Adolescent Psychosocial Development and Its Complications

Oana Tomescu, MD PhD
Associate Professor of Internal Medicine and Pediatrics
Craig-Dalsimer Division of Adolescent Medicine, Children’s Hospital of Philadelphia
Division of General Internal Medicine, Hospital of the University of Pennsylvania
The Perelman School of Medicine at the University of Pennsylvania
Disclosures

• I have no relevant financial relationships with the manufacturers of any commercial products and/or provider of commercial services discussed in this CME activity.

• I do not intend to discuss any unapproved or investigative use of a commercial product or device in my presentation.
Learning Objectives

• Highlight normal adolescent psychosocial and neuro-cognitive development and the negative effects of stress
• Identify negative outcomes of low self-esteem
• Discuss normal adolescent sexual development and the negative consequences of sexual violence
• Report on the status of teen pregnancy, violence and eating disorders and highlight the role of the pediatrician
• Discuss transition to adult care as another normal developmental milestone for children and adolescents
Fundamental Quest(ions) of Adolescence

- Audience poll:

- Core *existential questions* of adolescence:
Psychosocial Development

- **Autonomy formation** – Begins in early adolescence
  - Strive for financial and emotional independence from family
  - Peer group is *idolized*; has a very strong influence on the teen

- **Identity formation** – Self-concept and Self-esteem
  - Perception of self: talents, goals, life experiences
  - Ethnic, religious, and sexual identity formation
  - Evaluation of self-worth

- **Future orientation** – Career development; Values and morals
Cognitive Development

• **Advanced reasoning skills**
  • Able to appreciate a wider scope of possibilities w/in a situation
  • Think more hypothetically; Use a more logical thought process

• **Abstract thinking**
  • Can understand concepts even if not directly experienced

• **Meta-cognition**
  • Have the capacity to think about how they are feeling and how others perceive them

Sanders RA, 2013
Neurocognitive Changes

- **Limbic System** – reward pathways; emotional regulation
  - VERY active in early teens; HIGH # of gonadal hormone receptors
  - Increased activity during times of emotional arousal

- **Prefrontal Cortex** – executive functioning, reasoning
  - Growth and maturation is not finished until late teens

- **Neuronal pruning** between these 2 areas is not complete until in mid/late 20’s
Stress during Adolescence

• Debatably the most stressful time of life
  • Life cycle of many rapid life changes

• **Toxic stress** – extreme, frequent, or extended activation of the body’s stress response in the absence of supportive caregiving

• **Risk factors for toxic stress**: neglect and abuse, extreme poverty, witnessing violence, parental substance abuse and mental health problems, experiencing bullying

Johnson SB, 2013
Stress During Adolescence

- Stress causes dysfunction of the neuro-endocrine-immune (NEI) network
  - **PFC**: Delayed growth, maturation and synaptic pruning
  - **Limbic system**: Fear-conditioned and hyper-reactive
  - **Sympathetic NS**: Over-activation; loss of PNS balance
  - **HPA axis**: Over-activation and dysregulation
  - **Immune system**: Altered function due to glucocorticoid excess

- Periods of brain growth = Timing of greatest vulnerability
Stress During Adolescence

• Other consequences of toxic stress**

• Adult health outcomes
  • CAD; COPD/asthma; Various cancers; Autoimmune disease
  • Psychiatric comorbidities

• Autonomic Nervous System Dysfunction (Dysautonomia)
  • Postural Orthostatic Tachycardia Syndrome (POTS)
  • GI Dysmotility (IBS, etc)
  • Chronic Fatigue Syndrome (Systemic Exertion Intolerance Disease, or SEID)
  • Amplified Pain Disorders (Migraines; Fibromyalgia; AMPS)

Johnson SB, 2013
Poor Self-Image**

- **Consequences of poor self-esteem** during adolescence
  - Mood disorders and suicide
  - School under-achievement
  - Substance use/abuse and other increased risk-taking

- **Approach for pediatricians**
  - Educate parents about importance of praise, support, acceptance, and unconditional love
  - Resilience-building: reflect the teen’s strengths
  - Help them set realistic goals and offer support and guidance
  - Normalization of this process: every teen struggles

_Sanders RA, 2013_
Adolescent Sexual Development

- Encompasses multiple factors
  - Intimate partnerships, gender identity and sexual orientation

- Homosexual and heterosexual attraction and experimentation is common in early adolescence

- **2009 Youth Risk Behavior Survey**
  - 46% of HS students reported having intercourse w/ >1 person
  - 5.9% reported intercourse before age 13
  - Unchanged condom (~60%) usage compared to 2003

