Chapter 2
An Integrative Approach to Psychopathology

One-Dimensional vs. Multidimensional Models

- One-Dimensional Models
  - Could mean a paradigm, school, or conceptual approach
  - Could mean an emphasis on a specific cause of abnormal behavior
- Multidimensional Models
  - Interdisciplinary, eclectic, and integrative
  - “System” of influences that cause and maintain suffering
  - Draws upon information from several sources
  - View abnormal behavior as multiply determined
  - Examples: Diathesis->Stress; Biopsychosocial

Multidimensional Models of Abnormal Behavior

Genetic Contributions to Psychopathology

- Development and behavior is often polygenic
- Genetic Contribution to Psychopathology less than 50%
- The Diathesis-Stress Model
  - Examples include blood-injury-injection phobia and alcoholism
- Reciprocal Gene-Environment Model
  - Examples include depression and impulsivity

Neuroscience Contributions to Psychopathology

- The Field of Neuroscience
  - The role of the nervous system in disease and behavior
- The Central Nervous System (CNS)
  - Brain and spinal cord
- The Peripheral Nervous System (PNS)
  - Somatic and autonomic branches
Neuroscience Contributions to Psychopathology (cont.)

Neuroscience and the Central Nervous System

- The Neuron
  - Soma – Cell body
  - Dendrites – Branches that receive messages from other neurons
  - Axon – Trunk of neuron that sends messages to other neurons
  - Axon terminals – Buds at end of axon from which chemical messages are sent
  - Synapses – Small gaps that separate neurons
- Neurons Function Electrically, but Communicate Chemically
  - Neurotransmitters are the chemical messengers
Neuroscience and Major Neurotransmitters in Psychopathology

- Norepinephrine (or noradrenaline)
- Serotonin
- Dopamine
- Gamma Aminobutyric Acid (GABA)

Overview: Neuroscience and Brain Structure

- Two Main Parts
  - Brainstem and forebrain
- Three Main Divisions
  - Hindbrain
  - Midbrain
  - Forebrain
Neuroscience and the Divisions of the Brain

- Hindbrain
  - Medulla – Heart rate, blood pressure, respiration
  - Pons – Regulates sleep stages
  - Cerebellum – Involved in physical coordination
- Midbrain
  - Coordinates movement with sensory input
  - Contains parts of the reticular activating system (RAS)
- Forebrain (Cerebral Cortex)
  - Location of most sensory, emotional, and cognitive processing
  - Two specialized hemispheres (left and right) joined by the corpus callosum

Neuroscience and the Divisions of the Brain (cont.)

Neuroscience and the Brain Structure

- Lobes of Cerebral Cortex
  - Frontal – Thinking and reasoning abilities, memory
  - Parietal – Touch recognition
  - Occipital – Integrates visual input
  - Temporal – Recognition of sights and sounds and long-term memory storage
- Limbic System
  - Thalamus – Receives and integrates sensory information
  - Hypothalamus – Controls eating, drinking, aggression, sexual activity
Neuroscience and the Brain Structure (cont.)

Figure 2.6c
The limbic system

Neuroscience and the Brain Structure (cont.)

Figure 2.7
Major subdivisions of the human cerebral cortex and a few of their primary functions
Neuroscience: Peripheral Nervous and Endocrine Systems

- Somatic Branch of PNS
  - Controls voluntary muscles and movement
- Autonomic Branch of the PNS
  - Sympathetic and parasympathetic branches of the ANS
  - Regulates cardiovascular system & body temperature
  - Also regulates the endocrine system and aids in digestion
- The Endocrine System
  - Hormones
- The Hypothalamic-Pituitary-Adrenocortical Axis (HYPAC axis)
  - Integration of endocrine and nervous system function

Neuroscience: Functions of Main Types of Neurotransmitters

- Functions of Psychoactive Drugs
  - Agonists - increase activity of neurotransmitter by mimicking its effects
  - Antagonists – decrease/block neurotransmitter
  - Inverse agonists – produce effects opposite of the neurotransmitter
  - Most drugs are either agnostic or antagonistic
- Main Types and Functions of Neurotransmitters
  - Serotonin (5HT): Redux, Prozec (SSRI)
  - Gamma aminobutyric acid (GABA): benzodiazepines reduce post-synaptic activity by enhancing GABA effects; reduce anxiety
  - Norepinephrine: beta blockers reduce activity in response to increased levels of norepinephrine; reduces blood pressure
  - Dopamine and L-Dopa
Neuroscience: Functions of Main Types of Neurotransmitters (cont.)

**Implications of Neuroscience for Psychopathology**

- Relations Between Brain and Abnormal Behavior
  - Examples include schizophrenia and attention deficit disorder
- Experience Can Change Brain Structure and Function
- Therapy Can Change Brain Structure and Function
  - Medications and psychotherapy

**The Contributions of Behavioral and Cognitive Science**

- Conditioning and Cognitive Processes
  - Learning: Classical and operant conditioning
  - Learned helplessness
  - Modeling and vicarious learning
  - Prepared learning
- Cognitive Science and the Unconscious
- Cognitive-Behavioral Therapy

**The Role of Emotion in Psychopathology**

- The Nature of E-Motion
  - To e-licit or e-voke motion
• Action tendency different from affect and mood
• Intimately tied with several forms of psychopathology
• Components of Emotion
  • Behavior, physiology, and cognition
  • Example of fear
• Harmful Side of Emotional Dysregulation
  • Anger, hostility, emotional suppression, illness, and psychopathology

The Role of Emotion in Psychopathology (cont.)

![Venn Diagram]

- **Emotion and Behavior**
  - Basic patterns of emotional behavior (freeze, escape, approach, attack) that differ in fundamental ways.
  - Emotional behavior is a means of communication.

- **Cognitive Aspects of Emotion**
  - Appraisals, attributions, and other ways of processing the world around you that are fundamental to emotional experience.

- **Physiology of Emotion**
  - Emotion is a brain function involving (generally) the more primitive brain areas.
  - Direct connection between these areas and the eyes may allow emotional processing to bypass the influence of higher cognitive processes.

**Figure 2.15**
Emotion has three important and overlapping components: behavior, cognition, and physiology

**Cultural, Social, and Interpersonal Factors in Psychopathology**

• Cultural Factors
  - Influence the form and expression of normal and abnormal behavior
• Gender Effects
  - Exerts a strong and puzzling effect on psychopathology
• Social Relationships
  - Frequency and quality related to mortality, disease, and psychopathology
  - Interpersonal Psychotherapy
• Stigma of Psychopathology Is Culturally, Socially, and Interpersonally Situated
Life-Span and Developmental Influences Over Psychopathology

- Life-Span Developmental Perspective
  - Addresses developmental changes
  - Such changes influence and constrain what is normal and abnormal
- The Principle of Equifinality
  - Concept in developmental psychopathology
  - Several paths to a given outcome
  - Paths may operate differentially at different developmental stages

Summary of the Multidimensional Perspective of Psychopathology

- Multiple Causation
  - Is the rule, not the exception in explaining normal and abnormal behavior
- Take a Broad, Comprehensive, Systemic Perspective
  - Addressing biological, psychological, social, cultural, and developmental factors
- Useful in Understanding the Causes of Psychopathology and its Alleviation

Discussion Group 2 - Questions

- Describe the process/mechanism of transmission from one neuron to another.
- Provide an example of how a specific function (e.g., executive attention) has been localized within the Central Nervous System (CNS).
- How would you describe the relationship between emotion and psychopathology?