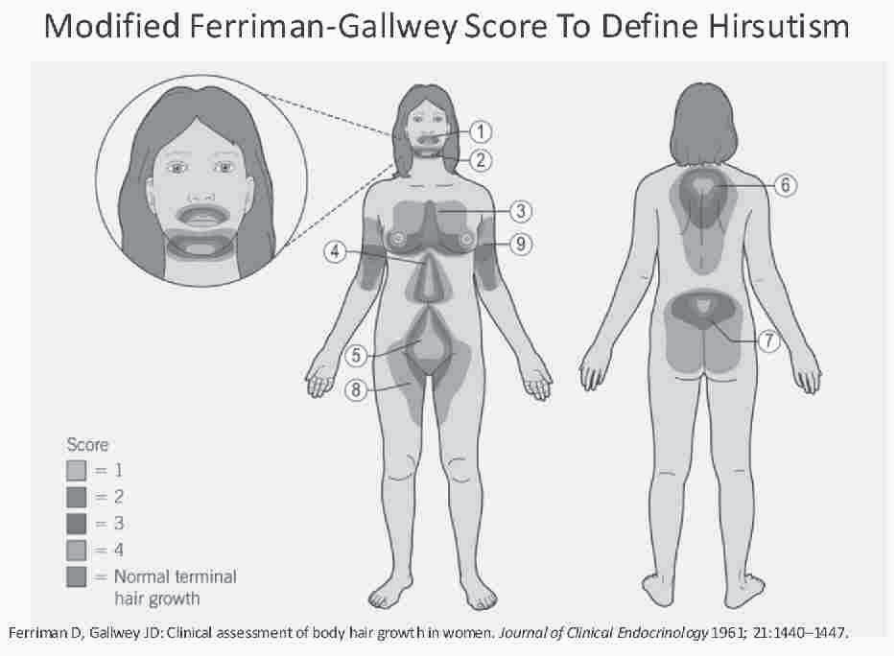
    - Consistent menstrual intervals more than 90 days
    - Consistent menstrual intervals less than 21 or more than 45 days persisting for 2 or more years after onset of menarche
    - Failure to start menstruation by the age of 15 years or 2–3 years after breast budding

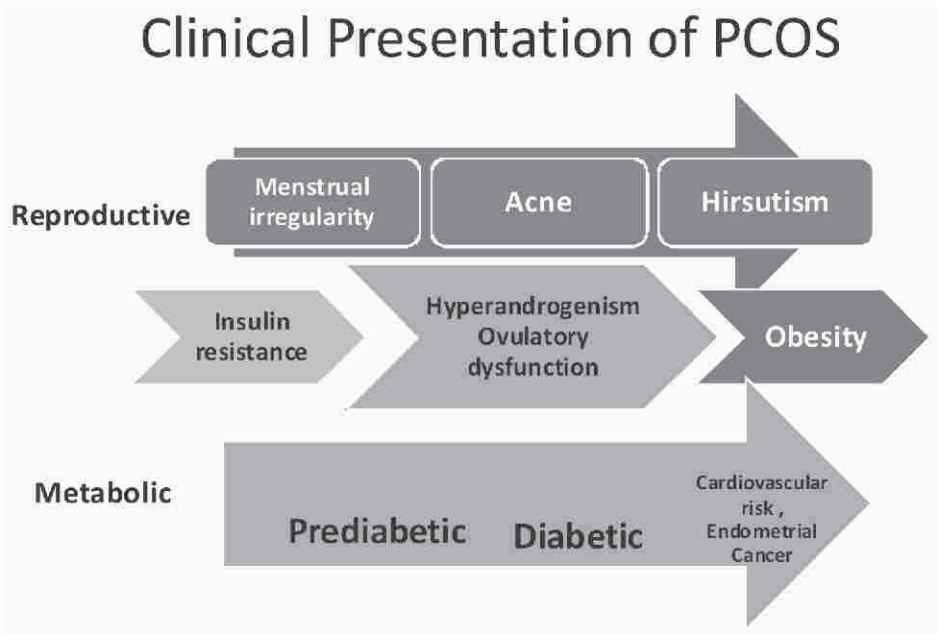
It is important to rule out other causes of hyperandrogenemia and menstrual irregularity before considering the diagnosis of PCOS in adolescents. Ultrasonographic findings are not used as diagnostic criteria in adolescents.

Clinical Features

The common presenting symptoms of adolescents with PCOS include menstrual irregularity, significant hirsutism and acne. It is important to ask about the intake of androgenic steroids and anti-epileptic drugs. Other differentials with similar presentation include,pregnancy hypothyroidism , obesity , ovarian tumor and pituitary tumor .

The **Ferriman - Gallwey** score is a method of evaluating and quantifying hirsutism in women. The method was originally published in 1961 by D. Ferriman and J.D. Gallwey in the Journal of Clinical Endocrinology. The original method used 11 body areas to assess hair growth, but was decreased to 9 body areas in the modified method: upper lip, chin, chest, upper back, lower back, upper abdomen, lower abdomen, upper arms, forearms (deleted in the modified method), thighs, legs (deleted in the modified method). In the modified method, hair growth is rated from 0 (no growth of terminal hair) to 4 (extensive hair growth) in each of the nine locations. A patient's score may therefore range from a minimum score of 0 to a maximum score of 36. In each ethnic group, hair growth varies. For example, in Caucasian women, a score of 8 or higher is regarded as indicative of androgen excess





PCOS can present with the above clinical symptoms, signs and metabolic disorders. There is an increased risk of metabolic syndrome and cardiovascular morbidity over the entire lifespan.

Laboratory Investigations

Following investigations are recommended in adolescents with clinical suspicion of PCOS

- Total and free testosterone (>55 ng/dL : hyperandrogenism) (morning sample)
- Dehydroepiandrosterone sulfate (DHEAS) (primary adrenal source of hyperandrogenemia) (morning sample)
- Urine hCG : To rule out pregnancy
- TSH and prolactin levels : To rule out endocrine causes for amenhorrhea

- Hormone levels : LH, and FSH , 17-OHP level of >200 mg/dL as a screening tool for Non Classic-Congenital Adrenal Hyperplasia (morning sample)
- Fasting glucose, fasting lipid, serum insulins : To rule out metabolic disorders
- Liver Function Test: To rule out Non alcoholic Fatty Liver Disease

There is no consensus on ultrasonographic criteria for diagnosis of PCOS in adolescents , hence it is not recommended for diagnostic purposes. It may be required to rule out other disorders like adrenal tumors.

Management

The goals of management are relief of immediate and long term health problems and better quality of life. The treatment has to be individualised depending upon the presentation. Adolescents presenting with PCOS need close observation and follow up. In a few, symptoms may resolve with increasing age while in others they may persist making the diagnosis more definitive in adulthood. The management considerations are as under:

1. Lifestyle modification and weight reduction

The first line of treatment in obese adolescents presenting with PCOS is lifestyle modification. It results in significant improvement in menstrual problems, decreases cardio metabolic risks and hyperandrogenemia.

Balanced Intake of Carbohydrates and Protein

- Sprouted grain and wholegrain products
- Equal protein and carbohydrates
- Plenty of water, less coffee intake
- Foods with low glycemic index
- Avoid *food rich in trans-fats :*

  Chips

  Pizza

  Confectionery

  Baked Foods

  Biscuits

  Have food high in omega 3 fatty acids

Exercise and Stay Active and Fit :

- Brisk Walks
- Gentle Weightlifting
- Yoga

Make sure to exercise for 60 minutes daily and 5 days a week.

Eating equal amounts of protein and carbohydrates helps in keeping steady insulin levels and therefore maintaining a healthy balance of hormones. It is recommended to consume only wholegrain or sprouted grain products as they naturally contain more protein and fiber than their processed equivalents. Heavily processed carbohydrates such as white flour and white rice are to be avoided as these cause a spike in insulin levels. Fibre is another important element that assists in managing PCOS, as it slows the digestion of sugars within the body. This reduces the severity of a spike in insulin and promotes healthy estrogen metabolism, which assists in lowering androgen levels. Low glycemic index (GI) foods are carbohydrates that are absorbed into the body slowly and therefore don't result in such a dramatic spike and subsequent drop in insulin levels. The glycemic load (GL) refers to the amount of the food one consumes and how it affect blood sugar levels. Exercise is an important component in treating PCOS as it improves insulin sensitivity, enhances metabolism and helps to shed excess weight. The optimal amount of exercise is 30 to 60 minutes per day for 5 days each week.

