

التغذية من منظور الصحة العامة

Introduction to Public Health Nutrition

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Adapted from: Krause's Food & Nutrition Therapy



Nutrition: scientific definition

“The science/study of nutrients that come from **food**, their action, interaction, and balance in relation to health and disease; (in human population within the body of the human being) and the process by which the organism (body) ingests, digests, absorbs, transports, utilizes and excretes food substances.”



Public Health

Public Health is defined as “the art and science of preventing disease, prolonging life and promoting health **and the lifestyle** through the organized efforts of society” (Acheson, 1988; WHO).

The main mission of public health is "to assure conditions in which people can be healthy **and function in a healthy way"**

(Institute of Medicine, The Future of Public Health).

➡ **There must be connection between the concept of P.H and nutrition**



Public Health and Nutrition

When we take nutrition from the perspective of P.H people we say that nutrition

- ▶ Since nutrition is an essential aspect of the conditions in which people can be healthy and function very well in their life, public health nutrition is part of the public health system.





Nutrition

We will talk more about nutrition from P.H perspective



Assessing Eating Behaviors

Among humans' beings depends on some factors & concepts

- ▶ What drives people to eat?
 - ▶ Hunger
 - ▶ Appetite الشهية
 - ▶ Cultural and social meaning of food
 - ▶ Habit or custom
 - ▶ Emotional Comfort /discomfort
 - ▶ Convenience and advertising
 - ▶ Nutritional value
 - ▶ Social interactions

All these aspects/factors /determinants of how /why/when we eat food? and what type of food we eat?



Background definitions

المغذيات ► **Nutrients**: “Chemical substances in food that nourish the body by providing energy, building materials, and factors to regulate needed chemical reactions.”

Types of nutrients

- **Essential nutrients**: Must be provided to our bodies to function normally by food because the body does not produce them in sufficient quantities or can not make them at all.
- **Nonessential nutrients**: Healthy, well-nourished bodies can make them in sufficient quantities to satisfy their needs. (extra nutrients which make our life even more healthy & more balanced, especially if it provided to our bodies in sufficient quantities (not with excessive quantities or lower than needed))



Essential Nutrients

Nutrients are essential to the human diet if they meet two characteristics:

- ▶ First, omitting the nutrient from the diet leads to a **nutritional deficiency** and a decline in some aspect of health.
- ▶ Second, if the omitted nutrient is **put back** into the diet, the symptoms of nutritional deficiency will decline **gradually** and the individual will **return to normal**, barring any permanent damage caused by its absence.



Essential Nutrients cont'd: أي نقص فيهم رح يعمللنا خلل*

The essential nutrients are:

- Some forms of carbohydrate (glucose) the main source of energy in our life
- Certain constituents (types) of fat [the essential fatty acids: linoleic acid (omega-6) and linolenic acid (omega-3)]
- Certain constituents of protein (the essential amino acids such as lysine, histidine, etc) → مهمين على مستوى الخلية
- 15 vitamins
- About 25 minerals
- Water



Functions of nutrients in food:

- a. Provide energy sources —→ To be able to move
- b. Build tissue —→ To be able to grow and repair our bodies after injuries & traumas
- c. Regulate metabolic processes —→ in our bodies that are necessary for functioning in all different systems



Six categories of nutrients

1. خبز/ارز/حبوب/
باستا

Carbohydrates: contain carbon, hydrogen, and oxygen combined in small molecules called sugars and large molecules represented mainly by starch (النشا).

2. زيوت/دهون/
مصادر حيوانية
ونباتية

Lipids (fats and oils): contain carbon, hydrogen, and oxygen as do carbohydrates, but the amount of oxygen is much less. Triglyceride is the main form of food fat.

3. لحوم/بعض
أنواع النباتات

Proteins: contain carbon, hydrogen, and oxygen, plus nitrogen and sometimes sulfur atoms arranged in small compounds called amino acids. Chains of amino acids make up dietary proteins.



