

Non-Communicable Diseases

Chronic Respiratory Diseases

Obesity

Aging

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Chronic Respiratory Disease



Chronic Respiratory Disease

Non-communicable diseases of the respiratory system include:

Bronchial asthma

- **Chronic bronchitis-emphysema syndrome**



Bronchial Asthma

Definition

Asthma is a syndrome characterized by three components:

Chronic airway obstruction

Reversible airway obstruction

Enhanced bronchial reactivity



Bronchial Asthma, Magnitude of the Problem

- **The prevalence rate of asthma is increasing worldwide**
- **The variation across countries depends on the prevalence of risk factors**
- **The observed high mortality of asthma is attributed to improper treatment**



Bronchial Asthma, Risk Factors

- The occurrence of asthma is due to allergic (atopy) &/ or non allergic mechanism.
- Atopy is the response of certain individuals to allergens by increased total &/or specific serum IgE.
- Non-allergic mechanism is a non- IgE mediated asthma & related to chronic exposure to environmental irritants.
- The irritant agents interact with specific receptors on inflammatory (macrophages & neutrophils) & other cells.
- There is no specific cause for asthma, but there are well-defined risk factors

Bronchial Asthma, Well-Defined Risk Factors

Atopy

Atopy, or allergic sensitization, is the term used for type 1 (IgE-mediated) allergic reactions.

Atopy indicates the predisposition of the individual to produce increased levels of specific or total IgE after exposure to allergens such as house dust mites and food allergens.

It is diagnosed by a positive skin prick test reaction &/ or elevated total serum IgE against common allergens.

Atopy is a risk factor for less than half of asthma cases

Emotional anxiety, anger, & strenuous muscular exercise could provoke asthmatic attacks among **predisposed individuals**. 

Bronchial Asthma, Well-Defined Risk Factors

- Genetic factors

Some studies assert the role of genetic factors in asthma

The association between paternal asthma & occurrence of asthma among the offspring (& not paternal atopy) indicates that the familial tendency for asthma is attributed to the common lifestyle & environmental exposure of all family members & the limited role of genetic factors



Bronchial Asthma, Well-Defined Risk Factors

- **Demographic factors**

Age: Population-based studies showed that asthma symptoms decline at or before the onset of puberty

Sex: Asthma incidence & prevalence are lower in females than males before the age of 12. In adolescence & adulthood, the incidence & prevalence are higher in females

Socioeconomic status: common among children of low socioeconomic class due to poor living conditions & exposure to different types of air pollution

Residents in urban areas have a greater risk of asthma than the rural population due to outdoor air pollution



Bronchial Asthma, Well-Defined Risk Factors

Outdoor air pollution

Increase in motor vehicle use results in high concentrations of NO₂, which exacerbates preexisting asthma

Exposure to pollen grains, animal hair, & bird feathers



Bronchial Asthma, Well-Defined Risk Factors

Indoor air pollution

NO₂ from burning fossil fuels

SO₂ from burning sulfur-containing coal or wood preparation, especially in closed spaces

Mosquito coil smoke

Indoor exposure to non-infectious microbial agents as house dust mites & some fungi

Other allergens associated with cats, dogs, & cockroaches



Bronchial Asthma, Well-Defined Risk Factors

Occupational exposure

Asthma is the most common occupational respiratory disease in developed countries

The onset of occupational asthma is 1-3 years after initial exposure

There are more than 200 occupational causes of asthma

Occupational asthma can lead to permanent asthma even after removal from exposure

Tobacco: Environmental tobacco smoke is a cofactor in provoking attacks of wheezing & not the cause of asthma



Tobacco exposure in utero & in infancy may enhance sensitization

Bronchial Asthma, Well-Defined Risk Factors

- **Viruses**

Viral infections are a common cause of exacerbation of asthma & provoke episodes of wheezing

In children U5, respiratory syncytial virus & parainfluenza virus are the common pathogens

In older children & adults rhinovirus & corona virus are the most common associated viruses & asthma associations



