Attention-Deficit/Hyperactivity Disorder (ADHD)

Attention-Deficit/Hyperactivity Disorder

- Symptoms: age-inappropriate inattention, hyperactivity, and impulsivity
- No distinct physical signs: Identified through characteristic patterns of behavior
- Patterns may vary among children
- Associated problems:
  - Social,
  - Cognitive,
  - Academic,
  - Familial, and
  - Emotional domains of development and adjustment

Types

- Primarily Inattentive
- Primarily Hyperactive
- Mixed

Core Characteristics

- Inattention
  - Inability to sustain attention, particularly for repetitive, structured, and less enjoyable tasks
  - Inattentive behaviors may include:
    - easily distracted
    - often seems as if child not listening
    - disorganization, forgetfulness
    - failure to finish assignments
    - frequent change in activities
    - difficulty persisting even when child wants to

Core Characteristics (cont.)

- Inattention
  - need to specify kind of attention deficit: may be problems in attentional capacity, selective attention (distractibility), and/or sustained attention
  - primary deficit in ADHD is sustained attention

Core Characteristics (cont.)

- Hyperactivity-Impulsivity
  - hyperactivity and impulsivity may be thought of as a single dimension and/or as part of a more fundamental deficit in behavioral inhibition
  - hyperactive-impulsive behavior is excessively energetic, intense, inappropriate, and not goal-directed
  - children with ADHD show more motor activity than other children, especially in the classroom when asked to sit
  - can display cognitive impulsivity, behavioral impulsivity, or both

Core Characteristics (cont.)

- Hyperactivity-Impulsivity (cont.)
  - hyperactive behaviors include:
    - fidgeting, difficulty staying seated when required
    - moving, running, climbing about
    - excessive talking
    - appearing as if "driven by a motor"
  - impulsive behaviors include:
    - difficulty stopping on-going behavior
    - inability to resist immediate gratification
    - difficulty waiting for turn, interrupting others

Insufficient Attention?

- No
- **REGULATION**
- Foreground-background shifts
- Problem is NOT "not enough attention"
- But attention that is poorly regulated or controlled

DSM-IV Subtypes

- Predominantly Inattentive Type
  - less common, may be co-morbid with learning disorders, slow processing speed, difficulties with information retrieval, and anxiety/mood disorders
  - Diagnosed later
  - Onset v. Recognition???
- Predominantly Hyperactive-Impulsive Type
- Combined Type
  - associated with aggressiveness, defiance, peer rejection, school problems

Additional Diagnostic Criteria

- Excessive, long-term, persistent behaviors (at least 6 mos)
- Behaviors appear prior to age 7
- Age-inappropriate
- Behaviors occur in several settings
- Impairments in at least 2 settings
- Behaviors not due to another disorder or serious life stressor (e.g., PTSD, Developmental Trauma Disorder)

Limitations of DSM Criteria

- Developmentally Insensitive
- Categorical view of ADHD
- Requirement of an onset before age 7 uncertain
- Requirement of persistence for 6 months may be too brief for young children

Associated Characteristics

- Cognitive Deficits
  - deficits in executive functions
  - difficulties in applying intelligence (although usually have normal intelligence)
  - academic delays
  - learning disorders, especially in reading, spelling, math
  - distorted self-perceptions
- Speech and Language Impairments

Associated Characteristics (cont.)

- Medical and Physical Concerns
  - sleep disturbances common
  - associated with accident-proneness and risky behaviors
- Social Problems
  - family problems, including negative interactions, child noncompliance, high parental control, maternal depression, paternal antisocial behavior, marital conflict
  - problems with peers
- Associated with ODD, CD, anxiety disorders, mood disorders

Prevalence

- 3% - 5% of all school age children
- More common in boys (3 times more likely)
  - Referral differences for girls versus boys
  - DSM criteria may be more appropriate for boys
  - Gender differences in community versus clinic samples
- Slightly more prevalent among lower SES groups
- Found in all countries & cultures; rates vary

Developmental Course

- Likely ADHD present at birth, difficult to identify
- Hyperactivity-impulsivity usually appears first
- Onset often in preschool years; diagnosis lags
- Deficits in attention more apparent as school demands increase
- In early school years oppositional and socially aggressive behaviors often develop