2. Medical treatment

a. **Oral contraceptives :** The first choice of pharmacotherapy in PCOS is combined oral contraceptives (COC).They improve many symptoms related to menstruation and also provide contraceptive coverage if required. They also reduce the production of androgen by the ovaries due to their suppressor effect on the hypothalamic-pituitary-ovarian (HPO) axis. They improve the dermatological manifestations of hyperandrogenemia like acne and hirsutism.

b. **Anti androgens :** Spironolactone has an anti-androgen effect and is helpful in reducing menstrual and cutaneous problems occurring due to hyperandrogenism.

c. **Infertility medications :** For infertility, clomiphene is first-line treatment. For metabolic/glycemic abnormalities and for improving menstrual irregularities, metformin is beneficial.

d. **Psychological counselling**

e. **Novel Therapy :** Pineol and inositol are currently undergoing trials as therapeutic options for PCOS

Adolescents may prefer hair removal for cosmetic purposes. Electrolysis and laser techniques are effective for hair removal .

Key Messages

- PCOS is a polyendocrinopathy and is seen in both obese and non obese adolescents
- Hyperandroginemia is the basic underlying pathophysiology
- Symptoms and signs related to hyperandroginemia (hirsutism , acne) and ovulatory dysfunction form the diagnostic criteria for PCOS in adolescents.
- Ultrasonography is not required for diagnosing PCOS in adolescents.
- The management includes lifestyle modification and medical therapy
- PCOS impacts the quality of life and increases morbidity and mortality over the entire lifespan

Adolescent Hypertension

Dr Chitra Dinakar

Objectives

1. Discuss the need for screening for hypertension
2. Define and classify elevated BP and hypertension
3. Plan basic investigations
4. Understand components of non pharmacological and pharmacological therapy

Hypertension is an under diagnosed silent killer disease. Approximately 30% of adults are unaware of their hypertension, more than 40% are not on treatment and two thirds are not being controlled to blood pressure (BP) levels less than 140/90 mm Hg. The situation in the paediatric age group could only be worse as BP measurements, a prerequisite to diagnosis are not routinely taken.

In recent times, there has been an increase in the prevalence of high blood pressure (BP) in children and adolescents in USA to 3.5%. High BP includes both hypertension (HT) and elevated BP. Prehypertension is now termed 'Elevated BP'. Elevated BP is consistently greater in boys (15%–19%) than in girls (7%–12%). Studies in India put the range at 5-6% for hypertension and 10-12% for elevated BP.

The Need to Screen for Hypertension

All adolescents should undergo an annual BP recording to screen for hypertension. The following scientific facts reinforce the need to screen:

1. Starting at 115/75 mm Hg, the risk for cardiovascular disease doubles for every rise in BP of 20/10 mm Hg. Lower BPs are therefore protective.
2. There is a strong secular trend of increasing BP with increasing prevalence of obesity even in India. One third of obese individuals could have hypertension.
3. There is a tracking of hypertension from childhood through adolescence into adulthood . Hence early detection can be useful.
4. A number of important causal factors for hypertension have been identified. These include excess bodyweight, excess dietary sodium intake, reduced physical activity, inadequate intake of fruits, vegetables, and potassium and excess alcohol intake. The prevalence of these risk factors is high in adolescence.
5. In India, the combination of low birth weight, increasing childhood obesity and life style changes on a background of pre disposing genetics, puts individuals at risk for the metabolic syndrome X (hypertension being one of the components in addition to insulin resistance and hyperlipidemia)
6. Sleep disordered breathing including sleep restriction and interrupted sleep is associated with hypertension.
7. The ultimate goal of antihypertensive therapy is to reduce cardiovascular and renal morbidity and mortality. In clinical trials, antihypertensive therapy has been associated with reduction in stroke incidence by 35% to 40%, myocardial infarction by 20% to 25%, and heart failure by 50%. For every 10 patients treated, a life is saved.

Management of Adolescent Hypertension: New Guidelines

The 4th report on diagnosis evaluation and treatment of high blood pressure in children and adolescents highlights the standard management guidelines. The same has been ratified by an Indian expert committee of the Paediatric nephrology group. The fourth report has been augmented recently with new guidelines from the American Academy of Pediatrics (AAP). All the tables in this article are derived from these guidelines.

Few notable recommendations from these guidelines are:

1. All children older than 3 years including adolescents should have an annual BP check.
2. Definitions and classification

Elevated blood pressure : levels that are ≥90 th percentile but <95th percentile

Adolescents with blood pressure ≥ 120 /< 80 mm Hg (but <95th percentile, whichever is lower) have elevated blood pressure (formerly termed prehypertension)

Hypertension : average systolic and/or diastolic blood pressure that is ≥95th percentile for sex, age, and height on 3 or more separate occasions. BP stages are given in the table

Updated Definitions of BP Categories and Stages

For Children Aged 1-13 Years	For Children Aged ≥ 13 Years
Normal BP : <90th percentile	Normal BP : <120/<80 mm Hg
Elevated BP : ≥ 90th percentile to <95th percentile or 120/80 mm Hg to <95th percentile (whichever is lower)	Elevated BP : 120/<80 to 129/<80 mm Hg
Stage 1 HTN : ≥ 95th percentile to <95th percentile + 12 mm Hg or 130/80 to 139/89 mm Hg (whichever is lower)	Stage 1 HTN : 130/80 to 139/89 mm Hg
Stage 2 HTN : ≥ 95th percentile + 12mm Hg. or ≥ 140/90 mm Hg (whichever is lower)	Stage 2 HTN : ≥ 140/90 mm Hg

3. Management should be systematic. Stage 2 hypertension needs urgent evaluation and treatment (refer table 1 and 2 for management plan. Note that tables contain earlier used terms and definitions, but principles remain valid)
4. Mercury manometers are the preferred recommended devices to check BP. Aneroid manometers and oscillometric automated devices can be used for practical reasons in children. Advantages of automated devices are quick reading and convenience of use. However auscultatory and oscillometric blood pressures reading do not match .
5. All standard reference charts use values from mercury manometers. Automated devices are not ideal as the values tend to be 5 mm lower. These assess mean BP and calculate systolic BP and diastolic BP. If values are high, BP values should be re- checked with a mercury manometer.
6. The child should be made to sit quietly for at least 5 minutes prior to check. BP recording should not be done immediately after food or activity or drugs.
7. Cuff width size should be at least 40% of arm length and cuff needs to be placed at midpoint between acromion and olecrenon. The cuff width should cover approximately 1/2 to 2/3 length of upper arm and

cuff length should be adequate to go round 80%-100% of arm circumference.