Six categories of nutrients (cont'd):

4. **Vitamins:** are organic compounds that serve to catalyze or support a number of biochemical reactions in the body.
5. **Minerals:** are inorganic elements or compounds that play roles in metabolic reactions and serve as structural components in body tissues such as bone. & joints
6. **Water:** is vital to the body as a solvent and lubricant and as a medium for transporting nutrients and waste. Deficiency of water → dehydration / hypovolemic shock



Nutrients are classified into :

- ▶ **A. Macronutrients (carbohydrates, fats, and proteins).**

Provide calories for energy

Needed in large quantities

- ▶ **B. Micronutrients (vitamins, minerals, and water).**

Needed in smaller amounts



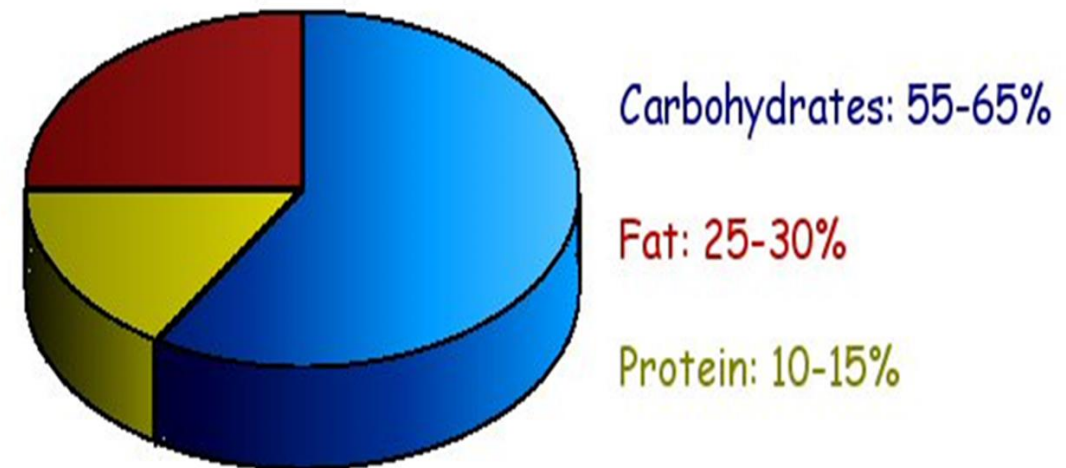
Nutrient Classification

There are six major classes in food:

- ▶ carbohydrates,
- ▶ proteins,
- ▶ lipids (fats and oils),
- ▶ vitamins (**both fat-soluble and water-soluble**)
- ▶ minerals, and
- ▶ Water.



Macronutrient Breakdown



General FACTORS AFFECTING NUTRITION

- ▶ Age and gender
- ▶ Lifestyle
- ▶ Food habits
- ▶ Ethnicity, Culture, and Religious Practices (some religions have prohibited types of food. E.g: in Islam , no alcohol or pork are allowed)
- ▶ Social Interaction (what type of group we hangout with)
- ▶ Availability of food (areas where nutrients are available all year long, areas with scarcity)
- ▶ Peer pressures (the social status)
- ▶ Economy (poor/rich/medal class)



Social Determinants (factors) of Nutrition

مهم جداً

Demographic characteristics of those with a more healthful diet vary with the nutrient or food studied. However, most people need to improve some aspects of their diet.

Social factors thought to influence diet include:

- ▶ Knowledge and attitudes (education)
- ▶ Skills
- ▶ Social support (living alone or with family)
- ▶ Societal and cultural norms
- ▶ Food and agricultural policies (if the city imports food from outside or plant the food on country's land)
- ▶ Food assistance programs (government supporting programs to improve the health of the children & population)
- ▶ Economic price systems (كم الناس معها مصاري/كم ثمن الطعام الصحي)



Explanation of the 6th point :

► Examples about Food assistance programs :

