Chapter 9
Physical Disorders
and Health Psychology

The Mind-Body Connection:
Sobering Facts

• Leading Causes of Death (1900)
  – Treatable Medical Conditions
• Leading Causes of Death (1993)
  – Disorders of Lifestyle / Behavior

Psychosocial Factors
That Influence Biology

• Historical Developments
  – Second revolution in public health
  – Early terminology
    • Psychosomatic Medicine
    • Psychophysiological disorders
– New fields of study
  • Behavioral Medicine
  • Health Psychology

• Psychological & social factors
  influence health & physical problems in 2 distinct ways
  – They can affect the basic biological processes that lead to
    illness & disease
  – Longstanding behavior patterns may put people at risk
    to develop certain physical disorders

• The Nature and Role of Stress
  – Selye’s Serendipitous Find – 1936
  – General Adaptation Syndrome (GAS)
    • The body goes through several stages in
      response to sustained stress
      – Alarm
      – Resistance
      – Exhaustion

Stages of Stress

ALARM
RESISTANCE
EXHAUSTION
- **Body’s Response to Stress**
  - Hypothalamus
  - Limbic system
  - Hippocampus is very responsive to cortisol
    - When stimulated by cortisol during HPA axis activity, the hippocampus turns off the stress response
    - Increased levels of cortisol in response to chronic stress may kill nerve cells in the hippocampus

- **What Influences the Stress Response?**
  - A sense of control
  - A sense of predictability
  - Baboon studies

- **The Immune System and Physical Disorders**
  - Stress and the Immune System
  - Depression also lower immune system functioning

- **The Immune System: An Overview**
  - Identifies and kills antigens
  - Identifies and kills body’s own cells
  - Two Main Divisions
    - Humoral and Cellular
  - Types of cells which function as agents
    - Leukocytes (White blood cells)
      - Macrophages
        - Surround & destroy antigens
        - Signal Lymphocytes

- **Leukocytes**
  - Lymphocytes
    - B cells
      - Operate in humoral branch
      - Produce immunoglobulins
      - Create memory B cells
    - T cells
      - Operate in cellular branch
        - Killer T Cells directly destroy viral infections & cancerous processes
        - Memory T Cells speed future responses to the same antigen
      - T4 cells = Helper T Cells
      - Suppressor T cells

- **The Immune System**
  - First Line of Defense
  - MACROPHAGES
    - CELLULAR BRANCH
      - Killer T Cells
    - HUMORAL BRANCH
      - B Cells
      - Memory B Cells
### Physical Disorders Influenced by Psychosocial Factors

- **Psychosocial Link to Disease**
  - AIDS
  - Cancer
  - Cardiovascular Diseases
  - Chronic Pain
  - Chronic Fatigue Syndrome

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### Psychosocial Factors and AIDS

- **Scope of the AIDS Epidemic**
- **Factors that extend survival in AIDS**
  - Robust & strong immune system
  - Psychological factors
    - Stress–reduction procedures

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### Psychosocial Factors and Cancer

- **The Field of Psychoncology**
  - Landmark study by Speigel et al., 1989
- **Psychological Factors Influence**
  - Course and also the Development
  - Response to Aversive Medical Treatment
  - Treatment & recovery from cancer in children

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### Psychosocial Factors and Cardiovascular Diseases

#### Nature of Problems
- Heart, Blood Vessels, and Control Mechanisms
- Major Kinds of Disease
  - Stroke (CVA)
  - Hypertension (High Blood Pressure)
  - Coronary Heart Disease
- **Strongly Influenced by Lifestyle Factors**

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### Essential Hypertension

- **“The Silent Killer”**
- No verifiable physical cause (the majority)
- High Blood Pressure (> 160 / 95)
- Influenced by psychological & lifestyle factors
  - Strong relationship between levels of social support & blood pressure
  - Anger & hostility have been associated with increases in blood pressure
### Coronary Heart Disease
- Number one cause of death in U.S.
- Blockage of arteries supplying blood to the heart muscle

**Types:**
- Angina
- Atherosclerosis
- Ischemia
- Myocardial Infarction (Heart Attack)

**Psychological Factors**
- Type A and B Behaviors
- Chronic Negative Emotions

### Psychosocial Factors and Chronic Pain
- The nature of chronic pain
- Two kinds of clinical pain
  - Acute Pain
  - Chronic Pain

**Experience of Pain**
- Pain
- Pain behaviors
- Suffering

**Psychological and Social Dimensions**
- Pain severity does not predict one’s reaction
- Pre-existing anxiety & personality problems
- Social support network

### Biological Dimensions
- **Gate Control Theory**
  - Nerve impulses from painful stimuli make their way to the spinal column, & from there to the brain
  - Dorsal horns of the spinal column
  - The brain sends signals (excitatory or inhibitory) back down the spinal cord that may affect the gating mechanism
- Endogenous Opioids (“Endorphins”)
  - Act like neurotransmitters to shut down pain, even in the presence of marked tissue damage or injury

### Psychosocial Factors in CFS
- The Nature of Chronic Fatigue (CFS)
  - Unexplained fatigue
  - Variety of physical symptoms
    - Subjective memory impairment, sore throat, muscle or joint pain, headache etc.
  - Most common in women
  - Often debilitating

**Sharpe’s 1997 Model**

### Psychosocial Treatment for Physical Problems
- **Available Treatments**
  - Biofeedback
  - Relaxation Procedures (PMR)
  - Meditation (TM & Relaxation Response)
  - Hypnosis
  - Comprehensive Stress Management

### Prevention Efforts
- Injury Control
- AIDS Prevention
- Smoking cessation
  - China study
- Stanford Three Community Study
  - Media blitz on CHD