

Nutrition in the Eastern Mediterranean Region of the World Health Organization

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Background

A complex combination of dietary practices and environmental, social and economic factors in countries of the World Health Organization (WHO) Eastern Mediterranean Region (EMR) has resulted in the persistence of what is described as the double burden of malnutrition, where undernutrition among young children and women of childbearing age co-exists with nutrition of excess, demonstrated by increasing rates of overweight, obesity and chronic disease.

Based on a combination of nutrition and health indicators and risk factors, the countries of the Region can be divided into 4 categories [1]. In the first category are countries that are characterized by high prevalence of overweight and obesity along with a moderate level of undernutrition among children under the age of 5 years and micronutrient deficiencies in population sub-groups (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates). The major risk factors that may be attributed to the role of government are lack of clear food and nutrition policies and strategies; unclear lines of coordination and collaboration between the national authorities concerned; lack of consumer education and protection laws; and overall inadequate food safety and nutrition education among

the general population. At the consumer and individual levels, risk factors are very high intake of energy-dense foods (fats, sugar/refined carbohydrates) and low vegetable/fruit consumption combined with a sedentary lifestyle with minimum physical activity, all existing within an overall environment of aggressive commercial marketing of fast foods and breast-milk substitutes.

In the second category are countries where moderate levels of overweight/obesity co-exist with moderate levels of undernutrition in specific population pockets and age groups alongside widespread micronutrient deficiencies (Egypt, Islamic Republic of Iran, Jordan, Lebanon, Libyan Arab Jamahiriya, Morocco, Syrian Arab Republic and Tunisia). The major risk factors that may be attributed to the role of government are again lack of clear food and nutrition policies and strategies; unclear lines of coordination and collaboration between the national authorities concerned; lack of consumer education and protection laws, and inadequate food safety and nutrition education among the general population. The risk factors present at the consumer and population levels are increased dietary intake of fats and refined sugar and inadequate energy, fruit and vegetable consumption combined with a sedentary lifestyle with minimum physical activity, occurring within an environment

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of aggressive commercial marketing of fast foods, breast-milk substitutes and persistence of poverty pockets, particularly in peri-urban settings and among remote rural population groups.

In the third category are those countries with significant undernutrition consisting of acute and chronic child and maternal malnutrition, widespread micronutrient deficiencies and emerging overweight/obesity and nutrition of indulgence in population sub-groups (Pakistan and occupied Palestinian territory). Prevailing risk factors that may be attributed to the role of government are weak social and economic infrastructure in certain geographical areas; the ad hoc nature of nutrition programmes; lack of a coherent nutrition policy; lack of consumer education and protection laws and inadequate institutional capacity and trained human resources for food safety control; and inadequate and insufficient intake of food by a major portion of the population. Widespread poverty and insufficient income; inadequate access to a safe water supply and poor sanitation; and pockets of low literacy are the environmental components that contribute to the perpetuation of this situation.

The fourth category relates to countries experiencing humanitarian crisis with high prevalence of severe child and maternal undernutrition and widespread micronutrient deficiencies (Afghanistan, Djibouti, Iraq, Somalia, Sudan and Yemen). In these countries, the national development programmes have been disrupted, including food safety and food control mechanisms, along with a lack of institutional capacity and trained human resources to monitor food security, food aid and food safety.

Prevalence of undernutrition

Over the years, significant progress has been made in improving the health and nutrition

status of the population of the EMR [2]. Six countries in this Region (Djibouti, Jordan, occupied Palestinian territory, Oman, Syrian Arab Republic and Tunisia) are on track to meet the Millennium Development Goals (MDGs) targeting a reduction in the proportion of children under 5 years of age who are underweight [3]. Furthermore, 12 countries have underweight prevalence rates of $\leq 10\%$ among the under-5s.

The overall proportion of underweight children under 5 years of age has, however, increased in the EMR from 14% in 1990 to 17% in 2004 (i.e. 8 million children still suffer from underweight). Regional statistics have been dragged down by 3 heavily populated countries: Iraq, Sudan and Yemen. In Iraq, the proportion of underweight children under 5 years of age is still higher than it was in 1990, standing at 16%. In Yemen the situation has also deteriorated, with 46% of all under-5s being currently underweight compared with 30% in 1991–92. It is estimated that 53% of under-5s in Yemen are stunted, and 32% of babies are born with low birth weight. In Sudan, where civil war has influenced children's nutritional status, 41% of under-5s are underweight and 31% of babies are born with low birth weight. Sudan is afflicted with the highest proportion of wasted children (16%) in the Region [WHO-EMRO unpublished data, Personal communications, 3].

