Health Psychology, 6th edition
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Chapter Thirteen

Heart Disease, Hypertension, Stroke, and Diabetes

Coronary Heart Disease (CHD): Overview

- #1 Killer in the U.S.
  - Accounts for more than one in five deaths
  - A disease of modernization
    - Alterations in diet
    - Reduction in activity level
- CHD is also a major chronic disease
  - Millions of Americans live with its symptoms

Coronary Heart Disease: What Is CHD?

- A general term referring to illnesses caused by atherosclerosis
  - Narrowing of coronary arteries, the vessels that supply the heart with blood
- Angina pectoris
  - Pain that radiates across the chest and arms
  - Caused by temporary shortage of oxygen
- Myocardial infarction – heart attack

Coronary Heart Disease (CHD): Role of Stress

- Development of CHD is associated with
  - Hostility
  - Depression
  - Cardiovascular reactivity to stress
  - Acute stress can precipitate sudden clinical events
- Balance of control and demand in daily life is associated with CHD

Coronary Heart Disease: Women and CHD

- Cardiovascular disease
  - Leading killer of women in the U.S.
  - Women have 50% chance of dying from 1st heart attack (30% for men)
- Women seem to be protected at younger ages relative to men
  - Higher levels of HDL premenopausal
  - Estrogen diminishes sympathetic nervous system arousal

Coronary Heart Disease: Cardiovascular Reactivity and Hostility

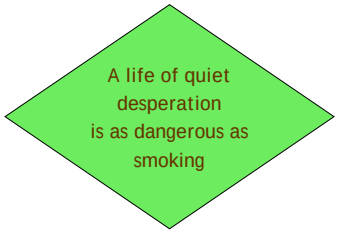
- Type A Behavior Pattern
  - Behavioral and emotional style marked by an aggressive, unceasing struggle to achieve more and more in less time
  - Often in hostile competition with other individuals or forces
  - Risk factor for coronary artery disease

Anger and Hostility appear to be especially implicated as risk factors

Coronary Heart Disease: Cardiovascular Reactivity and Hostility

- **Cynical** Hostility
  - Particularly lethal type of hostility
  - Characterized by suspiciousness, resentment, frequent anger, antagonism, distrust of others
  - Have difficulty extracting social support from others
  - Fail to make effective use of available social support
- Hostility reflects an oppositional orientation toward people that develops in childhood

Coronary Heart Disease: Depression and CHD



- Depression is an independent risk factor in its own right
  - Environmentally rather than genetically based

Coronary Heart Disease: Depression and CHD

- Strong Associations between
  - Depression and heart attack
  - Depression and heart failure among elderly
  - Hopelessness and heart attack
- Symptoms of depression before coronary artery bypass graft surgery
  - Predictor of long-term mortality

Coronary Heart Disease: Other Psychological Risk Factors and CHD

- Other risk factors
  - Vigilant coping
  - Anxiety (implicated in sudden cardiac death)
  - Attempting to dominate social interactions
  - Vital exhaustion
    - Extreme fatigue, a feeling of being dejected or defeated, and an enhanced irritability

Coronary Heart Disease: Modification of CHD Risk-Related Behavior

- People with high cholesterol
  - Targeted for preventive dietary intervention
- People who smoke
  - Programs to stop smoking
- Exercise recommendations
  - Aerobic exercise in particular
- Modifying hostility
  - Relaxation training; speech style interventions

Coronary Heart Disease: Management of Heart Disease – The Role of Delay

- Patients often delay before seeking treatment
  - Unable to accept that they are having a heart attack
  - Interpret the symptoms as a mild disorder
- Who is likely to delay?
  - Older patients
  - African American patients
  - Patients who have consulted physician about symptoms or self-treated symptoms
  - Those with a history of angina or diabetes

Coronary Heart Disease: Management of Heart Disease – Cardiac Rehabilitation

- An intervention program designed to help heart patients achieve their optimal
  - Physical,
  - Medical,
  - Psychological,
  - Social,
  - Emotional,
  - Vocational, and
  - Economic status
- After diagnosis of heart disease or heart attack

Coronary Heart Disease: Management of Heart Disease – Cardiac Rehabilitation

- Treatment by medication
  - Clot-dissolving drugs, angioplasty, and coronary artery bypass surgery account for drop in deaths for CHD
  - Aspirin is commonly prescribed
    - Men who take ½ aspirin per day significantly reduce risk of fatal heart attacks
    - Women's risk reduced, too
    - Adherence is a problem

Coronary Heart Disease: Management of Heart Disease – Cardiac Rehabilitation

- Treatment by medication
  - Statins target LDL cholesterol
    - Reduce risk for repeated coronary events
  - Statin drugs have surpassed all other drug treatments
  - Statins appear to be protective against
    - Multiple sclerosis
    - Alzheimer's disease
    - Some types of cancer