8. Age, sex and height centiles are required for classifying stages of hypertension (refer tables7,8,9,10,11,12). http://pediatrics.aappublications.org/content/early/2017/08/21/peds.2017 1904 gives AAP updated 2017 tables. Indian study of norms showed higher diastolic BP in boys as well as girls and higher systolic BP in girls in comparison to the published US data. Mobile phone android/IOS apps are very convenient if no tables are available. 'Pedz' is a useful paediatric tables app to download on android or ios though it is yet to get updated with new guideline cutoffs (earlier cutoffs were higher, so high values on them are still valid)
9. Weight, BMI and detailed history including HEADDSSS, family history and physical examination are essential for making a diagnosis. (refer table 3 and 4)
10. Investigations are indicated to assess etiology, co-morbid conditions, target organ damage(refer table 3)
11. Nonpharmacological measures include diet (refer table 6), physical activity (30- 60 minutes/day) and limited media usage of less than 2 hours/day. Sporting activities like weight training, gymnastics, karate and judo are to be avoided. Competitive sports activities are allowed only when BP is well controlled.
12. Drug therapy is indicated in symptomatic hypertension (hypertensive urgency/emergency), target organ damage (brain/heart/kidney/eye), co-morbid conditions (DM/renal disease), secondary HT and HT not responding to nonpharmacological measures (after 3 months trial). Drug therapy targets to decrease the BP to less than 90^{th} centile. However in the presence of co-morbid conditions like renal disease/DM, target is 50^{th} to $<90^{th}$ centile. Dosing suggestions need to be followed (refer table 5). Angiotension converting enzyme inhibitors(ACE)/Angiotension receptor blockers(ARB) are avoided in adolescent girls with risk of pregnancy. ACE/ARB are preferred for adolescents with DM and HT, and if there is proteinuria. Adolescents on ACE/ ARB should undergo regular monitoring of serum potassium and creatinine. Betablockers are avoided in asthmatics/DM as they can trigger bronchospasm and can mask hypogylycemic symptoms. Amlodepine has longer half life and is preferred to nifedipine except in hypertensive urgency. Side effects of calcium channel blockers could be headache and oedema. In renal disease, calcium channel blockers and diuretics are the preferred antihypertensive drugs. While treating hypertension, generally 1 drug is started and is used for 1 to 2 weeks before considering additional drugs for BP control.
13. The young person with hypertension is the one most likely to know less about it, have no fear of consequences of erratic therapy, be most likely to abuse alcohol/tobacco and stop drugs without informing the physician. Hence there is a need to monitor for adherence, BP control, life style changes and side effects of drugs in adolescents.

Key Messages

- Annual blood pressure recording is an essential component of screening for hypertension
- Adolescent hypertension tracks into adulthood and can have devastating cardiovascular complications
- Management of hypertension depends on its staging
- Non pharmacological and pharmacological therapies are important in management of adolescent hypertension

Table 1

Classification of Hypertension in Children and Adolescents, With Measurement Frequency and Therapy Recommendations

	SBP or DBP Percentile*	Frequency of BP Measurement	Therapeutic Lifestyle Changes	Pharmacologic Therapy
Normal	<90th	Recheck at next scheduled physical examination.	Encourage healthy diet, sleep, and physical activity.	—
Prehypertension	90th to <95th or if BP exceeds 120/80 mmHg even if below 90th percentile up to <95th percentile†	Recheck in 6 months.	Weight-management counseling if overweight, introduce physical activity and diet management.‡	None unless compelling indications such as CKD, diabetes mellitus, heart failure, or LVH exist
Stage 1 hypertension	95th percentile to the 99th percentile plus 5 mmHg	Recheck in 1–2 weeks or sooner if the patient is symptomatic; if persistently elevated on two additional occasions, evaluate or refer to source of care within 1 month.	Weight-management counseling if overweight, introduce physical activity and diet management.‡	Initiate therapy based on indications in Table 6 or if compelling indications as above.
Stage 2 hypertension	>99th percentile plus 5 mmHg	Evaluate or refer to source of care within 1 week or immediately if the patient is symptomatic.	Weight-management counseling if overweight, introduce physical activity and diet management.‡	Initiate therapy.§

BP, blood pressure; CKD, chronic kidney disease; DBP, diastolic blood pressure; LVH, left ventricular hypertrophy; SBP, systolic blood pressure

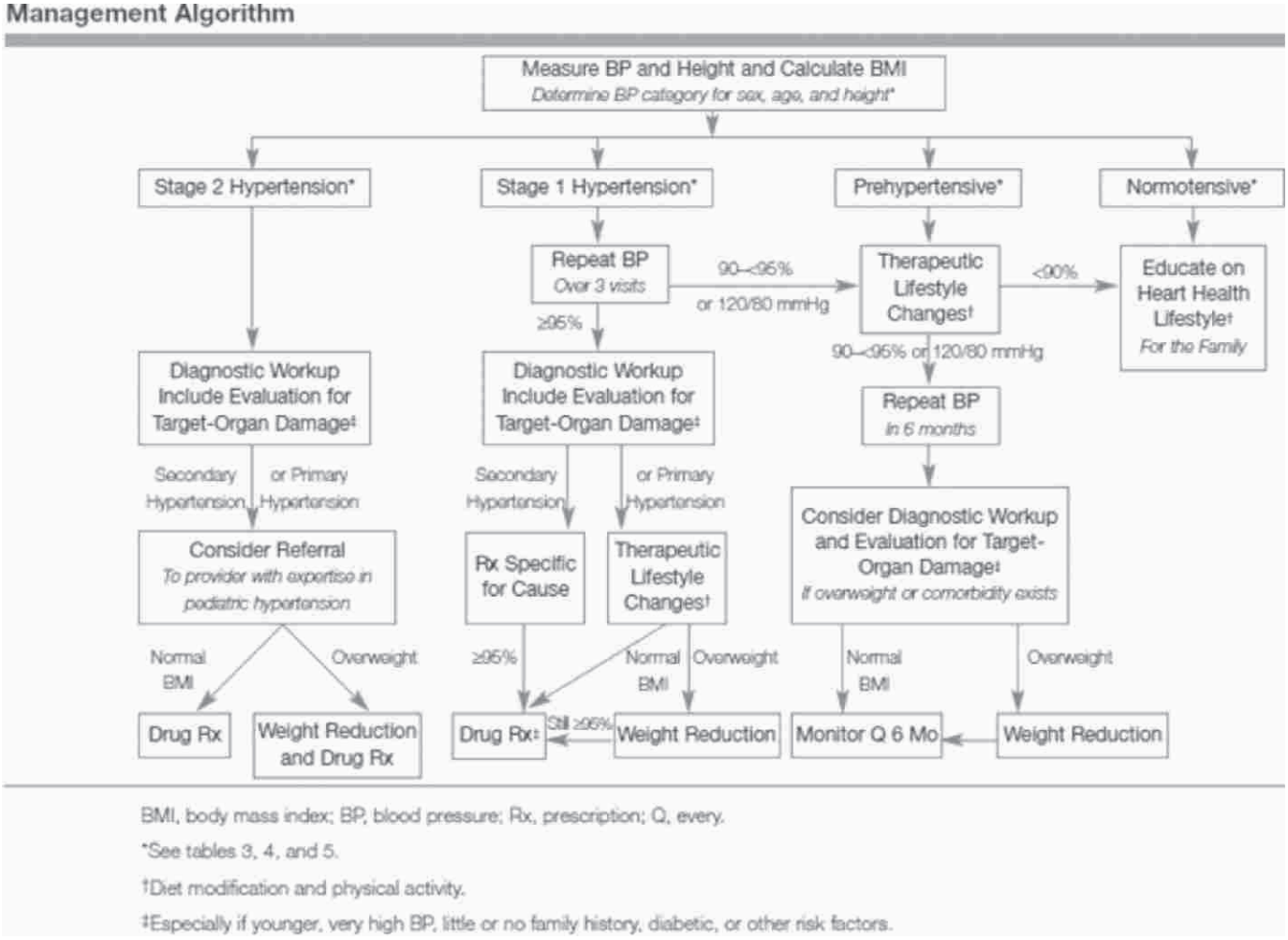
* For sex, age, and height measured on at least three separate occasions; if systolic and diastolic categories are different, categorize by the higher value.

† This occurs typically at 12 years old for SBP and at 16 years old for DBP.

‡ Parents and children trying to modify the eating plan to the Dietary Approaches to Stop Hypertension (DASH) eating plan could benefit from consultation with a registered or licensed nutritionist to get them started.

§ More than one drug may be required.

Table 2



BMI, body mass index; BP, blood pressure; Rx, prescription; Q, every.

*See tables 3, 4, and 5.

†Diet modification and physical activity.

‡Especially if younger, very high BP, little or no family history, diabetic, or other risk factors.