□ إضافة فيتامين A على طحين الخبز

□ تعزيز الملح بال iodine

□ إضافة ال calcium على بعض المواد الغذائية

□ إضافة ال fluoride على الماء لأهميته للعظام و الاسنان

□ توزيع حبوب الفيتامينات على أطفال المدارس / توزيع حبوب زيت السمك

□ برنامج مكافحة الجفاف: مثل توزيع aquasal solution على الأطفال

مقاومة

1) To combat dehydration

2) To combat diarrhea in which the body loses a lot of fluids



Social determinants should include : 1) level of education

هدول أهم 3 نقاط لازم يكونوا موجودين

2)cultural norms

3)economy

Public health nutrition

- ❑ Public Health Nutrition strives to improve or maintain optimum nutritional health of the whole population and high risk or vulnerable subgroups within the population.
- ❑ Public Health uses multiple, coordinated strategies to reach and influence the community, and organizations and individuals that make up the community (to eat the optimum quantities & qualities of food) with leadership provided by the government.



Public health nutrition

- ❑ Community nutrition efforts involve a wide range of programs that provide: —————> To make people more aware of what they are eating
- ✓ increased access to food resources
- ✓ nutrition information and education (to be accessible & available to public) (مثال: جدول البيانات الغذائية على المنتجات يوضح كمية الدهون والكوليسترول..)
- ✓ health-related care
- ✓ efforts to change behavior and environments
- ✓ initiate policy (to improve the nutritional habits)



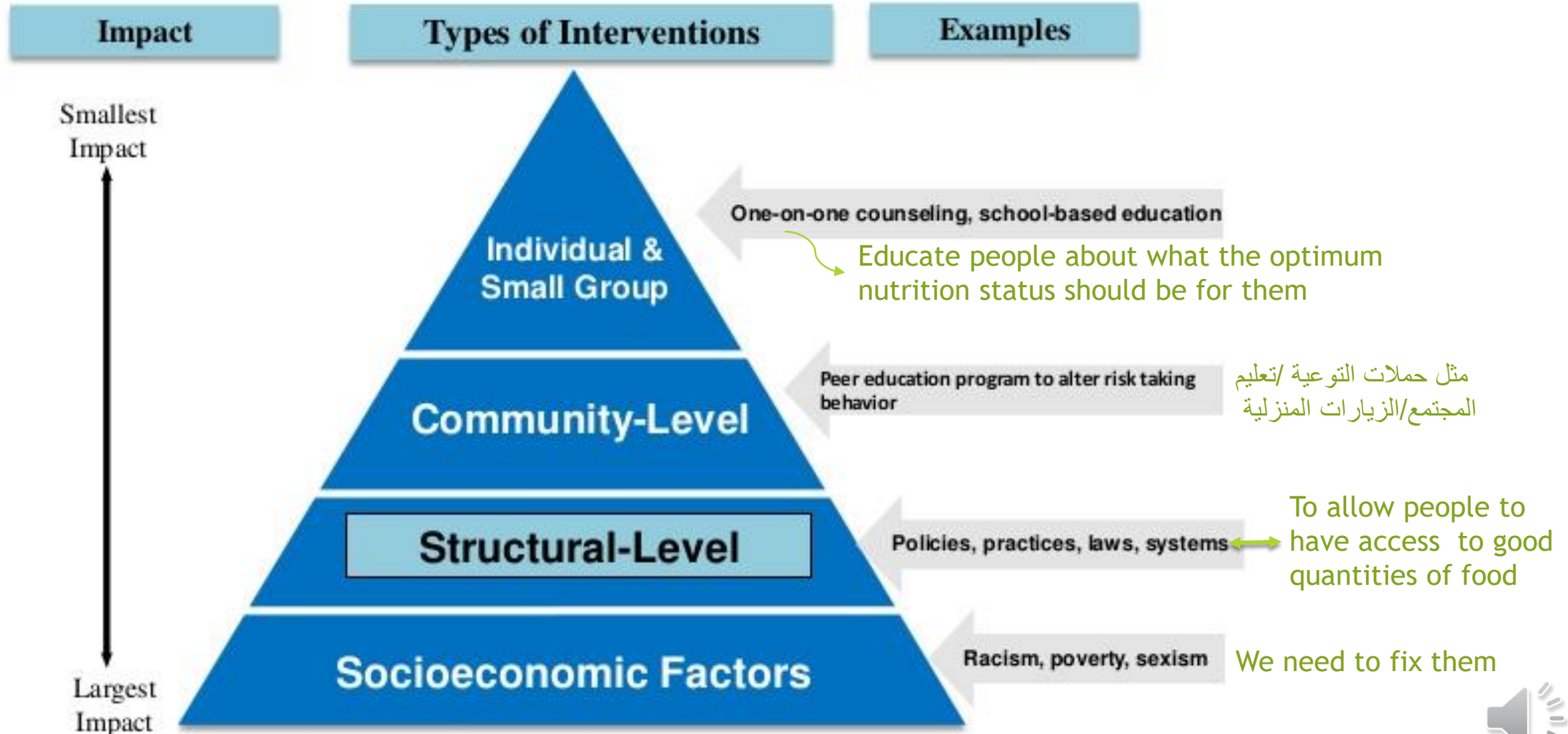
Public Health Practice Compared to Clinical Nutrition Practice