Tulloch T and Kaufman M, 2013
Counseling on Sexuality**

**Parental**
- Stress that sexual attraction and experimentation is common
- Starting in early adolescence

**Adolescent**
- Most youth get their information on the internet and TV**
- Homosexual/heterosexual attraction & experimentation is common
- Pregnancy prevention methods: LARCs >> OCPs
- Prevention of STIs: abstinence, condoms
- Importance of getting timely testing for STIs

Tulloch T and Kaufman M, 2013
Psychosocial Outcomes of Sexual Assault**

- Depression, Anxiety, PTSD
- Suicide attempts
- Substance abuse
- Eating disorders
- Personality disorders
- Increased risk taking

- Sleep disturbances
- Somatic symptoms
- Sexualized behaviors
- Early pregnancy
- School failure
- Repeat victimization

Fortin K and Jenny C, 2012
Medical Needs After Sexual Assault **

• **STI prophylaxis < 72 hours**
  • Gonorrhea: Ceftriaxone 250 mg IM
  • Chlamydia: Azithromycin 1 gm PO
  • Trichomoniasis: Metronidazole 2 gm PO
  • HIV: 28 day course of 2-3 drug regimen

• **Emergency contraception < 72 hours**

• Report to appropriate agencies and law enforcement

• Address psychosocial needs and refer

*Fortin K and Jenny C, 2012*
Teen Pregnancy

• Birth rate data from 2009 indicate historic low birth rates for infants of 15- to 19-year olds in US

• **Increased risk for medical and psychosocial problems**
  • Poor maternal weight gain, HTN, anemia (worse for younger)
  • Poverty (public assistance), lower educational attainment
  • Violence during/after pregnancy (> non-pregnant teens)
  • Risk of death** by homicide is 2.6x greater (if recently delivered)
  • Poor mental health: post-partum depression rate is higher

Pinzon JL, 2012
Teen Pregnancy: Opportunities for PCPs**

• **Factors associated with improved outcomes:**
  - Participation in teen-mom programs
  - Remaining in school
  - Having good social support; early child-care by family
  - No subsequent pregnancy at 26 months post-partum
  - Paternal involvement and stability of marital status

• Screen for **post-partum mood disorders and substance use** (tobacco and alcohol, especially)

Pinzon JL, 2012
Teen Violence

• **Statistics**
  - Leading causes of death of ages 15-19 years: Injury, Homicide
  - Adolescents account for 1/3 of all violent crime arrests
  - Males engage in more violence (and gangs) than females

• **Bullying**
  - Affects 30% of youth, either as bullies or victims
  - More common in boys>girls; in middle school > HS
  - Associated with substance abuse and poor grades
  - Victims have significantly more somatic symptoms (via ANSD)

AAP, 2009; Chavez D, 2012
Role of the PCP: Conflict Resolution**

• **Non-violent conflict resolution strategies**
  • Developing an awareness of angry feelings
  • Calming down using deep breathing or walking away
  • Learning to listen to the other person and to see his/her perspective
  • Discuss situation with another supportive and neutral person

• **Role of pediatrician**
  • Talk to parents about role modeling conflict resolution
  • Role play scenarios with patients in the office
  • Encourage patience and practice

AAP, 2009; Chavez D, 2012
Eating Disorders (EDs)

• **Epidemiology:** A changing landscape
  • More common than Type 2 Diabetes in children and teens
  • Higher rates than ever in children, boys and minority youth

• **Etiology** – multifactorial
  • Dieting behaviors
  • Genetic and biologic predisposition
  • Environmental and sociocultural factors
  • Psychological traits

Campbell K and Peebles R, 2014
Anorexia Nervosa (AN)

• Epidemiology
  • Lifetime prevalence = 0.5-2%; Mortality rate ~ 5-6%

• Criteria for Diagnosis (DSM-V) **
  • Persistent restriction of intake leading to lower than expected wt
  • ED cognitions are now equivalent to ED behaviors
  • Body image distortion and undue influence on self-esteem
    - or -
  • Refusal to recognize the seriousness of low body weight

See Supplemental Handout #4

Campbell K and Peebles R, 2014
Bulimia Nervosa (BN)

• Epidemiology
  • Lifetime prevalence = 0.9-3%; Mortality rate ~ 2%

• Criteria for Diagnosis (DSM-V) **
  • Recurrent episodes of binge eating
  • A sense of lack of control over eating during the binge
  • Recurrent inappropriate compensatory behaviors to lose weight
  • Binging and purging behaviors occur > 1x/week for > 3 months
  • Self-evaluation is unduly influenced by body shape and weight