Table 3

Clinical Evaluation of Confirmed Hypertension

Study or Procedure	Purpose	Target Population
Evaluation for identifiable causes		
History, including sleep history, family history, risk factors, diet, and habits such as smoking and drinking alcohol; physical examination	History and physical examination help focus subsequent evaluation	All children with persistent BP ≥95th percentile
BUN, creatinine, electrolytes, urinalysis, and urine culture	R/O renal disease and chronic pyelonephritis	All children with persistent BP ≥95th percentile
CBC	R/O anemia, consistent with chronic renal disease	All children with persistent BP ≥95th percentile
Renal U/S	R/O renal scar, congenital anomaly, or disparate renal size	All children with persistent BP ≥95th percentile
Evaluation for comorbidity		
Fasting lipid panel, fasting glucose	Identify hyperlipidemia, identify metabolic abnormalities	Overweight patients with BP at 90th–94th percentile; all patients with BP ≥95th percentile. Family history of hypertension or cardiovascular disease. Child with chronic renal disease
Drug screen	Identify substances that might cause hypertension	History suggestive of possible contribution by substances or drugs
Polysomnography	Identify sleep disorder in association with hypertension	History of loud, frequent snoring
Evaluation for target-organ damage		
Echocardiogram	Identify LVH and other indications of cardiac involvement	Patients with comorbid risk factors* and BP 90th–94th percentile; all patients with BP ≥95th percentile
Retinal exam	Identify retinal vascular changes	Patients with comorbid risk factors* and BP 90th–94th percentile; all patients with BP ≥95th percentile
Further evaluation as indicated		
Ambulatory BP monitoring	Identify white-coat hypertension, abnormal diurnal BP pattern, BP load	Patients in whom white-coat hypertension is suspected, and when other information on BP pattern is needed
Plasma renin determination	Identify low renin, suggesting mineralocorticoid-related disease	Young children with Stage 1 hypertension and any child or adolescent with Stage 2 hypertension Positive family history of severe hypertension
Renovascular imaging • Isotopic scintigraphy (renal scan) • Magnetic resonance angiography • Duplex Doppler flow studies • 3-Dimensional CT • Arteriography: DSA or classic	Identify renovascular disease	Young children with Stage 1 hypertension and any child or adolescent with Stage 2 hypertension
Plasma and urine steroid levels	Identify steroid-mediated hypertension	Young children with Stage 1 hypertension and any child or adolescent with Stage 2 hypertension
Plasma and urine catecholamines	Identify catecholamine-mediated hypertension	Young children with Stage 1 hypertension and any child or adolescent with Stage 2 hypertension

BP, blood pressure; BUN, blood urea nitrogen; CBC, complete blood count; CT, computerized tomography; DSA, digital subtraction angiography; LVH, left ventricular hypertrophy; R/O, rule out; U/S, ultrasound

* Comorbid risk factors also include diabetes mellitus and kidney disease.

Table 4

Examples of Physical Examination Findings Suggestive of Definable Hypertension*

	Finding†	Possible Etiology
Vital signs	Tachycardia	Hyperthyroidism, pheochromocytoma, neuroblastoma, primary hypertension
	Decreased lower extremity pulses; drop in BP from upper to lower extremities	Coarctation of the aorta
Eyes	Retinal changes	Severe hypertension, more likely to be associated with secondary hypertension
Ear, nose, and throat (ENT)	Adenotonsillar hypertrophy	Suggests association with sleep-disordered breathing (sleep apnea), snoring
Height/weight	Growth retardation	Chronic renal failure
	Obesity (high BMI)	Primary hypertension
	Truncal obesity	Cushing syndrome, insulin resistance syndrome
Head and neck	Moon facies	Cushing syndrome
	Elfin facies	Williams syndrome
	Webbed neck	Turner syndrome
	Thyromegaly	Hyperthyroidism
Skin	Pallor, flushing, diaphoresis	Pheochromocytoma
	Acne, hirsutism, striae	Cushing syndrome, anabolic steroid abuse
	Café-au-lait spots	Neurofibromatosis
	Adenoma sebaceum	Tuberous sclerosis
	Malar rash	Systemic lupus erythematosus
	Acanthrosis nigricans	Type 2 diabetes
Chest	Widely spaced nipples	Turner syndrome
	Heart murmur	Coarctation of the aorta
	Friction rub	Systemic lupus erythematosus (pericarditis), collagen-vascular disease, end stage renal disease with uremia
	Apical heave	Left ventricular hypertrophy/chronic hypertension
Abdomen	Mass	Wilms tumor, neuroblastoma, pheochromocytoma
	Epigastric/flank bruit	Renal artery stenosis
	Palpable kidneys	Polycystic kidney disease, hydronephrosis, multicystic-dysplastic kidney, mass (see above)
Genitalia	Ambiguous/virilization	Adrenal hyperplasia
Extremities	Joint swelling	Systemic lupus erythematosus, collagen vascular disease
	Muscle weakness	Hyperaldosteronism, Liddle syndrome

BMI, body mass index; BP, blood pressure

* Adapted from Flynn, JT. Evaluation and management of hypertension in childhood. *Prog Pediatr Cardiol* 2001;12:177–88.

† Findings listed are examples of physical findings and do not represent all possible physical findings.

Table 5

Agents	Dose; frequency	Comments
Angiotensin converting enzyme inhibitors, angiotensin receptor blockers		
Captopril	0.3 - 6 mg/kg/day; tid	Use cautiously if GFR <30 ml/min/1.73 m^2; avoid in renal artery stenosis
Enalapril	0.1 - 0.6 mg/kg/day; qd	Use smaller doses in neonates
Lisinopril	0.06 - 0.6 mg/kg/day; qd	Monitor serum potassium, creatinine regularly
Ramipril	6 mg/m^2; qd	Side effects: hyperkalemia, impaired renal functions, anemia, neutropenia, dry cough infrequent
Irbesartan	4-5 mg/kg/day	
Losartan	0.7 - 1.4 mg/kg/day; qd	
Calcium channel blockers		
Amlodepine	0.05 - 0.5 mg/kg/day; qd-bid	Extended release nifedepine must be swallowed whole
Nifedipine (extended release)	0.25 - 3 mg/kg/day; qd-bid	Side effects: Headache, flushing, dizziness, tachycardia; at higher doses: lower extremity edema, erythema
Isradipine	0.15 - 0.8 mg/kg/day; tid	
Beta-blockers		
Atenolol	0.5 - 2 mg/kg/day; qd-bid	Atenolol: decrease dose by 50% at GFR <50 ml/min/1.73 m^2; give on alternate days at GFR <10 ml/min/1.73 m^2
Metoprolol	1 - 6 mg/kg/day; bid	Sleep disturbances with propranolol, metoprolol; hyperlipidemia
Propanolol	1 - 4 mg/kg/day; tid	Avoid in asthma, heart failure; blunt symptoms of hypoglycemia
Labetalol	1 - 40 mg/kg/day; bid-tid	
Central alpha agonist		
Clonidine	5 - 25 µg/kg/day; tid-qid	Abrupt cessation may cause rebound hypertension; sedation
Peripheral alpha antagonist		
Prazosin	0.05 - 0.5 mg/kg/day; bid-tid	May cause 'first dose' hypotension, syncope
Vasodilators		
Hydralazine	1 - 8 mg/kg/day; qid	For hypertension refractory to other drugs
Minoxidil	0.1 - 1 mg/kg/day; qd-bid	Side effects: headache, palpitation, fluid retention, congestive heart failure; pericardial effusions, hypertrichosis with minoxidil
Diuretics		
Frusemide	0.5 - 6 mg/kg/day; qd-bid	Monitor electrolytes, fluid status periodically
Spironolactone*	1 - 3 mg/kg/day; qd-bid	Thiazides: dyslipidemia, hyperglycemia, hyperuricemia, hypokalemia, hypomagnesemia
Metolazone	0.2 - 0.4 mg/kg/day; qd	Loop diuretics: metabolic alkalosis, hypokalemia, hypercalciuria
Hydrochlorothiazide	1 - 3 mg/kg/day; qd	*Use cautiously with ACEI, angiotensin receptor blockers
Amiloride*	0.4 - 0.6 mg/kg/day; qd	

qd once daily; bid twice daily; tid thrice daily; qid four times daily

Table 6

Lifestyle Modification	*Recommendation*
Weight loss	For overweight or obese persons, lose weight, ideally attaining a BMI <85 centile; for nonoverweight persons, maintain desirable BMI. Consider stopping drugs when weight control achieved.
Reduced salt intake	Lower salt (sodium chloride) intake as much as possible, Ideally 1.5 g/d of sodium corresponding to 3.8 g/d sodium chloride
DASH-type dietary patterns	Consume a diet rich in fruits and vegetables (8–10 servings/d), rich in low-fat dairy products (2–3 servings/d), and reduced in saturated fat and cholesterol
Increased potassium intake	Increase potassium intake to 4.7 g/d. This is also the level provided in DASH (dietary approach to stop hypertension) diets.

