

Chapter 2 – An Integrative Approach to Psychopathology

Genetic Contributions to Psychopathology

•The Nature of Genes

DNA (deoxyribonucleic acid)

Huntington's disease, PKU

- Defective gene
- Dominant gene
- Recessive gene
- Polygenic
- Quantitative genetics

New Developments in the Study of Genes & Behavior

The Interaction of Genetic & Environmental Effects

Eric Kandel (1983)

The Diathesis–Stress Model

The Reciprocal Gene–Environment Model

Nongenomic “inheritance” of Behavior

Tienari et al. (1994)

Neuroscience and its Contributions to Psychopathology

- Central Nervous System (CNS)

Neurons

- Dendrites
- Axons
- Synaptic cleft

Neurotransmitters

- Reuptake
- Agonists
- Antagonists
- Inverse agonists

Serotonin

5-Hydroxytryptamine (5HT)

- Tricyclic antidepressants (e.g., imipramine - Tofranil)
- Fen/Phen
- Serotonin Specific Reuptake Inhibitors (SSRIs) (e.g., fluoxetine (Prozac))

Gamma Aminobutyric Acid (GABA)

- Benzodiazepines

Norepinephrine

- aka Noradrenaline
- Catecholamine
- Alpha- and beta-adrenergic receptors

Dopamine

- locomotor system
- Parkinson's disease
 - L-dopa

Structure of the Brain

- Brain stem
 - Hindbrain
 - Medulla
 - Pons
 - Cerebellum
 - Midbrain
 - Reticular Activating System (RAS)
 - Thalamus & hypothalamus

The Forebrain (Cerebrum)

- Limbic system
 - Hippocampus (sea horse)
 - Cingulate gyrus (girdle)
 - Septum (partition)
 - Amygdala (almond)
- Basal ganglia
 - caudate (tailed) nucleus
- Cerebral cortex

Cerebral Cortex

- Lateral organization: Divided into 2 hemispheres
 - Functional specialization of the hemispheres
- Longitudinal organization of the cerebral cortex
 - Temporal
 - Parietal
 - Occipital
 - Frontal lobe

Peripheral Nervous System

- Somatic nervous system
- Autonomic Nervous System (ANS)
 - cardiovascular system (e.g., heart & blood vessels)
 - endocrine system
 - Adrenal glands — epinephrine (adrenaline)
 - Thyroid gland — thyroxine
 - Pituitary gland
 - Gonadal glands — estrogen & testosterone

Autonomic Nervous System (ANS)

- Sympathetic Nervous System (SNS)
- Parasympathetic nervous system (PNS)

Hypothalamic–pituitary–adrenalcortical (HPA) axis

Psychosocial influences on brain structure & function

Other important factors influencing psychopathology

2 effective approaches for treating psychopathology

- Cognitive–Behavioral Therapy
 - Aaron Beck (1976)
 - Albert Ellis (1962)
- Interpersonal Therapy (IPT)
 - Myrna Weissman & Gerald Klerman
 - Harry Stack Sullivan