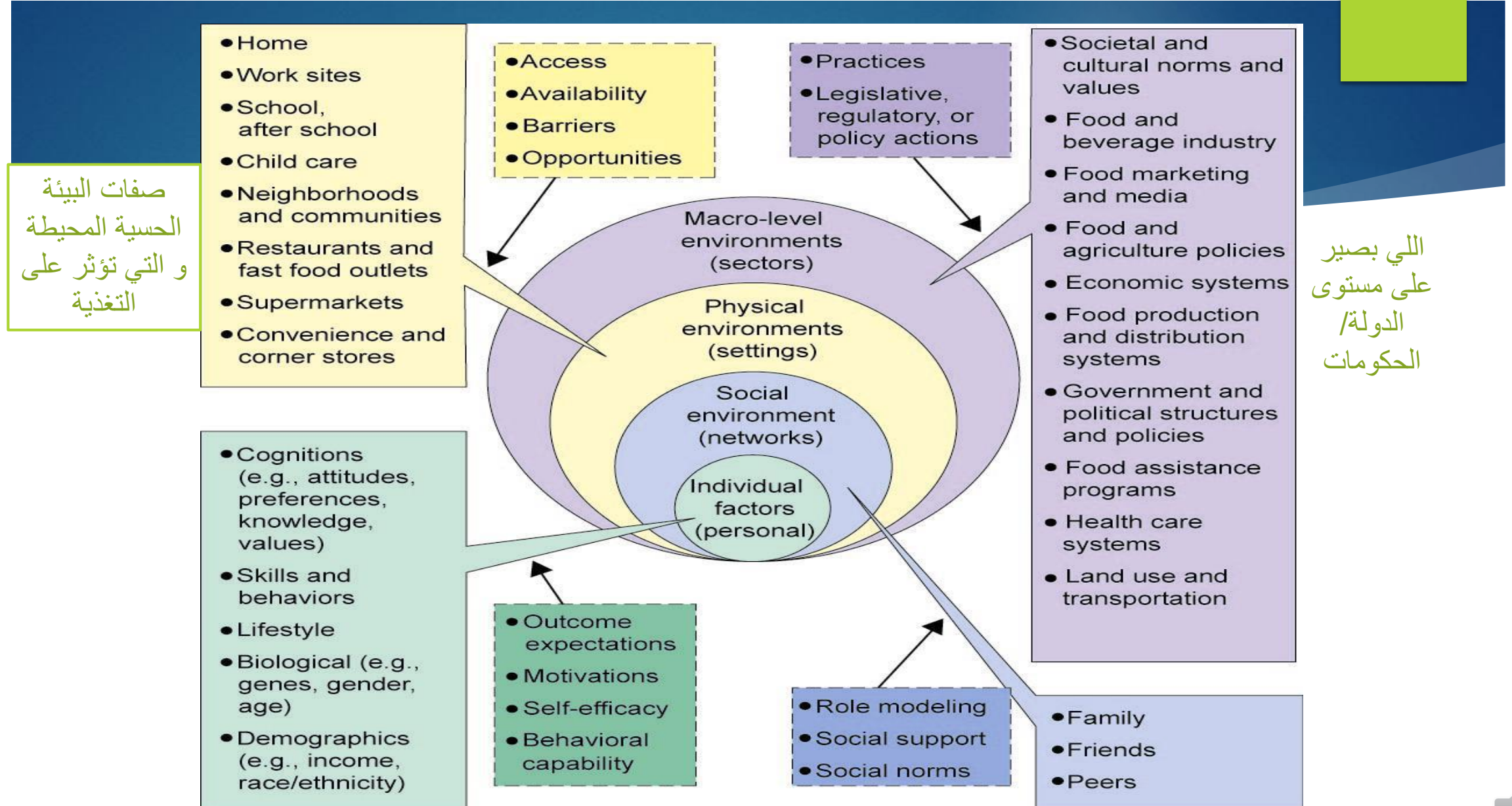
	Public Health <u>Practice</u>	Clinical Nutrition <u>Practice</u>
Focus	Prevention of food relative health problems	Disease treatment
Target	Populations	Individuals
Setting	Country, district & Communities	Clinics & Hospitals
Strategies	Multiple, Reinforcing الالزامية والشمولية	Counseling and education (what is the best nutritional solution that people need to overcome their nutritional problems)