Coronary Heart Disease: Management of Heart Disease – Cardiac Rehabilitation

- Cardiac invalidism
  - Psychological state that can result after a myocardial infarction or diagnosis of coronary heart disease
  - Perception that abilities and capacities are lower than they actually are
  - Patients and spouses are vulnerable to these misperceptions

Coronary Heart Disease: Management of Heart Disease – Cardiac Rehabilitation

- CPR: Cardiopulmonary resuscitation
  - A method of reviving the functioning of heart and lungs after a loss of consciousness in which the patient's pulse has ceased or lungs have failed to function appropriately
- About 70% of potential sudden deaths from heart attacks occur in the home
- Few programs train families in CPR

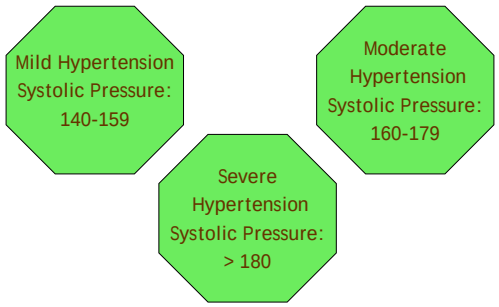
Hypertension: Overview

- Hypertension
  - Excessively high blood pressure
  - Occurs when the supply of blood through the blood vessels is excessive, putting pressure on the vessel walls
  - Risk factor for other medical problems
    - including kidney failure
  - One in four U.S. adults has it
    - No symptoms
    - 1/3 of these don't know they have it

Hypertension: How is it measured?

- Sphygmomanometer
- Systolic blood pressure
  - Sensitive to volume of blood leaving the heart
  - Sensitive to the artery's ability to stretch to accommodate the blood
  - Has greater value in diagnosing hypertension

Hypertension: How is it measured?



Hypertension: What Causes It?

- 5% is caused by failure of kidneys to regulate blood pressure
- 90% is **essential hypertension**
  - **This means the cause is unknown**
- **Risk factors**
  - **Prior to age 50, men at greater risk**
  - **After age 55, women and men have 90% chance of developing it**
  - **Higher among minorities (related to lower SES)**
  - **Genetic factors play a role**
  - **Emotional factors, negative affect**

Hypertension: Relationship between Stress and Hypertension

- Combination of high demand/low control
  - Chronic social conflict
  - Job strain
- Associated with
  - Crowded, noisy locales
  - Migration from rural to urban areas
  - Women – extensive family responsibilities

Hypertension: Relationship between stress and hypertension

- Research Methods
  - Bring people with hypertension into labs to respond to stressful tasks
  - Identify stressful circumstances (such as, high pressure jobs) and examine rates of hypertension
  - Ambulatory monitoring
    - Person wears a cuff which assesses blood pressure at intervals throughout the day

Hypertension: Psychosocial Factors

- Originally
  - Thought to be a constellation of personality factors
  - Suppressed anger thought to be dominant
- Currently
  - Personality is insufficient for developing hypertension
  - Hostility may play a role, expressed anger

Hypertension: Psychosocial Factors

- Particular medical problem in African American communities
  - Tied to stress of racial discrimination
  - Stressful locales > hypertension
  - Dark-skinned African Americans have higher rates of hypertension than lighter-skinned African Americans
  - Racial differences decreases in nocturnal blood pressure
    - Non-dipping nightly blood pressure: risk factor

Hypertension: Psychosocial Factors

- John Henryism
  - A personality predisposition to cope actively with psychosocial stressors
  - May become lethal when those active coping efforts are unsuccessful
  - Syndrome especially documented among lower income Blacks

Hypertension: Treatment

- Common treatments
  - Low-sodium diet
  - Reduction of alcohol
  - Weight-reduction in overweight patients
  - Exercise
  - Caffeine restriction
    - Considered a strategy for primary prevention

Hypertension: Treatment

- Drug Treatments
  - Diuretics reduce blood volume
    - Promote the excretion of sodium
  - Beta-adrenergic blockers & vasodilators
    - Decrease cardiac output
  - Drug treatments have become controversial
    - Blood pressure may be reduced, but CHD likelihood may not be reduced

Hypertension: Treatment

- Cognitive-Behavioral Treatments
  - Inducing a state of low arousal
    - Biofeedback, progressive muscle relaxation, hypnosis, meditation, deep breathing, imagery
  - Stress management programs
    - Identify particular stressors and develop plans to deal with them: self-calming talk
  - Combination of diet, exercise, and behavioral strategies for weight loss