Table 7

TABLE II HEIGHT PERCENTILE VALUES IN CENTIMETERS FOR BOYS AND GIRLS

	Boys							Girls						
Age (yr)	5	10	25	50	75	90	95	5	10	25	50	75	90	95
5	103	105	107	112	116	119	121	101	103	107	110	113	117	120
6	108	109	112	116	120	123	126	106	108	111	115	118	122	124
7	113	115	118	122	126	129	131	112	115	118	121	125	129	131
8	117	120	123	127	132	135	138	115	118	122	126	130	134	137
9	122	124	128	132	136	140	143	122	124	128	132	136	141	144
10	127	129	133	137	141	145	148	122	124	128	132	136	141	144
11	131	133	137	142	147	152	154	131	133	138	143	148	152	155
12	135	137	141	146	152	157	161	137	140	144	149	153	157	159
13	140	142	148	153	160	165	168	142	144	148	152	156	160	163
14	145	149	154	161	166	170	173	144	147	150	154	158	162	164
15	151	155	160	164	169	173	176	145	147	151	156	159	163	165
16	152	157	161	166	171	174	177	143	146	151	155	160	163	166

Table 8

TABLE III BLOOD PRESSURE (BP) PERCENTILE VALUES FOR NON-OVERWEIGHT BOYS IN RELATION TO AGE AND HEIGHT PERCENTILES

Age (yr)	BP Percentile	Systolic blood pressure (mm Hg) Height percentiles							Diastolic blood pressure (mm Hg) Height percentiles						
		5	10	25	50	75	90	95	5	10	25	50	75	90	95
5	50	90	91	92	93	95	96	97	57	58	58	59	60	61	61
	90	104	105	106	108	109	110	111	69	69	70	71	72	72	73
	95	108	109	110	112	113	115	115	72	73	73	74	75	76	76
	99	116	116	118	119	121	122	123	78	79	80	80	81	82	82
6	50	92	93	94	96	97	99	99	58	59	60	61	61	62	62
	90	106	107	108	110	111	113	114	70	70	71	72	73	74	74
	95	110	111	112	114	116	117	118	73	74	75	75	76	77	77
	99	118	119	120	122	123	124	125	79	80	81	82	82	83	83
7	50	94	94	96	97	99	100	101	60	60	61	62	63	63	64
	90	108	109	110	111	113	114	115	71	72	73	74	74	75	75
	95	112	113	114	116	117	118	119	75	75	76	77	78	78	79
	99	119	120	122	123	125	126	127	81	81	82	83	84	84	85
8	50	95	95	97	98	100	101	102	61	62	63	64	64	65	65
	90	109	110	111	113	114	115	116	73	73	74	75	76	76	77
	95	113	114	115	117	118	120	120	76	77	78	78	79	80	80
	99	121	121	123	124	126	127	128	82	83	84	85	85	86	86
9	50	96	97	98	99	101	102	103	63	63	64	65	66	66	67
	90	110	111	112	114	115	116	117	74	75	76	77	77	78	78
	95	114	115	116	118	119	121	121	78	78	79	80	81	81	82
	99	122	122	124	125	127	128	129	84	84	85	86	87	87	88
10	50	97	98	99	101	102	104	104	64	65	65	66	67	68	68
	90	111	112	113	115	116	118	118	76	76	77	78	79	79	80
	95	115	116	117	119	120	122	123	79	79	80	81	82	83	83
	99	123	124	125	126	128	129	130	85	86	87	87	88	89	89
11	50	98	99	101	102	104	105	106	65	66	67	67	68	69	69
	90	113	113	115	116	118	119	120	77	77	78	79	80	80	81
	95	117	118	119	120	122	123	124	80	81	81	82	83	84	84
	99	124	125	126	128	130	131	132	86	87	88	89	89	90	90
12	50	100	101	103	104	106	107	108	66	67	68	68	69	70	70
	90	115	115	117	118	120	121	122	78	78	79	80	81	81	82
	95	119	120	121	122	124	125	126	81	82	82	83	84	85	85
	99	126	127	128	130	131	133	134	87	88	89	89	90	91	91
13	50	103	104	105	106	108	109	110	67	68	68	69	70	71	71
	90	117	118	119	121	122	124	124	79	79	80	81	82	82	83
	95	121	122	123	125	126	128	128	82	83	83	84	85	86	86
	99	129	129	131	132	134	135	136	88	89	90	90	91	92	92
14	50	105	106	108	109	111	112	113	68	69	69	70	71	72	72
	90	120	120	122	123	125	126	127	80	80	81	82	83	83	84
	95	124	124	126	127	129	130	131	83	83	84	85	86	87	87
	99	131	132	133	135	136	138	139	89	90	91	91	92	93	93
15	50	108	109	110	112	113	115	115	69	70	71	71	72	73	73
	90	122	123	124	126	127	129	130	81	81	82	83	84	84	85
	95	126	127	129	130	132	133	134	84	85	86	86	87	88	88
	99	134	135	136	138	139	140	141	90	91	92	93	93	94	94
16	50	111	111	113	114	116	117	118	71	71	72	73	74	74	75
	90	125	126	127	128	130	131	132	82	83	84	85	85	86	86
	95	129	130	131	133	134	135	136	86	86	87	88	89	89	90
	99	136	137	139	140	142	143	144	92	92	93	94	95	96	96

Data constructed from the sample of non-overweight boys (N=9039).

Table 9

TABLE IV BLOOD PRESSURE (BP) PERCENTILE VALUES FOR NON-OVERWEIGHT GIRLS IN RELATION TO AGE AND HEIGHT PERCENTILES

Age (yr)	BP Percentile	Systolic blood pressure (mm Hg) Height percentiles							Diastolic blood pressure (mm Hg) Height percentiles						
		5	10	25	50	75	90	95	5	10	25	50	75	90	95
5	50	92	92	93	94	95	96	96	58	58	59	60	60	61	61
	90	107	107	108	109	110	111	111	69	70	70	71	72	72	72
	95	111	111	112	113	114	115	115	73	73	74	74	75	75	76
	99	119	119	120	121	122	123	123	79	79	80	81	81	82	82
6	50	92	93	94	95	96	97	97	59	59	60	60	61	61	62
	90	107	108	109	110	111	111	112	70	71	71	72	72	73	73
	95	111	112	113	114	115	116	116	73	74	75	75	76	76	76
	99	119	120	121	122	123	124	124	80	80	81	81	82	82	83
7	50	94	94	95	96	97	98	98	60	60	61	62	62	63	63
	90	108	109	110	111	112	113	113	72	72	73	73	74	74	75
	95	113	113	114	115	116	117	117	75	75	76	77	77	78	78
	99	121	121	122	123	124	125	125	81	81	82	83	83	84	84
8	50	95	96	97	98	99	100	100	62	62	63	63	64	64	65
	90	110	111	112	113	114	114	115	73	74	74	75	76	76	76
	95	115	115	116	117	118	119	119	77	77	78	78	79	79	80
	99	122	123	124	125	126	127	127	83	83	84	84	85	85	86
9	50	98	98	99	100	101	102	102	64	64	65	65	66	66	67
	90	113	113	114	115	116	117	117	75	76	76	77	77	78	78
	95	117	117	118	119	120	121	121	79	79	80	80	81	81	82
	99	125	125	126	127	128	129	129	85	85	86	86	87	87	88
10	50	100	101	102	103	104	104	105	66	66	67	67	68	68	69
	90	115	116	117	118	119	119	120	77	78	78	79	79	80	80
	95	119	120	121	122	123	124	124	80	81	82	82	83	83	83
	99	127	128	129	130	131	131	132	87	87	88	88	89	89	90
11	50	103	104	105	106	106	107	108	67	68	69	69	70	70	70
	90	118	118	119	120	121	122	122	79	79	80	81	81	82	82
	95	122	123	124	125	126	126	127	82	83	83	84	85	85	85
	99	130	131	132	133	133	134	135	88	89	89	90	91	91	91
12	50	106	106	107	108	109	110	110	69	69	70	71	71	72	72
	90	120	121	122	123	124	125	125	81	81	82	82	83	83	84
	95	125	125	126	127	128	129	129	84	84	85	86	86	87	87
	99	133	133	134	135	136	137	137	90	90	91	92	92	93	93
13	50	108	109	110	111	112	112	113	70	71	71	72	73	73	73
	90	123	124	125	126	126	127	128	82	82	83	84	84	85	85
	95	127	128	129	130	131	131	132	85	86	86	87	87	88	88
	99	135	136	137	138	139	139	140	91	92	92	93	94	94	94
14	50	110	111	112	113	114	114	115	71	72	72	73	74	74	74
	90	125	126	127	128	128	129	130	83	83	84	85	85	86	86
	95	129	130	131	132	133	133	134	86	87	87	88	88	89	89
	99	137	138	139	140	141	141	142	92	93	93	94	95	95	95
15	50	111	112	113	114	115	115	116	72	72	73	74	74	75	75
	90	126	127	128	129	130	130	131	84	84	85	85	86	86	87
	95	130	131	132	133	134	135	135	87	87	88	89	89	90	90
	99	138	139	140	141	142	143	143	93	93	94	95	95	96	96
16	50	112	112	113	114	115	116	116	72	73	74	74	75	75	75
	90	126	127	128	129	130	131	131	84	84	85	86	86	87	87
	95	131	131	132	133	134	135	135	87	88	88	89	90	90	90
	99	139	139	140	141	142	143	143	93	94	95	95	96	96	96