The assumption that economic growth and development will improve undernutrition is not always accurate. For instance, Kuwait, Saudi Arabia, and the United Arab Emirates have high per capita gross national incomes but have the same or even higher rates of wasting as low-income Yemen [WHO-EMRO unpublished data, 2003, 3].

Underweight is also reported among adults in the Region. The prevalence of underweight [body mass index (BMI) $< 18.5 \text{ kg/m}^2$] in the Islamic Republic of Iran, Morocco, Saudi Arabia and Tunisia

is in the range of 5%–7% [4,5]. A lower prevalence of adult underweight is noted in Kuwait (2.5%) but with a strikingly higher prevalence in the adolescent population group aged 13–18 years, 17% of whom were found to be underweight [5].

Prevalence of micronutrient deficiencies

Available data suggest that, for several nutrients including iron, iodine, zinc, calcium, vitamin A, vitamin D and folate, the nutritional status of the population of the EMR is suboptimal. Iron deficiency anaemia is a serious public health problem in all countries of the Region. Iron deficiency and its associated anaemia problems are widespread among women, especially those of child-bearing age, and among children.

It is estimated that more than one-third of the population is anaemic in the Region [WHO-EMRO, unpublished data]. Anaemia has been estimated at 15% in Saudi Arabia and at 74% in Yemen among preschool children. It ranged from 11% in Egypt to over 40% in the Syrian Arab Republic and Oman among women of childbearing age [6,7]. Data on anaemia rates among preschoolers, pregnant women and women of childbearing age from 1995 to 2001 show no improvement in the overall situation among the Member States of this Region [7,8]. Furthermore, in studies conducted on adolescents in Egypt, Saudi Arabia and Yemen, the prevalence rates for anaemia are high, ranging between 30% and 55% [9–15].

Vitamin A deficiency disorders are considered a public health problem in several countries of the Region. These disorders are observed in large numbers of preschoolers, school-aged children and women of childbearing age. Available data, based on

a serum retinol level of $< 20 \mu\text{g/dL}$, suggest the prevalence of sub-clinical forms of vitamin A deficiency disorder of around 10% in Egypt and the Syrian Arab Republic, 17% in Jordan, 20%–30% in Oman and Pakistan, 40% in Morocco and over 60% in Yemen, but only 2.3% in Tunisia [7,16]. In Sudan, prevalence of vitamin A deficiency is considered a public health problem. This is indicated by 1995 data which showed a prevalence of 8.5% for night blindness in children under 5 years of age. Areas most affected were Southern Darfur and Gezira [8].

In 2002, iodine deficiency was recognized as a problem of public health significance requiring urgent attention in 18 countries of the Region. One-third of the population in the Region is at risk of developing iodine deficiency disorder (IDD). The contributing factors are poor iodine content of soil and limited consumption of food items with adequate iodine content. Universal iodization of salt has been achieved in 8 EMR Member States. At present, IDD is not considered a public health problem in Bahrain and Qatar, and is considered under control in the Islamic Republic of Iran and Tunisia. Prevalence of IDD is considered mild in 8 countries of the Region (Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Oman, occupied Palestinian territory, Syrian Arab Republic and United Arab Emirates), and moderate in 5 others (Egypt, Morocco, Saudi Arabia, Sudan and Yemen). Data on the prevalence of IDD are lacking for Afghanistan, Djibouti, Iraq, Pakistan and Somalia [7].

Vitamin D deficiency has been documented among children under the age of 5 in Yemen, Morocco and the Islamic Republic of Iran, and studies conducted on adults and adolescents show that the prevalence of suboptimal serum 25-hydroxyvitamin D concentrations varies between 46% and

83% in the countries of the Region [17–25]. Severe forms of hypovitaminosis D have been particularly reported among veiled women, with prevalence levels ranging between 50% and 62% [17,21–24,26].