See Supplemental Handout #4

Campbell K and Peebles R, 2014
Clinical Findings of AN and BN**

- **General:**
  - Cachexia; Muscle wasting
  - Hypothermia

- **Cardiovascular:**
  - Sinus bradycardia
  - Hypotension
  - Orthostatic HR > 20; BP > 10
  - Cardiac arrhythmias
  - Prolonged QTc
  - Acrocyanosis; Edema (BN)

- **Dermatologic**
  - Dry, pale skin
  - Thinning of scalp hair
  - Lanugo hair over body
  - Knuckle abrasions (BN)
  - Loss of dental enamel (BN)

- **Psychological**
  - Flat or anxious affect
  - Mood lability

Campbell K and Peebles R, 2014
Management of AN and BN**

**Different Levels of Care**
- Outpatient (Individual-based Therapy; CBT; Family-Based Therapy)
- Partial programs
- Inpatient medical stabilization
- Residential

**Family Based Therapy**
- Focus is not on etiology
- Caregivers are not blamed; empowered to re-feed their child
- Disorder is externalized from the child to decrease blame

See Supplemental Handout #4

Campbell K and Peebles R, 2014
Transition to Adult Care

• Young adults, especially those with a chronic illness are a high risk group

• Transition is a *gradual process* of empowerment that equips young people with the skills and knowledge necessary to manage their own healthcare in both pediatric and adult systems

• Effective transition has been shown to improve long-terms outcomes and to improve the young adult’s experience

Nagra A, 2015
Transition Opportunities for the PCP**

• **View transition as a skills-building process**
  - Assign children age-appropriate skills to practice (~age 7)
  - Assign teens progressive autonomy-building tasks

• **Support the development of self-advocacy**

• **View transition holistically** – provide healthy lifestyle, sexual health, pregnancy, education/vocational resources

• **Identify psychosocial problems and barriers to transition**

Nagra A, 2015
Practice Considerations

• Remember that adolescents develop physically, emotionally and cognitively at **very different rates**

• Actively identify teens with **low self-esteem** and screen them for complications

• Be active in helping your teen patients navigate the treacherous road of **teen pregnancy and violence**

• **Actively screen** for Eating Disorders in children & adolescents (of any weight) who have risk factors and/or unexplained weight loss

• View transition as a **gradual process of empowerment** and skill building and start working towards transition at an early age


References


DSM-V Criteria of Eating Disorders**

Anorexia Nervosa
- Persistent restriction of intake leading to lower than expected wt
- ED cognitions are now equivalent to ED behaviors: Having an intense fear of gaining weight or of becoming fat - or - Engaging in persistent behaviors that interfere with weight gain
- Having body image distortion and self-evaluation that is unduly influenced by body shape and weight - or - Refusal to recognize the seriousness of low body weight

Bulimia Nervosa
- Recurrent episodes of binge eating (binge is defined as eating an amount of food that is definitely larger than most people would eat during a discrete period of time)
- A sense of lack of control over eating during the binge
- Recurrent inappropriate compensatory behaviors to lose weight (e.g. such as self-induced vomiting, misuse of laxatives, diuretics, or other medications, fasting, or excessive exercise)
- Binging and purging behaviors occur ≥1x/week for >3 months
- Self-evaluation is unduly influenced by body shape and weight

Differential Diagnosis of EDs

Endocrine disorders
- Thyroid (hyper- or hypo-)
- Diabetes mellitus
- Adrenal insufficiency

Gastrointestinal disorders
- IBD
- Celiac disease
- Infectious diarrhea
- Functional Gastrointestinal Disorders (especially Gastroparesis)

Psychiatric disorders
- Depression
- OCD / Anxiety
- Substance use disorders

Others
- Superior Mesenteric Artery (SMA) Syndrome
- Autoimmune conditions
- Rare: CNS tumors; Malignancy; Mitochondrial disorders; Wilson’s disease; Porphyria
AAP Criteria for Inpatient Hospitalization in Eating Disorders

Anorexia Nervosa
- Bradycardia: HR < 50 bpm during the day; <45 bpm at night
- Hypotension: systolic BP < 90 mmHg
- Orthostatic changes in HR (>20 beats/minute) or BP (>10 mm Hg in systolic or diastolic)
- Hypothermia: Temperature < 96°F
- Arrhythmia
- < 75% Ideal Body Weight (IBW) - or - ongoing weight loss despite intensive outpatient management
- Body fat < 10%
- Refusal to eat
- Failure to respond to outpatient treatment

Bulimia Nervosa
- Syncope
- Hypothermia: Temperature < 96°F
- Arrhythmia, including prolonged QTc
- Serum potassium < 3.2 mmol/L
- Serum chloride < 88 mmol/L
- Esophageal tears
- Hematemesis
- Intractable vomiting
- Failure to respond to outpatient treatment

REFERENCE: