Psychopathology
Integrated Approaches

What you should know when you finish studying Chapter 2 (Bio-psycho-social models)

1. Multidimensional vs. unidimensional models of causality
2. Main influences in most multidimensional approaches
3. How genes interact with environment to affect behavior
4. Function of neurotransmitters and their role in psychopathology (continued)
Psychopathology
Integrated Approaches

What you should know when you finish studying Chapter 2 (continued)

5. Functions of brain regions and their role in psychopathology
6. Behavioral theories of psychopathology
7. Cognitive-behavioral theories (or SLT)
8. Emotional influence on psychopathology
9. Cultural/Social influences
Multidimensional vs. unidimensional models of causality

Illustration:
1. Ulcers are caused by stress.
Multidimensional vs. unidimensional models of causality

Illustration:
1. Ulcers are caused by stress.
2. Ulcers are caused by bacteria.
Multidimensional vs. unidimensional models of causality

Illustration:
1. Ulcers are caused by stress.
2. Ulcers are caused by bacteria.
3. Ulcers are caused by stress AND bacteria.
Multidimensional vs. unidimensional models of causality

Illustration:

1. Ulcers are caused by stress.
2. Ulcers are caused by bacteria.
3. Ulcers are caused by stress AND bacteria
4. Ulcers are caused by stress AND bacteria AND a predisposition to
   a. feel stress acutely
   b. develop stomach problems
Main influences in most multidimensional approaches

- Genetic and developmental influences
- Brain functioning (including structures and neurotransmitter/endocrine functioning)
- Behavioral principles
- Cognitive-behavioral principles
- Emotional influences
- Family structure and functioning
- Cultural and social factors
How genes interact with environment to affect behavior

- Genes are long molecules of DNA that we inherit from our biological parents.
- They are located at sites on the chromosomes (23 pairs in humans) within cell nuclei.
- We can inherit a defective gene or they can be damaged early in development.
- Dominant and recessive genes.
How genes interact with environment to affect behavior

- Most genes act in concert (polygenic), extremely rare single gene determinant. (Huntington’s)
- Stage of development of the person also affects genetic expression (Cogan’s)
- Controversy: Do genes determine behavior? e.g. substance use disorder
- Eric Kandel: reciprocal modification by the environment may change genetic structure
How genes interact with environment to affect behavior

• Three current models
  – Diathesis-stress
  – Reciprocal gene-environment model
e.g. hyperactivity, depression
  – Non-geonomic “inheritance”
e.g. substance abuse again
Function of neurotransmitters and their role in psychopathology

- Neuroscience: broad field with some incredible advances in last decade.
- Mechanism: How does it work?
- Structure and function
- Neurons—single cells
- Dendrites through cell body to axon
- Synapse
FIGURE 3.7 Axon transport. Chemicals travel from the cell body to the terminals. It is believed that they move along the axon in microtubules that fill the axon.
Function of neurotransmitters and their role in psychopathology

Neurotransmitters are the “messengers”
More than 50 known (plus variations)
Different systems,
Differing sensitivity of receptors
Speed and type of reuptake
Norepinephrine, serotonin, dopamine, GABA
Endocrine system as well (hormones)
Functions of brain regions and their role in psychopathology

- Brain structures—bundles of similar neurons (axons) form structures
- Hindbrain—primitive functions (e.g. heart rate)
- Midbrain—arousal, waking, sleeping
- Cerebellum—balance, motor coordination
- Diencephalon—thalamus & hypothalamus
  - Sensory and emotion information
- Telencephalon—Limbic system
  - Emotion. Impulse, sex, aggression
Functions of brain regions and their role in psychopathology

- Cerebral Cortex
- Occipital lobes (vision)
- Parietal lobes (sensory recognition)
- Temporal lobes (Sensory and LT memory)
- Frontal lobes (Higher functions)
  - Thinking
  - Reasoning
  - Impulse control
Functions of brain regions and their role in psychopathology

- Psychosurgery?
- Frontal lobotomy
- Surgeries to prevent seizures etc.
- Still in primitive stages
- Drugs?
- Change brain responses
- Unknown, unwanted, “side” effects
- Can behavioral changes change function and structure?
Behavioral theories of psychopathology

• Classical and operant conditioning principles believed to facilitate learning of relationships between behavior and environment

• Reflexes are learned in the presence of various stimuli (Conditioned responses)

Examples?
Behavioral theories of psychopathology

- Reflexes are modified, strengthened (or weakened), refined through consequences
- Operant conditioning
- Reinforcement, negative reinforcement, punishment, response cost
- Shaping (successive approximations)
- Chaining
- Examples?
Behavioral theories of psychopathology

- Behaving like this keeps me from experiencing negative consequences
- Behaving like this gives me positive consequences (even if it is only in the short run)
- Prepared learning e.g. snakes
- Learned Helplessness “I can do nothing to control the environment”
Cognitive-behavioral theories (or Social Learning Theory)

- Observational learning (modeling)
- Reciprocal Determinism “The environment works on me; I can work on the environment to better suit my needs”
- Instructional learning
- Unconsciousness and implicit memory
Emotional influences on psychopathology

- Fear and “fight or flight”
- Anger
- Sexual attraction and impulses
- Often leads to action without thought
- Poor impulse control
- Affect, Mood disorders and Temperament
Cultural/Social influences on psychopathology

- Family modeling, “messages” and expectations
- Cultural expectations
- Age-related, gender-related expectations
- Social relationships may be associated with good or poor psychological health (e.g. social support for what?)
- Homelessness example
Summary of Chapter 2

• Multidimensional models and theories
• Genetic influences
• Structural and functional influences (neurons, neurotransmitters, brain structures, endocrine system)
• Behavioral principles
• Cognitive and emotional components
• Social/cultural influences