Chapter 7
Physical Disorders and Health Psychology

Psychological and Social Factors that Influence Health

- Psychological, Behavioral, and Social Factors
  - Are major contributors to medical illness and disease
  - Examples include genital herpes, AIDS, cancer, cardiovascular diseases

- DSM-IV and Physical Disorders
  - Coded on Axis III
  - Recognize that psychological factors can affect medical conditions

- Psychological Approaches to Health and Disease
  - Behavioral medicine – Prevention, diagnosis, treatment of medical illness
  - Health psychology – Psychological factors involved in the promotion of health

How Do Psychological and Social Factors Influence Medical Illness?

- Two Primary Paths
  - Psychological factors can influence basic biological processes
  - Long-standing behavior patterns may put people at risk for disease
  - AIDS is an example of both forms of influence

- 50% of the Leading Causes of Death in the U.S. Are Linked to Behavior Patterns

Psychosocial factors directly affect physical health

Figure 7.1
Overview of Stress and the Stress Response

• Nature of Stress
  – Stress – Physiological response of an individual to a stressor
  – Stress responses vary from person to person

• The Stress Response and the General Adaptation Syndrome
  – Phase 1 – Alarm response (sympathetic nervous system arousal)
  – Phase 2 – State of resistance (mobilized coping and action)
  – Phase 3 – State of exhaustion (chronic stress, permanent damage)

Physiology of Stress

• The Biology of Stress
  – Stress activates the sympathetic branch of the ANS
  – Stress activates the HPA axis, producing cortisol
  – The relation between the hippocampus and HPA activation

• The Function of the Hippocampus in HPA-Stress Response Cycle
  – Hippocampus – Part of the limbic system and highly responsive to cortisol
  – Hippocampus helps to turn off the HPA cycle
  – Chronic stress may damage cells in the hippocampus
  – Damage to hippocampal cells interferes with stopping the HPA loop

Psychological and Social Factors: Their Relation to Stress Physiology

• Primate Research: High and Low Social Status
  – High cortisol is associated with low social status
  – Low social status is associated with fewer lymphocytes and immune suppression
  – Dominant males benefit from predictability and controllability

• Vulnerabilities Operative in Mental Illness Contribute to Physical Illness
  – Stress, perceived uncontrollability, low social support, negative affect

• Interpretation of Physiological Response and Situation Seems Critical

Responses to threats and challenges range on a continuum from depression to excitement

Figure 7.2
Stress and the Immune System

- Divisions of the Immune System
  - Humoral branch – Blood and other bodily fluids
  - Cellular branch – Protects against viral and parasitic infections

- Function of the Immune System
  - Identify and eliminate antigens (i.e., foreign materials) from the body
  - Leukocytes are the primary agents

Stress and the Immune System (cont.)

- Leukocytes: Subtypes and Functions
  - Macrophages – Body’s first line of defense, surround and destroy antigens, signal lymphocytes
  - Lymphocytes – B cells (humoral branch) and T cells (cellular branch)
  - B cells produce antibodies that neutralize antigens
  - Memory B cells that are stored for the next encounter with the antigens

Stress and the Immune System (cont.)

- T cells
  - Killer T cells directly destroy antigens
  - Helper T cells (T4) signal B cells to produce antibodies and the other T cells to attack
    - Can be overactive leading to autoimmune diseases (rheumatoid arthritis)
  - Suppressor T cells stop production of antibodies when not needed
  - Memory T cells

- Stress Dramatically and Quickly Alters Immune Function

An overview of the immune system

![Diagram of the immune system](image-url)
Pathways through which psychological factors might influence onset and progression of immune system-mediated disease

![Diagram showing psychological factors influencing disease progression]

**Figure 7.4**  

**Acquired Immunodeficiency Virus (AIDS)**

- **Nature of AIDS**
  - Course from HIV to full-blown AIDS is variable
  - Median time from initial infection to full-blown AIDS is 7.3 to 10 years or more
  - AIDS is diagnosed when several serious diseases (e.g., pneumonia, cancer, dementia, etc.) appear
  - Stress of getting an AIDS diagnosis can be devastating

- **Role of Stress Reduction Programs**
  - Higher stress and low social support speed progression of disease
  - Reduce stress of diagnosis, improve immune system functioning

- **AIDS is Influenced by Psychological, Behavioral, and Social Factors**

**Cancer: Psychological and Social Influences**

- **Field of Psychoncology**
  - Study of psychological factors and their relation to cancer

- **Psychological and Behavioral Contributions to Cancer**
  - Perceived lack of control
  - Inadequate or inappropriate coping responses (e.g., denial)
  - Overwhelming stressful life events
  - Life-style risk behaviors
  - Psychological factors also are involved in chemotherapy

- **Cancer is Influenced by Psychological, Behavioral, and Social Factors**

**Cardiovascular Problems: Hypertension**

- **Cardiovascular System: An Overview**
• Heart, blood vessels, and mechanisms for regulating their function