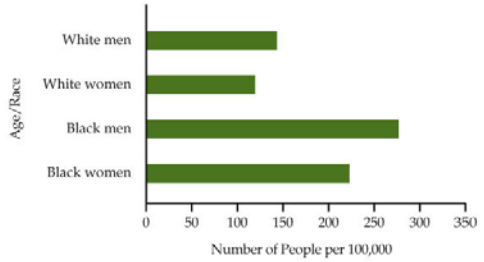
Hypertension: Problems in Treating Hypertension

- Hidden disease
  - Symptomless so diagnosis occurs during standard medical examinations
    - Many don't get regular physicals
  - Early detection is important
    - More treatments available for mild/borderline
  - Untreated hypertension
    - Lowers quality of life
    - Compromises cognitive functions
    - Related to fewer social activities

Stroke: Overview

- Condition that results from a disturbance in blood flow to the brain
  - Often marked by resulting physical or cognitive impairments and, in the extreme, death.
  - Third major cause of death in the U.S.
- A chief risk of stroke
  - That more strokes will follow in its wake
  - Aspirin reduces the risk of recurrent strokes

Age-Adjusted Stroke Incidence Rates for First-Ever Stroke, 2001: Figure 13.3



Stroke: Risk Factors

- Modifiable risk factors include
  - High blood pressure
  - Heart disease
  - Cigarette smoking
  - High red blood cell count
  - Transient ischemic attacks
    - Little strokes
  - Psychological distress
  - Anger expression

Stroke: Consequences

- Stroke affects all aspects of life
  - Personal
  - Social
  - Vocational
  - Physical
- Motor, Cognitive, Emotional, and Relationship problems
  - Symptoms and problems differ depending on which side of the brain was damaged

Stroke: Types of Rehabilitative Interventions

- Four typical types
  - Psychotherapy
    - Includes treatment for depression
  - Cognitive-remedial training
    - To restore intellectual functioning
  - Training in specific skills development
  - Use of structured, stimulating environments to challenge capabilities

Diabetes: Overview

- A chronic condition of impaired carbohydrate, protein, and fat metabolism
  - Insufficient secretion of insulin or insulin resistance
  - One of the leading causes of death in the U.S.
- Cells of the body need energy to function
  - Glucose is the primary source of energy
  - Insulin is a hormone produced by pancreas
  - Insulin acts as a “key” to permit glucose to enter cells
  - Without insulin, cells don’t get the glucose they need
  - Glucose stays in the blood: Hyperglycemia

Types of Diabetes

- Type I Diabetes (10% of all diabetes)
  - Abrupt onset of symptoms
  - Immune system falsely identifies cells in the pancreas as invaders and destroys them
  - Pancreas doesn't produce insulin
  - Develops relatively early in life
- Type II Diabetes
  - Cells lose ability to respond fully to insulin (known as insulin resistance)
  - Pancreas temporarily increases insulin production
  - Insulin-producing cells may give out

Risk Factors for Type II Diabetes: Table 13.2

You are at risk if:

- You are overweight
- You get little exercise
- You have high blood pressure
- You have a sibling or parent with diabetes
- You had a baby weighing over 9 pounds at birth
- You are a member of a high-risk ethnic group, which includes African Americans, Latinos, Native Americans, Asian Americans, and Pacific Islanders

Source: American Diabetes Association, 1999

Diabetes: Health Implications

- Diabetes is associated with
  - Thickening of the arteries due to buildup of wastes in the blood
  - High rates of CHD
  - Kidney failure
  - Nervous system damage
    - Pain and loss of sensation
- Leading cause of blindness among adults

Diabetes: Health Implications

The Deadly Quartet	
Diabetes	Interabdominal Body Fat
Hypertension	Elevated Lipids

Diabetes: Problems in Self-Management

- Ideal treatment
  - Patient-centered
  - Patient-directed, not physician directed
- Type I patients need to
  - Monitor glucose levels throughout the day
  - Take immediate action when needed
- Adherence to self-management programs is low

Diabetes: Problems in Self-Management

- Type II patients
  - Often unaware of health risks they face
  - Must reduce sugar and carbohydrate intake
  - Encouraged to achieve normal weight
  - Encouraged to exercise
    - Helps use up glucose in the blood
- Adherence is problematic

Diabetes: Adherence and Interventions

- Programs to improve adherence include
  - Education concerning glucose utilization and metabolic control of insulin
  - Improving a sense of self-efficacy and ability to regulate behavior
- Interventions
  - Type II begin taking statins to lower cholesterol
  - Diabetics engage in cognitive-behavioral interventions: Self-injection, monitoring blood sugar levels, stress management programs

Diabetes: Special Problems of Adolescent Diabetics

- Adolescents usually have Type I
  - More severe
- Restrictions of diabetes interfere with issues of independence and self-concept
- Peer culture may stigmatize those who are different
- When parents are actively involved in diabetes management tasks, there is better control of the disease