Mental Disorders

- Major mental disorders are caused by disorders of brain structure and function
  - Schizophrenia, Major Depressive Disorder, Bipolar Disorder
- Cause abnormalities of cognition, feeling, and behavior
- Anatomical and physiological abnormalities are major causative factors
- Respond best to holistic approach

Improving Outcomes

- Active involvement of client
- Psychotropic medications
- Trusting therapeutic relationship
- Cognitive and behavioral therapies
The Diagnostic and Statistical Manual of Mental Disorders

- Diagnostic criteria
- Describes specific behavioral, mood, and cognitive signs and symptoms for each disorder

Table 7-1  Brian Anatomy and Function (Continued)
Neurotransmitters

- Chemical messengers
- Conduct impulses from one neuron to the next
- Must occur for brain to perform normally
- Building materials come from food
  - Adequate nutritional intake required for normal brain functioning
- Manufactured in the neuron and released from the axon into the synapse
- Stimulates the dendrite and conducts impulse toward cell body

### Table 3.1

<table>
<thead>
<tr>
<th>Brain Structure</th>
<th>Function</th>
<th>Implications for Mental Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefrontal Cortex</td>
<td>Conducts executive function, regulates emotions, controls memory, and regulates behavior.</td>
<td>Impaired executive function, emotional dysregulation, memory impairment, and behavioral disturbances.</td>
</tr>
<tr>
<td>Amygdala</td>
<td>Regulates fear and emotional responses.</td>
<td>Impaired emotional responses, anxiety, and fear.</td>
</tr>
<tr>
<td>Hippocampus</td>
<td>Plays a role in spatial navigation and the consolidation of memories.</td>
<td>Impaired spatial navigation and memory consolidation.</td>
</tr>
<tr>
<td>Basal Ganglia</td>
<td>Regulates voluntary motor movements and is involved in the coordination of muscle activity.</td>
<td>Impaired motor function, including tremors, bradykinesia, and rigidity.</td>
</tr>
</tbody>
</table>

### Table 3.2

<table>
<thead>
<tr>
<th>Neurotransmitter</th>
<th>Type</th>
<th>Physiological Effects</th>
<th>Relationship to Mental Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dopamine</td>
<td>Transmitter</td>
<td>Affects mood, movement, and cognition</td>
<td>Depression, Parkinson's disease, and schizophrenia.</td>
</tr>
<tr>
<td>Serotonin</td>
<td>Neuronal</td>
<td>Regulates mood, appetite, and sleep</td>
<td>Major depressive disorder, anxiety disorders, and schizophrenia.</td>
</tr>
<tr>
<td>GABA</td>
<td>Neurotransmitter</td>
<td>Inhibitory neurotransmitter</td>
<td>Anxiety disorders, alcohol withdrawal symptoms, and schizophrenia.</td>
</tr>
<tr>
<td>Acetylcholine</td>
<td>Neurotransmitter</td>
<td>Involved in memory and learning</td>
<td>Dementia, Alzheimer's disease, and Parkinson's disease.</td>
</tr>
</tbody>
</table>

**Note:** Levels of neurotransmitters can be altered in various mental disorders, affecting mood, behavior, and cognitive function.
Figure 7-3. Neurotransmission. First inset shows axon-dendrite interface. Second inset illustrates neurotransmission step-by-step.

Receptor Sites

- Neurotransmitter must fit into specific receptor site on surface of dendrite
- Stimulation of site opens ion channel into dendrite
  - Allows for interchange of ions changing the electrical charge

Receptor Sites

- Electrical impulse passes from one neuron to the next
  - Neurotransmitter either excites or inhibits next neuron
  - Neurotransmitter may be stored for later use or inactivated and metabolized, often by enzyme monoamine oxidase
### Brain Imaging
- Study brain structure and function
- Structural and functional brain abnormalities associated with some mental disorders
- Includes CT scan, MRI, PET, and SPECT