- Most children still have ADHD as teens
- Often continues into adulthood

- Clinically referred children: adolescence
  - 60-80% continue

- Adolescents with ADHD→adulthood:
  - 30% outgrow
  - 40% continue
  - 30% additional problems

- 100 children→70 adolescents →49 adults

Interrelated Theories of ADHD

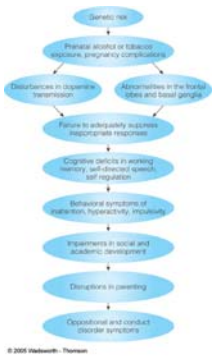
- Motivation Deficits
  - diminished sensitivity to rewards and punishment, resulting in deterioration of performance when rewards infrequent
- Deficits in Arousal Level
  - low arousal, resulting in excessive self-stimulation (hyperactivity) in order to maintain an optimal level of arousal

Theories of ADHD (cont.)

- Deficits in Self-regulation
  - inability to use thought and language to direct behavior, resulting in impulsivity, poor maintenance of effort, deficient modulation of arousal level, and attraction to immediate rewards
- Deficits in Behavioral Inhibition
  - inability to control behavior, which is the basis for the many cognitive, language, and motor difficulties associated with ADHD

BARKLEY: Behavioral Inhibition deficits

- Nonverbal working memory
- Internal speech
  - Working memory
  - Self instruction
  - Self control
- Affect regulation
- Reconstitution: Analysis, synthesis, creativity
  - Strategizing & Planning
- Motor control and fluency



M&W.

Theories and Causes

- Genetics:
  - ADHD runs in families
  - adoption and twin studies indicate a strong hereditary basis for ADHD
  - the dopamine transporter gene (DAT) and the dopamine receptor gene (DRD4) appear to be implicated

Mash & Wodfr; Kerig & Wenar

Causes of ADHD (cont.)

- Pregnancy, Birth, and Early Development
  - None *specific* to ADHD- however, pregnancy and birth complications, low birth weight, malnutrition, early neurological trauma, and diseases of infancy may be *related* to later symptoms of ADHD
  - Maternal substance abuse associated with ADHD
  - TV correlation:
    - More TV→more ADHD risk

Mash & Wodfr; Kerig & Wenar

Causes of ADHD (cont.)

- Neurobiological Factors
  - Believed to be largely a neurobiological disorder
  - consistent support for the implication of the frontostriatal circuitry (prefrontal cortex and basal ganglia)
  - smaller cerebral volumes & smaller cerebellum
  - neurotransmitters involved include dopamine, norepinephrine, epinephrine, and serotonin
- Diet, Allergy, and Lead
  - no empirical support as singular causes of ADHD in humans
  - Hi Lead conclusively linked to attentional problems

Mash & Wodfr; Kerig & Wenar

Causes of ADHD (cont.)

- Family Influences
  - no clear causal relationship
  - Chicken-egg
  - Hypervigilance in maltreatment may compromise developing attentional capacities

Treatment: Pharmacologic

- Medication
  - Stimulant medications most effective treatment for management of symptoms and associated impairments
  - Most common ones used are dextroamphetamine and methylphenidate
  - Mechanism: alter activity in the frontostriatal brain region by affecting important neurotransmitters
  - Individualized protocols
- Medicating individuals without ADHD?
- Limitations

Treatment: Psychosocial

- Educational Intervention
  - focus on managing behaviors that interfere with learning, providing classroom environment that capitalizes on child's strengths and improves academic performance
- Parent Management Training (PMT)
  - provides parents with skills to help manage child's behavior, reduce parent-child conflict, and cope with difficulties of raising a child with ADHD

Treatment

- Intensive Interventions
  - combines medications, PMT, educational interventions, and additional treatments
- Additional Interventions
  - family counseling, support groups, individual counseling

Effectiveness: MTA Study

Multimodal Treatment Cooperative Groups
- 1999 Consortium across sites
- 579 children
- Age 7–9.9

Combined treatment:
Pharmacologic & Psychosocial Intervention
Greatest gains

See KW, Fig 7.4, p. 201