Prevention & Control of Bronchial Asthma

- National policies & regulations to control environmental pollution, especially air pollution, in urban areas
- Child health programs to detect at-risk children with atopy, & health education for mothers to protect the children from allergens & infections
- Occupational health programs to improve the work environment to be free from allergens
- Health education to keep houses clean, & dealing with pet animals should be considered
- Antismoking program
- Prevention & control of respiratory infections: case finding (history of attacks of wheezes)



Chronic Obstructive Pulmonary Disease (COPD)

Is the fifth most common cause of death after

1. Infectious diseases
2. CVD
3. Cancer
4. Trauma



COPD, Definitions

- Chronic bronchitis-emphysema syndrome is characterized by:

Chronic bronchitis

Emphysema



COPD, Risk Factors

- Tobacco smoking is the strongest risk factor
- Air pollution: different chemical & biological pollutants could aggravate the destructive effect of tobacco
- Occupational:
 - Byssinosis, asbestosis, silicosis
- Socioeconomic factors:
 - Bad housing & malnutrition



COPD, Risk Factors

- **Respiratory infections: bacterial & viral**
- **Nutritional**
 - Fish, fruits & vegetables are protective
 - High-sodium diet may increase airway reactivity
- **Genetic factors**
 - The familial tendency is attributed to common exposure
 - Alpha antitrypsin deficiency



COPD, Prevention & Control

- Anti-smoking program
- Occupational health program
- Nutrition education
- National policies & regulations to control air pollution



Aging



Geriatric Health

Concepts of Aging and Geriatrics

- **Normal Aging:** the changes that occur with the passage of time in anatomical structure and physiological function.
- **Pathological Aging:** the increasing occurrence of disease interacting with the process of aging.
- **Geriatrics:** the branch of medicine that focuses in health promotion and the prevention and treatment of disease and disability in later life



Population in Palestine

- Life expectancy was 71.7 years for males and 73 years for females.
- 4.3% of the population is aged 60 years and older (164,598).



Common Health Problem in Elderly

- The elderly are a vulnerable group exposed to a number of health problems, including malnutrition



Common Health Problem in Elderly

- CVD

Degenerative heart diseases, hypertension, atherosclerosis, CHD

- NS

Degenerative changes in the sensory and motor nerves

Cerebrovascular stroke, hemorrhage, thrombosis

Dementia, Alzheimer's



Common Health Problem in Elderly

- Special sense disorder
- Locomotor system disorder
 - Articular diseases
 - Non- articular disease
- Psychological disorders, emotional disorders, and mental disorders
 - Result from loneliness, impairment, and disability



Common Health Problem in Elderly

- **Genitourinary disorder**
Dysuria, nocturia, frequency, urgency, incontinence
- **Dental disorder**
Bleeding gums, missing teeth, pyorrhea, and ill-fitting dentures
- **Diabetes mellitus complications**
Neuropathy, nephropathy, retinopathy, and diabetic foot



Common Health Problem in Elderly

- Cancer
- Respiratory problems
 - Chronic bronchitis, asthma, emphysema
- Accidents
 - Disorders of motor and special senses, osteoporosis
- Infectious diseases



Malnutrition in the Elderly: Risk Factors

- **Social risk factors**

Loneliness, Isolation, dependence, immobility, poverty

- **Medical risk factors**

No teeth, ill-fitting denture, preference for a liquid and semi-liquid diet, avoidance of a high- fiber diet.