### Genetics of Mental Illness
- Genetic component to major mental illnesses
- Several genes may be necessary to cause psychiatric disorders
- Genetic counseling based on statistical risks
- Identification of specific genes that reliably increase risk for mental illness

### Neuroendocrine System
- Interaction between nervous system and endocrine system
- Hormones that react to stimulation from nerve cells
- Abnormalities in brain function cause abnormalities in hormone and neurotransmitter levels, which then cause abnormalities in thinking, feeling, and behavior
- Drugs to treat mental disorders affect level of neurotransmitters
### Psychopharmacology

- Improve or stabilize mood, normalize thinking, reduce anxiety, or allow for sleep
- Critical part of effective treatment
- Do not “cure” but help to stabilize the disorder

### Client’s Best Outcomes

- Understand their disease process and treatment plan
- Active, participative role in treatment
- Social support system
- Safe and healthy place to live where basic needs met
Client’s Best Outcomes

- Healthy coping and problem-solving skills
- Appropriate psychotropic medications
- Therapeutic relationship with healthcare providers

Pharmacokinetics

- Absorption
- Distribution
- Metabolism
- Excretion

Pharmacodynamics

- How the drug interacts with the target cells in the body
- Agonists or antagonists
- Desired effect
- Side effects
- Adverse effects
- Toxic effects
**Phases Of Medication Treatment**

- **Stabilization phase**
  - Assess client’s symptoms and response to drug
  - Obtain lab tests, observe for adverse effects
  - Educate client

- **Maintenance phase**
  - Ongoing assessment of drug effects
  - Assess for long-term side effects
  - Continue client education
  - Medication management at home
  - Treating side effects
  - Importance of continuing therapy when symptoms improve

**Target Symptoms**

- Specific symptoms medications are expected to treat
- Linking the drug to the disease instead of target symptoms may result in inaccurate evaluation of drug’s effectiveness

**Nursing Care - Assessing**

- Objective and subjective findings from the client
- Family involvement, with client permission
- Monitor client for side effects
Nursing Issues Related To Psychotropic Drug Therapy

- Safe medication administration
- Client empowerment through knowledge
- Client compliance with treatment
- Client advocacy
- Documentation
- Keeping current with drug knowledge

Nursing Diagnoses

- Deficient Knowledge, Medication Management
- Ineffective Therapeutic Regimen Management

Desired Outcomes

- Client will be able to state name of mental disorder by discharge
- Client will list medications taken before discharge
- Client will state basic target effects of medications before discharge
**Desired Outcomes**

- List possible side effects and when to notify physician and whether to continue medications before discharge
- Express feelings about medications
- List resources for help or information

**Client Empowerment**

- Knowledge
- Ability to communicate needs
- Participate in treatment plan
- Support needed to reach treatment goals

**Deficient Knowledge, Medication Management**

- Determine current knowledge level
- Teach expected effects and side effects
- Use clear simple terms
- Reinforce with printed information
- Encourage questions
- Provide several learning opportunities
- Teach when client can concentrate and cooperate
Ineffective Therapeutic Regimen Management

- Ask how they take medications at home
- Teach skills needed to follow treatment plan
- Help to develop personalized medication plan
- Discuss problem-solving issues

Evaluating

- Evaluate outcome related to drug therapy
- Document response to drug therapy
- Careful teaching if peak effects not reached by discharge
- In long-term care, evaluate
  - Extent of target effects achieved
  - Presence of side effects and adverse effects
  - Toxicity

Discharge Considerations

- Resources to call for problem solving
  - Outpatient appointments
  - Phone numbers for pharmacy, emergency advice, physicians, Alliance for the Mentally Ill
- Emphasize need to take medications regularly for extended period of time
  - Do not discontinue when they feel better
- Expected side effects and how to relieve them
Resources

- Harvard Medical School – A website with links describing a normal brain and different types of diseased brains.
- Principles of Psychobiology – A website that provides an interactive study guide for the allied neurosciences.
- Baltimore psych – A website that discusses medications used for psychopharmacology.