Data constructed from the sample of non-overweight girls (N=9592).

Table 10

This screening table is common for both boys and girls and depicts 90th centile cut-offs for 5th centile height.

TABLE 6 Screening BP Values Requiring Further Evaluation

Age, y	BP, mm Hg			
	Boys		Girls	
	Systolic	DBP	Systolic	DBP
1	98	52	98	54
2	100	55	101	58
3	101	58	102	60
4	102	60	103	62
5	103	63	104	64
6	105	66	105	67
7	106	68	106	68
8	107	69	107	69
9	107	70	108	71
10	108	72	109	72
11	110	74	111	74
12	113	75	114	75
≥13	120	80	120	80

Table 11

BP Level for Boys by Age and Height Percentile can be downloaded from

http://pediatrics.aappublications.org/content/early/2017/08/21/peds.2017-1904

Table 12

BP Level for Girls by Age and Height Percentile can be downloaded from

http://pediatrics.aappublications.org/content/early/2017/08/21/peds.2017-1904

Adolescent Headache

Dr Sandip Trivedi

Objectives

1. Discuss the etiology of headache in adolescence

   Delineate classification of headache

   Outline clinical evaluation and management of headache

Headaches are common during adolescence. Headaches greatly influence the quality of life in adolescence and could be pointers towards serious intracranial pathology or mental disorders. Prevalence of adolescent headache ranges from 57 to 82% in different research studies. Before puberty, boys are affected more frequently than girls; later it occurs more frequently in girls.

Evaluation

A detailed history followed by a complete physical and neurologic examination is essential for diagnosing headache and for planning diagnostic testing.

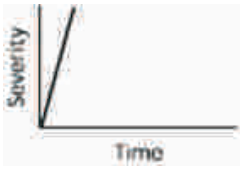
Assessment of Adolescents with Headache

The following questions can be asked from the adolescent to evaluate headache :

1. How and when did your headache(s) start? Was this a sudden first headache? Have you had headaches like this before? Do you get a headache every day? Are your headaches getting worse than they used to be?
2. Do you have the same kind of headaches all the time? Do you get more than one kind of headache? How often do you get a headache? How long do your headaches usually last? Where do you feel the headache pain? How does the headache pain feel - pounding, squeezing, stabbing, or something else?
3. Can you tell that you will be getting a headache? Are there any signs that a headache is going to start? Do you get nausea, vomiting, dizziness, numbness, weakness, or other symptoms at the same time you have a headache? Does anything special cause you to get a headache? Do you get headaches at any certain time?
4. What do you do when you get a headache? Do you have to stop whatever you are doing (playing, working, studying) when you get a headache? What makes your headache feel better or worse? Is there anything you do that makes your headache worse? Does taking medicine or eating food give you a headache or make a headache worse?
5. Do you have other symptoms between headaches? Are you taking any medicines for your headache or for any other reason? Do you have any other health problems

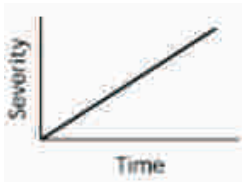
The following temporal patterns of headache are observed:

Acute headache : Single episode of head pain without history of previous events

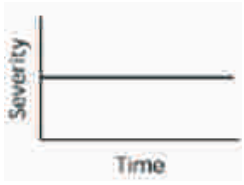


Acute-recurrent headache : Pattern of head pain separated by symptom-free intervals

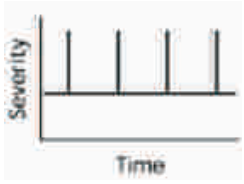
Chronic-progressive headache : Gradual increase in frequency and severity



Chronic-nonprogressive (or chronic-daily) headache : Frequent or constant headache



Mixed headache : Acute-recurrent headache (usually migraine) superimposed on a chronic-daily background pattern (represents a variant of chronic-daily headache)



HEEADSSS psychosocial evaluation is important in adolescents, especially in those with chronic-daily and mixed-headache patterns to assess for stressors and triggers of headache

The physical examination must include:

1.Vital signs:blood pressure and temperature

2. Palpation of the head and neck for sinus tenderness, thyromegaly, nuchal rigidity.

3. Head circumference as slowly progressive increases in intracranial pressure cause macrocrania.

4. Skin examination for signs of neurocutaneous syndrome(neurofibromatosis and tuberous sclerosis, which are associated with intracranial neoplasms)

A detailed neurologic examination is essential. More than 98% of children with brain tumors have objective neurologic findings. Adolescents with intracranial disease have altered mental status, abnormal eye movements, optic disc distortion, motor or sensory asymmetry, coordination disturbances and abnormal deep tendon reflexes.

The role of neuroimaging is controversial. Computed tomographic (CT) scanning or magnetic resonance imaging (MRI) is indicated in patients with acute severe headache, chronic-progressive headache pattern and those who have abnormal findings in the neurologic examination or neurocutaneous stigmata or head

injury. In the majority of patients with acute-recurrent headache or chronic-nonprogressive headache patterns and normal findings on neurologic examination, no imaging is required. EEG is of limited use in adolescents with headache. Lumbar puncture is indicated if there is a clinical suspicion of meningitis. Sinus radiography may be indicated for the febrile patient with headache if the clinical history and physical examination suggest acute sinusitis.

Most young patients with migraine can be successfully managed by the primary care physician and referred only if treatment fails. Chronic-daily and mixed-pattern headaches are difficult to manage and often require a team approach involving a primary care physician, a neurologist, a psychologist, and a behavior therapist.

Management of Specific Headaches

Acute Headache

Most acute, nontraumatic headaches are due to viral or bacterial fever, upper respiratory tract infections, sinusitis or migraine. Positive neurological findings would indicate an intracranial cause for the headache. Other causes include substance abuse, hypertension, prolonged steroid intake and carbo monoxide intoxication.

The adolescent with acute headache is made to sit in a quiet, dark room where he or she can rest with a cool, wet cloth on the forehead. Sleep is often the most effective treatment in non traumatic headaches.

Acute Recurrent Headache

Migraine with or without aura is the most common form of acute recurrent headache in adolescents. It is prevalent more in girls.