Depression, dementia, insomnia, anorexia

Chronic diseases

Blindness, deafness

Arthritis, paralysis



Malnutrition in the Elderly: Risk Factors

- **Drugs**

Digoxin and cancer chemotherapy

Aspirin and NSAIDs

Purgatives cause potassium loss

Metformin causes vitamin B12 deficiency

Co-trimoxazole can antagonize folate



Nutrition for the Elderly

- **A nutritious diet:** Is needed from a variety of foods (balanced diet).
- **Meals should be taken at fixed times:** 3 small meals /day better than one large meal
- **Adequate amount of fluid:** Should be taken even if there is no thirst
- **Tea and coffee:** Should be drunk in moderation and restricted after 6 pm
- **Special needs of persons:** Low salt in hypertension and low sugar in diabetes
- **Fried or very spicy food should be avoided**



Nutrition for the Elderly

- In the presence of an oral problem: Choose foods free of hard fiber
- Red meat, eggs, dairy products, and animal fats should be restricted
- Fish is a good source of animal protein and protects against thrombosis
- Eat plenty of bread, cereal (whole grain), fruits and vegetables
- Women should keep up a good intake of calcium
- Those who are housebound should be given a small prophylactic dose of vitamin D (5-10ug/day)

Aging Process & Health Hazards

- The elderly are prone to infectious diseases because their immune system is diminished
- Pneumonia onset is usually less abrupt in the elderly
- Indication of pneumococcal vaccine for all elderly every 5 years
- Influenza vaccine



Case Finding for Early Detection of Geriatric Problems

- Height & weight (ankle-to-knee length)
- Blood pressure measurement
- Serum creatinine, urea, ALT, AST, Dipstick analysis
- Visual & hearing acuity
- Clinical breast examination
- Bone mineral density measurement
- Fecal occult blood
- Annual PSA, Alpha-fetoprotein in HBV



Components of Geriatric Care Program

- **Health promotion**
 - Nutrition program
 - Immunization
 - Health education
- **Social welfare services**
 - Geriatric homes
 - Recreational facilities
 - Economic support



Components of Geriatric Care Program

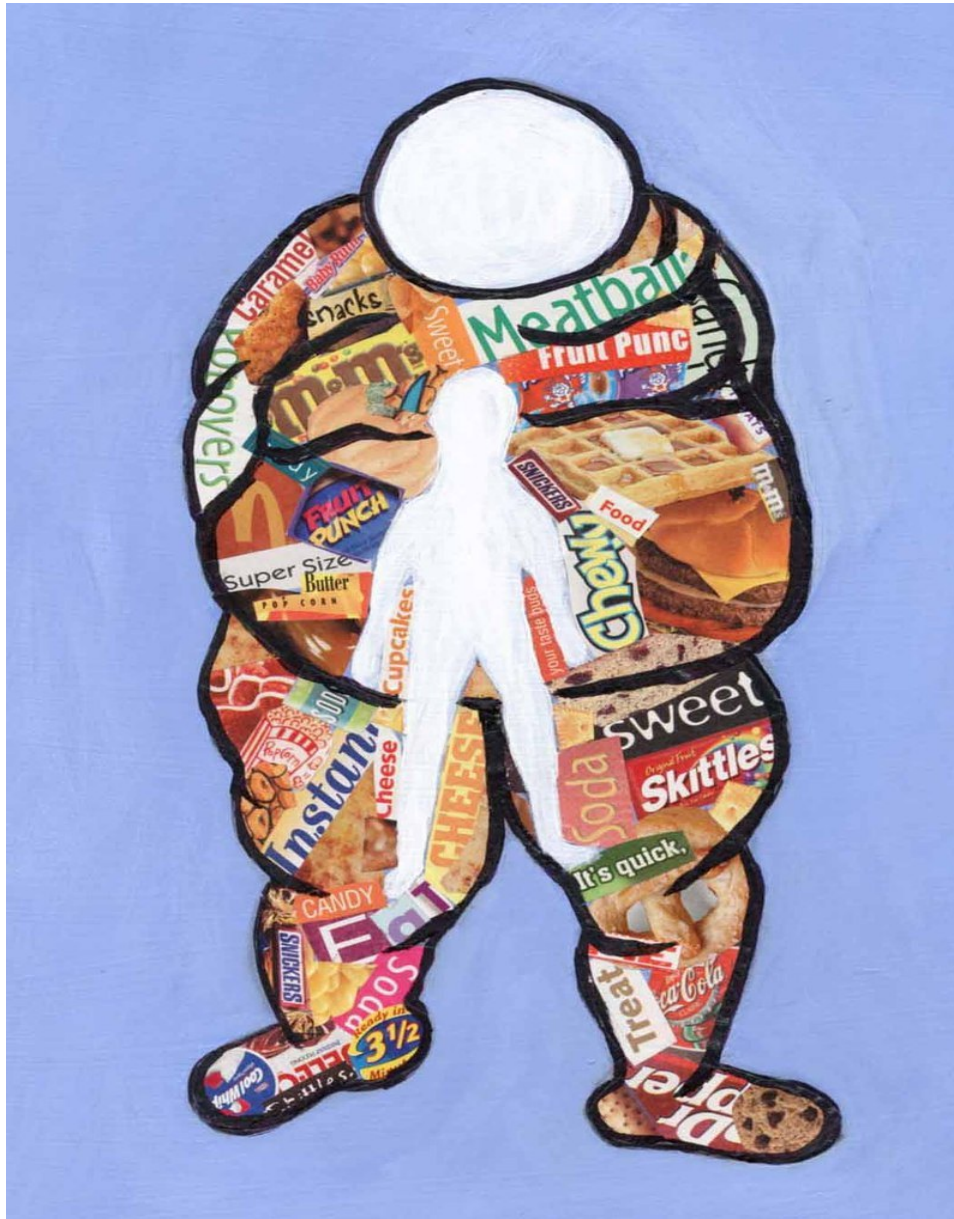
- **Health appraisal & health services to reduce disability**