Types of Interventions



Ecological Framework for Influences on What People Eat



صفات البيئة
الحسية المحيطة
و التي تؤثر على
التغذية

اللي بصير
على مستوى
الدولة/
الحكومات



Basic issues related to health and nutrition

These issues include:

- ▶ Iodine and vitamin A deficiencies.
- ▶ Starvation and widespread chronic hunger. اذا تحول ال starvation إلى famine (مجاعة) بصير بدھا تدخل عاجل من الدولة
- ▶ Under-nutrition (**malnutrition**), especially among children, women and the elderly.

Pregnancy/just gave birth /elderly
They need nutritional support programs
- ▶ Other important micronutrient deficiencies including iron. Especially teenagers women.so, P.H.N people should make programs to combat these deficiencies
- ▶ Diet-related communicable and non-communicable diseases. (أمراض معدية) (مزمنة بسبب تصرفات غذائية غير سليمة)
- ▶ Impediments to optimal breastfeeding.
- ▶ Inadequate sanitation and poor hygiene, including unsafe drinking water.



Food and Nutrition Policy

- ▶ A food and nutrition policy is a policy with a preventative and clinical health perspectives based on human rights.
- ▶ **The basic idea is that all members of the society should be granted enough food to grow and develop without disorders due to malnutrition (under or over nutrition).** بغض النظر عن العرق و الطبقة الاجتماعية
- ▶ The food and nutrition policy should adopt an integrated approach with collaboration among all relevant government ministries, non-governmental organizations (NGOs) and UN agencies.

Reference: Nutrition in Jordan, Updates and plan of Action. Health Promotion Program, WHO.



Improving nutritional status is a global health challenge

Not only on the national level

- ▶ It is a challenge that requires effective action across a number of areas (food, health, social welfare, education, water, sanitation, and gender equity)
→ Fresh & not polluted
- ▶ and across a number of actors (government, civil society, private sector, research, and international development partners).



To Improve nutritional status is a global health challenge

you need to address so many food related problems, and food is essential part of our daily life

- ▶ Poor nutrition is a challenge that casts a long-term shadow: its consequences flow throughout the life cycle and cascade down the generations affecting everyone— especially children, adolescent girls, and women—and include mortality, infection, cognitive impairment, lower work productivity, early onset and higher risk of non-communicable diseases (NCDs), stigma, and depression.