International Headache Society criteria for diagnosis of migraine are five or more headache attacks that last 1 to 48 hours (compared with a shorter duration in adults),having at least two of the following features: Bilateral or unilateral (frontal/temporal) location (compared with bilateral location only in adults), pulsating quality, moderate to severe intensity, aggravated by routine physical activities and are accompanied by at least one of the following: Nausea and/or vomiting, photophobia and/or phonophobia (do not occur simultaneously in adults)

Treatment of migraine includes general measures and pharmacologic management. General therapeutic measures include reassurance, identifying and removing headache triggers, regulating lifestyle and behavioral therapies. Common triggers in children include disrupted sleep, excessive media usage, skipped meals, analgesic overuse, and stress. Behavior therapies such as relaxation techniques, stress management and biofeedback are efficacious. Potential dietary precipitants are cheese, processed meats, chocolate, nuts, pickles and monosodium glutamate and should be looked for as triggers of headache. Caffeine intake and prolonged ingestion of analgesics can cause rebound headache

The daily use of prophylactic agents should be considered in patients with headaches that interfere with their activities of daily living. Most adolescents with migraine do not require daily medication and can be managed with judicious use of analgesics. Many adolescents respond well to ibuprofen (7.5 to 10 mg/kg). Those who fail to respond may require naproxen (2.5 to 5 mg/kg) or actaminophen (10-15 mg/kg). Medication should be taken early in the course of the headache. Sumatriptan (25 mg) tablets or 20-mg nasal spray, rizatriptan (5 to 10 mg) and zolmitriptan (2.5 to 5 mg) may be considered for use in adolescents with

moderate to severe migraine headaches who are unresponsive to conventional analgesics. Those with nausea and vomiting may need anti emetics in addition to analgesics.

Daily use of prophylactic agents is reserved for adolescents with frequent and or disabling migraine headaches. About one third of children with migraines require periodic courses of daily medication. Cyproheptadine, amitriptyline, propranolol, naproxen sodium, valproic acid, carbamazepine, flunarizine and calcium channel blockers are effective

Tension Type Headache

Tension-type headache occurs frequently in adolescence. Management of these headaches involves the use of intermittent analgesics, therapeutic lifestyle changes along with stress management.

Temporomandibular joint disorder, paroxysmal hemicranias and occipital neuralgia are rare causes of acute headache in adolescence.

Chronic Progressive Headache

The chronic-progressive headache pattern is the most ominous of the headache pattern. Intracranial pathology like tumors, infection, intoxication or vascular malformations should be suspected, especially when the headache is accompanied by neurological signs. Most patients with chronic-progressive headache need MRI. Management is dependent on imaging results and diagnosis.

Chronic Nonprogressive Headache (Chronic Daily Headache)

Chronic nonprogressive headaches are those which last four or more hours and occur 15 or more times a month for a period of four or more months. Many adolescents have continuous, unremitting daily headache. Analysis of sleep, exercise habits, media usage and dietary patterns is mandatory. It is essential to rule out mental disorders like depression, anxiety and substance use in these cases. Counseling, stress management, and behavior therapies such as biofeedback are important components of management.

In these cases, use of acetaminophen, aspirin, narcotics and ibuprofen should be avoided because of their potential for causing rebound headache. Naproxen sodium is not generally associated with rebound headache and can be used as an analgesic. Antidepressants such as amitriptyline (10 mg orally every day at bedtime) or valproic acid (250 mg orally twice daily) as daily prophylaxis may reduce the frequency and severity of this headache.

Mixed Headache

A mixed-headache pattern implies migraine superimposed on a chronic-daily headache pattern. Treatment is the same as that for chronic-daily headache.

Key Messages

- Headaches are commonly seen in adolescence
- Detailed history taking and physical examination are essential for determining the etiology
- Intracranial imaging for headache is indicated only when neurological signs or focal deficits are clinically evident
- Management of migraine and chronic daily headache includes lifestyle changes and pharmacotherapy

HANDOUT FOR PARENTS

INDIAN ACADEMY OF PEDIATRICS

Presidential Action Plan 2018-19

Mission Kishore Uday

Precious Teens Precious Lives

Prevention of Adolescent Suicide

Vital Role of Parents, Teachers, Caretakers

Globally, suicide by adolescents is on the rise. In India, suicide is the leading cause of death in adolescents. For every unfortunate suicide there are twenty five failed attempts and countless suicidal thoughts. Fortunately four out of five teenagers give clear warning signs which can be detected by parents, teachers and caretakers. Timely counseling and referral can save young lives.

Warning signs of Suicide

Verbalizing	Death wish revealed through talking, writing or texting on social media. Wishing, "I should have never been born. I wish this was the end."
Acquiring means	Collecting weapons, pills, ropes, maps, train time tables. Searching the internet for ways to do self harm or suicide helplines.
Feeling of hopelessness	Sense of being trapped, sadness, thinking,"nothing better will happen". Ending any discussion on " There is no hope and life has no meaning."
Self hatred	Guilt , Shame, serious dislike for self, disturbed sleep and appetite. Mentioning, "I am a burden to my family or world."
Getting things in order	Giving away possesions and valuables to friends or siblings. Closing bank account and doing charity.
"Good bye"	Making unexpected visits to friends and relatives. Saying bye-bye as if this is the last one.
Social withdrawal	Isolation from friends and family, deterioration of social relationships. Excessive anger and aggression. Fall in academic performance
High risk behaviors	Reckless driving, drug abuse. Increased consumption of alcohol and tobacco.

Parents and teachers being the foremost caretakers are likely to identify the above warning signs much earlier than others. They should remain calm, be empathetic, ensure safety of teen and help the disturbed adolescent. Professional help from a pediatrician, counselor or psychiatrist may be necessary. Delay or reluctance will worsen the situation. Any change in behavior and loss of interest in activities enjoyed previously for more than two weeks maybe a pointer towards mental disorder.

Many parents wrongly believe that a mention about death wish by a teenager is an attention seeking behavior. Caretakers should take every word very seriously. Talking to distressed teens about suicidal intentions makes them feel that parents are caring, nonjudgmental and empathetic. They also feel understood and supported. Parents should help the teen to cope up with the stressful situation. Talking to teens about suicidal thoughts does not predispose them to self harm.

Individual Factors	Family and School Factors	Societal Factors
• Poor self esteem • Previous suicide attempt • Alcohol and drug abuse • Failed romantic relationship • Mental health disorder • Chronic disease • Recent loss of near and dear one • Sexual identity confusion and shame • Easy access to lethal weapons / pills • Hesitancy for obtaining help.	• Family history of suicide • Disrupted family milieu • Financial crisis • Alcoholism in parents • Domestic violence • Sexual abuse • Bullying / ragging • Humiliation by teachers • Corporal punishment and poor discipline methods Truancy • Poor academic performance	• Lack of awareness • Less number of mental health professionals • Inaccessible and unaffordable services • Social stigma associated with mental health disorders • Cyber harassment • Poor support from health care workers • Unfriendly teenage care services

Caretakers must take note of “protective factors” which prevent teenagers from ending lives and help them cope with stressors. This learning should begin early in life and the active process of life skills education must continue through teenage and youth.

Protective factors	Mechanism
Life skills and resilience	Ability to effectively handle difficult situations.
Family and school connectedness	Mental comfort and early detection of problems.
Restriction to lethal means	Opportunity is avoided during mental crisis.
Cultural and religious beliefs	All cultures and religions discourage suicidal acts.
Strong support system	Enables easy access to a disturbed teenager.
Peer support and trained peer educators	Teenagers tend to disclose their issues with friends.

Life is full of everyday challenges and teenagers are vulnerable to the various stressors like academic pressure, competitive sports, peer influence, social media hazards, substance abuse, separation from parents, bullying, disturbed relationships, body image dissatisfaction, sexual identity confusion and uncertainty about the future. Life skills act as vaccines against external influences and internal emotional turmoil. Life skills education by parents and teachers nurtures a mentally strong, resilient and responsible teen who can handle stress and challenges effectively.