Periodic medical examination

Reduction of disability & provide rehabilitation services

Health services





OBESITY

Is excess adipose tissue

In different parts of the body due to excess storage of fat in the tissues



Overweight & Obesity (Epidemiology)

- Emerging evidence suggests that overweight and obesity have reached epidemic proportions globally.
- Obesity prevalence is increasing worldwide at an alarming rate in both developed and developing countries.
- WHO considers obesity a global epidemic.
- As the problem appears to be increasing rapidly in children as well as in adults, the true health consequences may only become fully apparent later.
- In many countries, obesity coexists with undernutrition (BMI < 18.5).

Overweight & Obesity (Epidemiology)

- Women have a higher rate of obesity than men, although men may have a higher rate of overweight.
- Obesity is now reported as the second leading cause of preventable death after smoking.
- Obesity is estimated to affect 30% of global population (300 million).
- In all regions, obesity seems to grow as income increases.



Specific Causes of Obesity

- **Endocrine factors**
- Hypothyroidism
- Cushing syndrome
- Hypothalamic tumors or injury
- Insulinoma



Specific Causes of Obesity

- **Drug treatments**
- Tricyclic antidepressants
- Sulphonylurea drugs
- Oral contraceptive pills
- Corticosteroids
- Sodium valproate
- **Genetic:** Prader-Willi syndrome (childhood obesity with abnormal appearance and CNS function)



Simple Obesity (Predisposing Factors)

- **Social factors**
- Food is the basic way of celebrating different social occasions
- Those living alone have anorexia or overeat
- Home environment: those preferring indoor life, eat & less active
- **Psychological disturbance & emotional disorders**
- Subjects with anxiety, depression