• Hypertension – High Blood Pressure
  – Major risk factor for stroke, heart disease, and kidney disease
  – Causes wear and tear of the blood vessels
  – Essential hypertension is the most common form

• Contributing Factors and Associated Features of Hypertension
  – Affects 20% of all adults between the ages of 25 and 74
  – African Americans are most likely to develop hypertension relative to Caucasians
  – Salt, fluid volume, sympathetic arousal, stress, and lifestyle are contributors
  – Core psychological contributors include anger and hostility

• Hypertension Is Influenced by Psychological, Behavioral, and Social Factors

  **Cardiovascular Diseases: Coronary Heart Disease (CHD)**

• Coronary Heart Disease (CHD)
  – Blockage of the arteries supplying blood to the heart muscle
  – Angina pectoris – Chest pain from partial obstruction of the arteries
  – Atherosclerosis – Accumulation of artery plaque (i.e., fatty substances)
  – Ischemia – Deficiency of blood supply because of too much plaque
  – Myocardial infarction – Heart attack involving death of heart tissue; results when an artery becomes completely clogged w/plaque

• Psychological and Behavioral Risk Factors for CHD
  – Stress, anxiety, anger, poor coping skills, low social support, and lifestyle
  – Classic Type A Behavior Pattern - excessive competitive drive, sense of being pressed for time, particularly anger and negative affect

• CHD Is Influenced by Psychological, Behavioral, and Social Factors

  **Chronic Pain**

• Acute vs. Chronic Pain
  – Acute pain – Follows injury and heals within 1 month on average
  – Chronic pain – Does not decrease with healing and treatment
  – Severity of pain does not predict one’s reaction to it

• Pain: Some Clinical Distinctions
  – Subjective vs. overt behavioral manifestations of pain

• Psychological and Social Factors in Chronic Pain
  – The role of perceived control over pain and its consequences
  – Role of negative emotion, poor coping skills, low social support, compensation
  – Social reinforcement for pain behaviors

• Gate Control Theory: An Integrative Account

• Endogenous Opioids: Our Body’s Response to Pain
Chronic Pain

• Gate Control Theory: An Integrative Account
  – Dorsal horns of spinal column act as a gateway for transmission of pain sensations
  – Determine pattern and intensity of sensations
  – Brain sends signals back to the spinal column, influencing this gating mechanism

• Endogenous Opioids: Our Body’s Response to Pain
  – Act like neurotransmitters to inhibit pain

Chronic Fatigue Syndrome: Psychological, Behavioral, and Social Influences

• Nature of Chronic Fatigue (CF)
  – Symptoms include lack of energy, marked fatigue, and pain
  – Most common in females, with incidence increasing in Western countries
  – No evidence to support link with viral infection, immune problems, depression

• Speculation About Causes
  – CF seems related to a high-achievement oriented lifestyle
  – Fast paced lifestyle combines with stress and illness
  – Psychological misinterpretation of after effects of illness

• Treatment
  – Medications are ineffective
  – Cognitive-behavioral interventions appear promising

A complex specific model of chronic fatigue syndrome

Figure 7.6
Psychosocial Treatment of Physical Disorders

- **Biofeedback: An Overview**
  - Patient learns to control bodily responses
  - Used with chronic headache and hypertension

- **Relaxation and Meditation**
  - Progressive muscle relaxation
  - Transcendental meditation (TM)

- **Comprehensive Stress Reduction and Pain Management Programs**
  - More effective and durable than individual interventions alone

**Modifying Behaviors to Promote Health**

- **Life-Style Practices**
  - Many health problems are traceable to lifestyles and behaviors
  - Behavioral risk factors are also influenced by psychological and social factors
  - Prevention and intervention programs target behavioral risks to improve health

- **Types of Life-Style Behaviors**
  - Injury and injury prevention – Repeated warnings are not enough
    - Injuries are the leading cause of death for people between 1 to 45 years of age
  - AIDS – Highly preventable by changing lifestyle behavioral factors
  - China and smoking cessation programs – Getting children involved
  - Stanford three community study – Success in reducing risk of heart disease; focused on smoking, diet, blood pressure and weight reduction

**Results of the Stanford three community study**

![Graph showing percent change in risk over surveys](image)
Summary of Physical Disorders and Health Psychology

• Psychological Factors Play a Major Role in Physical Disorders
  – Behavioral medicine and health psychology

• Psychological and Social Factors: Their Role in Illness and Disease
  – Several diseases are influenced by the effects of stress on immune function
  – Such influences interact with other psychological and social factors

• Long-Standing Patterns of Behavior and Life-Style Increase Risk for Physical Illness

• Psychosocial Treatments Aim to Prevent or Treat Physical Disorders
  – Comprehensive individual or community programs are best

Discussion Group Questions

• What are the two ways (i.e., two primary pathways) in which psychosocial factors could influence physical disorders?

• Describe the General Adaptation Syndrome and its 3 stages.

• Identify and explain one of the psychosocial approaches to the prevention or treatment of physical disorders?