Following life skills should be taught to children from a young age:

1. **Self awareness:** Knowing ones likes, dislikes, strengths and weaknesses.
2. **Decision making:** Objectively understanding the problem and the central issue, weighing pros and cons of each possible solution, choosing the best option with highest gains and lowest pains and giving it a fair trial before accepting or rejecting it.
3. **Critical thinking:** Analyzing a problem in an objective and unbiased way. Probing into understand things in detail with an open mind and without any prejudice.
4. **Coping with stress:** Identifying the stressors and using relaxation techniques. Trying to change the things which one can with unconditional acceptance of the things that cannot be changed. Adopting a healthy lifestyle, coping and problem solving skills.
5. **Handling emotions:** Dealing with unpleasant emotions like rage, grief, anxiety, guilt, shame, jealousy and envy. Beliefs decide the way one feels and reacts to any adversity. Teenagers need to convert unhealthy emotions into healthy emotions by practice, patience and persistence. They must learn to control and express emotions in a 'safe' way without harming themselves or others.
6. **Effective communication:** Ability to successfully convey thoughts and feelings to others. Nonverbal tools like eye contact, touch, nodding and smiling must be used appropriately. Learning to use oral and written words without hurting others is also necessary.
7. **Nurturing relationships:** Ability to accept differences, encourage mutual growth and provide support and to avoid gossip, negative comments and constant ridicule.
8. **Personal safety:** To live a risk free and healthy life by adopting healthy eating habits, ensuring adequate sleep, good time management, cyber-protection, safe sexual behaviour, regular physical exercise without indulging in drugs and alcohol and following traffic rules.
9. **Goal setting:** Decide what one wishes to achieve in life. Detailed analysis and planning, proper training, persistent efforts, readiness to activate next plan in case of failure and not putting blame on self or others are needed to achieve success in life.
10. **Wise use of resources:** Managing pocket money wisely. Knowing the expected monthly and daily expenses, keeping accounts, avoiding lavish shopping and borrowing money.

Teaching resilience to children and teenagers is the most vital parental task. Resilient teens are flexible, adjust well to various life situations and excel in academics, career and inter personal relationships. Parents and teachers can inculcate resilience in a teenager by role modeling desired behavior, setting limits for acceptable behavior, saying “No” assertively with proper explanation, appreciating desirable behaviors, encouraging skills, giving responsibilities and teaching that failures do happen and a single setback is not the end of the world. Constant criticism, nagging, too much preaching, humiliation and empty praise must be avoided. Parents should follow authoritative parenting style that shields against all high risk behavior including self harm.

Caretakers should provide a supportive environment to adolescents and be easily approachable, especially in a stressful situation. This is possible only if caretakers show empathy and have effective communication skills. Else, the teenager may use unhealthy methods for managing stress like alcohol, smoking, media or drug abuse, avoiding situations or people, remaining detached, running away from home, sexual promiscuity, aggression, violence and self harm.

Digital Parenting Skills

Cyber bullying, fear of missing out (F.O.M.O.) from the group activities, gossiping online and harassment by known or unknown persons is rampant in today's cyber world. Teenagers staying away from homes either for education or career are particularly exposed to this unrevealed stress. Parents can protect vulnerable teens by teaching these simple rules.

- Never disclose your personal information or revealing pictures on internet.
- Avoid chatting with strangers or “friends of friends”.
- Never click the “save password” icon.
- Contact local cyber crime branch or webmaster if harassed.
- Use media judiciously and wisely. Formulate a media use plan and stick to it

Parents should teach cyber ethics to your teenager. They should follow the WWW approach. Ask the teenager about “Who” they talk to when online, “Where” they go online and “What” they do online. They should keep updated with time and technology.

Parents and teachers have an immense responsibility to detect a problem EARLY, pay serious attention to it and take professional help if it can't be tackled at home or school. Delay in obtaining help can aggravate the problem to the point of being unmanageable even by professionals. Earlier the issue is addressed, the better. Teenagers are dependent on parents and teachers for many needs. Parents should keep the communication channels open, encourage positive change, delete “wishful thinking”, learning about warning signs and seek professional help if needed. Teenagers are priceless and so is life.

Emotional Support Help-lines

Caretakers and teenagers can download a free app for suicide prevention from https://mhtech.in Following table gives contact details for obtaining emotional support during stressful situations. (Courtesy: Sohini Dey)

Name of the city	Name of the organization	Contact details
Delhi	Sumaitri	feelingsuicidal@sumaitri.net , 011-23389090
Kolkata	Life line foundation	reach@lifelinekolkata.org,033-24637401/7432
Srinagar	Kashmir lifeline	18001807020
Hyderabad	Roshni	roshnihelp@gmail.com, +914066202000/2001
Kochi	Maithri	maithrihelp@gmail.com, 0484 2540530
Chennai	Sneha	help@snehaindia.com, +914424640050/60
Mumbai	iCall (T.I.S.S.)	icall@tiss.edu ,+9122 25521111
Mumbai	Aasra	www.aasra.info , 022-27546669
Mumbai	Samaritans	smaritans.helpline@gmail.com, 02264643267
Jamshedpur	Jeevan	jeevanjamshedpur@gmail.com , 06576555555
Bengaluru	Sahai	+918025497777
Goa	COOJ	08322252525
Ahmedabad	Saath	saath12@yahoo.com , +91 79 26305544/0222
Kota	Hope	07244333666

1098 (toll free) is an all India helpline available for 24 hours.

HANDOUT FOR ADOLESCENTS

INDIAN ACADEMY OF PEDIATRICS

Presidential Action Plan 2018-19

Mission Kishore Uday

Precious Teens Precious Lives

Healthy Mind in a Healthy Body

All of us want to lead a healthy and happy life. Here are some tips for a fulfilling and successful life:

Manage Stress Effectively

- Have a positive and flexible attitude
- Be helpful, kind and polite
- Follow a healthy lifestyle: Ensure 1 hour of moderate physical activity every day, balanced diet, 8 to 9 hours of sleep, avoid tea, coffee, cola and junk food, say a firm 'no' to alcohol and smoking
- Share your concerns and worries with parents and trustworthy adults, manage time well, adopt regular study habits and use digital media judiciously.
- Practice relaxation techniques like pranayam, meditation, praying, bubble breathing, positive self talk, develop a hobby and participate in sports and extra academic activities like dance, music
- Team up with your friends and work together to manage stress

Learn Life Skills

Life skills help us to deal with problems and challenges of daily life. WHO has suggested 10 basic life skills that are grouped into the following three major categories:

Thinking skills : Critical thinking, Creative thinking, Problem solving, Decision making

Personal skills : Self-awareness, Coping with the emotions, Coping with the stress

Interpersonal skills : Communication skills, Empathy, Healthy interpersonal relationships.

Be a Responsible Digital Citizen

- Use your personal digital devices for educational and recreational purpose sparingly after allocating adequate time for study, physical activity, sleep and social interaction with family and friends
- Keep your bedroom free from electronic devices and avoid exposure to them at least 2 hours before sleep
- Protect your online personal information, log out after use and never share your password with others. Do not chat with strangers online
- Be aware about digital footprints. Never post hurtful messages online or offline
- Confide in parents and trustworthy adults if you receive any hurtful/ uncomfortable message

Be a Life Saver

If a friend confides in you about a wish to die:

- Be calm and listen attentively
- Avoid leaving the friend alone
- Ensure that the friend informs and seeks help from a responsible adult (parents, teachers, counselors)

Do not hesitate to take help of a health professional if you feel low, worthless, hopeless, excessively angry, irritable and moody for a prolonged period of time (more than 2 weeks).

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Kolkata	Life line foundation	reach@lifelinekolkata.org,033-24637401/7432
Srinagar	Kashmir lifeline	18001807020
Hyderabad	Roshni	roshnihelp@gmail.com, +914066202000/2001
Kochi	Maithri	maithrihelp@gmail.com, 0484 2540530
Chennai	Sneha	help@snehaindia.com, +914424640050/60
Mumbai	iCall (T.I.S.S.)	icall@tiss.edu ,+9122 25521111
Mumbai	Aasra	www.aasra.info , 022-27546669
Mumbai	Samaritans	smaritans.helpline@gmail.com, 02264643267
Jamshedpur	Jeevan	jeevanjamshedpur@gmail.com , 06576555555
Bengaluru	Sahai	+918025497777
Goa	COOJ	08322252525
Ahmedabad	Saath	saath12@yahoo.com , +91 79 26305544/0222
Kota	Hope	07244333666

1098 (toll free) is an all India helpline called CHILDLINE. It is available 24 hours.

Suggested Reading

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