That's why you find that food has something to do with

Like hypertension and diabetes and so on..

وصمة العار (خصوصا للناس اللي عندهم سمنة زائدة أو العكس)

And may lead to suicidal attempts.



Dietary factors are associated with five of the ten leading causes of death

الجلطة الدماغية

- ▶ Coronary heart disease, some types of cancer, stroke, non-insulin dependent diabetes (type 2 diabetes), and atherosclerosis are associated with dietary factors. Dietary excesses and imbalances contribute to the development of these diseases.

- ▶ Overweight and obesity which are estimated to affect nearly one third of the world population and it is an important contributing factor for disease and disability. And they cause a poor quality of life.

- ▶ They are the global number one issue related to public health nutrition.

بصير بالناس
بعد عمر الـ 30
أو الـ 40



Major Nutritional Problems in Childhood

- ▶ Overweight and obesity
- ▶ Iron deficiency
- ▶ Dental caries تسوس الأسنان
- ▶ Allergies (like the peanut allergy, fish and egg allergy)
- ▶ Lactose intolerance (اللي ما بيقدروا يهضموا الألبان والأجبان ما يؤدي إلى GI upsets)



Overweight/Obesity

- ▶ Increasing prevalence
- ▶ Influence of access to food, eating tied to leisure activities, children making food decisions, portion sizes, and inactivity. المتعة
عدم ممارسة الأطفال للرياضة الذي يؤدي للسمنة والتثمنر ثم الاكتئاب
- ▶ Consequences: discrimination, negative self-image, depression, decreased socialization. And suicidal attempts.
- ▶ Increases cardiovascular risk factors (hyperlipidemia, hypertension, and hyperinsulinemia) and type 2 diabetes.



Interventions for Childhood Obesity

- ▶ **Family involvement** توعية الأمهات والعائلات
- ▶ **Dietary modifications**
- ▶ **Nutrition information** المعلومات التي بيتكتب عالمواد الغذائية
- ▶ **Physical activity**
- ▶ **Behavioral strategies**
- ▶ **Prevention of childhood obesity using a variety of options.**



Nutrition and Nutritional Problems in Adolescence المراهقين

- ▶ Adolescence is a period of tremendous physical and cognitive changes.
- ▶ Teens are nutritionally vulnerable because of increased need for all nutrients at a time when changes in lifestyle and food habits greatly affect nutrient intake.
- ▶ Educating adolescents about the optimal energy and fat intake and level of physical activity helps them to develop a healthy body and lifestyle and avoid overweight, obesity and its co-morbidities of hypertension and hyperlipidemia. And type 2 diabetes.



Nutrition and Nutritional Problems

in Adolescence (an important topic when we plan our public health nutrition strategy.)

Growth and Development:

- ▶ Physiologic changes, like sudden weight gain
- ▶ Puberty, sexual maturity
- ▶ Growth velocity مدى سرعتهم في النمو
- ▶ Independence and autonomy
- ▶ Body image



Food Habits

- ▶ Irregular meals
- ▶ Excessive snacking
- ▶ Eating away from home (especially fast foods)
- ▶ Dieting and meal skipping, this causes some deficiencies in the essential elements and serious problems.



Factors Influencing Food Habits

- ▶ Decreasing influence of family
- ▶ Increasing influence of peers
- ▶ Increasing media exposure
- ▶ Increasing prevalence of employment outside home
- ▶ Increasing responsibilities (less time to eat with families)



Obesity consequences

- ▶ Increasing prevalence of overweight and obese teenagers
- ▶ Multi-factorial health issues
- ▶ Short-term and long-term health outcomes
- ▶ Importance of early identification and intervention



Hyperlipidemia and Hypertension

آخر سلايد الحمد لله 😊

- ▶ Onset of CVDs (cardiovascular diseases) during youth
- ▶ Many risk factors are comorbid conditions
- ▶ Diagnosis and treatment