Other micronutrient deficiencies have also been documented in some countries of the Region. There are reports on beri beri (thiamine deficiency) and pellagra (niacin deficiency) in Sudan (Darfur), scurvy (vitamin C deficiency) in Afghanistan (Herat province) [Personal communication], folate and vitamin B12 deficiencies in women of childbearing age and zinc deficiency in children under 5 years in Lebanon [25,27].

Prevalence of overweight and obesity

Overweight and obesity in adults present a dramatically increasing trend in the Region. Based on data compiled by WHO for adults aged 15 years and above from 16 countries of the Region [28], it can be shown that the highest levels of overweight (BMI ≥ 25 kg/m²) are observed in Kuwait, Egypt, United Arab Emirates, Saudi Arabia, Jordan and Bahrain, where the incidence of overweight/obesity ranges between 74% and 86% for women and 69% and 77% for men. These findings have important public health implications since the prevalence of obesity (BMI ≥ 30 kg/m²) reaches levels as high as 64.7% in Kuwaiti women and 57% in Egyptian women [28,29]. The lowest prevalence of overweight and obesity are observed in the least developed countries such as Yemen (37.5% in women and 29.7% in men) and Sudan (36.9% in women and 23.4% in men).

Overall, available data indicate that a much higher prevalence of obesity is observed among adult women compared to

men in the Region [28,30]. Prevalence of overweight and obesity increase with age, mainly due to the decline in energy expenditure rate and in physical activity level among older people [28,31,32].

Overweight (BMI for age > 85th percentile) and obesity (BMI for age \geq 95th percentile) among schoolchildren and adolescents are also reported in some countries of the Region. The prevalence of overweight among adolescent males ranges from 17.4% in Tunisia to 30.0% in Kuwait, while for adolescent females it ranges from 13.4 % in Lebanon to 31.8% in Kuwait [33–36]. Data from the Islamic Republic of Iran, Kuwait, Lebanon and Qatar show that obesity prevalence ranges between 9% and 15% among adolescent males and between 2% and 13% among adolescent females. When compared to the National Center for Health Statistics (NCHS) reference data, the BMI of Kuwaiti adolescents exceeded that of the Americans in each centile category [33]. Overall, existing data indicate an increasing trend in overweight and obesity in youths from the EMR countries since median values of age-specific BMI have specifically increased with time, as documented by studies conducted in the Islamic Republic of Iran, Bahrain and Saudi Arabia [35,37,38].

These data indicate an increased rate of overweight in all age groups of the population. The escalating levels among children and adolescents is of particular concern given the recent evidence linking childhood and adolescent obesity to increased risk of obesity and morbidity in adulthood.

This calls for a community-based strategy to combat the increasing rate of obesity and its subsequent complications such as diabetes, coronary artery disease, hypertension and osteoarthritis in all sectors of the population.

Concluding remarks

Over the past 6 decades several Member States of the Eastern Mediterranean Region have made strong and determined efforts to ensure the provision of adequate food, health care and economic support to their populations, witnessed by the dramatic improvement in the vital statistics and demographic indicators. Yet a significant proportion of the Region's population remains impoverished, with high levels of different types of malnutrition.

The preceding sections have elaborated on the prevalence rates of a variety of nutritional problems but refrained from delving into the causes and complexities of the current situation. There are several reasons for this. While one may point out lack of political support and interest, paucity of resources and inadequate technical capacities of the nations as the reasons for the persistence of malnutrition, there are instances where in spite of economic prosperity, strong public distribution of subsidized food and national interest, there is persistence of undernutrition and micronutrient deficiencies.

Looking at the nutritional trends over the past few decades, one can propose the following:

- Dedicated and determined efforts have to be made to understand the epidemiology of nutritional disorders in every Member State, with the desegregation of

data to the smallest administrative level in the Member State.

- Strong governmental interventions will be needed to ensure that food, nutrition and the related sectors of agriculture, commerce, rural development and public distribution of food (where such social backing exists) perform in a coordinated and mutually supportive manner.
- Appropriate interventions according to the epidemiologic nutrition profile of the population have to be developed, with particular focus on pregnant women and the first 2 years of life.
- National authorities should refrain from establishing nationwide, broad-based nutrition programmes and from overtly relying on external or donor-driven technological interventions.

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