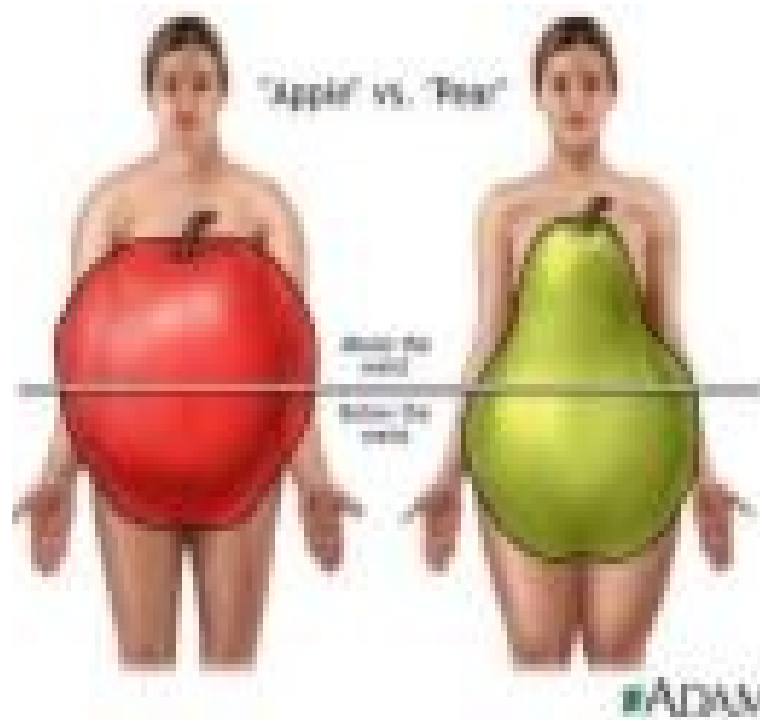
Simple Obesity (Predisposing Factors)

- **Personal (host factors)**
- Age, may appear at any age
- Sex, both are exposed, though the degree & pattern differ
- Socioeconomic factors influence food & lifestyle
- Sedentary lifestyle



Types of Obesity

**Apples shaped
Males**
Abdominal obesity



**Pear shaped
Females**
Generalized obesity



Prevention of Obesity

Primary prevention (A, B,C)

- **Aim for fitness**
- **Aim for a healthy weight**
- **Be physically active each day**
- **Build a healthy base**
- **Let the food pyramid guide your food choices**
- **Choose a variety of grains daily (whole grain)**
- **Choose a variety of fruits & vegetables daily**
- **Keep food safe (clean, cook, cool)**



Prevention of Obesity

Primary prevention (A, B,C)

- **Choose a sensible**

Choose a diet moderate in fat (30%) of total daily calories, low in saturated fat (< 10%) & cholesterol (< 300 mg/ day).

Choose a diet with moderate intake of sugar.

Choose & prepare food with little salt.



Prevention of Obesity: continued

Primary prevention

- **Nutrition education of the public, especially at risk group** (overfed infants & young children, middle-aged women, psychologically disturbed subjects, those who are deeply interested to food)
- **Adequate balanced diet**
- **Proper dietary habits to avoid excess energy**
- **Activity, encourage the public for physical activity**
- **Social & mental health promotion, within the family, at school, work & especially for the elderly & lonely, for psychological relief & adjustment.**

Prevention of Obesity (continued)

Secondary prevention

- **Early case finding:** During health appraisal services, to screen & detect obesity cases.
- **Control measures for screened cases**
- Diet control
- Regular physical exercise & activity
- Medications
- Surgical therapy
- Follow-up & careful monitoring of the following health disorders



Control of Obesity

- Detection by screening & classification
- Dietary therapy
- Restricting intake of energy-dense foods in the diet
- Exercise therapy (physical activity)
- Behavioral therapy
- Specialist management of obesity
- Pharmacotherapy
 - Appetite suppression & weight control drugs are the last resort.
 - Supplementation of vitamins & minerals
- Very low-calorie diets. Surgical management



Benefits of Moderate Weight Loss

A 10 kg loss in weight will lead to the following health improvements

Mortality

- > 20% fall in total mortality
- > 30% fall in diabetes related deaths
- > 40% fall in obesity related cancer deaths

Blood pressure

- Fall of 10 mm systolic blood pressure
- Fall of 20 mmHg diastolic blood pressure

Diabetes Mellitus

- Fall of 50% in fasting glucose

Lipids

- Fall of 10% in total cholesterol
- Fall of 15% in LDL cholesterol
- Fall of 30% in TGD
- Increase of 8% in HDL cholesterol

